August 28, 2025

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Arroyo Canal Fish Screen and Sack Dam Fish Passage Project
Madera and Fresno Counties
San Joaquin River

NOTICE OF APPLICABILITY, CLEAN WATER ACT SECTION 401 GENERAL WATER QUALITY CERTIFICATION FOR ARROYO CANAL FISH SCREEN AND SACK DAM FISH PASSAGE PROJECT, MADERA AND FRESNO COUNTIES, CALIFORNIA

Dear Mr. Portz and Ms. Victorine:

On November 6, 2024, the State Water Resources Control Board (State Water Board) received the United States Bureau of Reclamation's (Reclamation's) Notice of Intent (NOI) to enroll the Arroyo Canal Fish Screen and Sack Dam Fish Passage Project (Project) under the *General Order for Clean Water Act Section 401 Water Quality Certification and Waste Discharge Requirements for Restoration Projects Statewide, Order WQ-2022-0048-DWQ* (Restoration General Order, Enclosure A).[1] Implementation of the Project will require a permit from the United States Army Corps of Engineers (USACE) pursuant to Section 404 of the Clean Water Act. Reclamation is seeking authorization under a USACE Individual Permit.

State Water Board staff reviewed Reclamation's NOI and determined that the Project meets the requirements of the Restoration General Order. The Project is hereby enrolled under the Restoration General Order as noted in this Notice of Applicability (NOA). The Restoration General Order certifies that, as long as all conditions listed in the order are met, implementation of restoration projects statewide will comply with Clean Water Act sections 301, 302, 303, 306, and 307. Reclamation may proceed with the Project after any additional federal and/or state approvals, including USACE authorization under an Individual Permit, are obtained.

[1] Available online at: https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2022/wqo2022-0048-dwq.pdf. Last accessed July 14, 2025.

Reclamation shall comply with this NOA and all applicable Restoration General Order requirements. Enclosure B provides additional information related to the Restoration General Order's conditions to conform to the recommendation in 40 CFR § 121.7(d)(3). Failure to comply with this NOA and/or the Restoration General Order constitutes a violation of the California Water Code and the Clean Water Act Section 401, which may result in enforcement action or termination of enrollment under the Restoration General Order.

Project Noticing

In accordance with Section 401(a)(1) of the Clean Water Act and California Code of Regulations, title 23, section 3858, the State Water Board issued public notice for the Project on December 5, 2024. Two comments were received. One comment requested information on how to submit a bid on the Project, and State Water Board staff provided the commenter with Reclamation's Project contact information. The second comment asked for confirmation that the public notice was one page and was not missing additional pages, which State Water Board staff confirmed.

Project Description

The Project is located on the San Joaquin River, approximately 18 miles southeast of Los Banos, California, and 22 miles downstream from Mendota Dam, in Madera and Fresno counties. The Project aims to construct and operate a fish screen at Arroyo Canal and fish passage facilities at Sack Dam, thereby supporting the San Joaquin River Restoration Program's Restoration Goal.[2] The Project is necessary to prevent entrainment of fish into Arroyo Canal and ensure anadromous fish passage at Sack Dam, as required by Paragraphs 11(a)(6) and 11(a)(7) of the *Natural Resources Defense Council et al. v. Rodgers et al. 2006 Stipulation of Settlement.*

Key Project components include:

- Construction of a new 4,500 cubic feet per second (cfs) channel around Sack Dam to ensure fish passage. The new channel will be 93.5-feet-wide and 15-feet-deep over a length of 395 feet.
- Construction of a new 700 cfs flat-plate fish screen on the left bank of the new channel to allow for the delivery of contract water to the Arroyo Canal without causing entrainment and stranding of fish in the canal.
- Construction of a new gated headworks structure, consisting of 12 bays with operable gates, to control flow releases into the new river channel.
- Construction of a new vertical slot fishway (fish ladder) around the gated headworks structure to enable volitional salmonid passage in low flow events.
- Construction of a new berm downstream of the Sack Dam to remove Sack Dam from the river channel, ensure all flows and fish are routed through the new river channel, and prevent upstream migrating fish from reaching Sack Dam.

[2] The Restoration Goal established by the *Natural Resources Defense Council et al. v. Kirk Rodgers et al. 2006 Stipulation of Settlement* is "to restore and maintain fish populations in 'good condition' in the main stem San Joaquin River below Friant Dam to the confluence of the Merced River, including naturally reproducing and self-sustaining populations of salmon and other fish."

- Installation of a new log boom placed within 50 feet upstream of the fish screen to protect the fish screen and fish passage structures (new channel, gated headworks, vertical slot fish ladder, and downstream berm) from debris and vegetation while encouraging juvenile fish to move toward the new river channel.
- Construction of a new maintenance building west of the fish screen structure on the left bank of the San Joaquin River to store equipment, including electrical controls.

Additionally, the Project involves removing and replacing an existing Pacific Gas and Electric Company (PG&E) gas line that crosses through the area under the proposed maintenance building, fish screen, and new San Joaquin River channel (see location of existing pipeline to be removed and proposed alignment of new pipeline in Enclosure C, Figure 1). The replacement gas line will have a new alignment, crossing the San Joaquin River south (upstream) of the proposed fish screen and fish passage structures (see Figure 1 of Enclosure C). The Project also involves relocation of overhead electrical power lines in association with the new facility. As part of the Project, Reclamation plans to coordinate with PG&E on the gas and electrical line removal and replacement activities.

The headworks structure and the new fishway will be located immediately downstream of the fish screen on the left bank of the new San Joaquin River channel, just southeast of Sack Dam. The headworks structure is designed to pass 4,500 cfs through a series of 12 gates. River bypass gates 1–8 can pass flows of up to 4,000 cfs. Gates 1 and 8 are 10-foot-wide overshot gates intended to provide supplemental flow for the fish ladder and be capable of passing debris downstream. Gates 2 and 3 are 4.5-foot-wide dual leaf slide gates to allow for fine-tuned flow changes. Gates 4–7 are 10-foot-wide dual leaf slide gates that will open from the bottom with a minimum 18-inch opening to move high flows through the system. Gates 9–12 will move up to 500 cfs of flow through a fish ramp (designed for sturgeon passage). Gates 9 and 10 will be used to equalize flow in the channel prior to the opening of Gates 11 and 12 to provide supplemental flow. The fishway is a concrete vertical-slot fish ladder that will enable salmonid passage around the headworks control structure during low-flow events (e.g., drought years). During low flow events, primary passage will be through the vertical-slot fish ladder. The fish ladder will be the first feature to receive flow under all flow conditions and will remain fully open except during summer maintenance or low flow events. The fish ladder will have a maximum flow rate of 50 cfs and includes a total of seven pools, formed by baffles.

The facility's proposed operations and design were developed in consultation with the National Marine Fisheries Service (NMFS).[3] Its primary objective is to provide volitional passage of special status fish species, including salmonids, green sturgeon, Pacific lamprey, and other native fish, as feasible. Specifically, the Project aims to ensure suitable hydraulic conditions for upstream migration of adult salmonids, downstream

[3] On March 10, 2025, NMFS granted a variance from the fish screening criteria in sections 8.5.1 *Approach Velocity* and 8.5.3 *Sweeping Velocity* of its NOAA Fisheries Anadromous Salmonid Passage Manual.

migration of juvenile salmonids, and migration of green sturgeon (when present) and other native fish.

The construction activity is anticipated to take place over three years and will require three full in-water work windows. A map of the Project plans and footprint can be found in Reclamation's NOI Project Description (Figure 1, Enclosure C).

California Environmental Quality Act

The State Water Board is the lead agency for the Project for the purpose of compliance with the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.) and CEQA Guidelines (Cal. Code Regs., tit. 14, § 15000 et seq.). On August 16, 2022, the State Water Board adopted Order WQ 2022-0048-DWQ and certified the consolidated final Programmatic Environmental Impact Report (PEIR; State Clearinghouse (SCH) No. 2019100230) for restoration projects statewide.[4] The State Water Board reviewed and considered the PEIR as required by CEQA Guidelines sections 15168 subsections (c)(1) and (2) and concluded that the Project is within the overall scope of the PEIR, the activities will not result in environmental effects that were not examined in the PEIR, and none of the conditions described in CEQA Guidelines section 15162 calling for the preparation of a subsequent environmental impact report have occurred. The State Water Board hereby incorporates the mitigation, monitoring, and reporting program adopted as part of the PEIR. The State Water Board will file a Notice of Determination for this Project consistent with CEQA Guidelines section 15094(b).

Tribal Consultation

On August 25, 2023, pursuant to Restoration General Order Condition E.7, Reclamation submitted to the State Water Board a Sacred Lands File and Native American Contacts List. Reclamation consulted with 10 tribes from the list, in accordance with Section 106 of the National Historic Preservation Act. On January 12, 2024, the State Water Board notified tribal organizations traditionally and culturally affiliated with the Project's geographic area that had not been previously notified by Reclamation. The notification informed the tribes that Reclamation planned to file an NOI for the Project. Reclamation and the State Board received no comments from any tribal organizations. Therefore, tribal consultation for the Project consistent with Restoration General Order Condition E.7 has been completed. As the State Water Board concludes the Project is within the scope of the PEIR, the State Water Board has complied with tribal consultation requirements pursuant to Assembly Bill 52 (Statues 2014, Chapter 532, Gatto) (see PEIR, Section 1.3.3 *Assembly Bill Notifications*).

[4] https://www.waterboards.ca.gov/water_issues/programs/cwa401/generalorders.html. Last accessed August 18, 2025.

Construction General Permit

Coverage under the *National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities* (Construction General Permit)[5] is required for discharges of pollutants associated with construction activities that disturb one or more acres of soil or activities that disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres. Construction activities subject to the Construction General Permit include clearing, grading, and disturbances to the ground, such as stockpiling or excavation, but do not include regular maintenance activities performed to restore the original line, grade, or capacity of a facility. Coverage is required pursuant to Clean Water Act sections 301 and 402 which prohibit certain discharges of stormwater containing pollutants except in compliance with an NPDES permit. (33 U.S.C. §§ 1311, 1342(p); 40 C.F.R. pts. 122, 123, and 124.). As part of the Project, Reclamation shall comply with requirements of the Construction General Permit.

Authorized Impacts

Excavation and fill activities authorized by this NOA are limited to 4.8 acres of temporary impacts[6] to the San Joaquin River channel and adjacent riparian and wetland areas and are limited to 5.93 acres and 745 linear feet of permanent impacts[7] to the San Joaquin River channel and adjacent riparian and wetland areas.

Project Specific Avoidance and Mitigation Measures

Reclamation shall implement applicable General Protection Measures (Enclosure D) identified in its November 6, 2024 NOI to ensure avoidance and minimization of impacts to aquatic/riparian resources associated with construction activities.

Reclamation shall also ensure the implementation of PG&E's recommended measures for the removal and replacement of the PG&E gas and electrical power lines (Enclosure E), as emailed by PG&E to State Water Board staff on October 9, 2024, and incorporated into the NOI package by Reclamation on January 17, 2025.

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[5] Water Quality Order No. 2009-0009-DWQ NPDES No. CAS000002, as amended by Order No. 2010-0014-DWQ, Order No. 2012-0006-DWQ, Order No. 2022-0057-DWQ, and any amendments thereto. Available online at: https://www.waterboards.ca.gov/water_issues/programs/stormwater/construction/general_permit_reissuance.html. Last accessed August 18, 2025.

[6] Temporary impacts from the Project include 4.8 acres of disturbance of the San Joaquin River channel and adjacent riparian and wetland areas during Project construction activities, including grading, cofferdam installation and removal, and activities to construct the Project facilities, including the fish screen, river bypass, headworks, fishway, downstream berm, and log boom, maintenance building, and utility relocations.

[7] Permanent impacts include the construction of the Project facilities, including the fish screen, river bypass, headworks, fishway, downstream berm, and log boom, and maintenance building, in the San Joaquin River channel and adjacent riparian and wetland areas. These facilities will be permanent but beneficial in that they will improve fish passage in the Project area.

Requirements

Reclamation shall comply with all applicable conditions of the Restoration General Order (see Enclosure A), including but not limited to the following:

- The Deputy Director and the Central Valley Regional Water Quality Control Board Executive Officer (Executive Officer) shall be notified promptly, and in no case more than 24 hours, following an exceedance of any water quality objective, as described in the *Central Valley Regional Water Quality Control Board's Water Quality Control Plan for the Sacramento River Basin and San Joaquin River Basin* (Central Valley Basin Plan). The notice shall include the cause of the exceedance, measures taken to correct the exceedance, and measures Reclamation will implement to prevent future exceedances. Regardless of when such notification occurs, Project activities associated with the Central Valley Basin Plan exceedance shall cease immediately upon detection. Work activities may resume after corrective actions have been implemented as appropriate, water quality meets the Central Valley Basin Plan water quality objective, and the Deputy Director has provided approval to proceed. The Deputy Director may require additional actions to help prevent similar exceedances in the future.
- Pursuant to section IX of the Restoration General Order, Reclamation shall minimize impacts to waters of the state to the greatest extent possible. To comply with the requirements of this NOA, Reclamation shall at a minimum implement the avoidance and minimization measures and best management practices listed in Attachment 3 of Reclamation's NOI (Enclosure D: United States Bureau of Reclamation's Arroyo Canal Fish Screen and Sack Dam Fish Passage Project Notice of Intent—Applicable General Protection Measures). If there is any conflict between the Restoration General Order general protection measures and the avoidance and minimization measures in Attachment 3 of the NOI package (Enclosure D), the more stringent shall apply.
- Pursuant to section XIII of the Restoration General Order, Reclamation shall implement the Project in conformance with the information provided in its Statewide Restoration General Order NOI, submitted on November 6, 2024, and in compliance with all the mitigation measures proposed by PG&E in its email to the State Water Board on October 9, 2024. These mitigation measures were incorporated into the NOI package by Reclamation via email on January 17, 2025. (See Enclosure E: PG&E Recommended Measures for the Sack Dam Pipeline Crossing Replacement.) Any proposed changes to the Project, as included in the NOI and supplemental communications to the State Water Board, must be submitted to and approved by the Deputy Director prior to implementation.
- Pursuant to section XIII.B.1.a of the Restoration General Order, Reclamation shall submit a Commencement of Construction Notice to the Deputy Director at least seven (7) days prior to the start of Project-related initial ground disturbance activities in each year Reclamation plans to implement ground disturbing activities covered under this NOA. Reclamation shall also provide the Deputy Director with notice at least seven (7) days following the completion of construction in any given construction season.
- Pursuant to section XIII.B.1.c of the Restoration General Order, Reclamation shall submit a Request for Notice of Project Complete Letter to the Deputy

Director within 30 days following completion of all Project activities including post-construction monitoring of restoration sites. Upon approval of the request, the State Water Board will issue a Notice of Project Complete Letter to Reclamation.

- Pursuant to section XIII.B.2.a of the Restoration General Order, Reclamation shall submit an Annual Report within one month of the anniversary of the effective date of the NOA in every year following NOA issuance. Annual reports are required only for years during which Project activities occurred. Annual reporting shall continue until a Notice of Project Complete Letter is issued to Reclamation. Reclamation does not need to include information in the annual report that has previously been provided to the State Water Board.
- Pursuant to section XIII.E.8 of the Restoration General Order, Reclamation shall not implement any activity adversely impacting a significant historical or archeological resource or disturbing any human remains, unless the activity is authorized by the appropriate historical resource agencies.
- Pursuant to section XIII.E.9 of the Restoration General Order, Reclamation shall obtain coverage under and comply with the Construction General Permit and any amendments thereto.
- Reclamation's avoidance and minimization measures and best management practices listed in Attachment 3 of Reclamation's NOI (Enclosure D) states that Restoration General Order, General In-Water Work (IWW) Measure No. IWW-6 is applicable to the Project. Pursuant to section XIII.C.3 of the Restoration General Order and Restoration General Order General Measure No. IWW-6, at least 30 days prior to commencement of Project dewatering activities, Reclamation shall provide a Dewatering Plan and a Water Quality Monitoring Plan to the Deputy Director for review and consideration of approval. Reclamation shall not commence dewatering activities until the Dewatering Plan and Water Quality Monitoring Plan are approved by the Deputy Director. The Deputy Director may require changes to the plans as part of any approval. Any subsequent changes to the Deputy Director-approved Dewatering Plan and Water Quality Monitoring Plan require Deputy Director approval prior to implementation.
    - Reclamation's Dewatering Plan shall include a description of the proposed dewatering structures and appropriate types of best management practices that will be implemented during the installation, operation, maintenance, and removal of those structures. Pursuant to SRGO General Measure No. IWW-6, bypass pipes shall be sized to accommodate, at a minimum, twice the expected construction-period flow, to not increase stream velocity, and be placed at stream grade.
    - Reclamation's Water Quality Monitoring Plan shall include monitoring for pH, turbidity, dissolved oxygen, temperature, and visible pollutants (e.g., oils, greases, fuels, and turbidity plumes) during any Project activities with the potential to affect water quality. Unless otherwise approved by the Deputy Director, monitoring locations shall at a minimum include a location no more than 300 feet downstream of the work area and a location upstream that is outside the influence of Project activities and represents background (i.e., existing) water quality conditions. Reclamation's Water Quality Monitoring Plan shall include a

global positioning system point and a photograph for each proposed monitoring location (e.g., background and other monitoring locations). These locations shall be used for monitoring unless otherwise approved by the Deputy Director.

- Pursuant to section XIII.B.3.c of the Restoration General Order, Reclamation shall submit an In-Water Work and Diversions Water Quality Monitoring Report (Restoration General Order Report Type No. 7) within three working days following completion of in-water work.

If you have questions about this NOA, please contact Jessica Dyke, Project Manager, by phone call to: (916) 341-5448 or email to: Jessica.Dyke@waterboards.ca.gov.

Sincerely,

Karen Mogus, on behalf of
Eric Oppenheimer
Executive Director

Enclosures:

Enclosure A: General Order for Clean Water Act Section 401 Water Quality Certification and Waste Discharge Requirements for Restoration Projects Statewide, Order WQ 2022-0048-DWQ

Enclosure B: Additional Information for Conformity with 40 CFR § 121.7(d)(3) for Order WQ 2022-0048-DWQ Conditions

Enclosure C: United States Bureau of Reclamation's Arroyo Canal Fish Screen and Sack Dam Fish Passage Project Notice of Intent—Project Description

Enclosure D: United States Bureau of Reclamation's Arroyo Canal Fish Screen and Sack Dam Fish Passage Project Notice of Intent—Applicable General Protection Measures (GPMs)

Enclosure E: Pacific Gas and Electric Company's Recommended Measures for the Sack Dam Pipeline Crossing Replacement

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Enclosure A:
General Order for Clean Water Act Section 401 Water Quality Certification and Waste Discharge Requirements for Restoration Projects Statewide, Order WQ 2022-0048-DWQ

State Water Resources Control Board
Order WQ 2022-0048-DWQ

Order for Clean Water Act Section 401 Water Quality Certification and Waste Discharge Requirements for Restoration Projects Statewide

FINAL

August 16, 2022

CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

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STATE WATER RESOURCES CONTROL BOARD
FINAL ORDER **WQ 2022-0048-DWQ**
ORDER FOR CLEAN WATER ACT SECTION 401 WATER QUALITY CERTIFICATION
AND WASTE DISCHARGE REQUIREMENTS FOR
RESTORATION PROJECTS STATEWIDE

I. Executive Summary

This Order for Waste Discharge Requirements and Clean Water Act section 401 Certification (Order) and Attachments A through F provides Clean Water Act (CWA) Section 401 Water Quality Certification for projects that require authorization from the U.S. Army Corps of Engineers (USACE) under CWA Section 404 and Rivers and Harbors Act of 1899 (RHA) Section 10 and Section 14 (33 USC 408, known as "Section 408"). This Order also provides Waste Discharge Requirements (WDRs) pursuant to the Porter-Cologne Water Quality Control Act (California Water Code §1300 et seq.). This Order covers projects that may directly or indirectly discharge to "waters of the state," including "waters of the U.S."

If the eligibility requirements set forth in this Order including Attachment A are not met, the State Water Resources Control Board (State Water Board) or Regional Boards (collectively Water Boards) will not authorize the proposed project under this Order and instead require the project proponent to apply for an individual certification or certification under another Order. A project proponent may also independently choose to apply for an individual water quality certification or WDRs.

The categories of eligible project types covered under this Order are listed below. Detailed eligible project type descriptions are provided in Attachment A. An individual project covered under this Order may include more than one of these types:

1. Improvements to Stream Crossings and Fish Passage
2. Removal of Small Dams, Tide Gates, Flood Gates, and Legacy Structures
3. Bioengineered Bank Stabilization
4. Restoration and Enhancement of Off-Channel and Side-Channel Habitat
5. Water Conservation Projects
6. Floodplain Restoration
7. Removal or Remediation of Pilings and Other In-Water Structures
8. Removal of Nonnative Terrestrial and Aquatic Invasive Species and Revegetation with Native Plants
9. Establishment, Restoration, and Enhancement of Tidal, Subtidal, and Freshwater Wetlands
10. Establishment, Restoration, and Enhancement of Stream and Riparian Habitat and Upslope Watershed Sites

II. Order

This CWA Section 401 Water Quality Certification action and waste discharge requirements Order, which includes Attachments A through F, is issued for Restoration Projects Statewide. This Order is for the purpose described below.

III. Public Notice

The State Water Board provided public notice of the draft Order pursuant to California Code of Regulations, title 23, section 3858 and California Water Code section 13167.5 from June 30, 2021, to August 13, 2021. The State Water Board received seventy-nine (79) comment letters regarding the Order during the 45-day comment period. Public notice regarding the Program Environmental Impact Report (PEIR) is described in Attachment C, California Environmental Quality Act (CEQA) Findings of Fact.

The approving Water Board will also provide a 21-day public notice of a Notice of Intent (NOI; Attachment B) for an individual project proposed for authorization under this Order.

IV. Project Purpose

The State Water Board currently provides general certification for small habitat restoration projects that (a) shall not exceed five (5) acres or a cumulative total of less than 500 linear feet of stream bank or coastline and (b) qualify for the California Environmental Quality Act (CEQA) Class 33 Categorical Exemption (California Code of Regulations title 14, section 15333).

The purpose of this Order is to provide authorization for restoration projects that meet the eligibility criteria herein and do not qualify for coverage under the Order for Small Habitat Restoration Projects.

V. Project Description

All covered projects must meet the definition of a restoration project as defined below and comply with all applicable water quality control plans and state policy for water quality control.

A "restoration project" is defined as one that would result in a net increase in aquatic or riparian resource area functions and/or services through implementation of the eligible project types, relevant general protection measures (GPMs), and consideration of design guidelines, summarized below and described in detail in Attachment A, Order Description and Eligibility.

The approving Water Board determines if a proposed project meets the definition of a restoration project and is eligible for authorization under this Order.

VI. Project Location

An individual project authorized by the Water Board under this Order (project) may occur anywhere in California except as restricted herein. A map showing the nine Regional Boards' jurisdictional boundaries is provided in Attachment A of this Order. The nine Regional Boards are: North Coast Regional Board, San Francisco Bay Regional Board, Central Coast Regional Board, Los Angeles Regional Water Board,

Central Valley Regional Board, Lahontan Regional Board, Colorado River Regional Board, Santa Ana Regional Board, and San Diego Regional Board (collectively Regional Boards).

VII. Project Impact and Receiving Waters Information

Receiving waters, groundwater, and inflow potentially impacted by projects authorized under this Order are protected in accordance with the applicable water quality control plans and state policy for water quality control, which may be accessed online at: http://www.waterboards.ca.gov/plans_policies/. Water quality control plans include water quality standards, which consist of existing and potential beneficial uses of waters of the state, water quality objectives to protect those uses, and the state and federal anti-degradation policies.

It is the policy of the State of California that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. This Order promotes that policy by requiring project proponents to meet maximum contaminant levels designed to protect human health and ensure that water is safe for domestic use.

Project proponents will identify the receiving waters and beneficial uses of waters of the state to be impacted by a proposed project, as listed in the applicable Regional Board water quality control plan. This information is required in the NOI (Attachment B), which must be completed by a project proponent to apply for authorization under this Order.

VIII. Description of Direct Impacts to Waters of the State

Project proponents will describe all proposed project features, including those potentially offsite and/or adjacent to waters of the state which could result in impacts to waters of the state, in the NOI, which must be completed for authorization under this Order.

IX. Avoidance and Minimization

Project impacts to waters of the state must be avoided and minimized to the greatest practicable extent. Project proponents will describe project design steps taken to first avoid, and then minimize, impacts to waters of the state to the maximum extent practicable in the NOI.

Project proponents shall identify (in the NOI) applicable GPMs proposed to be implemented for an individual restoration project. The purpose of including GPMs is to incorporate best management practices (BMPs) and to avoid and/or minimize potential short term, long term, and cumulative adverse effects. These standards and practices represent sound and proven methods to reduce the potential adverse effects of an action. A comprehensive suite of GPMs is provided in Attachment A. Additional or modified project-specific measures to protect water quality and/or beneficial uses may be proposed by the project proponent and/or recommended by the approving Water Board during the application process, based on site-specific conditions or technological constraints or advances. Each GPM may be used in combination with other measures, as applicable to each restoration project.

Additionally, project type–specific design guidelines (Attachment A) have been developed with input from multiple regulatory agencies (e.g., California Department of Fish and Wildlife [CDFW], National Marine Fisheries Service [NMFS], U.S. Fish and Wildlife Service [USFWS]) to help project proponents during the design development of their individual projects, in a manner that is appropriate and sustainable, minimizes adverse effects on aquatic habitats, and maximizes the ecological benefits of the restoration.

X. California Environmental Quality Act (CEQA)

This Order certifies a PEIR (State Clearinghouse (SCH) No. 2019100230) and approves the mitigation monitoring and reporting program (MMRP). Pursuant to CEQA, the State Water Board has made Findings of Facts (Findings) which support the issuance of this Order and are included in Attachment C.

XI. Petitions for Reconsideration

Any person aggrieved by this action may petition the State Water Board to reconsider this Order in accordance with California Code of Regulations, title 23, section 3867. A petition for reconsideration must be submitted in writing and received within 30 calendar days of the issuance of this Order.

XII. Application Fees

The application fee amount is determined as required by California Code of Regulations, title 23, sections 3833(b)(3) and 2200(a)(3). A fee calculator can be found online at: https://www.waterboards.ca.gov/water_issues/programs/cwa401/#fees.

The calculator is useful for estimation of fees, but project proponents must confirm the correct fee amount through consultation with the approving Water Board prior to submitting payment. Appropriate fees will be determined by the current fee regulations at the time of NOI submittal for an individual restoration project. Authorization of a project under this Order is not determinative of whether a project is a restoration project in the context of the fee schedule. Projects authorized under this Order may not automatically qualify for a particular fee discharge category. Note that fees are periodically adjusted.

XIII. Conditions

The Water Boards will independently review any project proposed for authorization under this Order to analyze impacts to water quality and designated beneficial uses within the applicable watershed(s). If the eligibility requirements set forth in this Order including Attachment A are not met, Water Boards will not authorize the proposed project under this Order and instead require the project proponent to apply for an individual certification or certification under another Order. Specifically, the approving Water Board may only authorize the proposed project under this Order if it determines that the following requirements are met: 1) the project meets the definition of a restoration project (as defined in Section V of the Order); 2) the project adopts and implements all appropriate GPMs and CEQA mitigation measures to protect water quality and beneficial uses; 3) the project proponent fulfills all approving Water Board

requirements for project information and reporting; and 4) the project is designed to protect water quality and beneficial uses in accordance with regional or statewide water quality control plans.

The following conditions are limitations necessary to assure compliance with the water quality standards and other pertinent requirements of state law. California Code of Regulations, title 23, Chapter 28 sets forth regulations pertaining to water quality certifications. As set forth in section 3861, the State Water Board may issue a general certification for discharges for a class or classes of activities only if those activities will not individually or cumulatively result in significant adverse impacts or violations of water quality objectives. Accordingly, the State Water Board imposes the conditions set forth in this Order to assure that the discharge complies with water quality objectives adopted or approved under Sections 13170 or 13245 of the California Water Code. These conditions are also generally required to comply with the state's Anti-Degradation Policy (State Board Resolution No. 68-16), which requires that for any "activity which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the state will be maintained." All Regional Board Water Quality Control Plans incorporate the state's Anti-Degradation Policy by reference. The state Anti-Degradation Policy incorporates the federal Antidegradation Policy (40 CFR Part 131.12 (a)(1)), which requires "[e]xisting instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected." According to U.S. EPA, dischargers of dredged or fill material comply with the federal Antidegradation Policy by complying with U.S. EPA's section 404(b)(1) Guidelines. The State Water Board adopted a modified version of U.S. EPA's section 404(b)(1) Guidelines in the Dredge or Fill Procedures (State Supplemental Guidelines). Notwithstanding any determinations by any federal agency made pursuant to 40 C.F.R. section 121.9, dischargers must comply with the entirety of this Order because the Order also serves as waste discharge requirements.

Project proponents authorized under this Order may proceed with the project under the following conditions:

A. Request for Authorization

Requests for authorization shall be submitted to the Regional Board for the region in which the discharge may occur. Where the discharge falls under the jurisdiction of more than one Regional Board, the request shall be submitted to the State Water Board. Project proponents with projects authorized under this Order shall pay the required fee and follow reporting and notification requirements described below and found in Attachments B and D of this Order. Project proponents shall contact the appropriate Water Board to request a pre-application meeting as soon as the project concept is developed, or at least 30-days prior to submittal of an NOI. The approving Water Board may waive the pre-application meeting requirement. If the proposed restoration activities may involve a Federal Energy Regulatory Commission (FERC)-

licensed facility, the project proponent shall notify the State Water Board Division of Water Rights. Where the proposed restoration activities may involve a FERC-licensed facility, the restoration project may be covered by this Order only upon receipt of written approval by the Deputy Director for the Division of Water Rights or their designee. Otherwise, the Deputy Director for the Division of Water Rights or their designee may determine that an individual certification is necessary. Project proponents shall submit a complete NOI to the appropriate Water Board as described in Attachment B before commencement of any project activity. The approving Water Board will review the NOI and respond to the project proponent with a request for additional information, an approval in the form of a Notice of Applicability, or a denial in the form of a Notice of Exclusion. As applicable to a project, the approving Water Board will consult with the State Water Board, Division of Water Rights on whether the restoration project requires any water right approvals, including but not limited to, a new water right, petition to change purpose/place of use or point of diversion, time extension, or wastewater change petition. There may be limited instances where it may be more appropriate for the Division of Water Rights to process an individual certification to accompany a water right approval depending on the scope of the water right approval needed. If an individual certification is deemed necessary, project proponents must file a new and separate application with the State Water Board pursuant to California Code of Regulation, title 23, section 3855.

Other regulatory agencies may also have authority separate and in addition to this Order to authorize restoration projects. Project proponents are encouraged to collaborate with other applicable regulatory agencies in coordination with the approving Water Board during project design, especially when fish passage and/or listed species are considerations.

B. Reporting and Notification Requirements

Project proponents with projects authorized under this Order shall follow notification and reporting requirements described in this section, and those found in Attachment D of this Order. This Order and its associated monitoring and technical reporting provisions are also adopted pursuant to California Water Code sections 13383 and 13267, subdivision (b)(1). The reports required under this Order are necessary to verify and ensure compliance with permitting requirements and protect waters of the state. The reports confirm that the BMPs required under this Order are sufficient to protect beneficial uses and water quality objectives. The reports related to accidental discharges also ensure that corrective actions, if any, that are necessary to minimize the impact or clean up such discharges can be taken as soon as possible. The burden of preparing these reports, including costs, is reasonable to the need and benefits of obtaining the reports. The anticipated costs are minimal as the reporting obligations require only visual monitoring and notification reporting. The following section describes the reporting and notification types and timing of submittals. Requirements for the content of these reporting and notification types are detailed in Attachment D, including specifications for photo and map documentation. Written reports and notifications must be submitted using the Reporting and Notification

Cover Sheet located in Attachment D, which must be signed by an authorized representative who meets the signatory requirements specified in Attachment E.

1. **Project Status Notifications**

   a. **Commencement of Construction:** The project proponent shall submit a Commencement of Construction Notice at least seven (7) days before the start of initial ground-disturbing activities.

   b. Upon request, a construction schedule shall be provided to the approving Water Board.

   c. **Request for Notice of Project Complete Letter:** The project proponent shall submit a Request for Notice of Project Complete Letter within thirty (30) days following completion of all project activities including post-construction monitoring of restoration sites. The Request for Notice of Project Complete Letter shall meet the terms and include the contents listed in Attachment D, Reporting and Notification Requirements. Failure to notify the Water Board or approving Regional Board of project completion may result in continued billing of annual fees until a Notice of Project Complete Letter is issued. Upon approval of the request, the Water Board shall issue a Notice of Project Complete Letter to the project proponent.

2. **Project Reporting**

   a. **Annual Reporting:** If required in the Notice of Applicability (NOA) issued by the approving Water Board, the project proponent shall submit an Annual Report within one month of the anniversary of the effective date of the NOA (or within a timeframe provided by the approving Water Board in the NOA). Annual reporting shall continue until a Notice of Project Complete Letter is issued to the project proponent.

3. **Conditional Notifications and Reports** The following notifications and reports are required, as applicable:

   a. **Accidental Discharge of Hazardous Material[1] Report:** Following an accidental discharge of a reportable quantity of hazardous material, sewage, or an unknown material, the following applies (California Water Code, § 13271):

[1] "Hazardous material" means any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. "Hazardous materials" include, but are not limited to, hazardous substances, hazardous waste, and any material that a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment. (California Health & Safety Code, § 25501.)

i. As soon as (A) project proponent has knowledge of the discharge or noncompliance, (B) notification is possible, and (C) notification can be provided without substantially impeding cleanup or other emergency measures then:

- first call – 911 (to notify local response agency);
- then call – Office of Emergency Services (OES) State Warning Center at: (800) 852-7550 or (916) 845-8911; and
- lastly follow the required OES procedures as set forth in the most current version of the California Hazardous Materials Spill/Release Notification Guidance. At the time of issuance of this Order, the current version is dated February 2014, and is accessible at: https://www.caloes.ca.gov/FireRescueSite/Documents/CalOES-Spill_Booklet_Feb2014_FINAL_BW_Acc.pdf.

ii. Following notification to OES, the project proponent shall notify the Water Board contact person identified in the NOA as soon as practicable (ideally within 24 hours). Notification may be via telephone, e-mail, delivered written notice, or other verifiable means.

iii. Within five (5) working days of notification to the Water Board, the project proponent must submit an Accidental Discharge of Hazardous Material Report to the Water Board contact person identified in the NOA (Attachment D.)

b. Violation of Compliance with Water Quality Standards Report: The project proponent shall notify the Water Board of any event causing a violation of compliance with water quality standards. Notification may be via telephone, e-mail, delivered written notice, or other verifiable means.

i. Examples of noncompliance events include lack of storm water treatment following a rain event, discharges causing a visible plume in a water of the state, and water contact with uncured concrete.

ii. This notification must be followed within three (3) working days by submission of a Violation of Compliance with Water Quality Standards Report.

c. In-Water Work and Diversions Water Quality Monitoring Report:

i. If required in the NOA issued by the approving Water Board, the project proponent shall notify the Water Board at least forty-eight (48) hours prior to initiating work in flowing or standing water or stream diversions. Notification may be via e-mail, delivered written notice, or other verifiable means.

ii. Within three (3) working days following completion of work in water or stream diversions or within a timeframe specified by the approving Water

Board, an In-Water Work and Diversions Water Quality Monitoring Report must be submitted to the Water Board.

d. Project Modifications: Prior to implementing any change to the project that may be a material change as defined in California Water Code section 13260(c) as a proposed change in character, location, or volume of the discharge, the project proponent shall obtain prior written approval of the approving Water Board Executive Director or Officer. If the approving Water Board is not notified of the material change to the discharge, it will be considered a violation of this certification, and the project proponent may be subject to Water Board enforcement action(s).

Minor or non-material changes may be addressed with an 'Order Deviation' as provided in Attachment F. The approving Water Board will review the notification and determine whether the deviation can be approved under this Order or is subject to additional permitting requirements.

e. Transfer of Property Ownership Notification: Authorization by an NOA under this Order is not transferable in its entirety or in part to any person or organization except after notice to the Water Board in accordance with the following terms:

i. The project proponent must notify the Water Board of any change in ownership or interest in ownership of the project area by submitting a Transfer of Property Ownership Notification. The project proponent and purchaser must sign and date the notification and provide such notification to the Water Board at least ten (10) days prior to the transfer of ownership. The purchaser must also submit a written request to the Water Board to be named as the project proponent in a revised NOA.

ii. Until such time as the NOA has been modified to name the purchaser as the project proponent, the current project proponent shall continue to be responsible for all requirements set forth in this Order.

f. Transfer of Long-Term GPM Maintenance Notification: If maintenance responsibility for post-construction GPMs is legally transferred, the project proponent must submit to the Water Board a copy of such documentation and must provide the transferee with a copy of a long-term GPM maintenance plan that complies with manufacturer or designer specifications. The project proponent must provide such notification to the Water Board at least ten (10) days prior to the transfer of GPM maintenance responsibility.

Until such time as the NOA has been modified to name a new legally responsible party for maintenance of post-construction GPMs, the current project proponent shall continue to be responsible for all maintenance of post-construction GPMs set forth in this Order.

C. Water Quality Monitoring

1. **General:** In and immediately adjacent to work areas during construction, visual monitoring shall be conducted during working hours and storm event inspections to detect discharges and threatened discharges of construction related pollutants (e.g., oil and grease, turbidity plume, uncured concrete).

2. **Accidental Discharges/Noncompliance:** Upon occurrence of an accidental discharge of hazardous materials or a violation of compliance with a water quality standard, the Water Board may require water quality monitoring based on the discharge constituents and/or related water quality objectives and beneficial uses.

3. **In-Water Work or Diversions:** A dewatering plan and, if required, Water Quality Monitoring Plan shall be submitted to the approving Water Board for acceptance at least thirty (30) days in advance of commencement of project activity. The approving Water Board may require the dewatering plan and, if required, Water Quality Monitoring Plan be submitted before approval of the NOA. Standards for in-water work or diversions are discussed in General In-Water Measures, specifically IWW-6, presented in Attachment A. Project proponent shall comply with the approving Water Board-specific water quality control plan water quality objectives and reporting requirements.

4. **Post-Construction:** If the proposed project includes ground disturbance, when conducting post-construction monitoring, visually inspect the project site at least monthly or at an interval agreed to by the approving Water Board during the rainy season (October 1 – April 30) unless not safely accessible (e.g., high flows, inundation, ground saturation) or visually accessible (e.g., meadows covered in snow, area inundated with high turbidity water) until a Notice of Project Complete Letter is issued to ensure excessive erosion, stream instability, or other water quality pollution is not occurring in or downstream of the project site. If water quality pollution is occurring, contact the Water Board staff member overseeing the project within three (3) working days. The Water Board may require the submission of a Violation of Compliance with Water Quality Standards Report. Additional permits may be required to carry out any necessary site remediation.

D. Standard Conditions

1. This Order is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to California Water Code section 13330, and California Code of Regulations, title 23, chapter 28, Article 6 commencing with section 3867. Additionally, the State Water Board may cancel or modify and reissue this Order pursuant to California Code of Regulations, title 23, chapter 28, section 3861.

2. Certification is not intended and shall not be construed to apply to any activity involving a hydroelectric facility and requiring a FERC license or an amendment to a FERC license unless the pertinent certification application was filed pursuant to Subsection 3855(b) of this Chapter and that application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility

was being sought. Project proponent shall notify the State Water Board Division of Water Rights whenever the proposed activities may involve a FERC-licensed facility. Where the proposed restoration activities may involve a FERC-licensed facility, the restoration project may be covered by this Order only upon receipt of written approval by the Deputy Director for the Division of Water Rights or their designee.

3. This Order is conditioned upon total payment of any fee required under title 23 of the California Code of Regulations and owed by the project proponent.

4. Nothing in this Order shall be construed as Water Board approval of the validity of any water rights, including pre-1914 claims. The State Water Board has separate authority under the California Water Code to investigate and take enforcement action, if necessary, to prevent any unauthorized or threatened unauthorized diversions of water.

E. General Compliance

1. Enrollment and authorization of restoration projects under this Order are for the discharges of waste associated with only the restoration action and shall not be construed as authorization or any compliance determination for any related underlying project or activity. Restoration projects serving as mitigation for a related project or activity may be enrolled under this Order; however, this Order does not include any findings regarding the underlying related activity's impact to water quality, public trust resources, or other matters of public interest. When considering the impact of restoration projects under this Order, the approving Water Board considers only those adverse changes that may result from approval of the new restoration project, including multi-benefit projects that may include non-restoration action elements (e.g., recreation, flood protection).

2. Any plan developed as a condition of this Order requires review and approval by the appropriate Water Board. The Water Board will not approve any plan that does not adequately protect beneficial uses of receiving waters and prevent degradation of water quality. The project proponent shall not implement any plans or reports until after receiving Water Board approval and any other necessary regulatory approvals. The Water Boards may take enforcement action post-enrollment if the project proponent fails to provide or implement a required item outlined in the approved plan(s).

3. This Order shall not be construed as replacement or substitution for any necessary federal, state, and local approvals. The project proponent is responsible for compliance with all applicable federal, state, or local laws or ordinances and shall obtain authorization from applicable regulatory agencies prior to the commencement of project activities.

   In the event of any violation or threatened violation of the conditions of this Order, the violation or threatened violation shall be subject to any remedies, penalties, process, or sanctions as provided for under state and federal law, including the Porter-Cologne Water Quality Control Act and the Clean Water Act. The project

proponent may then be subject to administrative and/or civil liability pursuant to California Water Code section 13385.

4. In response to a suspected violation of any condition of this Order, the Water Board may require a project proponent with authorization under this Order to furnish, under penalty of perjury, any technical or monitoring reports the Water Board deem appropriate, provide that the burden, including costs, of the reports shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. The additional monitoring requirements ensure that permitted discharges and activities comport with any applicable effluent limitations, water quality standards, and/or other appropriate requirement of state law.

5. The project proponent must, at all times, fully comply with engineering plans, specifications, and technical reports submitted to support approval of a project under this Order; and all subsequent submittals required as part of approval of a project under this Order. The conditions within this Order and Attachments supersede conflicting provisions within project proponent submittals.

6. This Order and all of its conditions contained herein continue to have full force and effect regardless of the expiration or revocation of any federal license or permit issued for the project.

7. Project proponents shall submit a Sacred Lands File & Native American Contacts List Request to the Native American Heritage Commission (NAHC) at the initial stages of project development (or as early as practicable) to determine if a project would have an impact on Native American cultural resources. The project proponent shall coordinate with the approving Water Board or other CEQA lead agency, if applicable, as soon as possible whenever tribes that are traditionally and culturally affiliated to a project area are identified. Any tribe identified by the NAHC, or on the CEQA lead agency's Assembly Bill 52 (AB 52) consultation list, will require notification of the proposed project by the lead agency as soon as practicable during early design, pursuant to AB 52 and the California Governor's Executive Order G-10-22, or not more than 14 days after submittal of the NOI to the approving Water Board.

   Tribes will be consulted if a request is received from a tribe after initial notification. Consultation will include discussion regarding project design, cultural resource survey, Tribal Cultural Resources as defined by AB 52, protocols for construction monitoring, and any other tribal concern. The CEQA Notice of Determination (NOD) for the project will not be signed until tribal consultation has either concluded or been terminated as defined by AB 52. Construction of the project will not commence until the approving Water Board achieves compliance with the State Water Resources Control Board Tribal Consultation Policy (June 2019).

8. **Historical Sites:** This Order does not authorize any activity adversely impacting a significant historical or archeological resource; directly or indirectly destroying a unique paleontological resource or site or unique geologic feature; disturbing any human remains; or eliminating important examples of the major periods of

California history or prehistory, unless the activity is authorized by the appropriate historical resource agencies.

9. **Construction General Permit Requirement:** This Order does not provide coverage under the Construction General Permit. As applicable, project proponents shall maintain compliance with conditions described in, and required by, NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ; NPDES No. CAS00002, as amended or any subsequently issued permit). For ground disturbing activities that do not require enrollment in Order No. 2009-0009-DWQ, the NOI will include appropriate erosion and sediment control measures to be considered by the approving Water Board.

10. **Aquatic Herbicide General Permit Requirement:** If aquatic herbicides are proposed to be applied, the project proponent shall apply for coverage and maintain compliance with conditions described in, and required by, NPDES General Permit for Residual Aquatic Pesticide Discharges to Waters of The United States from Algae and Aquatic Weed Control Applications (Order No. 2013-0002-DWQ (General Permit No. CAG990005) or any subsequently issued permit). Also, see Section XIII.F., Prohibitions.

11. **Cumulative Impacts:** Activities permitted under this Order shall not result in adverse impacts that 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.

F. Prohibitions

1. Permitted actions shall not cause or contribute to an exceedance of any applicable water quality standards or water quality objectives or impair designated (existing or potential) beneficial uses for receiving waters. The source of any such discharge must be eliminated as soon as practicable.

2. The approving Regional Board may have the authority to address short-term, construction-related impacts that would affect water quality and allow for exceedances of water quality objectives for limited magnitude and duration during construction of individual restoration projects. A project proponent should contact the approving Regional Board to determine if an exemption is possible.

3. The discharge shall not result in adverse destabilization of the channel or bed of receiving water.

4. The discharge shall not include substances in concentrations toxic to human, plant, animal, or aquatic life or that produce detrimental physiological responses.

5. The discharge shall not include waste classified as "hazardous" or "designated" as defined in Title 22 California Code of Regulations, Section 66261 and California Water Code Section 13173.

G. Specific Compliance

1. **Programmatic Sideboards** - Project proponents must design and implement projects enrolled under this Order in accordance with the techniques and minimization measures described in the programmatic sideboards in Attachment A. The approving Water Board may authorize modified approaches based on site-specific conditions, technological constraints or advances, or regionally accepted guidance documents.

   The Lahontan water quality control plan contains both region-wide and hydrologic unit specific waste discharge prohibitions. As applicable, project proponents must work with Lahontan Regional Board staff to ensure that applicable criteria are satisfied in order to be exempted from waste discharge prohibitions.

2. **Pre-Application Consultation –** The project proponent will contact the approving Water Board to submit available project information and request a pre-application consultation meeting a minimum of thirty (30) days prior to submittal of the NOI. The approving Water Board may waive the pre-application meeting requirement. Restoration projects can be complex and often benefit from pre-application consultation with the approving Water Board during the early stages of planning and design. During the pre-application consultation, the approving Water Board will review draft project materials and provide project-specific guidance for navigating the approval process. A site visit may also be conducted at the discretion and request of the approving Water Board. The intent of the Order is to streamline project reviews and approvals, but the duration of pre-application consultation will depend on project complexity and development of design and planning.

   Project information for the pre-application meeting shall include on a case-by-case basis (to the extent available):

   i. Project name

   ii. The project proponent and agent, including contact info

   iii. Project purpose

   iv. Brief project description

   v. Conceptual design (including problem identification, context, objectives, and relevant project design documentation for the project)

   vi. Project location and map, including latitude/longitude

   vii. Brief description of the surrounding area

   viii. Where identified, proposed GPMs, and mitigation measures developed as part of CEQA review

   ix. Grant funding, timelines, and any specific conditions related to the grant

   x. Existing permits

xi. Any studies completed to date (e.g., aquatic resource delineation, biological assessment, hydrologic or geotechnical study, soil test results).

The approving Water Board will review the project information and may identify concerns, formulate questions and/or recommendations regarding the project design, and inclusion of applicable GPMs, including recommendations for modification of GPMs, where necessary, to accommodate and/or address site-specific conditions.

3. **Exclusions and Prohibited Activities** - The following activities are not within the scope of the Order, and will require separate permitting approvals with the Water Boards:

i. Use of gabion baskets, boxes, or cages.

ii. Use of cylindrical riprap (e.g., Aqualogs).

iii. Use of undersized riprap (e.g., rock that will not remain in place during a 100-year flow event or other standard accepted by the approving Water Board).

iv. Construction of permanent dams (does not apply to beaver dam analogs) or concrete-lined channels of any sort.

v. Use of chemically treated timbers used for grade or channel stabilization structures, bulkheads, or other instream structures.

vi. Activities that result in long-term, substantial disruption of the movement of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the project areas (see Attachment A for additional discussion/measures on maintaining passage).

vii. Elimination of riffle, pool, or riffle/pool complex that is not replaced/enhanced elsewhere by the project. (Note: In some instances, a restoration project may affect or modify a riffle/pool complex depending on project-specific conditions and design objectives. For example, a culvert removal may affect an existing pool. These types of projects would be allowed under the Order.)

viii. Water diversions. Action to temporarily dewater the construction site of a restoration project or a water diversion that is part of a water conservation project as described in Section A.4.5 of Attachment A could, however, be authorized under this Order.

ix. Off-channel/side-channel projects that require the installation of a flashboard dam, head gate, or other mechanical structures. However, eligible water conservation projects (Section A.4.5 in Attachment A) with these features may be authorized by the approving Water Board under this Order.

x. Creation or potential creation of a barrier to anadromous fish passage as determined by the NMFS fish passage guidelines (including any associated maintenance activities, or lack thereof).

xi. Use of riprap bank protection, beyond the minimum amount needed to achieve the project goals, as determined by the approving Water Board.

xii. Installation of infiltration galleries (i.e., subsurface structure, typically including perforated conduits in gravel, to expedite transfer of water to or from a soil).

xiii. Managed surrogate floodplain and managed returned flows that do not allow for volitional movement (ingress and egress) of fish to the main channel (up and/or downstream).

4. **Monitoring Plan** – The project proponent shall identify the goal(s) of monitoring and reporting components in the NOI. The level of detail of the monitoring and reporting requirements shall be commensurate with the scope, complexity, and objectives of the project, and in consideration of project site conditions. See requirements in Attachment D, Post-Construction Monitoring Report. At a minimum, the following information shall be provided to the approving Water Board in the NOI or in a separate Monitoring Plan appended to the NOI:

   i. Function(s) of the water resources and/or newly restored area.

   ii. Project purpose and goal(s).

   iii. Measurable performance standards and success criteria appropriate to each goal.

   iv. Methods to determine whether performance standards have been met.

   v. The timeframe and responsible party for achieving the performance standards.

   vi. The monitoring schedule.

   vii. Long-term management and maintenance practices and responsible party.

   viii. The reporting schedule as needed to determine achievement of performance standards.

H. Administrative

1. Signatory requirements for all document submittals required by this Order are presented in Attachment E.

2. Data and/or reports shall be submitted electronically or in a format accepted by the approving Water Board.

3. This Order does not authorize any act which results in the taking of a threatened, endangered or candidate species or any act, which is now prohibited, or becomes prohibited in the future, under either the California Endangered Species

Act (CESA) (California Fish & Game Code, §§ 2050-2097) or the federal Endangered Species Act (FESA) (16 U.S.C. §§ 1531-1544) except as authorized by an agency with jurisdiction to protect those species under CESA and/or FESA. The project proponent is responsible for meeting all requirements of the applicable endangered species act for the Project authorized under this Order.

4. The project proponent shall grant Water Board staff or an authorized representative (including an authorized contractor acting as a Water Board representative), upon presentation of credentials and other documents as may be required by law, permission to:

   a. Enter upon the project site(s) premises where a regulated facility or activity is located or conducted, or where records are kept.

   b. Have access to and copy any records that are kept and are relevant to the project or the requirements of this Order.

   c. Inspect any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order.

   d. Sample or monitor for the purposes of verifying compliance with this Order.

5. A copy of this Order must be available at the project site(s) during construction. All personnel performing work on the project, including any consultants, contractors, and subcontractors working on the project, shall be familiar with the content of this Order and its posted location at the project site. The project proponent shall be responsible for work conducted by its consultants, contractors, and any subcontractors.

6. Lake and Streambed Alteration Agreement – If issued, the project proponent shall submit a signed copy of the Department of Fish and Wildlife's lake and streambed alteration agreement to the Water Board prior to any discharge to waters of the state.

I. Restoration and Monitoring of Impacts

1. The project proponent shall restore all areas of temporary impacts as described in the NOA and applicable GPMs, specifically GPM-15, provided in Attachment A. The project proponent shall provide annual monitoring reports, if required in the NOA, in accordance with Reporting and Notification Attachment D.

2. The project proponent shall demonstrate that all permanent impacts to waters of the state are offset by the restoration project.

3. If restoration of temporary and permanent impacts to waters of the state is not completed within three hundred sixty-five (365) days of the start of post-construction monitoring (or a schedule approved by the Water Board during review of the NOI and supplemental materials), the approving Water Board may require the following: compensatory mitigation to offset temporal loss of waters of the state; remedial actions (e.g., re-seeding); and/or extension of the monitoring period if performance standards have not been met or are not likely to be met.

XIV. Water Quality Certification

This Order for Restoration Projects Statewide (WQ 2022-0048-DWQ) hereby certifies that as long as all of the conditions listed in this Order are met, any discharge from the Implementation of Restoration Projects Statewide will comply with the applicable provisions of Clean Water Act sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 303 (Water Quality Standards and Implementation Plans), 306 (National Standards of Performance), and 307 (Toxic and Pretreatment Effluent Standards). This Order is also adopted pursuant to California Water Code section 13263 as waste discharge requirements pursuant to the Porter-Cologne Water Quality Control Act (California Water Code, § 13000 et seq.). The State Water Board has considered the factors in section 13241 in establishing the requirements in this Order. The ability to discharge waste is a privilege, not a right, and adoption of this Order shall not be construed as creating a vested right to continue discharging waste (California Water Code, § 13263, subd. (g).) Notwithstanding any determinations by any federal agency made pursuant to 40 C.F.R. section 121.9, dischargers must comply with the entirety of this Order because the Order also serves as waste discharge requirements.

Except insofar as may be modified by any preceding conditions, all Order actions are contingent on: (a) discharges being limited and all requirements being completed in strict compliance with the conditions of this Order and the attachments to this Order; and (b) compliance with all applicable requirements of Statewide Water Quality Control Plans and Policies, the Regional Boards' Water Quality Control Plans and Policies.

CERTIFICATION

I, Jeanine Townsend, Clerk to the Board, do hereby certify that this Order with all its attachments is a full, true, and correct copy of an Order adopted by the State Water Board, on **August 16, 2022**.

AYE:	Chair E. Joaquin Esquivel Vice Chair Dorene D'Adamo Board Member Sean Maguire Board Member Laurel Firestone Board Member Nichole Morgan
NAY:	None
ABSENT:	None
ABSTAIN:	None

Courtney Tyler for
Jeanine Townsend
Clerk to the Board

Final Attachment A
Description and Eligibility

Categories of Eligible Project Types, Geographic Scope, Programmatic Sideboards, General Protection Measures, Other Requirements, and Design Guidelines

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Description and Eligibility

A.1 Introduction

The State Water Resources Control Board (State Water Board) has developed a General Order for Clean Water Act Section 401 Water Quality Certification and Waste Discharge Requirements for Restoration Projects Statewide (Order) to improve the efficiency of regulatory reviews for projects throughout the state that would restore aquatic and riparian resource functions and/or services. The Order establishes an authorization process for environmentally beneficial restoration projects.

The purpose of the Order is to expedite consultation, authorization, and permitting of restoration projects intended to help the State of California achieve its habitat restoration, species recovery, and water quality improvement goals.

It is anticipated that the Order will authorize projects that originate from a variety of mandates and programs, including projects that are part of larger programs and/or initiatives that guide restoration throughout the State (e.g., Propositions 1 and 68 funds administered by state, regional, and local conservancies and state agencies, California Department of Fish & Wildlife [CDFW] Fisheries Restoration Grant Program [FRGP], State Water Board Comprehensive Response to Climate Change (Resolution), State Water Board Non-point Source (Section 319h) grant program for restoration activities, California EcoRestore, Bay-Delta Water Quality Control Plan (Basin Plan), Central Valley Flood Protection Plan – Conservation Strategy, San Joaquin River Restoration Program, San Francisco Bay Restoration Authority (Measure AA), and others).

The State Water Board has previously adopted a programmatic authorization for restoration projects less than 5 acres and a cumulative total of 500 linear feet of stream bank or coastline, and that qualify under the California Environmental Quality Act (CEQA) categorical exemption under California Code of Regulations title 14, section 15333, “Small Habitat Restoration Projects” (General Order Number SB12006GN). This Order intends to provide authorization for restoration projects that meet the eligibility criteria in this Order, but do not qualify for authorization under the Order for Small Habitat Restoration Projects. Order and CEQA process flow charts (Figures A-1 and A-2) provide general step-by-step guides to assist a project proponent through the project eligibility and notification process.

Figure A-1 Restoration Projects Statewide Order Process Flow Chart
Source: ESA 2020

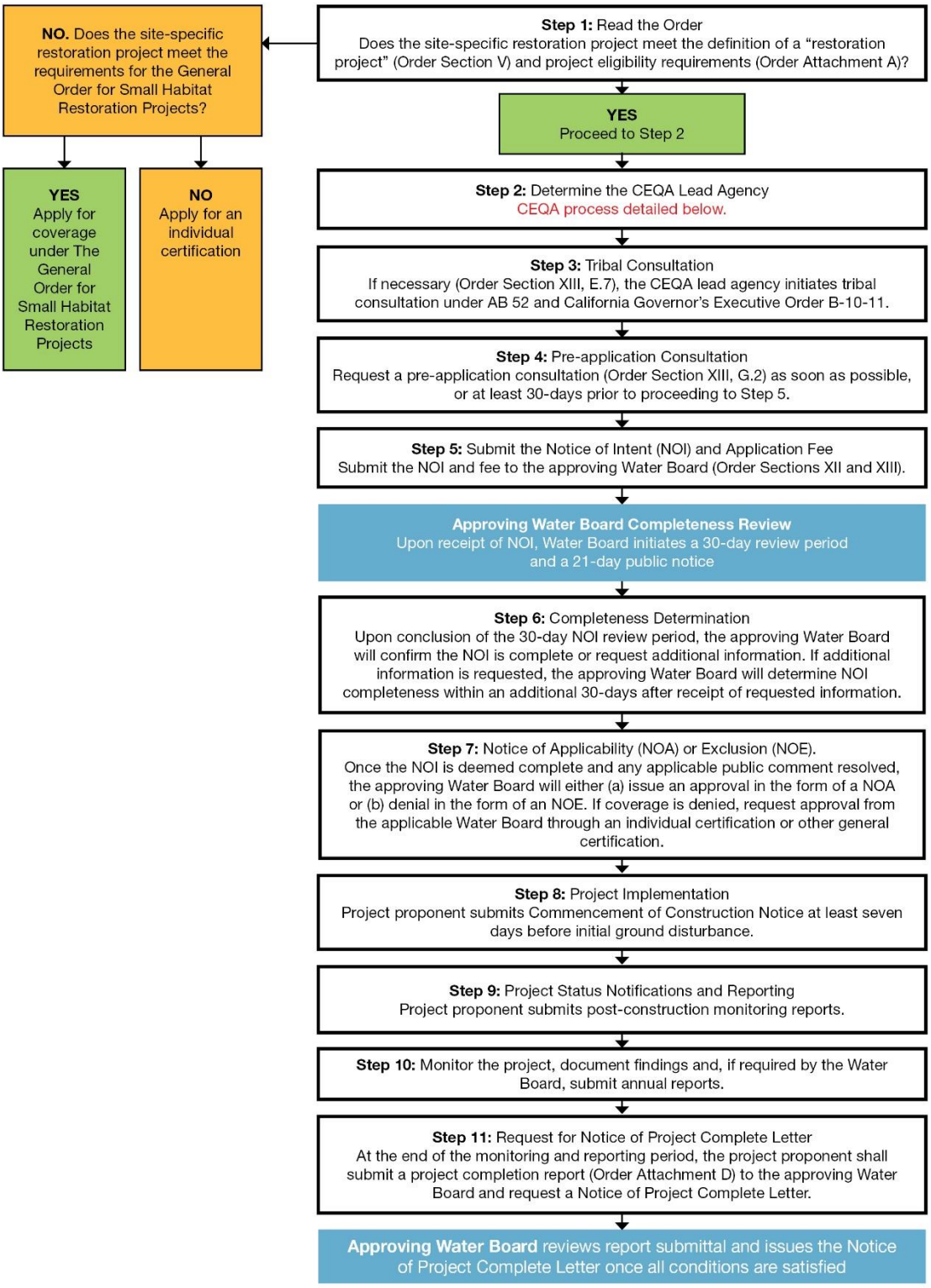
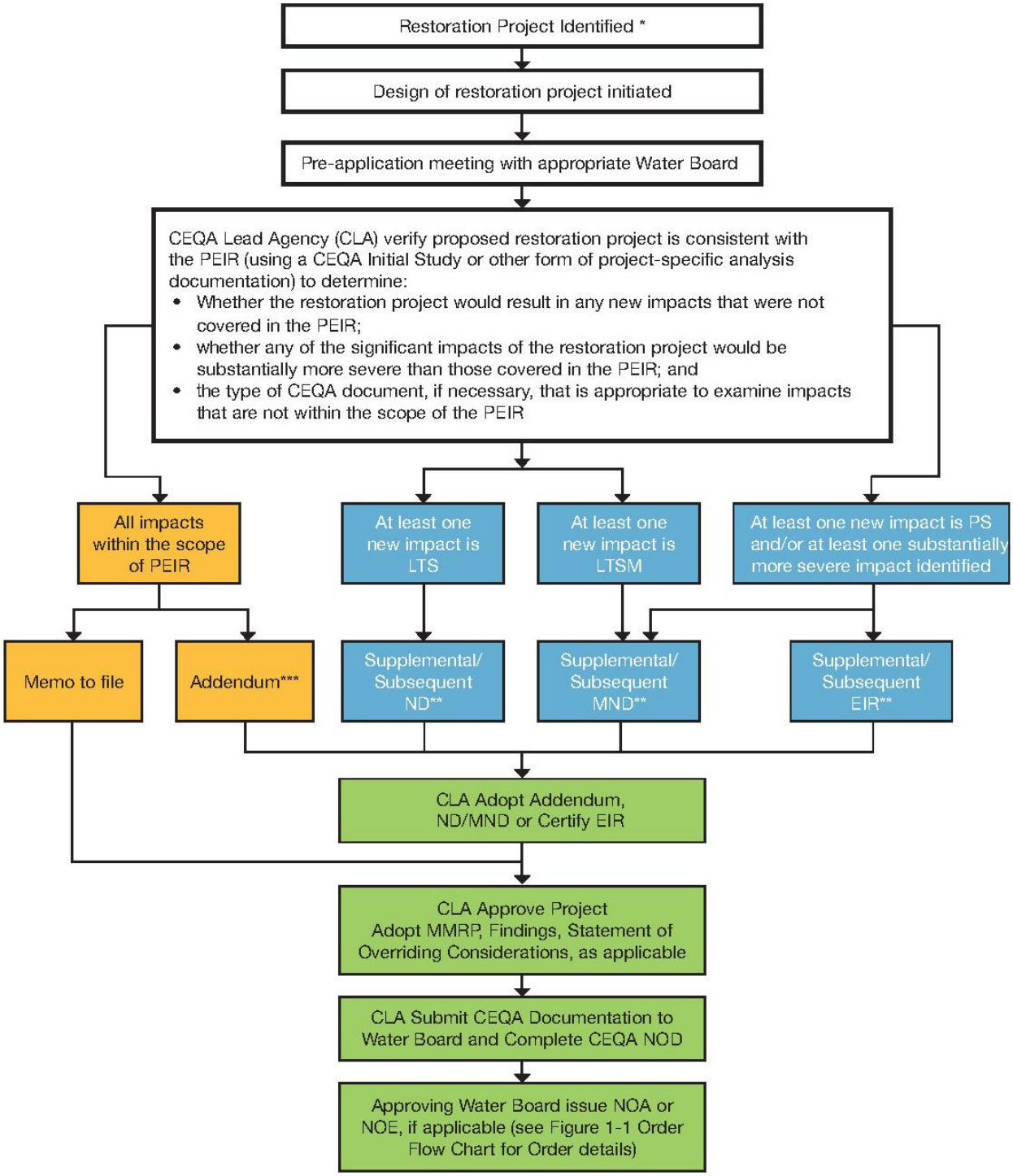


Figure A-2 Restoration Projects Statewide Order CEQA Process Flow Chart
Source: ESA 2020



* Meets the definition of a restoration project and conditions outlined in the Restoration Projects Statewide Order and PEIR and does not meet the requirements for the General Order for Small Habitat Restoration Projects
** Pursuant to CEQA Guidelines Sections 15162 (e.g. major revisions to PEIR) and 15163 (e.g. minor revisions to PEIR and doesn't meet the requirements of Section 15163)
*** Pursuant to CEQA Guidelines Section 15164 (e.g. minor additions or changes to PEIR and doesn't meet the requirements of Sections 15162 or 15163)
EIR = Environmental Impact Report; LTS = Less than significant; LTSM = less than significant with mitigation; ND = Negative Declaration;
MND = Mitigated Negative Declaration; NOA = Notice of Availability; NOD = Notice of Determination; NOE = Notice of Exemption; PS = Potentially Significant, PP = Project Proponent
Note: This figure represents the process to implement restoration projects under the PEIR. Please refer to the CEQA Statute and Guidelines for additional information

As described in the Order, all authorized projects must meet the definition of a restoration project as defined below and comply with all applicable water quality control plans and state policy for water quality control. A "restoration project" is defined as one that would result in a net increase in aquatic or riparian resource area functions and/or services through implementation of the eligible project types, relevant general protection measures, and consideration of design guidelines. The approving Water Board determines if a proposed project meets the definition of a restoration project and is eligible for authorization under this Order.

A.2 Categories of Eligible Project Types

The categories of restoration project types eligible for enrollment under the Order are listed below. These eligible project types are described in detail in Section A.4, *Categories of Restoration Projects in the Order*. An individual permitted project may incorporate one or more of these project types. Projects may conduct restoration activities such as establishment, reestablishment, rehabilitation, and/or enhancement for any of these project types:

- **Improvements to Stream Crossings and Fish Passage**—for upstream and downstream movement by fish and other species, and to improve functions of streams.
- **Removal of Small Dams, Tide Gates, Flood Gates, and Legacy Structures**—to improve fish and wildlife migration, tidal and freshwater circulation and flow, and water quality.
- **Bioengineered Bank Stabilization**—to reduce input of fine sediment, enhance aquatic and riparian habitat, and improve water quality.
- **Restoration and Enhancement of Off-Channel and Side-Channel Habitat**—to improve aquatic and riparian habitat for fish and wildlife; to restore the hydrologic, hydraulic, and biogeochemical functions and processes of streams; or both.
- **Water Conservation Projects**—to reduce low-flow stream diversions, through installation of features such as off-stream storage tanks and ponds and necessary off-channel infrastructure.
- **Floodplain Restoration**—to improve ecosystem function by creating hydrologic connections between streams and floodplains, through such measures as breaching and removal of levees, breaching and removal of berm and dike setbacks, and hydraulic reconnection and revegetation.
- **Removal or Remediation of Pilings and Other In-Water Structures**—to improve water quality and aquatic habitat for fish and wildlife.
- **Removal of Nonnative Invasive Species and Revegetation with Native Plants**—to improve watershed functions, such as aquatic and riparian habitat for fish and wildlife.

- **Establishment, Restoration, and Enhancement of Tidal, Subtidal, and Freshwater Wetlands**—to create or improve wetland ecological functions.
- **Establishment, Restoration, and Enhancement of Stream and Riparian Habitat and Upslope Watershed Sites**—to create or restore the functions of streams and riparian areas, including upslope watershed sites that could contribute sediment to streams or disrupt floodplain and riparian functions.

A.3 Geographic Scope

The Order considers a variety of types of aquatic, riparian, and floodplain restoration projects that take place throughout California. The State Water Board protects water quality by setting statewide policy for water quality control and water quality control plans and coordinating and supporting the nine Regional Water Quality Control Boards. The Regional Boards conduct rulemaking and regulatory activities through issuance and implementation of regional water quality control plans (basin plans). Because the Order is administered and used, in part, by the Regional Boards, the study area (geographic scope) is defined as the nine water quality control regions (Figure A-3).

A.3.1 Region 1—North Coast

The North Coast Regional Board's jurisdiction encompasses watersheds draining to the Pacific Ocean from California's northern border to the southerly boundaries of the Estero de San Antonio and Stemple Creek watersheds. This region includes all of Del Norte, Humboldt, Trinity, and Mendocino Counties, and portions of Siskiyou, Modoc, Glenn, Lake, Sonoma, and Marin Counties. Major bodies of water in this region include the Smith, Klamath, Trinity, Eel, Mattole, and Russian Rivers, and Humboldt Bay.

A.3.2 Region 2—San Francisco

The San Francisco Bay Regional Board's jurisdiction encompasses watersheds draining to the Pacific Ocean from Tomales Bay in the north to Pescadero Creek in the south, excluding watersheds that drain to either the Sacramento River or the San Joaquin River. This region includes all of San Francisco County and portions of Marin, Sonoma, Napa, Solano, Contra Costa, Alameda, Santa Clara, San Mateo, and Santa Cruz Counties. The dominant feature of this region is the San Francisco Bay estuary, which conveys the waters of the Sacramento and San Joaquin Rivers into the Pacific Ocean. Other major tributaries to the San Francisco Bay estuary include the following watersheds: Alameda, Contra Costa, Marin, Napa, San Mateo, Santa Clara Basin, Solano, and Sonoma. This region also includes coastal portions of Marin and San Mateo Counties.

A.3.3 Region 3—Central Coast

The Central Coast Regional Board's jurisdiction encompasses watersheds draining to the Pacific Ocean from Pescadero Creek south to the southeasterly boundary of the Rincon Creek watershed. This region includes all of Santa Cruz and Monterey Counties and portions of San Mateo, Santa Clara, San Benito, San Luis Obispo, Santa Barbara, Kern, and Ventura Counties. Major bodies of water in this region include the Pajaro and Salinas Rivers, and Morro and Monterey Bays.

A.3.4 Region 4—Los Angeles

The Los Angeles Regional Board's jurisdiction encompasses watersheds draining to the Pacific Ocean from the Ventura River watershed south to the San Gabriel River watershed. This region includes portions of Ventura County, Los Angeles County, and Orange, Kern, and Santa Barbara Counties. Major bodies of water in this region include the Santa Clara, Los Angeles, and San Gabriel Rivers; Santa Monica Bay; and the drainages of five coastal islands (Anacapa, San Nicolas, Santa Barbara, Santa Catalina, and San Clemente).

A.3.5 Region 5—Central Valley

The Central Valley Regional Board's jurisdiction encompasses all watersheds that drain to the Sacramento and San Joaquin Rivers. This region includes Tehama, Butte, Plumas, Colusa, Sutter, Yuba, Sacramento, San Joaquin, Stanislaus, Merced, Fresno, Kings, Tulare, Kern, Madera, Mariposa, Tuolumne, Calaveras, and Amador Counties. It also includes portions of Modoc, Lassen, Sierra, Nevada, Placer, El Dorado, and Alpine Counties to the east, and portions of San Benito, Santa Clara, Alameda, Contra Costa, Solano, Napa, Lake, Glenn, and Siskiyou Counties to the west. Major rivers in this region include the Sacramento, Pit, Feather, Yuba, Bear, American, San Joaquin, Cosumnes, Mokelumne, Calaveras, Stanislaus, Tuolumne, Merced, Chowchilla, and Fresno Rivers. Major reservoirs and lakes in this region include Shasta, Oroville, Folsom, Clear, Pardee, New Hogan, Millerton, McClure, Don Pedro, and New Melones Lakes.

A.3.6 Region 6—Lahontan

The Lahontan Regional Board's jurisdiction encompasses all watersheds within the boundaries of California that drain to the Great Basin. Jurisdiction extends from California's northern border to the northern Mojave Desert and includes all of California's eastern border east of the Sierra Nevada crest. This region includes Inyo and Mono Counties and portions of Los Angeles, Kern, San Bernardino, Alpine, El Dorado, Placer, Nevada, Sierra, Plumas, Lassen, and Modoc Counties. Major bodies of water in this region include Lake Tahoe; Eagle, Honey, Owens, and Mono Lakes; and the Susan, Truckee, Carson, Walker, Owens, and Mojave Rivers.

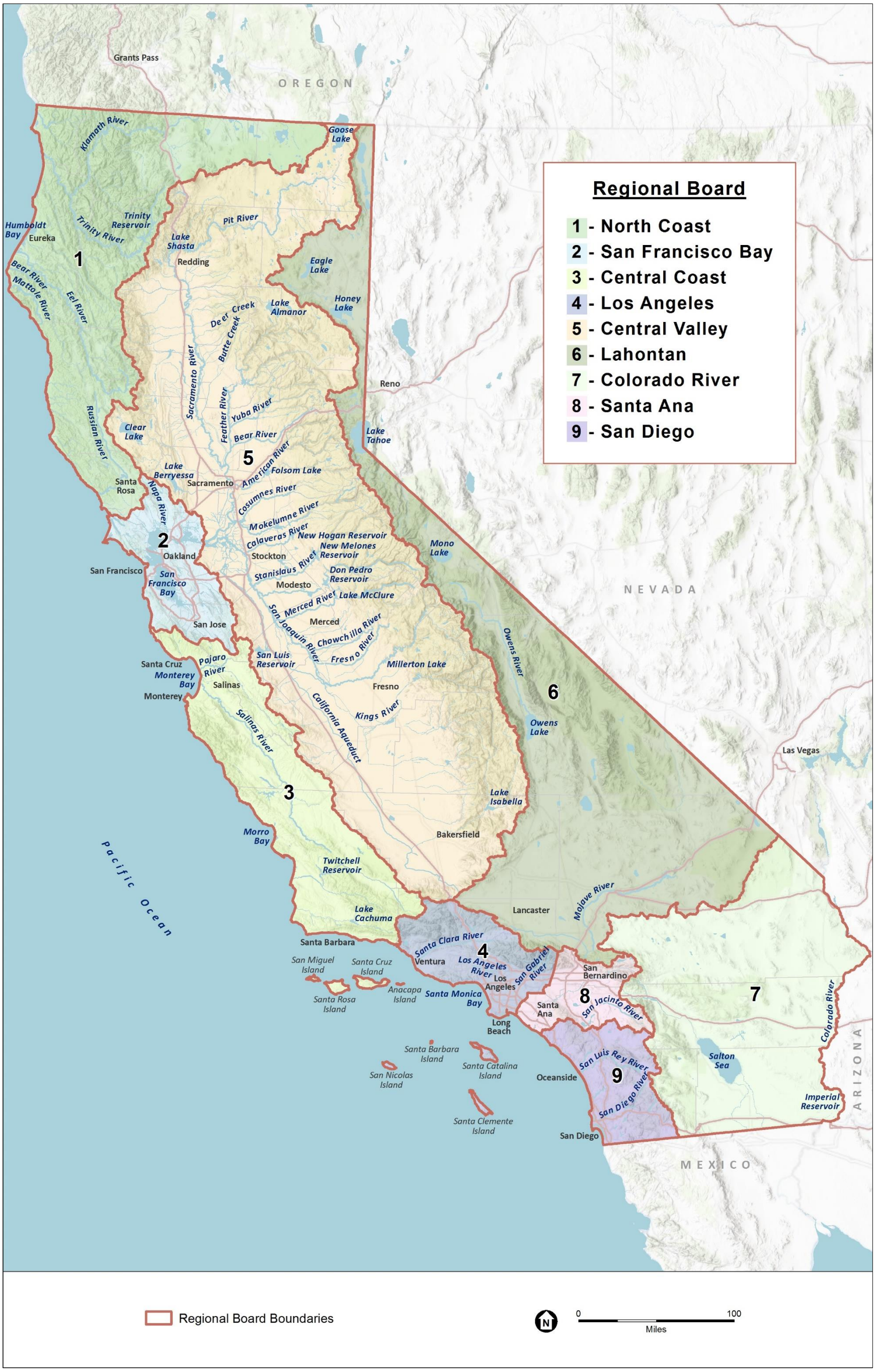
A.3.7 Region 7—Colorado River

The Colorado River Regional Board's jurisdiction encompasses all watersheds within the boundaries of California that drain to the Colorado River. This region includes Imperial County and portions of San Bernardino, Riverside, and San Diego Counties. Major bodies of water in this region include the Salton Sea, the Southern Mojave and Lower Colorado Rivers, the Imperial Reservoir, and Havasu and Mohave Lakes.

A.3.8 Region 8—Santa Ana

The Santa Ana Regional Board's jurisdiction encompasses the Santa Ana River watershed, which drains to the Pacific Ocean. This region includes portions of Los Angeles, San Bernardino, Riverside, and Orange Counties. Major bodies of water in this region include Anaheim and Newport Bays, the Santa Ana and Jacinto Rivers, and Lake Elsinore.

Figure A-3 Restoration Projects Statewide Order Geographic Scope
Source: ESRI 2018; State Water Board 2019; ESA 2019



A.3.9 Region 9—San Diego

The San Diego Regional Board's jurisdiction encompasses all watersheds that drain to the Pacific Ocean from the southern border of the Santa Ana Regional Board's jurisdictional limits to the southern border of California. This region includes portions of San Diego, Riverside, and Orange Counties. Major water bodies in this region include the San Juan, Santa Margarita, San Luis Rey, Carlsbad, San Dieguito, Peñasquitos, San Diego, Pueblo San Diego, Sweet Water, Otay, and Tijuana Rivers and San Diego and Oceanside Harbor bays.

A.4 Categories of Restoration Projects in the Order

The Order addresses restoration practices that require Section 401 water quality certification and/or waste discharge requirements. Sections A.4.1 through A.4.10 below present detailed descriptions of the categories of restoration project types eligible for enrollment under the Order. Each project category discussion briefly summarizes the project purpose, describes different activities and/or subproject types, and summarizes typical construction activities associated with projects falling into that category.

During the Order enrollment process, the approving Water Boards will determine whether an individual restoration project is eligible for inclusion in the Order. Where restoration activities may involve a FERC-licensed facility, the restoration project may be covered by this Order only upon receipt of written approval by the Deputy Director for the Division of Water Rights or their designee. All projects authorized under the Order must also incorporate applicable general protection measures into their project design to ensure avoidance and minimization of impacts on aquatic resources. A description of programmatic sideboards, general protection measures, design guidelines, and other requirements can be found in Sections A.5 and A.6.

A.4.1 Improvements to Stream Crossings and Fish Passage

Improvements to stream crossings and fish passage, including fish screens, provide a number of ecological benefits. For example, they provide safe passage for migratory and nonmigratory species, beneficial transport of sediment and debris, and improved hydrology and hydraulics. Stream crossing and fish passage improvements must be consistent with National Marine Fisheries Service (NMFS) and CDFW fish passage criteria.

Stream Crossings, Culverts, and Bridges

Stream crossing, culvert, and bridge projects generally involve removing, replacing, modifying, retrofitting, installing, or resetting existing culverts, fords, bridges, and other stream crossings and water control structures of any size. This includes projects that are developed to upgrade undersized, deteriorated, or misaligned culverts.

Projects to replace culverts or bridges are ineligible for coverage under the Order if they do not meet the definition of a restoration project (as provided in section V.) and the terms and conditions of the Order. Bridges and culverts should be designed to match gradients and adequately convey flow and materials (e.g., the 100-year flood) in addition to allowing fish passage. Any new or replacement crossing, culvert, or bridge that intersects potential habitat for listed salmonid species, also must meet CDFW

and/or NMFS fish passage criteria, as applicable. If a bridge or culvert is designed to convey less than the 100-year design flow, the project should demonstrate that a smaller structure will not result in excessive flooding, erosion/sedimentation, headcutting, or habitat impacts.

Constructing or installing a stream crossing, culvert, or bridge may include site excavation, formation and pouring of a concrete foundation and walls/abutments, and installation of the crossing structure, as well as placement of bioengineered and/or rock slope protection (RSP) to protect abutments, piers and walls. Where RSP is deemed necessary, use natural stream material to fill and cover exposed rock and/or use bioengineered techniques, listed below, where appropriate.

Fish Screens

Projects in this category involve installing, operating, and maintaining fish screens on existing water intakes. See the additional discussion in Section A.5.3, *Pre-Application Consultation*.

Constructing or installing a fish screen usually includes site excavation, formation and pouring of a concrete foundation and walls, and installation of the fish screen structure. Typically, if the fish screen is placed in or near flood-prone areas, rock or other armoring is installed to protect the screen. Fish screen types include self-cleaning screens (including flat plate, rotary drum screens, cone screens, and other designs with a variety of cleaning mechanisms) and non-self-cleaning screens (including tubular, box, and other designs). All fish screens must be consistent with NMFS fish screening criteria.

Fishways

This project type involves removing, relocating, constructing, repairing, or maintaining fishways. This project type may include riffle-pool complexes (e.g., rock/boulder ramps) or installation of fishways that bypass barriers. Engineered fish ladder structures should be avoided unless there are no other viable alternatives. See the additional discussion in Section A.5.3, *Pre-Application Consultation.*

Constructing and/or installing fishways usually includes site excavation, formation and pouring of a concrete foundation and walls, pile driving, excavation and installation of an entry and exit channel, and installation of the fishway structure. Heavy equipment is typically used for excavation and preparation of the ladder site.

Headcut Stabilization

Stabilizing headcuts[1] is often required to stabilize the bed of a stream and promote structural sustainability over time. This improvement is also used to stop stream incision, increase connection to the adjacent floodplain, and enhance floodplain inundation.

[1] Headcut, in stream geomorphology, is an erosional feature of some intermittent and perennial streams with an abrupt vertical drop, also known as a knickpoint, in the stream bed.

Construction of these project types typically includes site excavation and may include installation of a control structure (e.g., boulders, earthen fill). Heavy equipment is typically used for excavation.

A.4.2 Removal of Small Dams, Tide Gates, Flood Gates, and Legacy Structures

These projects are designed to reconnect stream corridors, floodplains, and estuaries; establish wetlands; improve passage by aquatic organisms; and restore more natural channel and flow conditions. They also help to restore fisheries access to historic habitat for spawning and rearing and improve the long-term quality of aquatic habitat and stream geomorphology. All projects must be designed with seasonal construction considerations to minimize potential adverse effects on water quality and/or aquatic species.

This project type involves removing small dams, tide gates, flood gates, and legacy structures to improve fish and wildlife migration, tidal and freshwater circulation and flow, and water quality. This project type may also include separation of streams from artificial impoundments (e.g., ponds or lakes) by realigning and/or rerouting channels around these artificial water bodies and/or through the use of vertical concrete or sheet-pile walls.

Removal of Small Dams

Small dams are removed to restore fisheries access to historic habitat for spawning and rearing and to improve long-term habitat quality and natural stream geomorphology. Types of eligible small dams include permanent, flashboard, debris basin, earthen, and seasonal dams that have the characteristics listed below.

Consistent with the NMFS programmatic restoration *Biological Opinion to Facilitate Implementation of Restoration Projects in the Central Valley* (NMFS 2018), small dams included in the Order are those defined by the California Division of Dam Safety as dams of non-jurisdictional size. Those dams are smaller in height or impounding capacity than dams as defined by California Water Code Section 2002 (Division 3, Part 1, Chapter 1, 6002), where “dam” means:

> *Any artificial barrier, together with appurtenant works, which does or may impound or divert water, and which either (a) is or will be 25 feet or more in height from the natural bed of the stream or watercourse at the downstream toe of the barrier, as determined by the department, or from the lowest elevation of the outside limit of the barrier, as determined by the department, if it is not across a stream channel or watercourse, to the maximum possible water storage elevation or (b) has or will have an impounding capacity of 50 acre-feet or more.*

Facilities under the jurisdiction of the Federal Energy Regulatory Commission (FERC) may be covered by this Order upon receipt of written approval by the Deputy Director for the Division of Water Rights. See additional discussion in Section A.5.3*, Pre-Application Consultation*.

Implementing small dam removal projects may require the use of heavy equipment (e.g., self-propelled logging yarders, mechanical excavators, backhoes). Some small dams can be removed using hand tools such as jackhammers. Any use of explosives for removal of a small dam must be justified by individual restoration project conditions including equipment access difficulties. The use of explosives must occur in dry or dewatered conditions and potential harm to special-status species from the explosives blast and pressure waves must be analyzed. Using explosives is an eligible activity; however, this approach would also require additional review and approval by appropriate regulatory agencies.

Projects meeting any of the following conditions are ineligible for authorization under the Order:

- Projects involving dams licensed under FERC that have not received authorization from the Director of the Division of Water Rights.
- Sediments stored behind the dam have a reasonable potential to contain environmental contaminants (dioxins, chlorinated pesticides, polychlorinated biphenyls [i.e., PCBs], or mercury) beyond the freshwater probable effect levels summarized in the National Oceanic and Atmospheric Administration Screening Quick Reference Table guidelines (NOAA 2008). OR
- Projects that have been determined, through pre-application consultation (Section A.5.3), to require more detailed analysis based on the risk of significant loss or degradation of downstream spawning or rearing areas by sediment deposition.

Sites are considered to have a reasonable potential to contain contaminants of concern if they are downstream of historical contamination sources such as lumber or paper mills, industrial sites, mining sites, or intensive agricultural production going back several decades (i.e., since chlorinated pesticides were legal to purchase and use). Therefore, preliminary sediment sampling is advisable in these areas to determine whether a project is eligible for authorization under the Order.

Conversely, small dams that do not have historical contamination sources in the upstream watershed are considered to have low potential to contain contaminants; therefore, they could be considered low risk with reduced sediment sampling and evaluation.

This Order will only include dam removal that will restore natural contours upstream, naturally or with excavation, to minimize negative effects on downstream habitat. Dam removal projects will (1) have a volume of sediment available for release that is small relative to the size of the stream channel, and that when released by storm flows, will have minimal effects on downstream habitat as verified by a qualified and appropriate scientist and engineer, and reviewed by either CDFW or NMFS scientists and engineers, or (2) be designed to remove sediment trapped by the dam down to the elevation of the target thalweg including design channel and floodplain dimensions.

Removal of Tide Gates and Flood Gates

Removal of or upgrades to existing tide and flood gates involve modifying gate components and mechanisms in tidal stream systems where full tidal exchange is incompatible with the current land use (e.g., where high-tide backwater effects are of concern). Tide/flood gate replacement or retrofitting may include such activities as installation of temporary cofferdams and dewatering pumps, and excavation of existing channels, adjacent floodplains, flood channels, and wetlands, and may include structural elements such as streambank restoration and hydraulic roughness.

The placement of new gates where they did not previously exist is not eligible for authorization under the Order. The replacement of tide gates is eligible only if project proponents can demonstrate that such a replacement would increase or enhance ecological processes. Tide and flood gates may be plugged by removing the culvert and backfilling the berm or levee to prevent fish from accessing unsuitable habitat.

Excavators, cranes, boats, barges, pumps, dump trucks, and similar equipment are typically used to implement the projects in this category.

Removal of Legacy Structures

This activity includes the removal of nonfunctioning in-channel and floodplain legacy habitat structures (e.g., grade control structures and defunct boulder weirs) to improve water quality and channel geomorphology.

Removal of legacy structures may require the use of excavators, cranes, dump trucks, vibratory pile drivers, and similar equipment.

A.4.3 Bioengineered Bank Stabilization

Bioengineered bank stabilization projects improve riparian and stream habitat by increasing stream shade to lower stream temperatures, production of invertebrates, future recruitment of large woody material, and bank stability. Riparian habitat restoration projects increase the number of plants and plant groupings, and include natural regeneration, exclusion fencing for livestock, bioengineering, and revegetation.

To improve aquatic and riparian habitats and reduce soil erosion and sedimentation of streams and wetlands, bioengineered bank stabilization integrates living woody and herbaceous materials with earthwork and recontouring of streambanks. Both organic and inorganic materials are put into place to stabilize and improve the structure of the soil where site constraints limit opportunities for natural channel meander. Bank stabilization structures that use bioengineering techniques minimize many of the impacts on aquatic resources commonly caused by traditional or conventional engineered bank structures. Examples of bioengineering project types include revetment[2] consisting of trees, native plant materials, or willow walls, and willow siltation baffles, brush mattresses, brush check dams, and brush bundles. Bioengineered project

[2] Revetments are sloping structures placed on banks or cliffs in such a way as to absorb the energy of incoming water.

types may also include the placement of buried riprap[3] with soil and vegetation plantings on top.

Bioengineered bank stabilization techniques use a minimal amount of hard materials (e.g., rock) and are not intended to include traditional hard engineering techniques, which would not be permitted under the Order. Part XI, *Riparian Habitat Restoration*, of the CDFW *California Salmonid Stream Habitat Restoration Manual* (Flosi et al. 2010: Vol. II) identifies examples of techniques that would be permitted under the Order.

Bioengineered bank stabilization structures are suitable for many low-order, low-gradient stream segments where the channel is not aggrading[4] or degrading[5] rapidly, and where sufficient space is available to reshape the eroding bank to an appropriate slope. The Order would not cover projects that merely protect property from bank erosion; however, many restoration project types, including multi-benefit projects that include bioengineered bank stabilization would be eligible for coverage under the Order.

The use of boulders should be limited in scope and quantity to the minimum necessary to stabilize the slope and protect it from expected streamflows during storms. Boulder structures should be part of a larger restoration design with the primary purpose of improving habitat, and should include a riparian revegetation element. Bridge abutments and other structural improvements installed as part of the restoration design of fish passage projects may require additional stabilization with boulder and rock banks.

Guidelines for streambank stabilization techniques are described in Part VII, *Project Implementation*, of the CDFW *Riparian Habitat Restoration Manual* (Flosi et al. 2010: Vol. I or subsequent updates).

Projects in this category may require the use of heavy equipment (e.g., self-propelled logging yarders, excavators, backhoes, and/or dump trucks).

A.4.4 Restoration and Enhancement of Off-Channel and Side-Channel Habitat

Restoring and enhancing off-channel and side-channel habitat features helps to improve aquatic and riparian habitat for fish and wildlife. Restoration project types in this category have the following benefits:

- Increase habitat diversity and complexity
- Improve heterogeneity (e.g., nonuniform character) of flows
- Provide long-term nutrient storage and substrate for aquatic macroinvertebrates
- Moderate flow disturbances
- Increase retention of leaf litter
- Provide refuge for fish during high flows

[3] Riprap is placed rock or other material used to armor shorelines and streambeds against scour and water, wave erosion.
[4] A stream becoming increasingly shallow as a result of sediment deposition.
[5] A stream actively deepening its channel and capable of transporting more sediment load than is presently provided.

Projects proposed for side-channel or off-channel habitat also typically improve hydrologic connections between main channels and their floodplains.

This project category typically involves reconnecting and creating side-channel, alcove, oxbow, pond, off-channel, floodplain, and other habitats, and potentially removing off-channel fill and plugs. New side channels and alcoves may be constructed in geomorphic settings that accommodate such features. This activity category typically applies to areas where side channels, alcoves, and other backwater habitats have been filled or blocked from the main channel, disconnecting them from most if not all flow events.

Work may involve removing or breaching levees, berms, and dikes; excavating channels; constructing wooden or rock tailwater[6] control structures; and constructing large wood habitat features.

The use of logs or boulders as stationary water-level control structures is an eligible project element under the Order. With the exception of offstream storage projects to reduce low-flow stream diversions, projects involving the permanent installation of a flashboard dam, head gate, or other mechanical structure are not eligible for authorization under the Order.

Excavators, bulldozers, dump trucks, front-end loaders, and similar equipment may be used to implement projects.

A.4.5 Water Conservation

Creation, operation, and maintenance of water conservation projects including offstream storage tanks and ponds and associated off-channel infrastructure reduce low-flow stream diversions and enhance streamflows, particularly base flows for fish and wildlife habitat during the dry season. These projects typically require placing infrastructure (e.g., pumps, piping, screens, and headgates) in or adjacent to the stream to provide alternative water intake facilities. Exclusion fencing may be constructed to manage grazing in aquatic and riparian habitat as described in Section A.4.10, *Establishment, Restoration, and Enhancement of Stream and Riparian Habitat and Upslope Watershed Sites*.

Other projects in this category include piping ditches to create a more efficient use of water where the water saved will be dedicated to fish and wildlife under the terms of California Water Code Section 1707 or forbearance agreements. These projects are designed to improve streamflow and riparian habitat for fish and wildlife. Excavators and other heavy equipment may be used to implement the projects.

A.4.6 Floodplain Restoration

Project types in this category improve the diversity and complexity of aquatic, meadow, and riparian habitat, as well as ecosystem function, because they have the following effects:

- Provide opportunities for sediment to deposit on the floodplain seasonally, which enhances meadow vegetation, use by birds and mammals, and fish rearing and spawning; and also provide refuge from predators and physical stressors

[6] Water body located downstream of a dam or other dam or other barrier.

- Create intermittent hydrologic connections between streams and floodplains
- Increase floodway capacity and the frequency and duration of floodway inundation
- Improve ecosystem functions for aquatic and terrestrial species and also improve water quality
- Reconnect stream channels to floodplains, thus improving the fluvial dynamics of the watershed system, for example, by allowing normal patterns of sediment deposition and transport, as well as, channel migration
- Reduce or eliminate areas that strand native fish or provide habitat for nonnative predatory fish, or both
- Provide high-flow and thermal refuges for native fish and other aquatic species

Floodplains should mimic natural flooding patterns and remain flooded/inundated long enough to activate food webs. Floodplain restoration can involve rock placement, specifically as engineered stream material, riffle ramps, weirs, and other strategies to aggrade the channel and enable connectivity to floodplains.

Floodplain restoration projects may be implemented through various strategies. Some involve setback, breaching, and removal of levees, berms, and dikes, and excavation and/or fill for hydraulic reconnection (including restoration to stage zero[7]) and revegetation.

Levee setback projects involve constructing new levees to facilitate removal or breaching of existing levees and creation of aquatic or riparian habitat. These project types may also include filling and/or reshaping of on- and off-channel gravel pits. Levees may be adjusted or a low levee bench may be created to allow for tidal inundation or channel margin habitat.

Floodplain projects may also reconnect historical stream and river channels and freshwater deltas with floodplains, and reconnecting historical estuaries to tidal influence, through levee removal, setback, and breaching or construction of floodplain surfaces that connect at base flow. Floodplain restoration projects may be planned where floodplains and estuaries have been disconnected from adjacent streams and rivers.

Meadow and floodplain restoration may involve reconnecting down-cut channels to their floodplains to restore hydrologic processes and meadow health; filling incised, entrenched channels; creating new stream channels; regrading floodplains; or realigning channels or installing stabilization structures. Incised channels should only be filled if the watershed conditions that triggered incision have been considered and would not result in continued incision (project failure) and/or can be mitigated by the project. These restoration actions may rely on watershed processes to complete work over time to restore a channel network and floodplain that supports wetlands or grasslands.

[7] Streams that are fully connected with their floodplains; typically, multi-thread.

Project proposals to create off-channel or side-channel habitats, floodplain restoration will include as appropriate information regarding considerations for water supply (channel flow, overland flow, and groundwater), water quality, and reliability; risks of channel changes; and channel and hydraulic grade.

Excavators, bulldozers, dump trucks, front-end loaders, and similar equipment may be used to implement these projects.

A.4.7 Removal or Remediation of Pilings and Other In-Water Structures

Untreated and chemically treated wood pilings, piers, vessels, boat docks, derelict seawalls (within embayments), derelict fishing gear, and similar structures built using plastic, concrete, and other materials, may be removed and/or remediated to improve water quality and habitat for fish and wildlife. These projects are designed to remove contaminant sources and hazards from stream, river, and estuary habitats.

Boats, barges, excavators, dump trucks, front-end loaders, and similar equipment may be used to implement these projects.

A.4.8 Removal of Nonnative Terrestrial and Aquatic Invasive Species and Revegetation with Native Plants

Removing nonnative terrestrial and aquatic invasive species and/or revegetating with native plants improves aquatic, riparian, and wetland habitat for fish and wildlife in a variety of ways. These projects are designed to improve or provide the following benefits:

- Composition, structure, and abundance of native biological communities important for bank stability
- Stream shading, riparian canopy, and understory establishment and diversity
- Input of large wood and other organic material into streams
- Nesting and roosting habitat
- Reduction of soil erosion
- Water quality improvement
- Greater dune stability and habitat complexity
- Improved soil health
- Other ecological benefits, all of which are important elements of species habitat and water quality

Removal of Nonnative Terrestrial and Aquatic Invasive Species

Manual, mechanical, biological, and chemical methods can be used independently or in combination to remove invasive nonnative species from aquatic and riparian areas. Sites with a variety of invasive species may receive several different types of treatments. If chemical methods are used, the treatment will need to comply with labeling, application by qualified individuals (when required), as well as any required buffers from

aquatic areas and/or additional authorizations, such as National Pollution Discharge Elimination System (NPDES) permit, as applicable.

This project type also includes removal and/or management of nonnative predatory fish and other nonnative fish and wildlife, as long as the activity is associated with a restoration project.

Revegetation with Native Plants

Revegetation with native plants should mimic the area's naturally occurring riparian and aquatic habitats and use seed or plant stock from the local watershed. Activities may include:

- Planting and seeding native trees, shrubs, and herbaceous plants
- Placing sedges, rushes, grasses, succulents, forbs, and other native vegetation
- Gathering and installing willow cuttings, stakes, mats, and fences
- Temporary irrigation
- Coordination with upstream operators to control dam releases or instream flow levels to provide water during plant establishment

A.4.9 Establishment, Restoration, and Enhancement of Tidal, Subtidal, and Freshwater Wetlands

Establishing, restoring, and enhancing tidal, subtidal, and freshwater wetlands results in more wetland area, increased primary and secondary ecological productivity, and more diversity of habitat.

This project type generally involves grading (e.g., creating depressions, berms, and drainage features), installing related infrastructure (e.g., water control structures, siphons, sills, etc.), and/or breaching (e.g., excavating breaks in levees, dikes, and/or berms), or both, to create topography, improve water management capabilities, and/or improve hydrology that:

- Facilitates water delivery and conveyance to benefit aquatic species, wildlife, or wetland vegetative response
- Supports native wetland plants (planted or recruited naturally)
- Provides habitat elements for target species
- Provides other targeted wetland functions
- Allows fish and other aquatic species to use channel networks and marsh plains with hydrologic variability (seasonally or tidally)
- Provides hydrologic connectivity to local, low-lying subwatershed areas

These projects also establish, maintain, restore, or enhance off-channel and vernal pools to support habitat for amphibians or vernal pools, which support plants and animals.

Project types in this category also create ecotones (transitional zones between two habitat or community types [aquatic/upland interface]) and/or "living shorelines" that could use fill and excavation with native vegetation (submerged and/or emergent), alone or in combination with offshore sills (e.g., artificial reefs), to stabilize the shoreline.

Creation of ecotones could require extensive beneficial fill and have the potential to affect adjacent existing wetlands; however, these projects are necessary to allow tidal

wetlands to respond to sea level rise, and they provide refuge for native wildlife and buffer wetlands from adjacent municipal and industrial land uses.

Living shorelines can provide a natural alternative to “hard” shoreline stabilization methods like stone sills or bulkheads; they provide numerous ecological benefits, including water quality improvements, habitat for fish and invertebrates, and buffering of the shoreline from waves and storms.

Living shoreline projects use a suite of habitat restoration techniques to reinforce the shoreline, minimize coastal erosion, and maintain coastal processes while protecting, restoring, enhancing, and creating natural habitat for fish and aquatic plants and wildlife (e.g., wetlands, dunes, beaches, seaweed beds, rocky intertidal areas). The term “living shorelines” was coined because the approach provides living space for estuarine and coastal organisms. Strategic placement of native vegetation and natural materials or shells for native shellfish settlement enhances habitat values by creating new living space. The techniques also increase the connectivity of wetlands and deeper intertidal and subtidal lands while providing a measure of shoreline protection.

Living shoreline design strategies can use rock armoring, rock sill, groin, or breakwater installations only if the use of such design strategies is integral to the restoration basis of design.

Project types in this category include excavation, removal, and/or placement of fill materials to restore or approximate pre-disturbance site conditions; contouring wetlands to establish more natural topography, hydrology, and/or hydraulics; and setting back, modifying, or breaching existing dikes, berms, and levees.

This project category may also include:

- Constructing transitional tidal marsh habitat (i.e., “horizontal levees,” setback berms, or ecotones slopes, including revegetation and enhancement work in the associated upland transition, intertidal, and subtidal habitat zones)
- Thin-layer sediment augmentation for tidal marshes and nearshore habitat adaptation to rising sea levels (e.g., USFWS Salt Marsh Sediment Augmentation Project – Seal Beach)
- Biological enhancements to pilings, piers, and docks (e.g., wrapping pilings, and attaching tiles and ledges to increase surface area for intertidal and subtidal species)
- Biological enhancements to estuarine and coastal shoreline stabilization structures and other nature-based solutions
- Backfilling artificial channels
- Removing existing drainage structures, such as drain tiles
- Filling, blocking, or reshaping drainage ditches to restore wetland hydrology

- Establishing tidal/fluvial channels and wetlands in tidal waters where those wetlands previously existed, or have migrated or will migrate as a result of sea level rise
- Installing structures or fill necessary to establish wetland or stream hydrology
- Constructing nesting/planting islands
- Beach renourishment
- Constructing open water areas
- Constructing noncommercial, native oyster habitat (e.g., reefs) over an unvegetated bottom in tidal waters
- Conducting noncommercial, native shellfish seeding
- Establishing submerged aquatic vegetation (e.g., eelgrass beds) in areas where those plant communities previously existed (e.g., San Francisco Bay Eelgrass Restoration)

Activities needed to establish vegetation including plowing or disking for preparation of seed beds and planting appropriate wetland species may also be included.

Project activities that plan for climate change, including sea level rise, should be considered in tidally influenced locations. California's Climate Adaptation Strategy recommends using ecotones and living shorelines as a potential adaptation method to reduce the need for engineered "hard" shoreline protection devices and to provide valuable, functional coastal habitat (CNRA 2018). The California State Coastal Conservancy's Climate Change Policy also supports the use of living shorelines for their ability to improve the resiliency of estuarine habitat to future sea level rise and other related effects of climate change (SCC 2011). More information about the benefits of these projects for climate change resilience can be found in sources such as the: San Francisco Bay Subtidal Habitat Goals Report, Baylands Habitat Goals Science Update, USFWS Recovery Plan for Tidal Marsh Ecosystems of Northern and Central California, Wetlands on the Edge: the Future of Southern California's Wetlands [Southern California Wetlands Recovery Project Regional Strategy Update 2018], San Francisco Estuary Adaptation Atlas, San Francisco Estuary Blueprint, San Francisco Estuary Institute & The Aquatic Science Center New Life for Eroding Shorelines Report).

Ecotone habitat levees, where appropriate for an individual project location, should be used when new exterior levees are required to protect adjacent landowners from the return of tidal inundation. The project side of the levee should be constructed with areas of longer gentle slopes to accommodate upland refugia for sensitive salt marsh and brackish marsh species during higher tides associated with phenomena such as storm surges and king tide events. Interior berms' connection to adjacent uplands must consider access by predators during high tides. In addition, sidecast material should be used during the excavation of new channels to recontour pond bottoms to achieve the desired hydrology. This would include creating islands disconnected from uplands to provide future upland refugia and nesting areas in larger marshes.

Excavators, graders, bulldozers, dump trucks, front-end loaders, boats, barges, and similar equipment may be used to implement these projects.

A.4.10 Establishment, Restoration, and Enhancement of Stream and Riparian Habitat and Upslope Watershed Sites

Stream and Riparian Habitats

Establishing, restoring, and enhancing stream and riparian habitats provides the following benefits:

- Habitat complexity, diversity, and cover for fish and other aquatic species
- Increased spawning and rearing habitat
- Improved migration corridors
- Improved pool habitat and pool-to-riffle ratios
- Restoration of sinuosity
- Improved water quality
- Reconnection of the channel to the floodplain and associated functions

These projects may typically include the following activities:

- Placing large woody material and boulders
- Constructing engineered logjams
- Constructing porous boulder structures and vanes
- Installing small wood structures or beaver dam analogues
- Enhancing vegetation
- Conducting bank stabilization and erosion control work
- Stabilizing headcuts
- Augmenting and placing gravel
- Removing and replacing concrete-lined channels with natural materials

Project activities may also include excavating, sorting, placing, and contouring existing on-site materials (e.g., historic mine tailings) on perched floodplains and in channels to reconnect those habitats and improve spawning and rearing conditions.

Project types in this category typically occur in areas where channel structure is lacking because of past stream cleaning (removal of large woody material), riparian timber harvest, historic grazing and meadow dewatering practices, hydromodification, or urbanization, and in areas where natural gravel supplies are low as a result of human-caused disruptions. These projects occur in stream channels and adjacent floodplains to increase channel stability, rearing habitat, pool formation, deposition of spawning gravel, channel complexity, hiding cover, low-velocity areas, and floodplain function. Helicopters, excavators, dump trucks, front-end loaders, full-suspension yarders, and similar equipment may be used to implement these projects.

Engineered logjams are large wood structures that include an anchoring system, such as rebar pinning, ballast rock, or vertical posts. These structures are designed to redirect flows and change scour and deposition patterns. To the extent practical, they are patterned after stable natural logjams and can be anchored in place using rebar, rock, or piles (driven into a dewatered area or the streambank, but not in water). Engineered logjams create a hydraulic shadow (low-velocity zone downstream) that

allows sediment to settle. Scour holes develop adjacent to the engineered logjam. While providing valuable fish and wildlife habitat, they also redirect flow and can stabilize a streambank or downstream gravel bar.

Large woody material may be installed using either anchored or unanchored logs, or both, depending on site conditions and wood availability. Wood loading methods may include but are not limited to direct felling, whole-tree tipping and placement, use of helicopters, use of excavators, and grip hoisting.

Establishment, restoration, and enhancement of stream habitats may also include the following activities:

- Removing revetment and other streambank armoring materials
- Installing grade control structures using native/natural materials to improve general habitat and water quality, thus allowing establishment of native vegetation for birds, fish, and other species
- Improving stream morphology and channel dynamics; restoring sediment input and retention balance; and improving water quality
- Placing boulder structures (e.g., roughened channels, boulder ramps/riffle ramps, boulder weirs, vortex boulder weirs, boulder clusters, and single and opposing boulder wing deflectors)
- Placing imported spawning gravel

In addition, infrastructure located along streams and in riparian areas may be removed or relocated. The primary purpose of infrastructure removal is to eliminate or reduce impacts on riparian areas and vegetation, improve bank stability, reduce erosion, reduce sedimentation into adjacent streams, and provide for native revegetation or natural native plant recruitment. Among the types of infrastructure that could be removed or relocated are boat docks, boat haul-out locations, campgrounds and campsites, day-use sites, roads/trails, off-highway/off-road vehicle routes, and legacy railroad grades that affect aquatic resources or riparian habitat. See Section A.4.7, *Removal or Remediation of Pilings and Other In-Water Structures*, for further detail on removal of in-water structures.

Upslope Watershed Sites

Sites in upslope watershed areas may be restored to reduce the delivery of sediment to streams, promote natural hydrologic processes, and restore habitats for birds, amphibians, fish, and other species. This project type also includes road- and trail-related restoration including decommissioning, upgrading, and storm-proofing of roads and trails. The following are some of the specific techniques that may be used:

- Removing, installing, or upgrading culverts

- Constructing water bars[8] and dips
- Deep-ripping decommissioned roadbeds
- Reshaping road prisms to improve watershed functions
- Vegetating fill, cut slopes, and roadbeds
- Removing and stabilizing sidecast materials
- Grading or resurfacing roads and trails that have been improved for aquatic restoration, using gravel, bark chips, or other permeable materials
- Shaping the contours of the road or trail base
- Removing road fill to native soils
- Installing new culverts under trails or roads to reduce ditch length
- Stabilizing the soil and tilling compacted soils to establish native vegetation

These actions target priority roads and trails that contribute sediment to streams or disrupt floodplain and riparian functions.

This project type may also include installing exclusion fencing to manage or prevent grazing access to stream and riparian areas to facilitate the establishment of native riparian and stream habitat and the improvement of water quality. This project type includes controlled access to walkways that livestock use to cross streams and adjacent riparian areas. At stream crossings, gravel may be placed above the ordinary high-water mark within the fenced corridor to reduce trail erosion and delivery of sediment to the stream. Upland watering facilities (that do not involve water rights concerns) may be installed to reduce livestock use in riparian areas and stream channels. Planting native plants such as trees, shrubs, forbs, and graminoids may be necessary to manage invasive species and establish a healthy riparian corridor. Such projects reduce impacts of livestock on riparian soils and vegetation, streambanks, channel substrates, and water quality.

Equipment such as excavators, bulldozers, dump trucks, and front-end loaders may be used to implement these projects, which promote water quality and habitat improvement.

A.5 Programmatic Sideboards, General Protection Measures, and Other Requirements

In order to qualify for coverage under the Order, projects must meet the appropriate programmatic sideboards, general protection measures, and other conditions described in Sections A.5.1 through A.5.4. Section A.5.5 identifies activities that are prohibited under the Order.

Depending upon a project's construction details, not all general protection measures may be appropriate or necessary for a project to avoid and minimize impacts. Alternative measures may be proposed in the Notice of Intent for approving Water Board consideration to accommodate site-specific constraints or technological advances.

[8] A water bar or interceptor dike is a road construction feature that is used to prevent erosion on sloping roads, cleared paths through woodland (for utility companies such as electricity pylons), or other accessways by reducing flow length.

A.5.1 Programmatic Sideboards

Individual habitat restoration projects authorized through the Order should be designed, planned, and implemented in a manner consistent with the techniques and minimization measures presented in the following guidance documents, as appropriate to project type:

- CDFW's *California Salmonid Stream Habitat Restoration Manual*, Fourth Edition, Volume II (Flosi et al. 2010), which consists of the following four chapters:
  - Part IX, *Fish Passage Evaluation at Stream Crossings*
  - Part X, *Upslope Assessment and Restoration Practices*
  - Part XI, *Riparian Habitat Restoration*
  - Part XII, *Fish Passage Design and Implementation*
- CDFW Fisheries Restoration Grant Program guidance documents (http://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=183423)
- *NMFS Guidelines for Salmonid Passage at Stream Crossings* (NMFS 2001)
- *NMFS Fish Screening Criteria for Anadromous Salmonids* (NMFS 1997)
- *NMFS Science based and tools for evaluating stream engineering, management, and restoration proposals* (Skidmore et al. 2011)
- *Stream Habitat Restoration Guidelines* (Cramer 2011)
- Any relevant future updates, guidance, and/or agency requirements, where appropriate

Actions not guided by the above manuals but may be eligible for permitting under the Order include newer, innovative approaches to restoration design that are not yet in the manual but have demonstrated success. Examples include fishway operation and maintenance, and permanent removal of summer dams and other types of small dams.

The Order requires that all projects implement appropriate general protection measures, which are identified in the application materials, to reduce the potential for ancillary effects on aquatic resources, including effects on water quality, sensitive habitats, special-status species, and other riparian and aquatic species. These required measures are described below in Section A.5.2, *General Protection Measures.*

General administration of the Order will be conducted by the State Water Board. The State Water Board and Regional Boards will be responsible for enrolling individual restoration projects under the Order, as applicable, within their respective jurisdictional boundaries as outlined under Section A.3, Geographic Scope, above. The approving Water Board will have the authority to issue a Notice of Applicability (NOA).

A.5.2 General Protection Measures

All projects permitted under the Order must incorporate applicable general protection measures, identified below, to ensure avoidance and minimization of impacts to aquatic/ riparian resources from construction activities.

General protection measures are fundamental to enrollment under the Order and applicable measures must be incorporated into project design. The purpose of the Order's protection measures is to incorporate best management practices (often referred to as BMPs) into projects submitted for review and approval through the Order, and to avoid and/or minimize potential short-term, long-term and cumulative adverse effects. These standards and practices represent sound and proven methods to reduce the potential adverse effects of an action. However, modified measures may be proposed by the project proponent or recommended by the approving Water Board, based upon site-specific conditions or technological constraints or advances. Each general protection measure described herein may be used in combination with other measures, as applicable to each restoration project.

Specific measures may be modified, added, or removed on an individual basis by the project proponent with authorization from the approving Water Board or on a programmatic (or statewide) basis with the State Water Board's approval. Further, it is important to note that additional protection measures pertaining to resources outside of Water Board's jurisdiction may be recommended and/or required by other agencies to address potential resource impacts on a project-by-project basis. This may include measures addressing impacts to special-status wildlife, fish, and plant species, air quality, noise, cultural resources and others. These measures would typically be expected to be incorporated into projects as environmental commitments or as mitigation measures developed and committed to as part of the CEQA review process. (See the *Program Environmental Impact Report (PEIR) for Restoration Projects Statewide Order* for mitigation measures identified as part of the CEQA review process for this Order.) Additional conditions may also be required by other agencies during their permitting processes.

General Protection Measures

- **GPM-1: Receipt and Copies of All Permits and Authorizations:** Work will not begin until all necessary permits and authorizations have been received (e.g., USACE, USFWS, NMFS, State and Regional Boards, CDFW). The project proponent will ensure that a readily available copy of the applicable agency permits and authorizations (e.g., USFWS Biological Opinion, NMFS Biological Opinion, Section 404 permit, etc.) is maintained by the construction foreman/manager on the project site for the duration of project activities.

- **GPM-2: Construction Work Windows.** Construction work windows may be required in order to avoid impacts to aquatic resources and associated beneficial uses during the wet season. Project proponents must also follow the applicable Regional Board's construction work windows, unless otherwise approved.

- **GPM-3: Construction Hours.** Construction activities will generally be limited to daylight hours, to the extent feasible. If nighttime construction is necessary, including in tidally influenced waters where tides may limit daylight access and work schedules, all project lighting (e.g., staging areas, equipment storage sites, roadway, and construction footprint) will be selectively placed and directed onto the roadway or construction site and away from aquatic habitats. Light glare shields will be used to reduce the extent of illumination into aquatic habitats. If

the work area is near surface waters, the lighting will be shielded so that it does not shine directly into the water.

- **GPM-4: Environmental Awareness Training.** For projects occurring in aquatics resources (e.g., wetlands, riparian areas, etc.), prior to engaging existing or new personnel in construction activities, new construction personnel will participate in environmental awareness training conducted by an agency-approved biologist or resource specialist.[9] Construction personnel will be informed regarding the identification, potential presence, legal protections, avoidance and minimization measures, and applicable general protection measures for all aquatic resources with the potential to occur within or immediately adjacent to the project site. Construction personnel will be informed of the procedures to follow should aquatic resources be disturbed during construction activities. For projects where the agency-approved biologist or resource specialist is not regularly on the project site, training may be provided via online/web-based meeting with an interactive portion (e.g., web-based or in-person discussion) to be included during remote training sessions. For projects that may continue over an extended duration and require excessive training events, a training video developed under the supervision of the FWS-approved biologist or resource specialist may be used to train new personnel, as long as an FWS-approved biologist or resource specialist is available via phone to answer questions about the training or that may arise during construction

- **GPM-5: Environmental Monitoring.** As required in the NOA, a resource specialist will ensure that all applicable protective measures are implemented during project construction. The resource specialist will have authority to stop any work if they determine that any permit requirement is not fully implemented. The resource specialist will prepare and maintain a monitoring log of construction site conditions and observations, which will be kept on file.

- **GPM-6: Work Area and Speed Limits.** Construction work and materials staging will be restricted to designated work areas, routes, staging areas, temporary interior roads, or the limits of existing roadways. Prior to initiating construction or grading activities, brightly colored fencing or flagging or other practical means will be erected to demarcate the limits of the project activities, including the boundaries of designated staging areas; ingress and egress corridors; stockpile areas for spoils disposal, soil, and materials; and equipment exclusion zones. Flagging or fencing will be maintained in good repair for the duration of project activities. Vehicles will obey posted speed limits on public roadways and will limit speeds to 20 miles per hour (mph) within the project area on unpaved surfaces and unpaved roads (to reduce dust and soil erosion) or in areas where special-status species have the potential to occur. Speeds greater than 20 mph may be permitted in the project area where special-status species are not expected to occur (e.g., within areas from which special-status species have been excluded)

[9] Agency-approve monitor refers to monitors who demonstrate qualifications and can be approved by CDFW, NMFS, and/or USFWS and accepted by approving Water Board.

and where there is no risk of generating excessive dust (e.g., surfaces are paved, saturated, or have been treated with other measures to prevent dust).

- **GPM-7: Environmentally Sensitive Areas:** Monitoring, flagging, or fencing will be used, where appropriate, to minimize disturbance to environmentally sensitive areas (e.g., waters and wetlands).

  If fencing is used:

  - Fencing used must be approved by CDFW and/or USFWS for compatibility with species under their jurisdiction, as applicable, that may occur on site.
  - The agency-approved biologist or resource specialist will determine the location of fencing prior to the start of construction (e.g., between active work area(s) and sensitive resources).
  - Fencing will remain in place throughout the duration of the construction activities and will be inspected and maintained regularly by the agency-approved biologist or resource specialist until completion of the project.
  - Repairs to the fencing will be made within 24 hours of discovering any failure.
  - Fencing will be removed when all construction equipment is removed from the site, the area is cleared of debris and trash, and the area is returned to natural conditions.

- **GPM-8: Prevent Spread of Invasive Species.** The spread or introduction of invasive exotic plant species by arriving vehicles, equipment, imported gravel, and other materials, will be avoided to the maximum extent possible. When practicable, invasive exotic plants in the project areas will be removed and properly disposed of in a manner that will not promote their spread. Equipment will be cleaned of any sediment or vegetation at designated wash stations before entering or leaving the project area to avoid spreading pathogens or exotic/invasive species. Isolated infestations of noxious weeds identified in the project area will be treated with approved eradication methods at an appropriate time to prevent further formation of seed and destroy viable plant parts and seed. Wash sites must be in confined areas that limit run-off to any surrounding habitat and on a flat grade. Upland areas will use rice straw or invasive species-free local slash/mulch for erosion control, while the remainder of the project area will use certified, weed-free erosion control materials. Mulch must be certified weed-free. The project proponent will follow the guidelines in the CDFW's California Aquatic Invasive Species Management Plan (CDFW 2008) and Aquatic Invasive Species Disinfection/Decontamination Protocols (CDFW 2016), where relevant. Construction supervisors and managers will be educated on weed identification and the importance of controlling and preventing the spread of noxious weeds. The project proponent will follow any applicable local guidance to prevent the spread of invasive animal species. Construction supervisors and managers will be responsible for implementation of appropriate protocols (e.g., disinfection of equipment and footwear) to prevent the spread of invasive animals.

- **GPM-9: Practices to Prevent Pathogen Contamination.** The project proponent will review and implement restoration design considerations and best management practices as published by the Working Group for *Phytophthoras* in Native Habitats (www.calphytos.org), when there is a risk of introduction and spread of plant pathogens in site plantings. (http://www.suddenoakdeath.org/welcome-to-calphytos-org-phytophthoras-in-native-habitats/resources/#restoration.)

- **GPM-10: Equipment Maintenance and Materials Storage.** Vehicle traffic will be confined to existing roads and the proposed access route(s). All machinery must be in good working condition, showing no signs of fuel or oil leaks. Oil, grease, or other fluids will be washed off at designated wash stations prior to equipment entering the construction site. Inspection and evaluation for the potential for fluid leakage will be performed daily during construction. Where possible, and where it would not result in greater impact to aquatic resources, no equipment refueling, or fuel storage will take place within 100 feet of a body of water. All fuel and chemical storage, servicing, and refueling will be done in an upland staging area or other suitable location (e.g., barges) with secondary containment to prevent spills from traveling to surface water or drains. Project proponents will establish staging areas for equipment storage and maintenance, construction materials, fuels, lubricants, solvents, and other possible contaminants in coordination with resource agencies. Staging areas will have a stabilized entrance and exit and will be located in upland areas to the extent possible and at least 100 feet from bodies of water unless site-specific circumstances do not provide such a setback or would result in further damage to sensitive resources, in which case the maximum setback possible will be used. Fluids will be stored in appropriate containers with covers and properly recycled or disposed of offsite. Machinery stored on site will have pans or absorbent mats placed underneath potential leak areas as a precautionary measure to further reduce the potential for impact from an unintended or previously undetectable leak.

- **GPM-11: Material Disposal.** All refuse, debris, unused materials, and supplies that cannot reasonably be secured will be removed daily from the project work area and deposited at an appropriate disposal or storage site. All construction debris will be removed from the project work area immediately upon project completion. The Water Quality and Hazardous Materials measures (below), will be implemented as applicable to ensure proper handling and disposal of hazardous materials.

- **GPM-12: Fugitive Dust Reduction.** To reduce dust, construction vehicles will be speed restricted as described in GPM-6, *Work Area and Speed Limits* when traveling on non-paved surfaces. Stockpiled materials susceptible to wind-blown dispersal will be covered with plastic sheeting or other suitable material to prevent movement of the material. During construction, water (e.g., trucks and portable pumps with hoses) or other approved methods will be used to control fugitive dust, as necessary. Dust suppression activities must not result in a discharge to waters of the state unless such discharges are approved by the State or Regional Board.

- **GPM-13: Trash Containment and Removal.** During project activities all trash will be properly contained within sealed containers and removed from the work site and disposed of as necessary to maintain a trash-free work area (e.g., trash containers will not be used beyond capacity and fully close/seal).
- **GPM-14: Project Cleanup after Completion.** Work pads, temporary falsework, and other construction items will be removed from the 100-year floodplain by the end of the construction window. Removal of materials must not result in discharge to waterbodies.
- **GPM-15: Revegetate Disturbed Areas**. All temporarily disturbed areas will be de-compacted and seeded/planted with an assemblage of native riparian, wetland, and/or upland plant species suitable for the area. The project proponent will develop a revegetation plan, including (as applicable) a schedule; plans for grading of disturbed areas to pre-project contours; planting palette with plant species native to the project area; invasive species management; performance standards; success criteria; and maintenance requirements (e.g., watering, weeding, and replanting). Plants for revegetation will come primarily from active seeding and planting; natural recruitment may also be proposed if site conditions allow for natural recruitment to reestablish vegetation and avoid potential negative risks associated with erosion and impacts to water quality. Plants imported to the restoration areas will come from local stock, and to the extent possible, local nurseries. Only native plants (genera) will be used for restoration efforts. Certified weed-free native mixes and mulch will be used for restoration planting or seeding. Revegetation activities within and adjacent to waters of the state will commence as soon as is practicable after construction activities at a site are complete.

Water Quality and Hazardous Materials

Staging and Stockpiling of Materials

- **WQHM-1: Staging Areas and Stockpiling of Materials and Equipment.** Staging, storage, and stockpile areas must be outside of waters of the state. To the extent feasible, staging will occur on access roads or other previously disturbed upland areas, such as developed areas, paved areas, parking lots, areas with bare ground or gravel, and areas clear of vegetation, to avoid aquatic habitats and limit disturbance to surrounding habitats. Similarly, all maintenance equipment and materials (e.g., road rock and project spoil) will be restricted to the existing service roads, paved roads, or other determined designated staging areas. See GPM-10 for more details regarding protection measures for materials storage.

  Staging areas will be established for equipment storage and maintenance, construction materials, fuels, lubricants, solvents, and other possible contaminants in coordination with resource agencies. Staging areas will have a stabilized entrance and exit and will be located at least 100 feet from bodies of water unless site-specific circumstances do not provide such a setback, in such cases the maximum setback possible will be used. If an off-road site is chosen and if special-status species are potentially present, the Biological Monitor will

survey the selected site to verify that no aquatic resources would be disturbed by staging activities.

Stockpiling of materials, portable equipment, vehicles and supplies (e.g., chemicals), will be restricted to the designated construction staging areas. If rain is predicted in the forecast during the dry season, and stockpiled soils will remain exposed and unworked for more than 7 days, then erosion and sediment control measures must be used. If there is a high-wind scenario (to be defined by the approving Water Board as appropriate for an individual project site), then soils will be covered at all times. During the wet season, no stockpiled soils will remain exposed, unless properly installed and maintained erosion and sediment controls are in place on and around the stockpile. Temporary stockpiling of material onsite will be minimized. Stockpiled material will be placed in upland areas far enough away from aquatic habitats that these materials cannot discharge to a water of the state.

Erosion and Sedimentation Control Measures

- **WQHM-2: Storm Water Pollution Prevention Plan.** All projects covered by the NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit) will prepare and implement the required, site-specific, storm water pollution prevention plan (SWPPP).
- **WQHM-3: Erosion and Sediment Control Measures.** For projects that do not require coverage under a NPDES permit per GPM WQHM-2, the project proponent will develop and implement erosion and sediment control measures (or plan), which will include appropriate BMPs to reduce the potential release of water quality pollutants to receiving waters. BMPs may include the following measures:
  - Employ tackifiers, soil binders, or mulch as appropriate for erosion control.
  - Install sediment control measures, such as straw bales, silt fences, fiber rolls, or equally effective measures, at repair areas adjacent to stream channels, drainage canals, and wetlands, as needed. Sediment control measures will be monitored during and after each storm event for effectiveness. Modifications, repairs, and improvements to sediment control measures will be made as needed to protect water quality.
  - No sediment control products will be used that include synthetic or plastic monofilament or cross-joints in the netting that are bound/stitched (such as straw wattles, fiber rolls, or erosion control blankets), and which could trap snakes, amphibians, and other wildlife.

Other Water Quality Measures

- **WQHM-4: Hazardous Materials Management and Spill Response Plan.** As part of the SWPPP or Erosion Control Plan (WQHM-2 and WQHM-3), project proponent will prepare and implement a hazardous materials management and spill response plan. Project proponent will ensure that any hazardous materials

are stored at the staging area(s) with an impermeable membrane between the ground and hazardous material and that the staging area is designed to prevent the discharge of pollutants to groundwater and runoff water. Project proponent will stop work, follow the spill response plan, and arrange for repair and clean up by qualified individuals of any fuel or hazardous waste leaks or spills. (See WQHM-6. *Accidental Discharge of Hazardous Materials* for accidental discharges of a reportable quantity of a hazardous material, sewage, or an unknown material.) Project proponent will notify regulatory agencies within 24 hours of any leaks or spills. Project proponent will properly contain and dispose of any unused or leftover hazardous products off-site. Project proponent will use and store hazardous materials, such as vehicle fuels and lubricants, in designated staging areas located away from stream channels and wetlands, according to local, state, and federal regulations, as applicable. Also see GPM-10: *Equipment Maintenance and Materials Storage* for more detail on spill prevention.

- **WQHM-5: In-Water Concrete Use.** A dewatering plan must be submitted and approved by State and/or Regional Boards for in-water concrete use. Where possible, poured concrete should be excluded from contact with surface or groundwater during initial curing, ideally for 30 days after it is poured. During that time, runoff from the concrete will not be allowed to enter surface or groundwater. If this is not feasible due to expected flows and site conditions, commercial sealants that are non-toxic to aquatic life may be applied before it comes into contact with flowing water. Only sealants that have been tested and found non-toxic to freshwater aquatic life, including benthic macro-invertebrates, may be used on concrete surfaces that could come into contact with flowing water. Concrete is considered to be cured when water poured over the surface of concrete consistently has a pH of less than 8.5. (Note: Demonstration of non-toxicity to aquatic life may be evaluated by measuring survival of test organisms in a 96-hour bioassay. The bioassay should be performed according to the most up-to-date protocols in 40 C.F.R. part 136, currently *Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms*, 5th Edition (EPA-821-R-02-012), including sample collections, handling, and preservation per U.S. EPA protocols).

- **WQHM-6. Accidental Discharge of Hazardous Materials.** Following an accidental discharge of a reportable quantity of a hazardous material, sewage, or an unknown material, the following applies (Wat. Code, § 13271):

  As soon as (A) discharger has knowledge of the discharge or noncompliance, (B) notification is possible, and (C) notification can be provided without substantially impeding cleanup or other emergency measures then:

  - first call – 911 (to notify local response agency)
  - then call – Office of Emergency Services (OES) State Warning Center at: (800) 852-7550 or (916) 845-8911

- Lastly, follow the required OES procedures as set forth in: http://www.caloes.ca.gov/FireRescueSite/Documents/CalOESSpill_Booklet_Feb2014_FINAL_BW_Acc.pdf

  Following notification to OES, the discharger will notify the State or Regional Board (and other agencies requiring notification in their respective permits), as soon as practicable (ideally within 24 hours). Notification may be via telephone, e-mail, delivered written notice, or other verifiable means.

General In-Water Measures

- **IWW-1: Appropriate In-Water Materials.** Selection and use of gravels, cobble, boulders, and instream woody materials in streams, and other materials (e.g., oyster shells, other substrates) for reef/bed restoration will be performed to avoid and/or minimize adverse impacts to aquatic resources, special-status aquatic species, and their habitats. On-site gravels will be screened and sorted; gravels imported from a commercial source will be clean-washed and of appropriate size. As necessary to protect aquatic species, placement will be overseen by an agency-approved Monitor; implementation timing will be determined based on the least amount of overlap, or impact on, all aquatic natural resources that may be affected and the timing of their use of the receiving area. Imported gravel from outside the project watershed will not be from a source known to contain historic hydraulic gold mine tailings, dredger tailings, or mercury mine waste or tailings. Materials that may foul or degrade spawning gravels, such as sand or soil eroding from sand bag or earthen dams will be managed to avoid release and exposure in salmonid streams. Oyster shells or other substrates for reef/bed restoration will be cured and inspected to be free of pathogens and/or non-native species.

- **IWW-2: In-Water Vehicle Selection and Work Access.** If work requires that equipment enter wetlands or below the bank of a waters of the state, equipment with low ground-pressure (typically less than 13 to 20 pounds per square inch (psi)) should be selected where feasible to minimize soil compaction. Low ground-pressure heavy equipment mats should be used if needed to lessen soil compaction. Hydraulic fluids in mechanical equipment working in the waters of the state, will not contain organophosphate esters. Vegetable based hydraulic fluids are preferred, where feasible. The amount of time this equipment is stationed, working, or traveling in the waters of the state will be minimized. All equipment will be removed from the aquatic feature during non-work hours where appropriate or returned to the agency-approved staging area in the aquatic feature.

- **IWW-3: In-Water Placement of Materials, Structures, and Operation of Equipment.** Material used for bank stabilization or in-water restoration will minimize discharge sediment or other forms of waste to waters of the state. Where feasible, construction will occur from the top of the stream bank, or on a ground protection mat underlain with filter fabric, or a barge. All materials placed in streams, rivers or other waters will be nontoxic. Any combination of wood, plastic, cured concrete, steel pilings, or other materials used for in-channel structures will not contain coatings or treatments, or consist of substances toxic

to aquatic organisms (e.g., zinc, arsenic, creosote, copper, other metals, pesticides, or petroleum-based products) that may leach into the surrounding environment in amounts harmful to aquatic organisms. Except for the following conditions, equipment must not be operated in standing or flowing waters without site-specific approval from State or Regional Board staff:

- All construction activities must be effectively isolated from water flows to minimize the potential for runoff. This may be accomplished by working in the dry season or dewatering the work area in the wet season.
- When work in standing or flowing water is required, structures for isolating the in-water work area and/or diverting the water flow must not be removed until all disturbed areas are cleaned and stabilized. The diverted water flow must not be contaminated by construction activities.
- All open flow temporary diversion channels must be lined with filter fabric or other appropriate liner material to prevent erosion. Structures used to isolate the in-water work area and/or divert the water flow (e.g., coffer dam or geotextile silt curtain) must not be removed until all disturbed areas are stabilized.

♦ **IWW-4: In-Water Staging Areas and Use of Barges.** Where appropriate and practical, barges will be used to stage equipment and construct the project, while reducing noise, traffic disturbances and effects to terrestrial vegetation. When barge use is not practical, construction equipment and project materials may be staged in designated agency-approved staging areas. Existing staging sites, maintenance toe roads, and crown roads will be used to the maximum extent possible for project staging and access to avoid affecting previously undisturbed areas. For projects that involve in-water work for which boats and/or temporary floating work platforms are necessary, buoys will be installed so that moored vessels will not beach on the shoreline and anchor lines will not drag. Moored vessels and buoys will not be within 25 feet of vegetated shallow waters.

Dewatering Activities and Aquatic Species Relocation

♦ **IWW-5: Cofferdam Construction.** Cofferdams may be installed both upstream and downstream, and along portions of the cross section of a channel or other waterway if necessary to isolate the extent of the work areas. When feasible, construction of cofferdams will begin in the upstream area and continue in a downstream direction, allowing water to drain and allowing fish and aquatic wildlife species to leave (under their own volition), from the area being isolated by the cofferdam, prior to closure. The flow will then be diverted only when construction of the upstream dam is completed and the work area has been naturally drained of flow, at this point, the downstream dam, if necessary, would be completed and then flow would be diverted around the work area. Cofferdams and stream diversion systems will remain in place and fully functional throughout the construction period. In order to minimize adverse effects to aquatic species, stream diversions will be limited to the shortest duration necessary to complete in-water work. In-water cofferdams will only be built from materials such as

sandbags, plastic, clean gravel (possibly wrapped in impermeable material), rubber bladders, vinyl, steel, or earthen fill, in a manner that minimizes siltation and/or turbidity. Sandbags may only be used to build cofferdams upstream of spawning gravels when filled with clean gravel (or other material acceptable to the approving Water Board). Where possible, cofferdams should be pushed into place. If pile driving (sheet piles) is required, vibratory hammers should be used and impact hammer should be avoided. If necessary, the footing of the cofferdam will be keyed into the channel bed at an appropriate depth to capture the majority of subsurface flow needed to dewater the streambed. When cofferdams with bypass pipes are installed, debris racks will be placed at the bypass pipe inlet in a manner that minimizes the potential for fish impingement and/or entrapment. As needed and where feasible, bypass pipes will be monitored for accumulation of debris. All accumulated debris will be removed. When appropriate, cofferdams will be removed so surface elevations of water impounded above the cofferdam will not be reduced at a rate greater than one inch per hour. Cofferdams in tidal waters should be removed during the lowest possible tide and in slack water to the extent feasible to minimize disturbance and turbidity. This will minimize the probability of fish and other aquatic species stranding as the area upstream becomes dewatered. All dewatering/diversion facilities will be installed such that natural flow is maintained upstream and downstream of project areas.

An area may need to be dewatered for long enough to allow special-status species to leave on their own before final clearance surveys and construction can begin.

- **IWW-6: Dewatering/Diversion.** The area to be dewatered will encompass the minimum area necessary to perform construction activities. The project proponent will provide a dewatering plan with a description of the proposed dewatering structures, and appropriate types of BMPs for the installation, operation, maintenance, and removal of those structures. The period of dewatering/diversion will extend only for the minimum amount of time needed to perform the restoration activity and to allow special-status species time to leave on their own before final clearance surveys and construction can begin. Where feasible and appropriate, dewatering/diversion will occur via gravity-driven systems, and where water is pumped from within the construction area, it should be pumped to upland areas (where feasible) and to a location where it can infiltrate without return flows to the watercourse. Dewatering/diversion will be designed to avoid direct and preventable indirect mortality of fish and other aquatic species. If special-status fish species may be present in the area to be dewatered, a fish capture and relocation plan will be developed and implemented for review and approval by appropriate agencies (e.g., CDFW, NMFS, USFWS, as applicable). Stream flows will be allowed to gravity flow around or through the work site using temporary bypass pipes or culverts. Bypass pipes will be sized to accommodate, at a minimum, twice the expected construction-period flow, to not increase stream velocity, and will be placed at stream grade. Conveyance pipe outlet energy dissipaters will be installed to prevent scour and turbidity at the discharge location. When use of gravity-fed dewatering is not feasible and pumping is necessary to dewater a work site, a temporary siltation basin and/or

use of silt bags may be required. Silt fences or mechanisms to avoid sediment input to the flowing channel will be installed adjacent to flowing water. Water pumped or removed from dewatered areas will be conducted in a manner that does not contribute turbidity to nearby receiving waters. Where possible, pumps will be refueled in an area well away from the stream channel. Fuel absorbent mats will be placed under the pumps while refueling. Equipment working in the stream channel or within 25 feet of a wetted channel will have a double (i.e., primary and secondary) containment system for diesel and oil fluids.

- All work will comply with the CDFW Fish Screening Criteria (CDFW 2001) and NMFS Fish Screening Criteria for Anadromous Salmonids (NMFS 1997). Pump intakes will be covered with mesh per the requirements of current fish screening criteria to prevent potential entrainment of fish or other aquatic species that could not be removed from the area to be dewatered. The pump intake will be checked periodically for impingement of fish or other aquatic species. Diverted flows must be of sufficient quality and quantity, and of appropriate temperature, to support existing fish and other aquatic life both above and below the diversion. Pre-project flows must be restored to the affected surface water body upon completion of work at that location. Where diversions are planned, contingency plans will be developed that include oversight for breakdowns, fueling, maintenance, leaks, etc.
- **IWW-7: Fish and Aquatic Species Exclusion While Installing Diversion Structures.** Fish and other aquatic species will be excluded from occupying the area to be dewatered by blocking the stream channel above and below the area to be dewatered with fine-meshed block nets or screens while coffer dams and other diversion structures are being installed. Block net mesh will be sized to ensure aquatic species upstream or downstream do not enter the areas proposed for dewatering. Mesh will be no greater than 1/8-inch diameter. The bottom of the net must be completely secured to the channel bed. Block nets or screens must be checked at least twice daily at the beginning and end of the workday and cleaned of debris to permit free flow of water. Block nets or screens will be placed and maintained throughout the dewatering period at the upper and lower extent of the areas where aquatic species will be removed. Net placement is temporary and will be removed once dewatering has been accomplished or construction work is complete for the day.
- **IWW-8: Removal of Diversion and Barriers to Flow.** Upon completion of construction activities, any diversions or barriers to flow will be removed in a manner that will allow flow to resume with the least disturbance to the substrate and consideration of turbidity levels. Alteration of creek beds will be minimized to the maximum extent possible; any imported material that is not part of the project design will be removed from stream beds upon completion of the project.

In-water Pile Driving and Pile Replacement

- **IWW-9: In-Water Pile Driving Plan for Sound Exposure**. Project proponents will develop a plan for pile-driving activities to minimize impacts to special-status species and submit it to relevant agencies for approval prior to the start of in-

water pile driving activities. Measures will be implemented to minimize underwater sound pressure to levels below fish thresholds for peak pressure and accumulated sound exposure levels. Thresholds levels for special-status fish under NMFS jurisdiction are established in the Fisheries Acoustic Work Group's Agreement in Principle for Interim Criteria for Injury to Fish from Pile Driving Activities (FAWG 2008) and may be used as a guideline for special-status fish. The plan will describe the least impactful method to aquatic organisms, and will identify the number, type, and size of piles, estimated sound levels caused by the driving, how many piles will be driven each day, qualifications of monitors, any other relevant details on the nature of the pile driving activity, and the actions that will be taken to ensure a project stays within the required sound exposure thresholds.

- **IWW-10: In-Water Pile Driving Methods**. Pile driving will occur during approved work windows with reduced currents and only during daylight hours. Pile driving will be conducted with vibratory or low/nonimpact methods (i.e., hydraulic) that result in sound pressures below threshold levels to the extent feasible. Applied energy and frequency will be gradually increased until necessary full force and frequency are achieved. If it is determined that impact hammers are required and/or underwater sound monitoring demonstrates that thresholds are being exceeded, the contractor will implement sound dampening or attenuation devices to reduce levels to the extent feasible; these may include the following:

  - A cushioning block used between the hammer and pile.
  - Use of a confined or unconfined air bubble curtain.
  - If feasible, pile driving could be done in the dry area (dewatered) behind the cofferdam.

  Pile driving will follow the criteria outlined in the most recent version of the California Department of Transportation's *Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish* (Caltrans 2015).

- **IWW-11: Sediment Containment during In-Water Pile Driving**. Caissons or a continuous length of silt curtain, fully surrounding the pile driving area and installed in close proximity to piers, must be used as necessary and as practicable to protect aquatic resources and to provide sediment containment while construction activities are occurring if working in a wetted channel. The silt curtain will prevent the release of a turbidity plume and trap sediment that may become suspended as a result of the pile driving. The bottom of the silt curtains must be weighted with ballast weights or rods affixed to the base of the fabric to resist the natural buoyancy of the silt curtain fabric and lessen its tendency to move in response to currents. Where feasible and applicable, the floating silt curtains must be anchored and deployed from the surface of the water to just above the substrate. The silt curtain must be monitored for damage, dislocation or gaps and must be immediately repaired where it is no longer continuous or where it has loosened. The silt curtain must restrict the surface visible turbidity plume to the area of pile construction and must control and contain the migration of re-suspended sediments at the water surface and at depth.

- **IWW-12: Pile-driving Monitoring.** An agency-approved biologist will be on site during pile-driving activities to minimize effects to special-status species that could be present. If any stranding, injury, or mortality to special-status species is observed, federal and state wildlife agencies will be notified in writing (e.g., via email) within 24 hours and in-water pile driving will cease until the applicable federal and/or state agencies provide guidance on how to proceed.

Dredging Operations and Dredge Materials Reuse

- **IWW-13: Dredging Operations and Dredging Materials Reuse Plan**. Project proponent will develop and implement a dredging operations and dredging materials management plan to minimize the effects that could occur during dredging operations and material reuse and disposal. If material is being imported from off-site or if there are specific concerns about residual contaminants in the soil from historic land use activities (which can be determined on a site-specific basis in collaboration with the approving Water Board), the plan will describe a sampling program for conducting physical and chemical analyses of sediments before import and/or disturbance. It will also describe BMPs to be implemented during dredging operations (e.g., using less intrusive dredging procedures, properly containing dredging spoils and water, using silt curtains, methods to minimize turbidity, and timing dredging activity to coincide with low flows). The plan also will describe methods to evaluate the suitability of dredged material for reuse and disposal.

Vegetation/Habitat Disturbance and Revegetation, and Herbicide Use

Vegetation/Habitat Disturbance and Revegetation

- **VHDR-1: Avoidance of Vegetation Disturbance.** The project proponent will minimize, to the greatest extent feasible, the amount of soil, terrestrial vegetation, emergent native vegetation, and submerged vegetation (e.g., eelgrass and kelp in marine areas, or submerged aquatic vegetation in brackish and freshwater areas) disturbed during project construction and completion and using methods creating the least disturbance to vegetation. Disturbance to existing grades and native vegetation, the number of access routes, the size of staging areas, and the total area disturbed by the project will be limited to the extent of all temporary and permanent impacts as defined by the final project design. All roads, staging areas, and other facilities will be placed to avoid and limit disturbance to waters of the state and other aquatic habitats (e.g., streambank or stream channel, riparian habitat) as much as possible. When possible, existing ingress or egress points will be used and/or work will be performed from the top of the creek banks or from barges on the waterside of the stream or levee bank, or dry gravel beds. Existing native vegetation will be retained as practicable, emphasizing the retention of shade-producing and bank stabilizing trees and brush with greater than 6-inch diameter branches or trunks. Where possible, vegetation disturbance and soil compaction will be minimized by using low ground-pressure (typically less than 13 to 20 pounds psi) equipment that exerts less pressure per square inch on the ground than other equipment. To minimize impacts to vegetation, select equipment with a greater reach.

- **VHDR-2: Native and Invasive Vegetation Removal Materials and Methods:** If riparian vegetation is to be removed with chainsaws or other power equipment, machines that operate with vegetable-based bar oil will be used, as practicable. All invasive plant species (e.g., those rated as invasive by the California Invasive Plant Council or local problem species) will, if feasible, be removed from the project site, using locally and routinely accepted agriculture practices. Invasive plant material will be destroyed using approved protocols and disposed of at an appropriate upland disposal or compost area. Invasive plant materials stockpiled at sites known to experience flash flooding outside the flood season will be removed within 15 days of the initial creation of the stockpile in order to contain the potential spread of invasive plant material. Stockpiling of invasive plant materials is prohibited during the flood season.
- **VHDR-3: Revegetation Materials and Methods.** Upon completion of work, site contours will be returned to preconstruction conditions or to contours specified in a Water Board-approved project design that provides enhanced biological and hydrological functions. Where disturbed, topsoil will be conserved (and watered at an appropriate frequency) for reuse during restoration to the extent practicable. Native plant species comprising a diverse community structure (plantings of both woody and herbaceous species, if both are present) that follow an agency-approved plant palette will be used for revegetation of disturbed and compacted areas, as appropriate. See also GPM-15: Revegetate Disturbed Areas, which also allows for revegetation through natural recruitment (e.g., in tidal and managed wetlands and working landscapes where disturbed areas typically revegetate more quickly through natural recruitment than through seeding). Any area barren of vegetation as a result of project implementation will be restored to a natural state by mulching, seeding, planting, or other means with native trees, shrubs, willow stakes, erosion control native seed mixes, or herbaceous plant species following completion of project construction. Irrigation may also be required in order to ensure survival of containerized shrubs or trees or other vegetation, depending on rainfall. Soils that have been compacted by heavy equipment will be decompacted, as necessary, to allow for revegetation at project completion as heavy equipment exits the construction area.
- **VHDR-4: Revegetation Erosion Control Materials and Methods.** If erosion control fabrics are used in revegetated areas, they will be slit in appropriate locations as necessary to allow for plant root growth. Only non-monofilament, wildlife-safe fabrics will be used. All plastic exclusion netting placed around plantings will be removed after 2 years or sooner if practicable.
- **VHDR-5: Revegetation Monitoring and Reporting.** All revegetated areas will be maintained and monitored for a minimum of 2 years after replanting is complete and until success criteria are met, to ensure the revegetation effort is successful. The standard for success is at least 60% absolute cover compared to pre-project conditions at the project site or at least 60% cover compared to an intact, local reference site (or an available reference site accepted by the approving Water Board). If an appropriate reference site or pre-project conditions cannot be identified, success criteria will be developed for review and approval

by the approving Water Board on a project-by-project basis based on the specific habitat impacted and known recovery times for that habitat and geography. The project proponent will prepare a summary report of the monitoring results and recommendations at the conclusion of each monitoring year.

Herbicide Use

- **VHDR-6: General Herbicide Use.** Chemical control of invasive plants and animals will only be used when consistent with water quality control plans (e.g., basin plans) and when other methods are determined to be ineffective or would create greater environmental impacts than chemical control. Chemical use will be evaluated on a project-by-project basis with consideration of (and preference given towards) integrated pest management (IPM) strategies wherever possible. See University of California Statewide IPM Program for guidance documents (http://ipm.ucanr.edu/index.html). Broadcast spraying, including the use of aerial drones, may be used if it provides greater application accuracy and access.

  Chemical use is restricted in accordance with approved application methods and best management practices designed to prevent exposure to non-target areas and organisms. Any chemical considered for control of invasive species must be approved for use in California, adhere to all regulations per the California Environmental Protection Agency (CEPA 2011 or most recent version), and be applied by a licensed applicator under all necessary state and local permits. Use herbicides only in a context where all treatments are considered, and various methods are used individually or in concert to maximize the benefits while reducing undesirable effects and applying the lowest legal effective application rate, unless site-specific analysis determines a lower rate is needed to reduce non-target impacts. Treat only the minimum area necessary for effective control. Within 25 feet of any water of the state, only formulations approved by EPA and State Water Board for aquatic use will be utilized. Soil-activated herbicides can be applied as long as directions on the label are followed. Aquatic pesticides will be applied in compliance with NPDES order(s), where applicable (https://www.waterboards.ca.gov/water_issues/programs/npdes/pesticides/) or with authorization from the approving Water Board.

- **VHDR-7: Herbicide Application Planning.** Written chemical application recommendations should be provided by each project proponent from a certified Pest Control Advisor (PCA) (CEPA 2011). The PCA can ensure that legal, appropriate, and effective chemicals are used with appropriate methodologies. Field scouting must be done before application, and the licensed Applicator (CEPA 2011) must be on-site to lead all applications and will adhere to standard protection measures for application. Prior to field scouting or application, the PCA or licensed applicator, will receive Environmental Awareness Training (see GPM-4) for the project so that they are aware of special status species and habitats present at the project site.

- **VHDR-8 Herbicide Application Reporting.** The licensed applicator will keep a record of all plants/areas treated, amounts and types of herbicide used, and dates of application, and pesticide application reports must be completed within

24 hours of application and submitted to applicable agencies for review. Wind and other weather data will be monitored and reported for all application reports.

A.5.3 Pre-Application Consultation

The project proponent will contact the approving Water Board to submit available project information and request a pre-application consultation meeting prior to submittal of the NOI. The approving Water Board may waive the pre-application meeting requirement on a case-by-case basis.

Restoration projects can be complex and often benefit from pre-application consultation with the approving Water Board during the early stages of planning and design. During the pre-application consultation meeting, the approving Water Board will review project materials and provide project-specific guidance for navigating the approval process. A site visit may also be conducted at the discretion and request of the approving Water Board. Whether or not a waiver is granted, and/or the extent of the pre-application consultation, will depend on project complexity and development of design and planning.

A.5.4 Projects Requiring Oversight by Other Agencies

The following project types may require additional design review and oversight by other regulatory agency staff and agency engineers, including, but not limited to:

- NMFS—for projects where anadromous and/or marine fish considered federal special-status species[10] are present
- USFWS—for projects where freshwater fish and wildlife considered federal special-status species[10] are present
- CDFW—for projects where fish and wildlife considered state special-status species[10] are present

The aforementioned regulatory agencies may impose specific requirements, including but not limited to the following, for certain project types:

- For stream crossing projects, allow passage of the life stages and special-status salmonid species historically passing there.
- For retrofit culverts, meet the fish passage criteria for the passage needs of the special-status species and life stages that historically passed through the site before the existence of the road crossing according to NMFS Crossing Guidelines and CDFW stream crossing criteria (Part XII, *Fish Passage Design and Implementation*, of the CDFW *California Salmonid Stream Habitat Restoration Manual* [Flosi et al. 2010:Vol. II]).

[10] Special-status species are species that are legally protected or otherwise considered sensitive by federal or state resource agencies (federal Endangered Species Act [FESA], California Endangered Species Act [CESA], or Species of Special Concern) or by local resource agencies.

- Designs for fish ladders and culvert replacement or modification projects planned in fish-bearing waterways, reviewed and authorized by a NMFS (or CDFW) fish passage specialist before the start of work.
- Designs for fishways and culvert replacement or modification designs, designed and stamped by a State of California–registered Engineer.
- Designs for fishways, consistent with the fishway design guidelines presented in NMFS's *Anadromous Salmonid Passage Facility Design* (NMFS 2011).
- New fishways, constructed to provide passage conditions suitable for year-round, bidirectional movement by adult and juvenile salmonids.
- New fishways, have a maximum vertical jump of six inches, unless NMFS guidelines are changed.
- Flow patterns in new fishways, be stable, with no water surges.
- Energy dissipation in new fishways, be complete in a step-and-pool fishway, with no carryover from pool to pool.
- Sediment composition and quantity, and effects of sediment transport, evaluated by a qualified geomorphologist for all summer dam removal projects.

A.5.5 Activities Prohibited under the Order

The following activities are not within the scope of the Order and will require separate permitting approvals with the State Water Board and/or Regional Boards:

- Use of gabion baskets, boxes, or cages.
- Use of cylindrical riprap (e.g., Aqualogs).
- Use of undersized riprap (e.g., will not remain in place during a 100-year flow event or other standard accepted by the approving Water Board).
- Construction of permanent dams (does not apply to beaver dam analogs) or concrete-lined channels of any sort.
- Use of chemically treated timbers used for grade or channel stabilization structures, bulkheads, or other structures within or immediately adjacent to waters of the state, or where runoff from the treated material could enter waters of the state.
- Activities that result in long-term, substantial disruption of the movement of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the project areas.
- Elimination of a riffle, pool, or riffle/pool complex that is not replaced/enhanced elsewhere by the project. (Note: In some instances, a restoration project may affect or modify riffle/pool complex depending on project-specific conditions and design objectives. For example, a culvert removal may affect an existing pool. These types of projects would be allowed under the Order.)

- Water diversions, except diversions associated with water conservation projects as described in Section A.4.5, *Water Conservation*; diversions associated with delivery or conveyance to and within managed wetland habitats as described in Category A.4.9, *Establishment, Restoration and Enhancement of Tidal, Subtidal and Freshwater Wetlands*; and those necessary to temporarily dewater the construction site of a restoration project.
- Installation of flashboard dams, head gates, or other mechanical structures are generally prohibited; however there are exceptions for certain projects that require them to meet ecological goals (e.g., storage projects to reduce low flow stream diversions (Section A.4.5), off-channel/side-channel managed floodplain, and managed wetland habitat), and for the required replacement of legacy structures under the Small Dam, Tide Gate, Flood Gate, and Legacy Structure Removal project category.
- Creation or potential creation of a barrier to anadromous fish passage as determined by the NMFS fish passage guidelines or equivalent CDFW guidelines, as applicable (including any associated maintenance activities, or lack thereof).
- Use of excess riprap bank protection, other than the minimum amount needed to achieve project goals, as determined by the State Water Board or appropriate Regional Board, as applicable.
- Installation of infiltration galleries (subsurface structure, typically including perforated conduits in gravel, to expedite transfer of water to or from a soil).
- Managed surrogate floodplain and managed returned flows that do not allow for volitional movement (ingress and egress) of fish to the main channel (up and/or downstream).

A.6 Design Guidelines

Project type–specific design guidelines have been developed with assistance from multiple regulatory agencies (e.g., CDFW, NMFS, USFWS) to help project proponents during the design development of their individual projects, in a manner that is appropriate and sustainable, minimizes adverse effects on aquatic habitats, and maximizes the ecological benefits of the restoration. For example, these guidelines include designing restored streams in ways that provide fish passage and withstand probable flooding events. The project proponent may modify design approaches that do not conform with the specific guidelines, based on site-specific conditions or technological constraints or advances, or regionally accepted guidance documents. The guidance included in this section is not meant to encompass all possible project designs that may be approved for enrollment under the Order.

General

The design of restoration projects should be based on a process-based approach that considers the multiple interactions of physical, chemical, and biological processes over a wide variety of spatial and temporal scales in order to identify the root causes of the problems, and to confirm the proposed solution (project) will be effective and

appropriate given the physical setting (Kondolf et al., 2001; Simon et al., 2007; Smith and Prestegard, 2005; Wohl et al, 2005, Wohl et al., 2015).

Improvements to Stream Crossings and Fish Passage

Stream Crossing, Culvert, and Bridge Projects

Design guidelines for this category typically includes:

- All stream crossing projects permitted under the Order should consider storm-proofing measures presented in Weaver et al. (2014). Culverts should also conform to design guidelines for conveyance of the 100-year peak flow and associated sediment and wood loads, as specified in Cafferata et al. (2017).
- Projects located in channels that provide potential spawning and/or rearing habitat for anadromous salmonids should follow NMFS guidelines for salmonid passage at stream crossings.
- Bridges and culverts should be designed to adequately convey flow and materials (e.g., 100-year flood), in addition to allowing for fish passage. If a bridge/culvert is designed to convey less than the 100-year design flow, then the project should demonstrate how the smaller culvert avoids excessive erosion/ sedimentation, headcutting, or habitat impacts.
- Culverts should be designed to match channel gradients.
- All road and stream crossing structures should comply with current NMFS and CDFW fish passage guidelines and utilize stream simulations following NMFS Stream Simulation Design to inform the project design.
- Structures should be designed to provide passage for all life stages of native fish species.
- Bridges (including concrete box culverts, which are constructed as bridges in accordance with current NMFS and CDFW guidelines) should be designed with vertical abutments. Treated wood should not be used for bridge construction or replacement.
- Placement of rock slope protection (RSP) within the bankfull width of the stream should be avoided except for the minimum necessary for protection of bridge abutments and pilings, culverts and other stream crossing infrastructure. The amount and placement of any RSP should not constrict the bankfull flow. The toe of RSP used for streambank stabilization should be placed sufficiently below the streambed scour depth to ensure stability. Where RSP is deemed necessary, use natural stream material to fill and cover exposed rock and/or use bioengineered techniques, listed below, where appropriate.
- Drivable wet crossings should be appropriately armored on the downstream side to reduce potential for scouring.

Fish Screens

This category includes the installation, operation, and maintenance of fish screens on water intakes. See additional discussion in the Section A.5.3, *Pre-Application Consultation*.

Fishways

Design guidelines for this type includes:

- Fishway projects should conduct watershed and reach scale analysis of the hydrograph, sediment and large woody debris supply and transport, and of streambed and bank dynamics (e.g., is the channel actively incising or aggrading) to confirm that the proposed design is appropriate and expected to function as designed over the lifetime of the project (20-to-30 years).
- Design fishways should be based on target species, level of maintenance, and monitoring requirements to ensure reliable fish passage.
- Where appropriate, design fishways considering passage for other aquatic wildlife species (e.g., amphibians), in addition to that of salmonids, sturgeon and other native fish species. Fishways primarily designed for salmonids can be impediments to passage of other aquatic species, if they do not have adequate surfaces for attachment, velocities are too high, or there are inadequate places for resting. For example, providing for rounded corners, resting areas or providing a natural stream channel (stream simulation) or wetted ramp for passage over the impediment have been effective in facilitating passage of other aquatic wildlife.
- See additional discussion above, Section A.5.3, *Pre-Application Consultation*.

Headcut Stabilization

Design guidelines for headcut stabilization includes:

- Where appropriate based on evaluation and review with agencies (i.e., low risk to property and infrastructure), project designs should consider avoiding headcut stabilization and allow the stream to naturally adjust to a new grade. Where headcut stabilization is necessary, provide fish passage through constructed riffles for pool/riffle streams or a series of log or rock structures for step/pool channels as described below.
    - Headcuts should be designed with sufficient amounts of appropriately sized and installed material to prevent continued up-stream migration of the headcut. Materials could include both rock and organic materials.
    - Materials should not contain gabion baskets, boxes, or cages sheet pile, concrete, articulated concrete block, and cable anchors.
    - Stabilization efforts should focus on the plunge pool, the headcut, as well as a short distance of stream above the headcut.

  - Designs should minimize lateral migration of channel around headcut ("flanking") by placing rocks and organic material at a lower elevation in the thalweg to direct flows to the natural low point of the channel.

- If large wood and boulder placement will be used for headcut stabilization, refer to conditions for large wood as described under Stream and Riparian Habitat Establishment below.
- Construct structures in a 'V' or 'U' shape, oriented with the apex upstream, and lower in the center or along the thalweg, to direct flows to the middle of channel.
- Key structures into the streambed to minimize structure undermining due to scour, if practicable, at least 2.5x their exposure height. The structures should also be keyed into both banks—if feasible greater than 8 feet.
- If several structures will be used in series, consider spacing them at the appropriate distances to promote fish passage of all life stages of native fish. Consider incorporating current NMFS and/or CDFW fish passage criteria (e.g., jump height, pool depth, etc.) in the design of step structures. Spacing should be no closer than the net drop in water surface elevation (in feet) divided by the channel gradient (in percent expressed as a decimal)) (e.g., a one-foot high step structure in a stream with a two-percent gradient should have a minimum spacing of 50 feet [1/0.02]).
- Designs should consider including gradated (cobble to fine) material in the rock structure material mix to help seal the structure/channel bed, thereby preventing subsurface flow and ensuring fish passage immediately following construction if natural flows are sufficient.

Small Dam, Tide Gate, Flood Gate, and Legacy Structure Removal

Small Dam Removal

See additional discussion above under Section A.5.3, *Pre-Application Consultation*.

Tide Gate Removal

Design guidelines for tide gate removal includes:

- If a culvert or bridge will be constructed at the location of a removed tide gate, consider designing the structure to allow for full tidal exchange, if feasible.

Removal of Legacy Structures

Design guidelines for legacy structure removal includes:

- If the structure being removed contains material (i.e., large wood, boulders, concrete, etc.) not typically found within the stream or floodplain at that site, consider disposing of removed material at an approved landfill or disposal site.
- If the structure being removed contains material (i.e., large wood, boulders, etc.) that is typically found within the stream or floodplain at that site, the material could be reused to implement habitat improvements described under other restoration project types in the Order.

- If the structure being removed is keyed into the bank, consider filling in "key" holes with native materials to restore contours of stream bank and floodplain. Fill material should be adequately compacted to prevent washing out of the soil during over-bank flooding. Material from the stream channel should not be mined to fill in “key” holes.
- When removal of buried log structures may result in significant disruption to riparian vegetation or the floodplain, consider using a chainsaw to extract the portion of log within the channel and leaving the buried sections within the streambank.
- If the legacy structures (log, rock or gabion weirs) were placed to provide grade control, evaluation of the site for potential headcutting and incision due to structure removal should be conducted. If headcutting and channel incision are likely to occur due to structure removal and are not desired to achieve proper functioning habitat conditions, additional measures should be taken to minimize these impacts, to the extent practicable.

Bioengineered Bank Stabilization

Guidelines for stream bank stabilization techniques are described in Part VII of the CDFW Manual, *Project Implementation*. Design guidelines for this project type includes:

- Restore damaged streambanks to a natural slope and profile suitable for establishment of riparian vegetation.
- When necessary, consider the use of soil layers or lifts that are strengthened with biodegradable fabrics that are penetrable by plant roots.
- Include large wood to the extent it would naturally occur. If possible, wood should have untrimmed root wads to provide functional refugia habitat for fish. Wood that is already within the stream or suspended over the stream may be repositioned to allow for greater interaction with the stream.
- Use a diverse assemblage of vegetation species that is appropriate for the project area, including trees, shrubs, and herbaceous species. Vegetation, such as willow, sedge and rush mats, may be gathered from abandoned floodplains, stream channels, etc., if the soil is not contaminated with pathogens
- Install fencing and signage, as necessary to prevent access to revegetated sites by livestock or unauthorized persons. Coordination with local public agencies, such as police and social work groups, should be considered for site protection.
- Limit the extent and quantity of rock or boulders to the minimum necessary to prevent scour from expected moderate to high stream flows and velocities. For projects that will restore fish passage, bridge abutments and associated infrastructure may require additional boulder and rock bank stabilization.

Off-Channel/Side-Channel Habitat Restoration and Enhancement

Design guidelines for this project type includes:

- Off- and side-channel habitat restoration site selection and design should be based, in part, on the review of evidence of historical channel location, such as land use surveys, historical photographs, topographic maps, remote sensing information, or personal observation.
- Excavated material removed from off- or side-channels should be hauled to an upland site or spread across the adjacent floodplain, as long as the soil is considered suitable for application (e.g., free of contaminants and/or pathogens), in a manner that does not restrict floodplain capacity or otherwise degrade floodplain function and is in compliance with regulations.
- Where special-status species that require access to stream habitat are present, a project should not create habitats that could attract fish and then become isolated from the stream without providing special status fish an opportunity to return to the stream. Instead, off-channel features should be designed so that they slope towards and drain to the primary stream habitat as streamflow subsides. Isolated pools or ponds that do not incorporate return channels to the stream should be located at an appropriate distance away from the edge of the active channel to avoid temporary connectivity and subsequent fish stranding following flood events. Projects should not result in stranding of fish in isolated water bodies.

Water Conservation Projects

Design guidelines for this project type includes:

- Design tanks so that water diverters have sufficient storage capacity to cover any domestic, irrigation, or livestock needs during the no-pump time periods, (e.g., dry season). No-pump time period should be based upon the season, local conditions, forbearance agreement and existing studies if available.
- Screen all pump intakes in accordance with current NMFS and CDFW fish screen criteria.
- Register water conservation projects that include water storage tanks and a forbearance agreement for the purpose of storing winter and early spring water for summer and fall use, pursuant to California Water Code § 1228.3 and with the State Water Board, as applicable.

Floodplain Restoration

Design guidelines for floodplain restoration projects include:

- As applicable, fish passage and or screening needs should be addressed with the installation of new structures.
- <u>Channel reconstruction, reset, or relocation:</u>
  - Design actions to restore floodplain characteristics—elevation, width, sinuosity, gradient, length, and roughness—in a manner that closely mimics

or resets, to the extent possible, those that would naturally occur at that stream and valley type.

- Where appropriate, remove non-native fill material from the channel and floodplain to an upland site or appropriate offsite disposal location, potentially including a landfill (for human debris).
- Where appropriate, construct geomorphically appropriate stream channels and floodplains (e.g., enable natural transport processes including the creation of depositional and scour features) within a watershed and reach context.
- When necessary, decompact soils once overburden material is removed. Overburden or fill comprised of pathogen free (where feasible) and native materials, which originated from the project area, may be used within the floodplain where appropriate to support the project goals and objectives.
- Structural elements should fit within the geomorphic context of the stream system. For example, construct riffles preferentially in pool-riffle stream types, and roughened channels and boulder step structures in step-pool and cascade stream types.
- To the extent feasible, select weed-free locally occurring material (large wood, rock, sand, gravel) that mimic natural stream system materials.
- To the extent feasible, salvage and utilize existing native materials such as sod, willows, and topsoil.

♦ <u>Setback or removal of existing berms, dikes and levees:</u>

- Design actions to restore floodplain characteristics—elevation, width, gradient, length and roughness—in a manner that closely mimics, to the extent possible, those that would naturally occur in that area.
- Remove drain pipes, fences, concrete and other structural improvements to the extent possible.
- Remove non-native fill material from the floodplain and, if pathogen free, reuse or dispose of it at an upland site, to the extent possible. Trash and debris should be disposed at an appropriate offsite disposal location, potentially including a landfill (for human debris).
- Where it is not possible to remove or setback all portions of dikes and berms, or in areas where existing berms, dikes and levees support abundant riparian vegetation, and their removal or setback is not part of the project design, openings may be created with carefully planned and approved breaches. Timing and spacing of breaches should be planned for maximum positive environmental outcomes.
- When necessary for plant establishment, loosen compacted soils once overburden material is removed. Overburden or fill comprised of native materials, which originated from the project area, may be used within the

floodplain, only if pathogen free (where feasible), to create set-back dikes and fill anthropogenic holes provided that floodplain function is not impeded.

Piling and Other In-Water Structure Removal

Design guidelines for this project type includes:

- Removing an intact pile:
  - Install caissons and a floating surface boom to capture floating surface debris, as necessary.
  - To the extent possible, keep all equipment (e.g., bucket, steel cable, vibratory hammer) out of the water, grip piles above the waterline, and complete all work during low water level and low current conditions.
  - Dislodge the piling with an excavator bucket (through pushing and pulling) or vibratory hammer, whenever feasible. Never intentionally break a pile by twisting or bending.
  - Slowly lift piles from the sediment and through the water column.
  - Place chemically treated piles in a containment basin on a barge deck, pier or shoreline without attempting to clean or remove any adhering sediment. A containment basin for the removed piles and any adhering sediment may be constructed of durable plastic sheeting with sidewalls supported by hay bales or another support structure to contain all sediment.
  - Fill the holes left by each piling with clean, native sediments located from the project area if available, as needed.
  - Dispose of all removed piles, floating surface debris, any sediment spilled on work surfaces, and all containment supplies at a permitted disposal site.
  - Pile cutting should be considered a last resort following multiple attempts to fully extract piling using other methods. If cutting piles, piles should be cut below the mudline to provide more habitat and ensure that as much debris is removed as possible. Areas with low levels of contamination, wave and/or currents conducive to mixing (i.e., high energy environments), and/or small numbers of piles removed may not need to be cut to prevent remobilization of contaminants.
- Removing a broken pile:
  - If dredging is likely in the area of piling removal, use a global positioning device (GPS) to note the location of all broken piles for future use in site debris characterization. Test soil prior to conducting any dredging to determine if sediments are contaminated and manage dredged materials appropriately based on testing results.
  - If a pile breaks above the surface of uncontaminated sediment, or less than 2 feet below the surface, every attempt short of excavation should be made to remove it entirely.

- If a pile breaks above presumed, or known contaminated sediment, saw the stump off at the sediment line; if a pile breaks within contaminated sediment, make no further effort to remove it and cover the hole with a cap of clean substrate appropriate for the site, as applicable.

Non-Native Terrestrial and Aquatic Invasive Species Removal and Native Plant Revegetation

Design guidelines for this project types includes:

- Design species palette for revegetation based on the species that naturally or historically occur in the project area, have the best chance of survival considering current site conditions, and can provide required habitat elements for special-status species.
- Control nearby vegetation that will compete with plantings, especially weed species listed as invasive in the Cal-IPC Inventory. This could include clearing and maintaining a 24” diameter buffer around plantings.
- Where appropriate, test and prepare the soil prior to planting. The soil in planting and seeding areas should be finish graded, pathogen-free, weed-free, de-compacted and amended as appropriate given the habitat and site conditions. Decompaction to a minimum depth of 6 inches is recommended.
- Revegetation that is not dependent on irrigation systems is generally preferred; however, there can be instances where irrigation is desirable. If an irrigation system is necessary for plant reestablishment, install and have the system operational prior to installation of planting, or prior to any periods where the weather forecast may jeopardize successful establishment of plants.
- Acquire native seed or plant sources as close to the project site as possible. Keep seed in a cool dry place during delivery and when temporarily stored onsite, protect seed from moisture, wind, heat, vandalism, rodents, insects, weather, and other conditions that would damage or impair viability of seed.
- For installation of pole cuttings, source cuttings from healthy plants, limiting collection to no more than 30% of individual plants or populations. Pole cuttings should be taken from live wood at least one-year-old or older. Keep cuttings moist until planted.
- Appropriately size prefabricated vegetated mats (i.e., sedge and rush mats) within riparian zone, channels, floodplains, and areas with high runoff, to prevent their movement during high flow events.
- Plant cuttings when dormant and within 48 hours of collection, if possible. Do not allow cuttings to dry out. Pole cuttings should be installed at a depth sufficient to allow root growth into the groundwater table, or as necessary to provide long-term survival of the planting.
- Enclose plantings with fencing, cages, tubex or other protective measure, as appropriate, in areas where plantings are subject to browse by animals, such as

deer, elk, beavers, livestock, gophers, or moles. Remove any non-biodegradable fencing material after plantings are adequately established.

Tidal, Subtidal, and Freshwater Wetland Establishment, Restoration, and Enhancement

Design guidelines for this project types includes:

- Implement projects to repair or restore estuary functions, while not putting adjacent landowners at increased flood risk once dikes/levees are breached and the project area is flooded.
- Where possible, recreate historic channel morphology that supports wetland function. Channel designs may be based on aerial photograph interpretation, literature, topographic surveys, and nearby undisturbed channels. Channel dimensions (width and depth) are based on measurements of similar types of channels and the drainage area. For example, channels may have varied topography throughout their length to encourage sinuosity of the developing channel.
- To the extent possible, prior to restoration, remove or decommission infrastructure or ditches that was were installed historically to drain wetlands or unwanted historical structures, such as duck blinds, docks, or boat hides. Restore contours created through the drain tile removal by backfilling the ditch with clean fill.
- Remove temporary access roads and decompact soils as necessary to support desired revegetation.
- Restore wetlands to elevations necessary to support the desired vegetation communities, accounting for anticipated natural sediment accumulation. Appropriate dredge material or other clean fill material may be imported to raise subsided landscapes, depending on the desired habitat to be restored. Overfill may be necessary to accommodate settling. When projects involve dredge material, conduct a pre-application consultation.
- If grading of intertidal plain (landform) is required, implement the following measures, to the extent feasible, to avoid and/or minimize adverse effects to water quality, aquatic resources, and/or special-status species:
  - after grading of tidal plane is complete, implement water management activities to re-vegetate and stabilize exposed soils on the plane prior to removing cofferdam and/or breaching dikes or levees;
  - install fish screens that meet NMFS, USFWS, and CDFW criteria, as applicable, on any new pump intakes that could be used for pre-breach water management activities; and
  - implement the following pre-breach water management measures:
    - release on-site water gradually; water from the project area should be released gradually to reduce the effect of potentially low dissolved oxygen

(DO) and high temperature water on the surrounding water body; this would allow the plume of degraded water to dissipate without harmful effects to aquatic life;

- limit water level management activities during migration periods for special-status species such as salmon to reduce the potential effects upon these species; and
- maintain short water residence time (high water exchange rate) to reduce the opportunity for adverse water quality conditions (i.e., high temperature or anaerobic) to develop; residence time is controlled by the rate at which water is exchanged between the managed area and its adjacent tidal source; projects should utilize appropriate water control structures that allow flexibility in management to avoid and/or minimize adverse water quality conditions.

- For projects that include the use of donor vegetation beds for use in restored marsh and/or emergent or submerged vegetation sites, no more than five percent of the below ground biomass of an existing donor bed should be harvested for transplanting purposes. Plants harvested should be taken in a manner that thins an existing bed without leaving any noticeable bare areas. Harvesting of flowering shoots for seed buoy techniques should occur only from widely separated plants and only a certain percent of the donor stock may be used per year. This percent is site dependent and prior to restoration requires intimate knowledge of the genetics and population dynamics of the donor site.
  - Shellfish substrate should be placed to encourage oyster larval recruitment. Substrate could be placed on hard substrate that represents former reef habitat, if the hard substrate is not currently producing oysters at a sustainable level. Natural substrate (oyster or clam shells) is preferred due to the oysters' affinity for it but is not always available. Shells are most often deployed loose or in mesh bags. Artificial substrate should be used when there is not enough shell substrate available to create larger reef areas or when the bottom substrate is unstable and substantial sinking of the reef is likely to occur. Common artificial substrates include limestone rock and baycrete (e.g., Reef Balls, Oyster Castles, etc.). Regardless of type, most substrate is deployed from a boat or barge, but in some shallow water situations, restoration practitioners and community volunteers may carry the substrate to the reef location.
  - If the local oyster population is not large enough to produce viable larvae or has been fully extirpated from the area, live shellfish should be released into the restoration area. Release single oysters or oyster spat on shell. Release non-reef-forming organisms such as clams and abalone as individuals, caged as necessary (e.g., to reduce predation).
  - Shell sources – Shell or other substance used for substrate enhancement should be procured from clean sources that do not deplete the existing supply of shell bottom. Shells should be left on dry land for a minimum of one month

before placement in the aquatic environment. Shells from the local area should be used whenever possible.

- Native species and disease – When possible, species native to the project area should be use. Any shellfish transported across state lines or grown through an aquaculture facility should be certified disease free (see also A Guide to Olympia Oyster Restoration and Conservation, June 2015 or the most recent update for example implementation approaches).

Stream and Riparian Habitat Establishment, Restoration, and Enhancement

Design guidelines for this project types includes:

- Where appropriate, the CDFW Manual and Fluvial Habitat Center at Utah State, Low-Tech Process-Based Restoration Design Manual (http://lowtechpbr.restoration.usu.edu/) should be consulted during the planning and design process.
- Large wood
  - For the purposes of large wood placement, trees may be felled or pulled/pushed over, if tree felling does not significantly degrade the habitat of special-status species (i.e., an active nest site), create excessive stream bank erosion, destabilize stream banks, create temperature increases in waterbodies, concentrate surface runoff.
  - Where feasible, retain trees killed through fire, insects, disease, blow-down and other means rather than felling live trees for the project. Retain snags and trees with broad, deep crowns (“wolf” trees), damaged tops or other abnormalities that may provide a valuable wildlife habitat component.
  - Stabilizing or key pieces of large wood should be intact, hard, with little decay, and if possible, have root wads (untrimmed) to provide functional refugia habitat for fish.
  - Orient key pieces such that the hydraulic forces upon the large wood increase stability. Wood pieces that are oriented parallel to flow are typically more stable than pieces oriented at 45 or 90 degrees to the flow.
  - Place large wood and boulders in areas where they would naturally occur and in a manner that closely mimic natural accumulations for that stream type. For example, boulder placement may not be appropriate in low gradient meadow streams. Engineered logjams should be patterned after stable natural log jams in the project area, either present or historical.
  - Project design should simulate log jams, debris flows, wind throw, tree breakage, and other disturbance events.
  - For engineered logjams that occupy >25% of the cross-sectional bankfull area, fish passage should be maintained consistent with NMFS and CDFW guidelines.

- Operating tractors, vehicles, or equipment on soils with high or extreme erosion hazard rating, known slides, or unstable areas, including slopes greater than 50% grade, should be avoided. On these high erosion soils with grades greater than 60%, aerial or cable operations may be necessary to retain bank stability.
- If large wood anchoring is required, a variety of methods could be used. These including buttressing the wood between riparian trees, and the use of manila, sisal or other biodegradable ropes for lashing connections. If hydraulic conditions warrant use of structural connections, rebar pinning or bolted connections could be used. Clean rock could be used for ballast but is limited only to that the extent needed to anchor the large wood.

♦ Stream Channel Reconstruction

- In situations where excessive sediment releases from the project site or surrounding watershed currently pose a threat to downstream habitat and organisms, use stream simulations following NMFS Stream Simulation Design to inform the project design. Stream simulation designs should:
  - identify a suitable reference reach;
  - quantify the average cross-sectional shape, bankfull width, bed and bank sediment grain size distributions, and the geomorphic features of the channel (e.g., pool-riffle sequences, meander lengths, step pools, etc.); and
  - reproduce the geomorphic features found within the reference reach in the project reach.

♦ Porous boulder structures and vanes

- Design and construct boulder step structures to allow upstream and downstream passage of fish species and life stages that occur in the stream.
- Size and select rock for boulder step structures that is durable and of suitable quality to assure long-term stability in the climate in which it is to be used. Rock sizing depends on the size of the stream, maximum depth of flow, planform, entrenchment, and ice and debris loading.
- Couple full spanning boulder step structure placement with measures to improve habitat complexity and protection of riparian areas to provide long-term inputs of large wood. Install full channel spanning boulder structures only where appropriate, such as:
  - in highly uniform, incised, bedrock-dominated channels to enhance or provide fish habitat;
  - in stream reaches where log placements are not practicable due to channel conditions (not feasible to place logs of sufficient length, bedrock

dominated channels, deeply incised channels, artificially constrained reaches, etc.);

- where damage to infrastructure on public or private lands is of concern;
- where private landowners will not allow log placements due to concerns about damage to their streambanks or property; or
- in parts of the state where boulders rather than large wood may typically be the predominant instream habitat feature.

- Avoid use of gabions, cable, or other means of non-natural structure to prevent the movement of individual boulders in a boulder step structure.
- Place boulder step structures diagonally across the channel or in more traditional upstream pointing “V” or “U” configurations with the apex oriented upstream.
- Install boulder structures low in relation to channel dimensions so that they are completely overtopped during channel-forming flow event (approximately a 1.5-year flow event).
- The project designer or an inspector experienced in these structures should be present on-site during installation.

♦ Gravel augmentation

- Limit gravel augmentation to locations where the natural supply has either been eliminated, significantly reduced through anthropogenic disruptions, or where it can be used to initiate gravel accumulations in conjunction with other projects, such as simulated log jams and debris flows.
- Size gravel with the proper gradation for the stream, using non-angular rock. When possible use gravel of the same lithology as found in the watershed.
- Do not mine gravel from the floodplain at elevations above bankfull in a manner that would cause stranding during future flood events. Avoid use of crushed rock.
- Use imported gravel that is free of invasive species and non-native seeds.
- Place gravel directly into the stream channel, at tributary junctions, or other areas in a manner that mimics natural debris flows and erosion.

♦ Road and trail erosion control and decommissioning

- Road and trail erosion control and decommissioning should use the Handbook for Forest, Ranch, and Rural Roads; A Guide for Planning, Designing, Constructing, Reconstructing, Maintaining and Closing Wildland Roads (Weaver et al. 2014) and any subsequent editions.
- When demolishing or removing road segments immediately adjacent to a stream, use sediment control barriers between the project and stream.

- Where feasible, use existing vegetative buffers along access roads or trails to avoid or minimize runoff of sediment and other pollutants to surface waters.
- Minimize disturbance of existing native vegetation in ditches and at stream crossings.
- Space drainage features used for stormproofing and erosion treatment projects to hydrologically disconnect road surface runoff from stream channels. If grading and resurfacing is required, use clean, permeable materials for resurfacing.
- To the extent feasible and appropriate, avoid or minimize activities that compact soil.
- Dispose of slide and waste material in stable sites out of the flood-prone area. Clean material may be used to restore natural or near-natural contours.
- For projects within riparian areas, recontour the affected area to mimic natural floodplain contours and gradient to the extent possible.
- For permanent decommissioning of roads, complete excavation of stream crossing fills, including 100-year flood channel bottom widths and stable side slopes. Excavate unstable or potential unstable sidecast and fill slope materials that could otherwise fail and deliver sediment to a stream. Perform road surface drainage treatments (e.g., ripping, outsloping, and/or cross draining) to disperse and reduce surface runoff.

♦ Road relocation

- When a road is decommissioned in a floodplain and future vehicle access through the area is still required, relocate the road away from the stream, as far as practical. New road construction should be outside of waters of the state.
- The drainage network should not be increased through a road relocation. Keep relocated road drainage features disconnected from the stream network to the extent practical. New cross drains should discharge to stable areas where the outflow will quickly infiltrate the soil and not develop a channel to a stream.

♦ Livestock fencing, stream crossings and off-channel livestock watering

- Livestock fencing to protect, restore, or establish aquatic or riparian resources
  - Design fence placement to allow for lateral movement of a stream, migration or dispersal of special-status species through the area, and establishment of riparian plant species. To the extent possible, fences should be placed outside the channel migration zone. Install cross-stream fencing at fords, with breakaway wire, swinging floodgates, hanging electrified chain, or other devices to allow the passage of floodwater and large woody material during high flows.
  - Fence posts and bracing (e.g., dead men) should not be set with wet concrete in waters of the state.

  - Where appropriate, construct fences at water gaps in a manner that allows passage of large wood and other debris.
  - Avoid use of riparian fencing to create livestock containment or handling facilities.
  - To protect the habitat, construct wildlife-friendly fences around springs to prevent livestock damage.
  - If pressure treated lumber is used for fence posts, complete all cutting and drilling outside the area of expected inundation so that treated wood chips and debris do not enter the channel.
  - Avoid and minimize vegetation removal when constructing fence lines, to the extent feasible. Large, established vegetation should not be removed.
- Livestock stream crossings to protect, restore, or establish aquatic or riparian habitat:
  - Design and construct essential livestock stream crossings to handle reasonably foreseeable flood risks, including associated bedload and debris, and to prevent the diversion of streamflow out of the channel and down the trail if the crossing fails.
  - Use existing access roads and stream crossings whenever possible, unless new construction would result in less habitat disturbance and the old trail or crossing is retired. Locate new livestock stream crossings or water gaps where streambanks are naturally low. Avoid placement of stream crossings in or near aquatic habitats for special-status species; livestock crossings or water gaps should not be in areas where compaction or other damage can occur to sensitive soils and vegetation (e.g., wetlands) due to congregating livestock.
  - Minimize the number of stream crossings within a single reach and across a watershed for livestock to limit vegetation disturbance and erosion.
  - Stream crossings and water gaps should be designed and constructed to the narrowest width adequate for expected use to minimize the time livestock will spend in the crossing or riparian area.
  - Discourage livestock loafing in the stream by locating crossings, where possible, out of shady riparian areas or by including gates in the design. Livestock-only crossing should be no less than 6 feet wide and no more than 30 feet wide, as measured from the upstream end to the downstream end of the stream crossing, not including the side slopes.
  - Use appropriate rock sizes that accommodate the intended traffic without causing injury to livestock or people, or damage to vehicles using the crossing. For a rock livestock crossing, use a hoof contact zone or alternative surfacing method over the rock.

- Off-Channel Livestock Watering
  - Limit the use of springs for livestock source water to ways that do not significantly damage the function of the spring (e.g., piping, fencing to keep out livestock), and do not degrade habitat for special-status species such that existing population would be permanently negatively affected.
  - Withdrawals for livestock watering should not dewater habitats, cause stream flow conditions that adversely affect special-status species, or significantly reduce habitat value.
  - Each livestock water development should have a float valve or similar device, a return flow system, a fenced overflow area, or similar means to minimize water withdrawal and potential runoff and erosion.
  - If water intakes are placed in native fish-bearing streams, screen surface water intakes to meet current NMFS, USFWS, and CDFW fish screen criteria. Screens should be self-cleaning, or regularly maintained by removing debris buildup. Conduct regular inspection and as needed maintenance on pumps and screens.
  - Place troughs or tanks far enough from a stream or surround with a protective surface to prevent mud and sediment delivery to the stream. Avoid steep slopes and areas where compaction or damage could occur to sensitive soils, slopes, or vegetation due to congregating livestock.
  - Troughs and other water capture and storage tanks that are accessible by wildlife should be equipped with properly designed and sized wildlife escape ramps to prevent wildlife from drowning.
  - Avoid and minimize removal of vegetation around springs and wet areas.
  - Part X of the CDFW Manual, *Upslope Assessment and Restoration Practices*, describes methods for identifying and assessing erosion, evaluating appropriate treatments, and implementing erosion control treatments.

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Final Attachment B
Notice of Intent Form

The purpose of the Statewide Restoration General Order (Order) is to expedite consultation, authorization, and permitting of eligible restoration projects. The structure, function, and biodiversity of aquatic and riparian resources are vulnerable to a variety of stressors associated with population growth and development, impacts from land use activities and legacy problems, disruption of native communities, changes to instream flows, effects of climate change, and the cumulative effects of past and present impacts. The goal of aquatic and riparian resource restoration is implementation of proactive, restorative measures to correct impairment, prevent further degradation, and/or increase resilience of natural (prior to impact from stressors) structure, function, or biodiversity. The Order is intended to promote projects to help restore the chemical, physical, and biological integrity of aquatic and riparian resource functions and services statewide.

Enrolling Projects Under the Order

The following provides an overview of the steps that occur *before* a restoration project is permitted under the Order.

Step 1: Read the Order. Project proponents must become familiar with the Order prior to submittal of a Notice of Intent (NOI). Not all projects will qualify for coverage based on the type of activity and other considerations (Order Section XIII Conditions). The site-specific restoration project must meet the definition of a "restoration project" (Order Section V) and project eligibility requirements (Order Attachment A). Verify eligibility with the approving Water Board if necessary.

Step 2: Determine CEQA lead agency. Consult with the California Environmental Quality Act (CEQA) lead agency to determine if the Environmental Impact Report for Implementation of Restoration Projects Statewide (SCH # 2019100230) can be used for CEQA coverage or if a project-specific CEQA document must be prepared (Attachment A, Figure A-2). Project proponent shall submit a Sacred Lands File & Native American Contacts List Request to the Native American Heritage Commission (NAHC) at the initial stages of project development (or as early as practicable) to determine if a project would have an impact on Native American cultural resources. If necessary, prepare CEQA compliance documentation. A CEQA Notice of Determination (NOD) or Notice of Exemption (NOE), as appropriate, must be filed by the CEQA lead agency before or concurrently with a Notice of Applicability (NOA) for an individual restoration project. The project proponent is responsible for paying CEQA filing fees, including the California Department of Fish and Wildlife (CDFW) CEQA Environmental Document Filing Fee (https://wildlife.ca.gov/Conservation/CEQA/Fees), if applicable. CEQA filing fees will be submitted by the CEQA lead agency with the NOD.

Step 3: Tribal consultation. If an additional CEQA document is necessary (Order Section XIII, E.7), the CEQA lead agency initiates tribal

consultation under AB 52 and California Governor's Executive Order B-10-11 within 14 days of the decision to undertake the project, or at least within 14 days of submission of a complete NOI to the approving Water Board. Consulting Tribes have 30 days to respond after receiving the request to consult.

Step 4: Pre-application consultation. Restoration projects often benefit from pre-application consultation with the approving Water Board during the early stages of planning and design. Project proponents shall request a pre-application consultation as soon as the project concept is developed, or at least 30-days prior to submitting the NOI. During the pre-application consultation, the approving Water Board will review project materials and provide project-specific guidance for navigating the approval process. The duration of the pre-application consultation will depend on project complexity and development of design and planning. See Order Section XIII Conditions, G.2. Specific Compliance for further information.

Where restoration activities may involve a FERC-licensed facility, the restoration project may be covered by this Order only upon receipt of written approval by the Deputy Director for the Division of Water Rights or their designee. Project proponents should request this approval from the State Water Board Division of Water Rights before submitting an NOI. If written approval is not obtained by the time of NOI submittal, project proponent must stay actively engaged with the State Water Board Division of Water Rights, and under no circumstance shall an NOA be issued without the required written approval.

Note that other regulatory agencies, such as U.S. Army Corps of Engineers (USACE), U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), California Department of Fish and Wildlife (CDFW), and California Coastal Commission (CCC), may also have authority separate and in addition to this Order to authorize restoration projects. Project proponents are encouraged to collaborate with other applicable regulatory agencies in coordination with the approving Water Board during project design, especially when fish passage and/or listed species are considerations.

Step 5: Submit a completed NOI and application fee. The NOI must be electronically submitted to the approving Water Board, including an electronic carbon copy (cc) to the State Water Board at: stateboard401@waterboards.ca.gov. Contact information for the Regional Boards can be obtained from the Telephone and Address Directory for the 401 Certification and Wetlands Program (http://www.waterboards.ca.gov/water_issues/programs/cwa401/docs/staffdirectory.pdf).

In addition to relevant information discussed at the pre-application consultation, the NOI must include:

1. Project design steps taken to first avoid, and then minimize, impacts to waters of the state.
2. Applicable General Protection Measures (GPMs listed in Attachment A) to be implemented for the project.
3. Mitigation Measures (per CEQA considerations) to be implemented for the project.
4. Proof of the Sacred Lands Search and proof of tribal notification (and opportunity to comment) regarding the proposed project.

The NOI application fee can be mailed to the appropriate Water Board or submitted electronically (https://www.waterboards.ca.gov/make_a_payment/). Projects authorized under this Order do not automatically qualify for a particular fee discharge category.

See Order Sections XII Application Fees and XIII Conditions for further information.

Step 6: Completeness determination. Within 30 calendar days of receipt of an NOI, the approving Water Board will determine in writing whether the NOI is complete and will transmit the determination to the project proponent. If the NOI is deemed incomplete, the Water Board will specify in writing the information needed to complete the NOI. When additional information is submitted, the approving Water Board will determine completeness within 30-days of receipt of the required information. A request for pre-application consultation (Step 4) is required and should reduce the likelihood of receiving an incomplete determination. The approving Water Board will also provide a 21-day public notice of applications for authorization under this Order.

Step 7: Notice of Applicability or Exclusion. Once the NOI is deemed complete and any applicable public comments resolved, the approving Water Board will either (a) issue an approval in the form of a Notice of Applicability (NOA) or (b) denial in the form of a Notice of Exclusion (NOE). If coverage is denied, the project proponent may request approval from the applicable Water Board through an individual certification or other general certification.

The following provides an overview of the steps that occur ***after*** a project has been approved for coverage under the Order.

Step 8: Project implementation. Implementation of the restoration project may proceed after all other state and federal permits or authorizations have been acquired. The Commencement of Construction Notice shall be submitted at least seven days before initial ground disturbance

Step 9: Project status notifications and reporting. The project proponent will submit the appropriate notifications and reports as outlined in the Order (Section XIII.B. Reporting and Notification Requirements) to the approving Water Board.

Step 10: Monitor the project and document findings. Water quality monitoring may be required by the approving Water Board during project implementation (Section XIII.C. Water Quality Monitoring).

Project proponents are required to inspect the project following completion in accordance with information provided in the NOI and approved in the NOA or in a separate approved Monitoring Plan (Section XIII.G.4. Monitoring Plan). The project proponent shall maintain documentation of site inspection findings and submit performance reports in accordance with a schedule agreed to in the NOA or separate approved Monitoring Plan.

Step 11: Submit a Request for Notice of Project Complete Letter. At the end of the monitoring and reporting period, the project proponent shall submit a project completion report to the approving Water Board and request a Notice of Project Complete Letter. The report shall include the information outlined in Attachment D, Reporting and Notification Requirements.

FINAL NOTICE OF INTENT
TO COMPLY WITH THE TERMS OF
ORDER FOR CLEAN WATER ACT SECTION 401 WATER QUALITY CERTIFICATION AND WASTE DISCHARGE REQUIREMENTS FOR RESTORATION PROJECTS STATEWIDE

ORDER WQ -2022-0048-DWQ

Regional Water Quality Control Board (Regional Board) and State Water Resources Control Board (State Water Board) - *FOR AGENCY TRACKING USE ONLY*			
WDID:	*Regional Board Office:*	*Date NOI Received:*	*Check No:*

I. MANDATE OR PROGRAM/FUNDING SOURCE

MARK ALL APPLICABLE (select "other" if not associated with the mandates or programs listed and identify an alternate program or funding source. The listed mandates and programs are not a requirement for eligibility for coverage):	☐ Water Bond (California Proposition 1) ☐ Parks, Environment and Water Bond (California Proposition 68) ☐ State Water Board Non-Point Source (319h) Grant Program ☐ CDFW Fisheries Restoration Grant Program Project ☐ DWR EcoRestore Program Project ☐ San Joaquin River Restoration Program Project ☐ Central Valley Flood Protection Plan and Conservation Strategy ☐ San Francisco Bay Restoration Authority ☐ Other Click here to enter text.

II. PROJECT and LEGALLY RESPONSIBLE PERSON INFORMATION

Project Title:	Click here to enter text.		
Legally Responsible Person Name:	Click here to enter text.		
Business/Agency:	Click here to enter text.		
Street Address:	Click here to enter text.		
City, County, State, Zip:	Click here to enter text.		
Telephone:	Click here to enter text.	Fax	Click here to enter text.
E-mail:	Click here to enter text.		

III. DULY AUTHORIZED REPRESENTATIVE INFORMATION

Duly Authorized Representative Name:	Click here to enter text.		
Business/Agency:	Click here to enter text.		
Street Address:	Click here to enter text.		
City, County, State, Zip:	Click here to enter text.		
Telephone:	Click here to enter text.	Fax	Click here to enter text.
E-mail:	Click here to enter text.		

IV. PROPERTY OWNER

Check Box if Same as Legally Responsible Person

Name:	Click here to enter text.		
Street Address:	Click here to enter text.		
City, County, State, Zip:	Click here to enter text.		
Telephone:	Click here to enter text.	Fax	Click here to enter text.
E-mail:	Click here to enter text.		

V. PROJECT LOCATION

A. Address or description of project location.				
Click here to enter text.				
B. Check box to verify that a map of at least 1:24000 (1" = 2000') detail of the proposed project site (e.g., USGS 7.5 minute topo map) is enclosed:				☐ Project Map Enclosed
C. County:	Click here to enter text.			
D. Assessor's Parcel No.:	Click here to enter text.			
E. Coordinates (*provide latitude/longitude in decimal degrees)*				
Latitude/Longitude:	*Latitude:*	Click here to enter text.	*Longitude:*	Click here to enter text.
F. Name the aquatic resources directly impacted by the project (provide name if known and type if unnamed):	Click here to enter text.			
G. Name the receiving watershed or water body:	Click here to enter text.			
H. Is the river or stream segment affected by the project listed in the state or federal Wild and Scenic Rivers Acts (https://www.rivers.gov/california.php)?	☐ yes ☐ no ☐ unknown ☐ not applicable			
I. Is the watershed listed as impaired under Section 303(d) of the Clean Water Act (https://www.epa.gov/tmdl/monitoring-assessment-and-tmdls-california)?	☐ yes ☐ no ☐ unknown Pollutant Category(ies):			
J. Has a Total Maximum Daily Load (https://www.waterboards.ca.gov/water_issues/programs/tmdl/) been established for the impairment?	☐ yes ☐ no Name: ☐ unknown			TMDL

VI. PROJECT INFORMATION (Attach additional pages as necessary and provide specific references to those attachments in the boxes below)

A. What eligible project type(s) does the project include? (*check one or more boxes below)*
☐ Improvements to Stream Crossings and Fish Passage ☐ Removal of Small Dams, Tide Gates, Flood Gates, and Legacy Structures ☐ Bioengineered Bank Stabilization ☐ Restoration and Enhancement of Off-Channel/Side-Channel Habitat ☐ Water Conservation Projects ☐ Floodplain Restoration ☐ Removal of Pilings and Other In-Water Structures ☐ Removal of Nonnative Invasive Species and Revegetation with Native Plants ☐ Establishment, Restoration, and Enhancement of Tidal, Subtidal, and Freshwater Wetlands ☐ Establishment, Restoration, and Enhancement of Stream and Riparian Habitat and Upslope Watershed Sites

B. Pre-application Consultation Meeting:	Request for meeting date (Month / Year)	Click or tap here to enter text.	Meeting date or waiver (Month / Year)	Click or tap here to enter text.
C. Estimated Project Schedule:	Beginning (Month / Year)	Click or tap here to enter text.	Ending (Month / Year)	Click or tap here to enter text.
D. Seasonal Work Period:				
E. Estimated Total Number of Work Days:				

F. Describe the project in detail and enclose diagrams, drawings, plans, and/or maps that provide all the following: site specific construction details; dimensions of each structure; extent of activity in the bed of the channel, bank, or floodplain; where equipment will enter or exit the area; if applicable, project overview showing the location of each structure and dimension of area of disturbance. (*Attach additional pages as needed*).
Click here to enter text.

G. 1. Describe project design steps taken to first avoid, and then minimize, impacts to waters of the state to the maximum extent practicable. 2. Identify the applicable General Protection Measures and other applicable environmental protection measures to be implemented. (*Attach additional pages as needed*).
Click here to enter text.

H. If the proposed restoration activities may involve a FERC-licensed facility, has the project proponent requested written approval by the Deputy Director for the Division of Water Rights or their designee?	☐ yes ☐ no ☐ unknown
I. Does the project require a new water right, change to an existing water right, or other water right approval from the State Water Board?	☐ yes ☐ no ☐ unknown

J. Specify the equipment and machinery (if any) that will be used to complete the project.
Click here to enter text.

K. Will flowing or standing water be present during the proposed work period:	☐ yes ☐ no ☐ unknown

L. Will the proposed project require work in the wetted portion of the aquatic resource? If yes, describe the work that will be required, the type of equipment to be used, whether dewatering will be required and method and design if required, how long equipment will be in the wetted portion of the aquatic resource, and if a Water Quality Monitoring Plan is required by the approving Water Board.	☐ yes ☐ no ☐ unknown
Click here to enter text.	

VII. DISCHARGE INFORMATION

A. Within the box provided below, identify the type(s) of material that are proposed to be "introduced", or "discharged" into waters of the state as a result of the project.

☐ Soil ☐ Rock Riprap ☐ Native Vegetation ☐ Non-native Vegetation ☐ Large woody material
☐ Rootwads ☐ Erosion Control Materials (jute netting, straw wattles, etc.) ☐ Culverts
☐ Anchoring (bolts, cables, rebar, chains, etc.) ☐ Fertilizers ☐ Pesticides[1] ☐ Concrete
☐ Other: Click here to enter text.

B. For each of the materials identified above, provide a brief narrative regarding the intended purpose and relation to waters of the state, including if available the volume, acreage, or quantity of material that is intended to be introduced or "discharged". Identify whether or not the material type is expected to cause a "temporary" or "permanent" impact. Include estimates of incidental material discharges that may occur from project implementation, or as a result of post-project adjustment.

Material Type and Intended Purpose	Volume, Acreage, or Number	Temporary Impact	Permanent Impact
1. Click here to enter text.	Click here to enter text.	☐ yes ☐ no	☐ yes ☐ no
2. Click here to enter text.	Click here to enter text.	☐ yes ☐ no	☐ yes ☐ no
3. Click here to enter text.	Click here to enter text.	☐ yes ☐ no	☐ yes ☐ no
4. Click here to enter text.	Click here to enter text.	☐ yes ☐ no	☐ yes ☐ no
5. Click here to enter text.	Click here to enter text.	☐ yes ☐ no	☐ yes ☐ no

[1] The point source discharge of aquatic pesticides into Waters of the United States requires a separate National Pollutant Discharge Elimination System (NPDES) permit administered by the State Water Resources Control Board. Information about pesticide permits can be found at the following Web address: http://www.waterboards.ca.gov/water_issues/programs/npdes/aquatic.shtml.

VIII. PROJECT SIZE, IMPACTS, AND ENVIRONMENTAL BENEFITS

A. Total Project Areas: Identify the acreage and linear feet of the aquatic and upland areas comprising the project site. The project size includes access, staging, and work areas.

	Project Size	
	Acres	Linear Feet
AQUATIC AREAS	Click here to enter text.	Click here to enter text.
UPLAND AREAS	Click here to enter text.	Not applicable
TOTAL	Click here to enter text.	Click here to enter text.

B. Temporary and Permanent Project Impacts and Benefits to Water of the State: For each of the applicable water body type(s) listed below, indicate the area(s) in ACRES and LINEAR FEET that will be temporarily impacted and permanently impacted by the project.[2,3] If applicable, indicate the volume of excavation and/or fill in each water body type in CUBIC YARDS. Quantify the water body type(s) that will be enhanced, restored, or rehabilitated when restoration activities are complete. Include proposed direct project impacts, including potential offsite and/or adjacent impacts to waters of the state.

Water Body Type	Project Impacts						Aquatic/Riparian Resource Established/ Enhanced/Restored	
	Temporary			Permanent				
	Acres	Cubic Yards	Linear Feet	Acres	Cubic Yards	Linear Feet	Acres	Linear Feet
Wetland	Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.
Vernal Pool	Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.

[2] Permanent impacts to aquatic resources include permanent loss of aquatic resource area or resource function resulting from a discharge of dredged or fill material that changes an aquatic area to dry land or changes the bottom elevation or dimensions of a waterbody, or changes the surface elevation or dimensions of a wetland.

[3] Temporarily impacted areas are those that can temporarily cause a physical loss and/or degradation of an aquatic resource. Temporarily impacted areas can include areas such as temporary material staging areas, parking lots, or access roads. Generally, temporarily impacted areas are those that can be restored to pre-project conditions within a short period of time (e.g. prior to the end of a growing season, or the occurrence of a sensitive resource period, such as a spawning season). The approving Water Board may determine on a project specific basis that specific time frames for restoration must be imposed to avoid temporal loss which would otherwise be included in the permanent loss estimates.

Riparian	Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.
Streambed/ Stream bank	Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.
Lake/ Reservoir	Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.
Ocean/ Estuary/Bay	Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.
TOTAL:	Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.

C. Describe the nature of direct temporary/permanent impacts and anticipated functional lift of aquatic resources below.

Click here to enter text.

IX. MONITORING PLAN

Monitoring and reporting information shall be included below to address temporary and permanent impacts to waters of the state. The level of detail of the monitoring and reporting requirements shall be commensurate with the scope, complexity, and objectives of the restoration project, and in consideration of project site conditions. Alternatively, the information can be provided in a separate Monitoring Plan attached to this NOI.

Monitoring Plan is attached (check box). If not attached, complete A. through H. below

A. Function(s) of the impacted water resources:
Click here to enter text.

B. Project purpose and goal(s):
Click here to enter text.

C. Measurable performance standards and success criteria appropriate to each goal:
Click here to enter text.

D. Monitoring parameters and protocols used to determine whether performance standards have been met:
Click here to enter text.

E. The timeframe and responsible party for determining attainment of performance standards:
Click here to enter text.

F. Monitoring schedule:
Click here to enter text.

G. Long-term management and maintenance practices and responsible party: Click here to enter text.
H. Reporting Schedule for the period stated as required for achievement of performance standards: Click here to enter text.

X. CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

All projects utilizing this Order must comply with the terms of the California Environmental Quality Act. The Order was analyzed in the Environmental Impact Report for Implementation of Restoration Projects Statewide (SCH # 2019100230)		
This project conforms to the requirements of CEQA through the Environmental Impact Report for Implementation of Restoration Projects Statewide (SCH # 2019100230).	☐ yes ☐ no	☐ The CEQA Lead Agency has prepared other/additional CEQA compliance documentation (noted below) Click here to enter text.
A. Additional information relative to CEQA compliance documentation: Click here to enter text.		

XI. OTHER DOCUMENTATION AND COMPLIANCE

Check and attach the following applicable documents or note approval status	
Required Permits/Approvals:	**Status (check one):**
☐ USACE Section 404 Clean Water Act Permit USACE Contact: Click here to enter text.	☐ In Review ☐ Approved ☐ Not Applicable
☐ USFWS Biological Opinion/Incidental Take Permit USFWS Contact: Click here to enter text.	☐ In Review ☐ Approved ☐ Not Applicable
☐ NMFS Biological Opinion/Incidental Take Permit NMFS Contact: Click here to enter text.	☐ In Review ☐ Approved ☐ Not Applicable
☐ CDFW Lake or Streambed Alteration Agreement (FGC 1600) CDFW Contact: Click here to enter text.	☐ In Review ☐ Approved ☐ Not Applicable
☐ CDFW Incidental Take Permit (FGC Section 2081) CDFW Contact: Click here to enter text.	☐ In Review ☐ Approved ☐ Not Applicable
☐ Coastal Development Permit or Consistency Determination CCC/ Local Coastal Plan (LCP) Contact: Click here to enter text.	☐ In Review ☐ Approved ☐ Not Applicable
☐ List Others: Click here to enter text.	☐ In Review ☐ Approved ☐ Not Applicable

Additional supporting documents (check if attached or note their status):

☐ Biological resources report ☐ Hydrology study ☐ Aquatic resources delineation report
☐ Pre-project photographs

XII. APPLICATION REQUIREMENTS AND FEES

Permit:	Submit Application to following:
401 Water Quality Certification and Waste Discharge Requirements for Restoration Projects Statewide	Approving Water Board, including an electronic carbon copy (cc) the State Water Board at: stateboard401@waterboards.ca.gov. Contact information for the Regional Boards can be obtained from the Telephone and Address Directory for the 401 Certification and Wetlands Program (http://www.waterboards.ca.gov/water_issues/programs/cwa401/docs/staffdirectory.pdf).
Fees:	Fees must be submitted with the NOI and are subject to the most current Dredge & Fee calculator. Refer to the Fees section of the Dredge/Fill (401) and Wetlands program web site for the most current fee information. https://www.waterboards.ca.gov/water_issues/programs/cwa401/#fees.

XIII. SIGNATURE / CERTIFICATION

State Water Resources Control Board: Notice of Intent to Comply with the Terms of Water Quality Certification and Waste Discharge Requirements for Restoration Projects Statewide

I certify under penalty of law that this application and all attachments were prepared under my direction or supervision in accordance with a process designed to assure that qualified personnel properly gather and evaluate the information submitted. The project proponent hereby certifies that all information contained herein is, true, accurate, and complete to the best of my knowledge and belief. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Legally Responsible Person	Date
Printed Name	
Duly Authorized Representative Signature	Date
Printed Name	

Final Attachment C
CEQA Findings of Fact

(Available with the Consolidated Final Program Environmental Impact Report at California State Water Resources Control Board, 401 Water Quality Certification and Wetlands Program Homepage https://www.waterboards.ca.gov/water_issues/programs/cwa401/)

Final Attachment D
Reporting and Notification Requirements

Report Submittal Instructions

1. Check the box on the Report and Notification Cover Sheet next to the report or notification you are submitting.
   - **Part A (Project Reporting):** Annual reports will be submitted annually within one month of the anniversary of the effective date of the NOA until a Notice of Project Complete Letter is issued. Post-construction monitoring reports will be submitted in accordance with the Monitoring Plan schedule.
   - **Part B (Project Status Notifications):** Used to notify the approving Water Board of the status of the Project schedule that may affect Project billing.
   - **Part C (Conditional Notifications and Reports):** Required on a case-by-case basis for accidental discharges of hazardous materials, violation of compliance with water quality standards, or other reports.
2. Sign the Report and Notification Cover Sheet and attach all information requested for the Report Type.
3. **Electronic Report Submittal Instructions:**
   Submit signed Report and Notification Cover Sheet and required information via email to the approving Water Board contact provided in the NOA. If the contact name on the NOA is no longer valid, contact information can be obtained from the Telephone and Address Directory for the 401 Certification and Wetlands Program (http://www.waterboards.ca.gov/water_issues/programs/cwa401/docs/staffdirectory.pdf).
   - Include in the subject line of the email:
     Subject: ATTN: [Name of Project]; Identification Number [Reg. Measure ID # or WDID # # or Place ID] Report

Terms

1. **Notice of Intent (NOI):** The application to enroll a project under this Order. The NOI form is found in Attachment B, Notice of Intent Form.

2. **Notice of Applicability (NOA):** The authorization for enrollment under this Order. The NOA is issued by the approving Water Board upon approval of the NOI.

3. **Request for Notice of Project Complete Letter:** This request by the project proponent to the approving Water Board pertains to projects that either have completed post-construction monitoring and achieved performance standards or have no post-construction monitoring requirements, and no further Project activities are planned. The project proponent submits a project completion report to the approving Water Board stating that the project is complete and permit requirements have been met. The approving Water Board reviews the permit requirements and issues correspondence (usually by email) that the project has met the requirements and will be un-enrolled from the Order. Annual fees will be terminated with receipt of project complete correspondence from the approving Water Board.

Map/Photo Documentation Information

When submitting maps or photos, please use the following formats.

1. **Map Format Information**:
   Preferred map formats of at least 1:24000 (1" = 2000') detail (listed in order of preference):
   - **GIS shapefiles**: The shapefiles must depict the boundaries of all project areas and extent of aquatic resources impacted. Each shape should be attributed with the extent/type of aquatic resources impacted. Features and boundaries should be accurate to within 33 feet (10 meters). Identify datum/projection used and if possible, provide map with a North American Datum of 1983 (NAD38) in the California Teale Albers projection in feet.
   - **Google KML files** saved from Google Maps: My Maps or Google Earth Pro. Maps must show the boundaries of all project areas and extent/type of aquatic resources impacted. Include URL(s) of maps. If this format is used include a spreadsheet with the object ID and attributed with the extent/type of aquatic resources impacted.
   - **Other electronic format** (CAD or illustration format) that provides a context for location (inclusion of landmarks, known structures, geographic coordinates, or USGS DRG or DOQQ). Maps must show the boundaries of all project areas and extent/type of aquatic resources impacted. If this format is used include a spreadsheet with the object ID and attributed with the extent/type of aquatic resources impacted.
   - Aquatic resource maps marked on paper **USGS 7.5-minute topographic maps** or **Digital Orthophoto Quarter Quads (DOQQ)** printouts. Maps must show the boundaries of all project areas and extent/type of aquatic resources impacted. If this format is used include a spreadsheet with the object ID and attributed with the extent/type of aquatic resources impacted.

2. **Photo-Documentation**: Include a unique identifier, date stamp, written description of photo details, and latitude/longitude (in decimal degrees) or map indicating location of photo. Successive photos should be taken from the same vantage point to compare pre/post construction conditions.

REPORT AND NOTIFICATION COVER SHEET (Includes Signature Page)
Project:
Project Proponent:
Reg. Meas. ID# / WDID #:
Place ID:
Order Effective Date:

Report Type Submitted	
Part A – Project Reporting	
Report Type 1	☐ **Annual Report**
Report Type 2	☐ **Post-Construction Monitoring Report**
Part B - Project Status Notifications	
Report Type 3	☐ **Commencement of Construction Notification**
Report Type 4	☐ **Request for Notice of Project Complete Letter**
Part C - Conditional Notifications and Reports	
Report Type 5	☐ **Accidental Discharge of Hazardous Material Report**
Report Type 6	☐ **Violation of Compliance with Water Quality Standards Report**
Report Type 7	☐ **In-Water Work and Diversions Water Quality Monitoring Report**
Report Type 8	☐ **Transfer of Property Ownership Notification**
Report Type 9	☐ **Transfer of Long-Term GPM Maintenance Notification**

"I certify under penalty of law that this application and all attachments were prepared under my direction or supervision in accordance with a process designed to assure that qualified personnel properly gather and evaluate the information submitted. The information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Print Name [1]	**Affiliation and Job Title**
Signature	**Date**

[1] STATEMENT OF AUTHORIZATION (include if authorization has changed since application was submitted)

I hereby authorize_____to act in my behalf as my representative in the submittal of this report, and to furnish upon request, supplemental information in support of this submittal.

Legally Responsible Person's Signature Date

*** This Report and Notification Cover Sheet must be signed by the legally responsible person or a duly authorized representative and included with all written submittals.**

Part A – Project Reporting

Report Type 1	Annual Report
Report Purpose	Notify the approving Water Board staff of Project status during the active discharge monitoring period.
When to Submit	If required by the NOA, annual reports shall be submitted each year within one month of the anniversary of the effective date of the NOA. Annual reports shall continue until a Notice of Project Complete Letter is issued to the project proponent.
Report Contents	The contents of the annual report shall include the topics indicated below for each project period. Report contents are outlined in Annual Report Topics below. **<u>During the Active Discharge Period</u>** • **Topic 1: Construction Summary**

Annual Report Topics

Annual Report Topic 1	Construction Summary
When to Submit	With the annual report during the Active Discharge Period.
Report Contents	1. Project progress and schedule including initial ground disturbance, site clearing and grubbing, road construction, site construction, and the implementation status of general protection measures (GPMs). If construction has not started, provide estimated start date and reasons for delay. 2. Map showing general Project progress. 3. Planned date or progress of any plant installations. If installation is in progress, provide a map of what has been completed to date. If installations are complete, provide a map of the locations of plant species installed along with photographs. 4. If applicable: Summary of Conditional Notification and Report Types 5, 6, and 7 (Part C below).

Report Type 2	**Post-Construction Monitoring Report**
Report Purpose	Notify the approving Water Board staff of Project status during the post-discharge monitoring period.
When to Submit	Post-construction monitoring reports shall be submitted on the anniversary of the date that the project restoration activities were completed. Monitoring reports shall continue in accordance with the monitoring schedule provided in the Monitoring Plan.
Report Contents	Post-construction monitoring reports shall document the status of achievement of performance standards and project goals. The monitoring reports shall include: 1. Summary of monitoring results, including monitoring data and status of performance standards and goals as applicable. 2. Identification and discussion of issues achieving performance standards, as applicable. 3. Proposed corrective measures, as applicable (requires Water Board approval). 4. Photo documentation of restoration sites.

Part B – Project Status Notifications

Report Type 3	Commencement of Construction Notification
Report Purpose	Notify the approving Water Board staff of the date of commencement of Project construction.
When to Submit	Must be received by Water Board staff at least seven (7) days prior to commencement of initial ground-disturbing activities.
Report Contents	1. Date of commencement of Project construction. 2. Overall Project construction schedule.

Report Type 4	Request for Notice of Project Complete Letter
Report Purpose	Notify the approving Water Board staff that construction and/or any post-construction monitoring is complete, or is not required, and no further Project activity is planned.
When to Submit	Must be received by Water Board staff within thirty (30) days following completion of all Project activities.
Report Contents	**Part A: Post-Construction Storm Water GPMs** 1. Date of storm water Notice of Termination(s), if applicable. 2. Report status and functionality of all post-construction GPMs. **Part B: Habitat Restoration Success** 1. A final monitoring report that summarizes the annual post-construction monitoring efforts and demonstrates the performance standards outlined in the Monitoring and Reporting Plan have been met for the Project site, including upland areas of temporary disturbance which could result in a discharge to waters of the state. 2. Pre- and post-photo documentation of habitat restoration sites.

Part C – Conditional Notifications and Reports

Report Type 5	**Accidental Discharge of Hazardous Material Report**
Report Purpose	Notifies the approving Water Board staff that an accidental discharge of hazardous material has occurred.
When to Submit	Within five (5) working days following the date of an accidental discharge. Continue reporting as required by Water Board staff.
Report Contents	1. The report shall include the OES Incident/Assessment Form, a full description and map of the accidental discharge incident (i.e., location, time and date, source, discharge constituent and quantity, aerial extent, and photo documentation). If applicable, the OES Written Follow-Up Report may be substituted. 2. If applicable, any required sampling data, a full description of the sampling methods including frequency/dates and times of sampling, equipment, locations of sampling sites. 3. Locations and construction specifications of any barriers, including silt curtains or diverting structures, and any associated trenching or anchoring.

Report Type 6	**Violation of Compliance with Water Quality Standards Report**
Report Purpose	Notifies the approving Water Board staff that a violation of compliance with water quality standards has occurred.
When to Submit	The project proponent shall report any event that causes a violation of water quality standards within three (3) working days of the noncompliance event notification to Water Board staff.
Report Contents	The report shall include: the cause; the location shown on a map; and the period of the noncompliance including exact dates and times. If the noncompliance has not been corrected, include: the anticipated time it is expected to continue; the steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance; and any monitoring results if required by Water Board staff.

Report Type 7	**In-Water Work and Diversions Water Quality Monitoring Report**
Report Purpose	Notifies the approving Water Board staff of completion of work in water or stream diversions.
When to Submit	Within three (3) working days following completion of work in water or stream diversions.
Report Contents	1. The report shall include a brief description of the in-water work activities and dates in-water work was performed. 2. If applicable, any required water quality sampling data, a full description of the sampling methods including frequency/dates and times of sampling, sampling equipment used, and locations of sampling sites.

Report Type 8	**Transfer of Property Ownership Notification**
Report Purpose	Notifies the approving Water Board staff of change in ownership of the Project or project proponent-responsible mitigation area.
When to Submit	At least 10 working days prior to the transfer of ownership.
Report Contents	1. A statement that the project proponent has provided the purchaser with a copy of this Order and that the purchaser understands and accepts: a. the Order's requirements and the obligation to implement them or be subject to administrative and/or civil liability for failure to do so; and b. responsibility for compliance with any long-term maintenance plan requirements in this Order. 2. A statement that the project proponent has informed the purchaser to submit a written request to the Water Board to be named as the project proponent in a revised order.

Report Type 9	**Transfer of Long-Term GPM Maintenance Notification**
Report Purpose	Notifies the approving Water Board staff of transfer of long-term maintenance responsibility.
When to Submit	At least 10 working days prior to the transfer of maintenance responsibility.
Report Contents	A copy of the legal document transferring maintenance responsibility of post-construction measures.

Final Attachment E
Signatory Requirements

SIGNATORY REQUIREMENTS

All documents submitted in compliance with this Order shall meet the following signatory requirements:

1. All applications, reports, or information submitted to the Water Boards must be signed and certified as follows:
    a. For a corporation, by a responsible corporate officer of at least the level of vice-president.
    b. For a partnership or sole proprietorship, by a general partner or proprietor, respectively.
    c. For a municipality, or a state, federal, or other public agency, by either a principal executive officer or ranking elected official.
2. A duly authorized representative of a person designated in items 1.a through above may sign documents if:
    a. The authorization is made in writing by a person described in items 1.a through 1.c above.
    b. The authorization specifies either an individual or position having responsibility for the overall operation of the regulated activity.
    c. The written authorization is submitted to the Water Board Staff Contact prior to submitting any documents listed in item 1 above.
3. Any person signing a document under this section shall make the following certification:

    “I certify under penalty of law that this application and all attachments were prepared under my direction or supervision in accordance with a process designed to assure that qualified personnel properly gather and evaluate the information submitted. The information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

Final Attachment F
Order Deviation Procedures

ORDER DEVIATION PROCEDURES

A. Introduction

Minor or non-material changes to the project may be required by the project proponent following the start of construction. These deviations may potentially increase or decrease impacts to waters of the state. In such cases, an Order Deviation, as defined in Section XIII.B.3.d of the Order, may be requested by the project proponent as set forth below.

B. Process Steps

1. **Who may apply:** The project proponent or the duly authorized representative or agent (hereinafter, "project proponent") as designated in the Notice of Intent (NOI).
2. **How to apply:** By letter or email to the Water Board staff designated as the contact for the Notice of Applicability (NOA).
3. **Order Deviation Request:** The project proponent will request verification from the Water Board staff that the project change qualifies as an Order Deviation. The request should:
    a. Describe the project change or modification, including:
        i. Why an Order Deviation is necessary for the project;
        ii. Why the proposed change or modification is minor in terms of impacts to waters of the state and the environment;
        iii. How the project activity is currently addressed in the NOA; and
        iv. The proposed net change in impact area by water body type(s) in acres, linear feet and cubic yards.
    b. Describe location (latitude/longitude coordinates), the date(s) it will occur, as well as associated impact information (i.e., temporary or permanent, federal or non-federal jurisdiction, water body name/type, estimated impact area, etc.) and general protection measures and/or mitigation measures to be implemented.
    c. Provide all updated environmental survey information for the new impact area.
    d. Provide a map that includes the activity boundaries with photos of the site.
    e. Provide a compensatory mitigation proposal, if applicable.
    f. Provide verification from the CEQA Lead Agency that the proposed changes or modifications do not trigger the need for a subsequent environmental document, an addendum to the environmental document, or a supplemental EIR. (Cal. Code Regs., tit. 14, §§ 15162-15164.)

C. Order Deviation Approval: The approving Water Board will review the request and determine whether the deviation can be approved under the Order or is subject to additional permitting requirements. Project proponents will receive Order Deviation approvals, if appropriate, in writing from the approving Water Board. No activity associated with an Order Deviation request may begin until the project proponent receives the written approval.

D. Post-Construction Monitoring Report and Annual Report for Approved Order Deviations: The Post-Construction Monitoring Report and Annual Report (Attachment D Reporting and Notification Requirements) shall include a compilation of any approved Order Deviation activities with the construction summary of all project activities. Reporting will continue until a Notice of Project Complete Letter is issued to the project proponent (Section XIII.B.2.a of the Order).

Enclosure B:
Additional Information for Conformity with 40 CFR § 121.7(d)(3) for Order WQ 2022-0048-DWQ Conditions

Additional Information to Conform with 40 CFR § 121.7(d)(3)

The information set forth in the State Water Resources Control Board (State Water Board) *General Order for Clean Water Act Section 401 Water Quality Certification and Waste Discharge Requirements, Order No. WQ-2022-0048-DWQ* for Restoration Projects Statewide (Restoration General Order or Order), which is included as Enclosure A of this Notice of Applicability (NOA), is sufficient to comply with Title 40 Code of Federal Regulations (CFR) section 121.7. This Enclosure B provides additional information regarding the conditions set forth in Order WQ 2022-0048-DWQ, to conform to the recommendation in 40 CFR section 121.7(d)(3).

Notwithstanding any determinations by the United States Army Corps of Engineers or other federal agency made pursuant to 40 CFR section 121.9, the project proponent, Bureau of Reclamation, must comply with the entirety of the NOA enrolling the Arroyo Canal Fish Screen and Sack Dam Fish Passage Project (Project) in the Restoration General Order, which sets forth waste discharge requirements pursuant to the Porter-Cologne Water Quality Control Act.

The following information is generally applicable to the conditions set forth in the Restoration General Order. Waste discharge requirements shall implement any relevant water quality control plans that have been adopted and shall take into consideration the beneficial uses to be protected, the water quality objectives reasonably required for that purpose, other waste discharges, the need to prevent nuisance, and the provisions of section 13261. (Wat. Code, § 13263(a).) In addition, California Code of Regulations, title 23,[1] Chapter 28 sets forth regulations pertaining to water quality certifications that must be implemented. Section 3859 requires the implementation of applicable water quality standards and other appropriate requirements. These conditions are also generally required to comply with the state's Anti-Degradation Policy (State Board Resolution No. 68-16), which requires that for any "activity which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the state will be maintained." All Regional Water Quality Control Board water quality control plans (Basin Plans) incorporate the state's Anti-Degradation Policy by reference. The state Anti-Degradation Policy incorporates the federal Antidegradation Policy (40 CFR § 131.12 (a)(1)), which requires "[e]xisting instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected." According to the United States Environmental Protection Agency (USEPA), dischargers

[1] Unless as otherwise noted, all citations are to title 23 of California Code of Regulations.

of dredged or fill material comply with the federal Antidegradation Policy by complying with USEPA's section 404(b)(1) Guidelines. The State Water Board adopted a modified version of USEPA's section 404(b)(1) Guidelines in the Dredge or Fill Procedures (State Supplemental Guidelines) in its *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (Dredge or Fill Procedures). These conditions are necessary to comply with the review and approval requirements set forth in the Dredge or Fill Procedures, section B.1.

The organization and statements below correspond with the conditions set forth in section XIII of the Restoration General Order. Restoration General Order sections I through XII and XIV are not "conditions" as used in 40 CFR section 121.7.

XIII. Order WQ 2022-0048-DWQ (Enclosure A) Conditions

A. Request for Authorization

Authorization under the Restoration General Order is granted through an NOA based on the application submitted. This condition is necessary because the State Water Board and Regional Water Quality Control Boards (collectively Water Boards) are authorized to issue a certification as required under the Federal Water Pollution Control Act (Wat. Code, § 13160) and this condition is consistent with regulations regarding water quality certifications (Cal. Code of Regs., tit. 23, § 3855). A pre-application meeting request is required pursuant to 40 CFR section 121.4. A pre-application meeting request was received on January 1, 2023, and was held on April 7, 2023.

B. Reporting and Notification Requirements

These reporting and notification conditions are necessary to confirm that the general protection measures required under the Restoration General Order are sufficient to protect beneficial uses and water quality objectives. The reports related to accidental discharges also ensure that corrective actions, if any, that are necessary to minimize the impact or clean up such discharges can be taken as soon as possible. Authorization under the Restoration General Order is granted based on the application and supporting information submitted. This condition is necessary to ensure that any modifications to the Project do not materially change the character of the discharge from the one that formed the basis for issuance of the NOA. These monitoring and reporting conditions are authorized because the Water Boards have the authority to investigate the quality of any waters of the state within their jurisdiction under Water Code sections 13383 and 13267. The burden of preparing these reports, including costs, are reasonable to the need and benefits of obtaining the reports. The anticipated costs are minimal as the reporting obligations typically require only visual monitoring and notification reporting.

C. Water Quality Monitoring

The water quality monitoring conditions are consistent with the Dredge or Fill Procedures, section IV.A.2.c. Water quality monitoring plans are required for any in-water work, including temporary dewatering or diversions. These conditions are required to assure that: (1) Project activities shall not adversely affect the beneficial uses of the receiving water or cause a condition of nuisance; (2) Project activities shall comply with all applicable water quality objectives; and (3) treatment and control of the discharges from Project activities shall be implemented to assure that pollution and nuisance will not occur, and the highest water quality is maintained. A water quality monitoring plan is necessary to conform to water quality standards for oil and grease, dissolved oxygen, pH, turbidity, and temperature. The Basin Plans contain provisions related to all these constituents. These conditions are authorized under Water Code sections 13383 and 13267. The burden of preparing these reports, including costs, are reasonable to the need and benefits of obtaining the reports. The anticipated costs are minimal as the sampling requirements are typically either visual or only require a grab sample every four (4) hours.

D. Standard Conditions

The standard conditions are necessary to ensure that this Project will comply with water quality requirements. Water quality requirements include state regulatory requirements for point source discharges into waters of the United States. California Code of Regulations, title 23, Chapter 28 sets forth regulations pertaining to water quality certification for point source discharges to waters of the United States. These conditions were included to comply with section 3860, which sets forth conditions that must be included in all water quality certifications. In addition, the State Water Board has separate authority under the California Water Code to investigate and take enforcement action, if necessary, to prevent any unauthorized or threatened unauthorized diversions of water.

E. General Compliance

1. “Enrollment and authorization of restoration projects under this Order are for the discharges of waste associated with only the restoration action…”

This condition is necessary to ensure that any Project activities authorized under the Restoration General Order will comply with water quality standards because the NOA only authorizes activities explicitly described therein. (Wat. Code, § 13264.) Additional activities may have impacts on water quality that need to be separately analyzed and authorized.

Authorization under the Restoration General Order is granted through an NOA based on the request for authorization and supporting information submitted. The project

proponent is required to detail the scope of project impacts in a complete application pursuant to California Code of Regulations, title 23, section 3856, subdivision (h). Pursuant to Water Code section 13260, subdivision (c), each person discharging waste, or proposing to discharge waste shall file a report of waste discharge relative to any material change or proposed change in the character, location, or volume of the discharge. Pursuant to Water Code section 13264, subdivision (a), the project proponent is prohibited from initiating the discharge of new wastes, or making material changes to the character, volume, and timing of waste discharges authorized herein without filing a report required by Water Code section 13260 or its equivalent for certification actions under California Code of Regulations, title 23, section 3856.

A request for authorization under the Restoration General Order is required to identify other licenses, permits, and agreements in the application. In the event a project proponent needs authorization from the state or federal authorities, California Code of Regulations, title 23, section 3856, subdivision (e), requires that the project proponent provide copies of "any final and signed federal, state, and local licenses, permits, and agreements (or copies of the draft documents, if not finalized) that will be required for any construction, operation, maintenance, or other actions associated with the activity. If no final or draft document is available, a list of all remaining agency regulatory approvals being sought shall be included." This condition helps ensure the integrity of the certification process and its focus on ensuring that Project activities meet water quality standards and other appropriate requirements of state law.

2. "Any plan developed as a condition of this Order requires review and approval…"

This condition is necessary because the Water Boards are authorized to issue a certification as required under the Federal Water Pollution Control Act. (Wat. Code, § 13160.) Any Project activity that is not specifically authorized in the Restoration General Order is prohibited (Wat. Code, § 13264.)

3. "This Order shall not be construed as replacement or substitution for any necessary federal, state and local approvals…"

This condition is necessary to protect water quality because it makes it clear that additional authorizations may be required and deters violations or threatened violations of the Restoration General Order conditions. (Wat. Code, §§ 13350, 13385.)

4. "In response to a suspected violation of any condition of this Order…"

This condition protects water quality by requiring that the project proponent provide monitoring reports after a violation or suspected violation of the conditions of the Restoration General Order. This monitoring would document whether or not water quality impacts occurred as a result of the violation or suspected violation and allow the Water Boards and project proponent to act to remedy the situation. Monitoring and reporting requirements are authorized by Water Code sections 13267 and 13383.

5. "The project proponent must, at all times, fully comply with engineering plans, specifications, and technical reports submitted…"

This condition protects water quality by ensuring that the authorized activity is implemented as proposed and approved. (Wat. Code, § 13264.) Deviations from the approved plans and practices could result in adverse impacts to water quality.

6. "This Order and all of its conditions contained herein continue to have full force and effect…"

This condition protects water quality by ensuring that the Restoration General Order and all of its conditions that protect water quality remain in place if federal licenses or permits are revoked or expire. Enrollment in the Restoration General Order serves as waste discharge requirements under the Porter-Cologne Water Quality Act. (Wat. Code, § 13263.)

7. "Project proponents shall submit a Sacred Lands File & Native American Contacts List Request to the…"

This condition is necessary to ensure compliance with water quality requirements because it satisfies the requirements to consult with California Native American tribes that are traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Res. Code, § 21080.3.1.) (See also California Governor's Executive Order G-10-22.) The State Water Board Tribal Consultation Policy (June 2019) ensures collaboration and input from all California Native American Tribes and helps the Water Boards advance decisions and policies that better protect California's water resources.

8. Historical Sites

This condition protects water quality by ensuring that the authorized activity is implemented as proposed and approved. (Wat. Code, § 13264.) This condition is required in order to comply with section 101(c) of the National Historic Preservation Act of 1966 (54 U.S.C. § 300101 et seq.) as amended. The regulations adopted under the act are set forth in Part 61 (commencing with section 61.1) of Title 36 of the Code of Federal Regulations. California Code of Regulations, title 14, section 15064.5 defines "historical resources" and details steps that should be taken in the event of the accidental discovery or recognition of any human remains in any location other than a dedicated cemetery.

9. Construction General Permit Requirement

This condition is necessary to ensure compliance with water quality requirements because dischargers who are required to obtain coverage under the *National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities* (Construction General

Permit; Order No. 2009-0009-DWQ or 2022-0057-DWQ; NPDES No. CAS00002, as amended or any subsequently issued permit) must obtain separate authorization. (33 U.S.C. § 1342.) For ground disturbing activities that do not require enrollment in the Construction General Permit, the condition requires the implementation of appropriate erosion and sediment control measures. (Wat. Code, § 13263.)

10. Aquatic Herbicide General Permit Requirement

This condition is necessary to ensure compliance with water quality requirements because dischargers who are required to obtain coverage under the NPDES *General Permit for Residual Aquatic Pesticide Discharges to Waters of The United States from Algae and Aquatic Weed Control Applications* (Order No. 2013-0002-DWQ; General Permit No. CAG990005, or any subsequently issued permit) must obtain separate authorization. (33 U.S.C. § 1342.)

11. Cumulative Impacts

This condition is necessary to ensure compliance with water quality requirements because Water Code section 13263 requires consideration of other waste discharges.

F. Prohibitions

These conditions are necessary to prevent violation of state discharge prohibitions and protect water quality objectives. Basin Plans prohibit the discharge of construction materials and byproducts from being discharged into waters of the state. (Wat. Code, §§ 13146, 13247, 13263.)

These conditions also reserve the approving Water Board's authority to add to or modify conditions of the Restoration General Order in the NOA to ensure that project activities meet water quality objectives and protect beneficial uses. (*See* Wat. Code, § 13160.)

Destabilization of the channel or bed of the receiving water can contribute to significant degradation of the waters of the state; therefore, it is necessary to implement actions to limit or eliminate such discharges in order to protect water quality and associated beneficial uses.

Additionally, these conditions are required pursuant to the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California*, which prohibits the discharge of substances in concentrations toxic to human, plant, animal, or aquatic life. Toxic compounds can impair the beneficial uses of cold freshwater habitat, estuarine habitat, marine habitat, preservation of rare and endangered species, fish migration, fish spawning, warm freshwater habitat, and wildlife habitat. Conditions related to toxic and hazardous materials are necessary to ensure Project activities comply with any water quality objectives adopted or approved under sections 13170 or 13245 of the Water Code. Additionally, the conditions related to

hazardous discharges protect water quality by ensuring hazardous materials are not discharged to waters of the state. (Dredge or Fill Procedures, section IV.B.1.)

G. Specific Compliance

1. Programmatic Sideboards

This condition is necessary to implement relevant water quality control plans, protect beneficial uses, comply with the water quality objectives, and prevent nuisance. (Wat. Code, § 13263.) This condition also ensures the authorized project is designed, planned, and implemented in a manner consistent with the techniques and minimization measures presented in the Restoration General Order, Attachment A, section A.5. Project site-specific conditions may require different approaches to ensure compliance with applicable water quality standards and other appropriate requirements (33 USC § 1341; Cal. Code of Regs., tit. 23, § 3859, subd. (a)) and may result in impacts to water quality that require additional environmental review. (Cal. Code of Regs., tit. 14, §§ 15062-15063.) Water Code section 13383 authorizes the Water Boards to establish monitoring, inspection, entry, reporting, and other recordkeeping requirements (e.g., general protection measures listed in Attachment A), as authorized by Water Code section 13160, for any person who discharges, or proposes to discharge, to navigable waters.

2. Pre-Application Consultation

This condition satisfies the 40 CFR §121.4 requirement to request a pre-filing meeting with the certifying authority at least thirty (30) days prior to submitting a certification request.

3. Exclusions and Prohibited Activities

This condition is necessary to comply with water quality requirements because the identified excluded activities may require additional conditions to protect beneficial uses and prevent nuisance. (Wat. Code, § 13263.) For instance, erosion and sedimentation can contribute to significant degradation of the waters of the state; therefore, it is necessary to implement actions to limit or eliminate such discharges to protect water quality and associated beneficial uses. The exclusions and prohibited activities listed in the Restoration General Order section G.3 could result in erosion and sedimentation that could increase turbidity. Project activities affected by erosion and increased sediment loads directly impact water quality and associated beneficial uses.

This condition also helps to ensure that an applicant for a federal license or permit that involves a discharge to navigable waters understands that, except as specified in the Restoration General Order, the Order does not excuse the project proponent from obtaining any other Water Board approvals required for the activity.

4. Monitoring Plan

This condition is necessary to comply with water quality requirements because it confirms that the general protection measures required under the Restoration General Order are sufficient to protect beneficial uses and water quality objectives. (Wat. Code, §§ 13267, 13383.)

H. Administrative

1. "Signatory requirements for all document submittals…"

Signatory requirements are required pursuant to Water Code section 13267, which requires any person discharging waste that could affect the quality of waters of the state to provide to the Water Boards, under penalty of perjury, any technical or monitoring program reports as required by the Water Boards. The signatory requirements are consistent with 40 CFR section 122.22.

2. "Data and/or reports shall be submitted…"

This condition relates to submittal of data and reports that are authorized under the Water Boards' authority to investigate the quality of any waters of the state within their jurisdiction under Water Code sections 13383 and 13267. Monitoring, reporting, and assessment actions, and the information developed through such actions, must be readable, shared, and coordinated with other appropriate entities, and accessible to ensure that Project activities comply with water quality requirements. Water Code section 13167 requires the Water Boards to ensure that monitoring data and assessment information are available in a single location and that the information is presented in a manner easily understandable by the public. To fulfill this legislative mandate, this condition requires electronic data submittal in a compatible format with existing system specifications. Compliance with this condition enhances the accessibility of data and transparency of regulatory actions. This allows regulatory agencies and the public to better assess compliance and understand water quality trends or data anomalies by compiling data and making it readily available.

3. "This Order does not authorize any act which results in the taking of a threatened, endangered or candidate species…"

Project activities associated with construction activities have the potential to interfere with native aquatic species, which depend heavily on aquatic food or live in riparian or wetland habitats, and adversely impact habitat use. Implementation of this condition will avoid impacts to water quality and the beneficial uses related to aquatic biological resources and wildlife habitat. Water Code section 13160, subdivision (b)(1), allows the State Water Board to issue a certification when there is "reasonable assurance that an activity of any person subject to the jurisdiction of the state board will comply with applicable requirements" of state and federal law. In accordance with the California

Endangered Species Act (Fish & G. Code, § 2050 et seq.) and federal Endangered Species Act (16 U.S.C. § 1531 et seq.), this condition does not authorize any act which results in the taking of a threatened, endangered, or candidate species.

4. "The project proponent shall grant Water Board staff or an authorized representative…"

This condition protects water quality by allowing the Water Boards, or a representative, to investigate site conditions to ensure that the authorized activity is compliant with the Restoration General Order. This condition is authorized pursuant to the Water Boards' authority to investigate the quality of any waters of the state within its region under Water Code sections 13267 and 13383.

5. "A copy of this Order must be available at the project site(s)…"

This condition requires site personnel and any agent of the project proponent to be familiar with the content of the Restoration General Order and availability of the document at each project site. This condition is necessary to ensure that all activities will comply with applicable water quality standards and other appropriate requirements (33 USC section 1341; California Code of Regulations, title 23, section 3859, subdivision (a)), which cannot be adhered to if the project proponent's agents are unaware of applicable requirements. This condition is required to ensure that any authorized Project activity will comply with the terms and conditions of the Order, which requires compliance with all of the water quality objectives and beneficial uses adopted or approved. (Dredge of Fill Procedures, section IV.B.1.)

6. "Lake and Streambed Alteration Agreement…"

This condition is required pursuant to California Code of Regulations, title 23, section 3856 subdivision (e), which requires that as part of an application for water quality certification, copies be provided to the Water Boards of "any final and signed federal, state, and local licenses, permits, and agreements (or copies of the draft documents, if not finalized) that will be required for any construction, operation, maintenance, or other actions associated with the activity. If no final or draft document is available, a list of all remaining agency regulatory approvals being sought shall be included."

I. Restoration and Monitoring of Impacts

Conditions in this section are related to restoration and/or mitigation of temporary and permanent impacts. These conditions are necessary to ensure compliance with state and federal anti-degradation policies and are consistent with section IV.B.1.a of the Dredge or Fill Procedures, which requires that the Water Boards will approve a project only after it has been determined that a sequence of actions has been taken to first avoid, then to minimize, and lastly compensate for adverse impacts that cannot be

practicably avoided or minimized. (See also California Code of Regulations, section 3856, subdivision (h) [requiring submittal of proposed mitigation and description of steps taken to avoid, minimize, or compensate].) These conditions are also consistent with the Dredge or Fill Procedures, which requires "in all cases where temporary impacts are proposed, a draft restoration plan that outlines design, implementation, assessment, and maintenance for restoring areas of temporary impacts to pre-project conditions." (Dredge or Fill Procedures section IV. A.2(d) & B.4.) Mitigation is also necessary to ensure compliance with Water Code, Division 7, Chapter 28, sections 16200-16201, and any amendments thereto, that requires no net loss of the structure or function of California's wetland resources.

Furthermore, impacts that are not restored within a reasonable amount of time could contribute to long-term degradation of water quality. The longer the lag time between impact and restoration, the more opportunity there is for water quality degradation. This condition protects water quality by ensuring that restoration is initiated in a reasonable amount of time after impacts have occurred. (Dredge or Fill Procedures, sections IV.A.2.d, IV.B.4-5.) Technical reporting and monitoring requirements under this condition are consistent with the Water Boards' authority to investigate the quality of any waters of the state and require necessary reporting and monitoring pursuant to Water Code sections 13267 and 13383.

Enclosure C:
United States Bureau of Reclamation's Arroyo Canal Fish Screen and Sack Dam Fish Passage Project Notice of Intent—Project Description

(This enclosure was provided by United States Bureau of Reclamation.)

Arroyo Canal Fish Screen and Sack Dam Fish Passage Project Description
11/5/24

In support of the Restoration Goal of the San Joaquin River Restoration Program (SJRRP), Reclamation proposes to construct and operate a fish screen at Arroyo Canal and fish passage facilities at Sack Dam in Reaches 3 and 4A of the Restoration Area. The proposed modifications are necessary to prevent entrainment into Arroyo Canal and ensure anadromous fish passage at Sack Dam, as required by Paragraphs 11(a)(6) and 11(a)(7) of the *Natural Resources Defense Council et al. vs Rodgers et al. 2006 Stipulation of Settlement* (Settlement). The proposed action includes the following key components (Figure 1), as further described below:

- Construct a new 700 cubic feet per second (cfs) flat-plate fish screen located on the left bank of the new channel.
- Construct a new 4,500 cfs channel around Sack Dam.
- Construct a new gated headworks structure to control flow releases into the river channel, consisting of 12 bays with operable gates.
- Construct a new vertical slot fishway around the gated headworks structure to provide salmonid passage.
- Construct a new berm downstream of the existing Sack Dam to direct fish to the fishway and river channel and prevent fish from reaching Sack Dam and possibly finding themselves on the backside of the screen and vulnerable to entrainment into the Arroyo Canal.
- Install a new log boom placed within 50 feet upstream of the fish screen to protect the structure from debris and vegetation, aiding in encouraging juveniles to move toward the new river channel.
- Construct a new maintenance building in the area directly west of the fish screen structure on the left bank of the San Joaquin River to store equipment, including electrical controls.
- Relocate existing Pacific Gas and Electric (PG&E) gas and power lines.

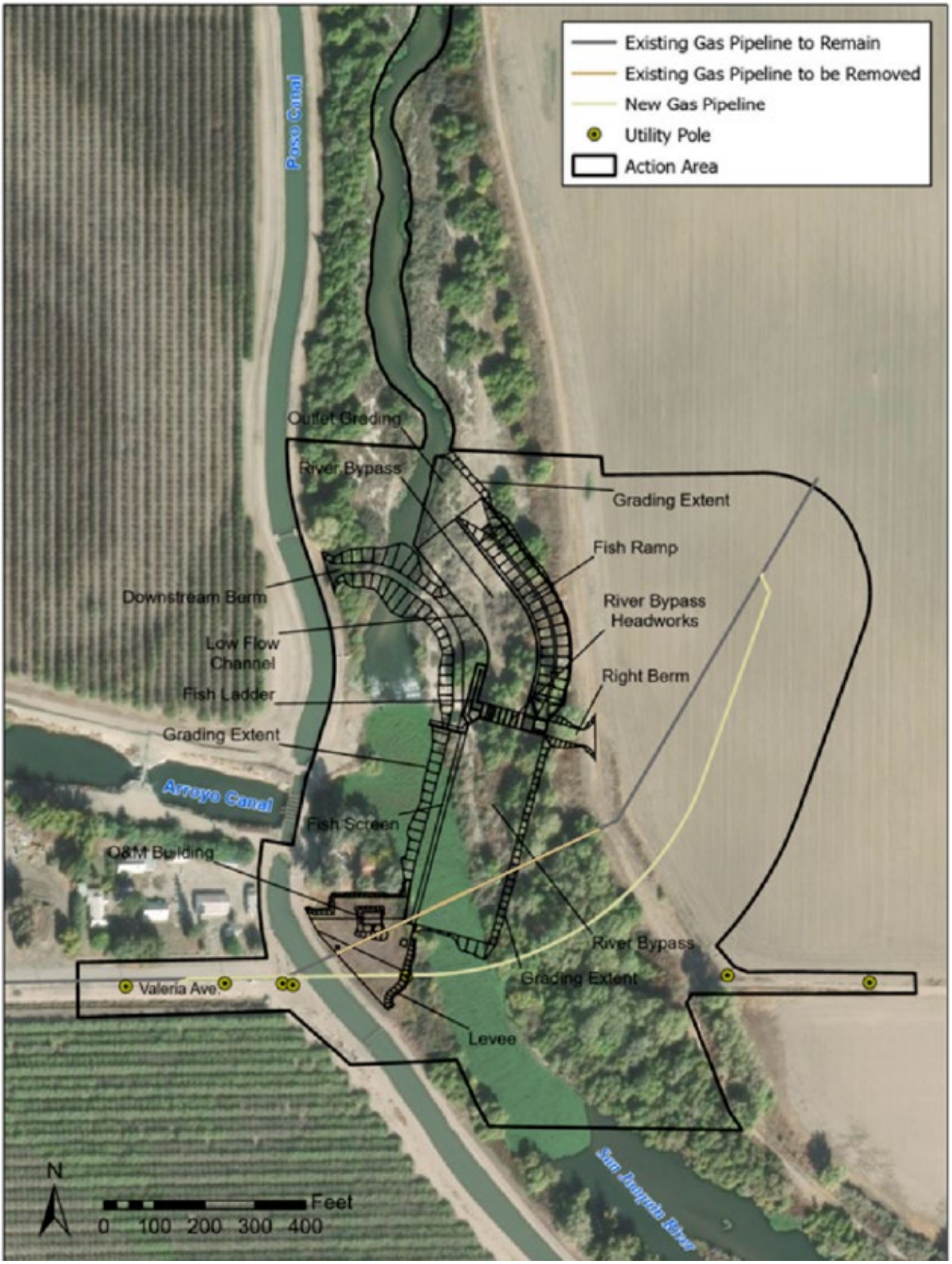

Figure 1. Project Footprint

Fish Screen

The proposed fish screen would be a bankline, vertical flat-plate screen, with 1.75 mm opening, stainless steel screen, supported by steel supports. The fish screen would be placed along the river left bank (west side) of the river, at the point of diversion into Arroyo Canal, spanning from the left bank upstream of the entrance to Arroyo Canal to the right bank of the fish ladder exit. The fish screen would be 7 feet tall and made of 2-inch-thick stainless steel wedge wire. The design would include an elevated metal walkway behind the screen for operation and maintenance access. A mechanical brush cleaning system and airburst system would be included as screen cleaning mechanisms. Louvers or baffle plates would be installed immediately behind the wedge wire panels to allow for flow velocity tuning of the structure.

The fish screen and steel supports would be anchored to a concrete base that spans approximately 380 feet in length, 15 feet in width, and would be 1.5 feet thick. The concrete base includes an approximately 3 feet deep shear key to prevent slip shear failure and increase stability. The sides of the fish screen structure would be connected to the existing grade through sheet pile and concrete abutments. The fish screen structure foundation concept consists of driven sheet pile beneath the concrete slab, which penetrate potentially liquefiable soils in the subgrade and into underlying dense/stiff soil layers at depth in the subsurface to avoid excessive settlement of the structure in case of seismic loading and liquefaction in the subgrade.

The fish screen is anticipated to be constructed with heavy equipment behind cofferdams and in the dry. The screen will likely be constructed in pieces following the dewatering of sections of the foundation. Excavation of the riverbed behind the cofferdams will likely occur with long arm excavators and sheet pile will be driven with vibratory drivers with concrete footings poured on top. Assembly of the screen structure is expected to occur behind cofferdams in sections as well. The fish screen is expected to require three construction seasons of in water work, making the entire project duration approximately three calendar years.

Fish Passage and Headworks Structure

This project element would have a headworks structure and fish ladder located immediately downstream of the fish screen on the left bank of the new river channel, just southeast of the existing Sack Dam. There would be vehicle access from the new levee to the right side of Sack Dam via an access road on top of the structure. The headworks structure capacity would be designed to pass 4,500 cfs through a series of gates.

A concrete vertical-slot fish ladder would provide salmonid passage around the headworks control structure in low flow events. The fish ladder would have a maximum flowrate of 50 cfs and a total of seven pools created by baffles in its final configuration, excluding the ladder entrance and exit channels. The maximum drop between pools would be 1 foot and the baffles would have a slot width of 1 foot, 3 inches. The first six baffles of the fish ladder would be initially constructed, and the remaining five baffles would be installed as the site subsides to accommodate additional head differential at

Sack Dam. The headworks structure would require a maximum excavation of 20 feet for the foundations. The fish ladder exit would have stoplog guides to isolate the structure if maintenance was necessary, but these would be fully removed in normal operations to pass 25–50 cfs downstream. The stoplog guides will be filled when not in use to allow for Pacific lamprey (*Entosphenus tridentatus*) passage across the structure. Adjacent to the fish ladder a downstream berm would be installed to remove the existing Sack Dam from the river channel and ensure all fish and flows are routed through the new facility creating a left bank fish screen alignment. The berm will also prevent upstream migrating fish from moving into the Arroyo Canal.

Maintenance Building

The proposed maintenance building is a pre-engineered one-story building that would contain equipment storage and a control room. Stormwater runoff from the building would be collected and filtered through gravel ditches for infiltration back into the ground. The interior would be partitioned into air-conditioned and non-air-conditioned sides with the control room receiving interior finish, and code-required insulation to foundation, walls, and roof while the maintenance/storage side of the building would not require insulation or interior finish. The building would be supported by a shallow mat foundation. The building is currently planned to be 36 feet long, 24 feet wide, and 15 feet tall. It is anticipated to be connected to a local PG&E overhead power line. All lighting associated with the building will be installed on the canal side facing away from the river. It is anticipated that two lights will be installed on the building facing the canal and yard and require a switch for activation. An emergency diesel generator would be provided for short-term backup power at the site and would be used for emergency operations when PG&E power is unavailable. The building would be located across a Poso Canal crossing with a 20-foot double swing gate entrance. A 15-foot-wide access road would be constructed to provide vehicular access from the Poso Canal bridge through the gated entrance and to the maintenance building. Project Design Drawings are included in Attachment 2.

The maintenance building will be constructed following the raising of the portion of land between the Poso Canal and the river. The property is expected to be raised with excavated materials from the east side of the river to limit the need for additional haul off. When the property is brought to final grade, retaining walls and drainage will be constructed with rock prior to the construction of the building itself. The building will be the final piece constructed on the plateau with the foundation slab being poured first and the pre-engineered building being constructed with the masonry wall following. This building will be constructed last following all of the pipe work and conduit necessary to support the controls and operation of the larger project.

PG&E Gas Line and Power Line Relocation

The project site has an existing PG&E gas line crossing through the area under the proposed maintenance building, fish screen, and re-routed river. The project would require the abandonment of the existing line and the replacement with a new alignment

to allow the utility to maintain service to their customers and allow Reclamation to construct the fish passage element of the project. The relocated line would be designed and installed by PG&E to cross the river immediately south of the fish passage element of the project area and would be a directionally drilled line installed from Valeria Ave to a connection outside of the east bank levee. This new line would be a 6-inch line consistent with the segment of gas line being removed. The entrance and exit pit for the directional drill would be a maximum of 25 feet long by 10 feet wide with a total depth of 15 feet at the locations of connection for the existing gas line. The entrance and exit pits will be excavated prior to the insertion of the directional drill. The drill will be used to create a hole large enough along the proposed alignment at 80 feet deep to pull back the gas line without having to excavate any river channel or within the riparian corridor. The pull back will occur immediately following the completion of the drilling and will occur in sections to allow for the connection of additional pipe as it is pulled through. This action is expected to occur in August of 2025 by PG&E and not take more than a month to complete.

The existing PG&E gas line will be removed within the limits of the low water mark consistent with the requirements of the State Lands Commission. The existing segment of the line would be cleaned and filled with concrete following the completion of the new line. The cleaned and filled section will then be cut at the location of the low water mark on both the east and west banks of the river. The section of line that exists between the low water mark would then be lifted and removed from the streambed and disposed of by PG&E. It is estimated that the existing segment of gas line between the low water marks was installed at 3 feet depth below the ground surface and has likely become more exposed with the recent high flows in the river. The removal is expected to occur by use of a long arm excavator releasing the pipe following the cutting of the two ends. The survey conducted on the existing line shows the depth to be less than two feet in some locations and it is expected to be easily lifted and removed from the river with minimal impact. If the pipe becomes stuck during removal, divers with hydraulic shovels will enter the channel and remove any material preventing the existing line from being removed. This is expected to occur in June of 2025 and not take more than one month to complete.

Overhead electrical lines would be used to connect the proposed facility to PG&E's existing utility lines. It is estimated that two power poles to the east and the west of the project would require removal and raising of the existing lines to allow for access of heavy equipment to the site and additional connections to the overhead line. The poles would be removed and replaced in the existing locations. New poles may be steel or concrete at the discretion of PG&E. Utility relocation design drawings are included in Attachment 2.

Construction Considerations

The east bank access to the project area would be through an easement that passes through Clayton Ranches immediately to the east of the Reclamation property. The access road would be improved to allow for the passage of heavy construction

equipment required to build the project. Road improvements expected to be needed include widening the road to a width of 20 feet, installation of 6 inches minimum of gravel base and filling of potholes and ruts with gravel to the original slope. All improvements made on the Clayton Ranches property under this agreement would be conducted by the property owner and reimbursed by Reclamation.

The contractor would be expected to utilize the following; however, this list is not exhaustive, and the contractor may require the use of additional equipment: long reach excavator, hydraulic sheet pile hammer and rig, excavators, dozers, semi-trucks (deliveries), skid steer excavators, drill rig, off-road haul trucks, front end loaders, pick-up trucks, and mechanic service trucks. Staging on the east bank would be done within the boundary of the Reclamation ownership, and staging for utility relocations will occur on parts of the Clayton Ranches property as negotiated between the landowner and PG&E.

Access on the west bank of the project area is anticipated to be provided through an easement Reclamation is acquiring from Central California Irrigation District, who plans to independently replace their existing Poso Canal Bridge with a structure suitable for construction equipment access in December 2024. Staging will be available for a contractor inside of a Poso Canal Company laydown yard. Utility relocation laydown will also occur within the Poso Canal Company property boundary.

Work in the wetted area would only be conducted following dewatering of the working area behind cofferdams. The installation of sheet pile cofferdams would be done with equipment working from dry land and without the need for it to be placed in the water. The dewatering is expected to be done behind sheet pile cofferdams with various wellpoints spaced no further than 100 feet apart and operated to maintain a water level at least 3 feet below the excavated surface. The final dewatering plan will be designed and submitted by the contractor following construction contract award. The dewatering and cofferdam plan will be reviewed and approved by National Marine Fisheries Service (NMFS) prior to Reclamation's acceptance of the submittal and implementation of the dewatering and cofferdam plan. The construction activity is anticipated to occur over the course of three years and require three full in-water work windows.

The SJRRP Restoration Administrator (RA) has drafted a potential Restoration Flow schedule that could be implemented during project construction (Table 1). However, the Restoration Flow schedule that is ultimately recommended by the RA and implemented by Reclamation on behalf of the Secretary of the Interior will be dependent on hydrology and other factors that are unknown at this time. Paragraph 13(i) of the Settlement states: …*the Secretary shall release as much of the Restoration Flows as possible, in consultation with the Restoration Administrator, in light of then-existing channel capacity and without delaying completion of the Phase 1 improvements...*

Restoration Flows At Sack Dam during construction of the Sack Dam Project																								
	Jan		Feb		Mar		Apr		May		Jun		Jul		Aug		Sep		Oct		Nov		Dec	
Portion of Month	1/2	2/2	1/2	2/2	1/2	2/2	1/2	2/2	1/2	2/2	1/2	2/2	1/2	2/2	1/2	2/2	1/2	2/2	1/2	2/2	1/2	2/2	1/2	2/2
Release to River below Sack Dam site	220	220	220	225	225	225	225	225	225	150	0	0	0	0	0	0	150	150	150	150	200	200	200	200

Table 1. Potential Restoration Flow Schedule During Construction

The 2012 SJRRP Programmatic Environmental Impact Statement/Report (PEIS/R) and NMFS and U.S. Fish and Wildlife Biological Opinions on the effects of implementing the SJRRP (SJRRP BOs) analyzed release of Restoration Flows in accordance with the Settlement up to 1,660 cubic feet per second (cfs) at a project-specific level, including the Settlement requirement that Restoration Flows not delay completion of Phase 1 improvements: *Project-level actions include the release of Interim and Restoration Flows up to 1,660 cfs, and subsequent reoperation of downstream flow control structures… as stipulated in the Settlement*. Restoration Flows released during construction will be within those analyzed at a project-specific level in the SJRRP PEIS/R and BOs. Additional effects from implementing Restoration Flow releases during project construction are not anticipated beyond what was analyzed in the SJRRP PEIS/R and BOs.

Operations and Maintenance

The designs for the fish passage components of the project are based on the criteria in Anadromous Salmonid Passage Facility Design (NMFS 2022). Operation of the facility is intended to meet all applicable NMFS criteria as described therein. The facility operation will focus on providing volitional passage of special status species fish, including salmonids, green sturgeon, Pacific lamprey; and other native fish, as feasible. Specifically, the improvements will provide suitable hydraulic conditions (when fish are present) for passage of up-migrating adult salmonids, out-migrating juvenile salmonids, and migration for green sturgeon (when present) and other native fish. Suitable hydraulic conditions include those conditions in which the species is physically capable of passing and do not cause undue stress on the animal.

Reclamation worked in conjunction with the Fisheries Management Work Group and other Implementing Agency, consultant, and Technical Advisory Committee technical experts to identify criteria for fish passage (including velocities, depths, and fish species jump heights). The design criteria are structured around life stages of the target anadromous species and the timing of the runs for upstream movement of adult fall-run and NEP CV spring-run Chinook salmon and winter CV steelhead; and the downstream movement of juvenile life stages spawned from these runs. Design criteria are based on a combination of swimming ability of the fish species as reported in peer-reviewed scientific literature and criteria in agency design guidelines. Table 3 presents existing

fish passage design criteria used in the project design process. The criteria include passage conditions for NEP CV spring-run Chinook salmon and other native fishes that may be present. Fish passage elements are intended to meet criteria up to the maximum of 4,500 cfs of Restoration Flows as required by the Settlement. The fish passage facility designs meet passage criteria for NEP CV spring-run Chinook salmon and CV steelhead at flows from 45 to 4,500 cfs and enhance fish passage for other species at a range of flows. For sturgeon and salmonids, criteria will be met when those fish are present in the action area.

Operational criteria will be followed to minimize the potential adverse effects to the species listed above while providing passage opportunities at all flows. Operational considerations include that all slide gates would be opened to a minimum opening height of 18 inches when in operation, and fully open when flows allow, as per NMFS criteria. Low flows will be passed through a fish ladder maintaining fish passage through all conditions and will be supplemented through two overshot gates prior to opening the slide gates at flows that meet passage criteria. When flows are high enough that the fish ramp or additional slide gates on the river bypass are open, the fish ladder may be shut off for routine maintenance. When flows are low and isolated to the fish ladder, routine maintenance activities may occur on the other facility features at that time, as described along with other details on operation and maintenance activities, in the Operations and Maintenance Plan (Appendix A).

Enclosure D:
United States Bureau of Reclamation's Arroyo Canal Fish Screen and Sack Dam Fish Passage Project Notice of Intent—Applicable General Protection Measures (GPMs)

(This enclosure was provided by United States Bureau of Reclamation and summarizes how it will comply with applicable provisions of the Restoration General Order, Order No. WQ-2022-0048-DWQ.)

GPM-1: Receipt and Copies of All Permits and Authorizations

- Consistent with the San Joaquin River Restoration Program (SJRRP) Conservation Strategy as described in the 2012 SJRRP Record of Decision, Reclamation has mapped wetlands in the project area and is avoiding and minimizing impacts on wetlands and waters of the United States to the extent feasible. The proposed action will be implemented in accordance with the terms of the Individual Permit Reclamation will receive from the U.S. Army Corps of Engineers in accordance with Section 404 of the Clean Water Act (CWA) as well as the terms of the Endangered Species Act Section 7 Consultations Reclamation will complete with United States Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) prior to the implementation of construction activities.
- Construction and operation and maintenance activities associated with the proposed action will be subject to construction-related stormwater and other water quality-related permit requirements, including those in accordance with the Statewide Restoration General Order and Section 402 of the Clean Water Act. Reclamation will obtain any required permits before implementing any ground-disturbing activities. The contractor and Reclamation will confirm that the SWPPP is kept on the project site, all applicable measures are implemented, and that water quality standards are met as required. Following the completion of construction activities, disturbed areas will be stabilized and revegetated as required.
- Project specific environmental commitment to be incorporated into Section 2 of SEA: Reclamation will ensure PG&E and its contractors implement all applicable environmental commitments, including those as described in the attached Horizontal Directional Drilling Inadvertent Release Plan and PG&E's State Lands lease for utility relocations.

GPM-2: Construction Work Windows

- Construction work windows will be as consulted on with NMFS as described in the NMFS biological opinion for the project.

GPM-3: Construction Hours

- Construction work at night (30 minutes after sunset until 30 minutes after sunrise) will not be allowed.

GPM-4: Environmental Awareness Training

- Prior to implementation of the project, Reclamation will conduct an education program for all site workers relative to protected species that may be encountered within the project area and required practices for their avoidance and protection as well as any training that may be required as per the Individual Permit for the project in accordance with Section 404 of the Clean Water Act (404 permit).
- Also see GPM-5

GPM-5: Environmental Monitoring

- A qualified biologist will conduct construction monitoring activities throughout project construction as described in the ESA consultations with USFWS and NMFS and in accordance with the 404 permit. Reclamation's qualified biological monitor will make regular site visits during construction to confirm that the BMPs and mitigation measures are being implemented.

GPM-6: Work Area and Speed Limits

- Staging areas, temporary access roads, and stockpile areas will be confined to the minimum area necessary to complete the project. They will be placed in areas that are already disturbed to the extent feasible. Prior to equipment mobilization, the work area boundaries will be clearly marked to prevent disturbance of sensitive areas. Temporary orange fencing will be placed to delineate environmentally sensitive areas to exclude these areas from being impacted by construction activities.
- Project-related vehicles will observe a speed limit of 15 mph throughout the site in all project areas except on state and federal highways. Off road traffic outside of designated project areas will be prohibited.

GPM-7: Environmentally Sensitive Areas

- Prior to equipment mobilization, the work area boundaries will be clearly marked to prevent disturbance of sensitive areas. Temporary orange fencing will be placed to delineate environmentally sensitive areas to exclude these areas from being impacted by construction activities.

GPM-8: Prevent Spread of Invasive Species

- Erosion control materials used during construction of the proposed action will be certified as weed-free, and only native grasses and forbs will be used for erosion control or revegetation purposes.
- All equipment will be washed prior to arriving at the project site to remove soil and seeds to prevent spread of noxious weeds.

GPM-10: Equipment Maintenance and Materials Storage

- Stockpiling of materials, including portable equipment, and vehicles and supplies, including chemicals, would be restricted to the designated construction staging areas, exclusive of any riparian and wetland areas outside the construction area.
- The contractor will be required to keep their equipment in good working condition in order to prevent leaks and spills of petroleum products or other fluids into waters of the U.S.

GPM-11: Material Disposal

- All food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in securely closed containers and removed daily from the project site.

GPM-12: Fugitive Dust Reduction

- The Proposed Action will be implemented so as to comply with required fugitive dust control measures listed in SJVAPCD Regulation VIII: Fugitive Dust PM10 4 Prohibitions, to minimize the fugitive dust emissions from construction activities.

GPM-13: Trash Containment and Removal

- See GPM-11

GPM-14: Project Cleanup after Completion

- Upon completion of the project, all areas subject to temporary ground disturbances will be re-contoured if necessary and revegetated with native seed or transplants to promote restoration of the area to pre-project conditions.

GPM-15: Revegetate Disturbed Areas

- Biological surveys have been conducted to identify, map, and quantify riparian and other sensitive habitats in potential construction areas.
- Disturbance to existing valley foothill riparian habitat will be minimized to the extent feasible to construct the proposed project.
- Disturbed portions of the San Joaquin River floodplain within the action area that are not permanently disturbed will be reseeded and planted with a mix of native plants to return the areas to a pre-construction vegetated state and prevent the establishment of nonnative invasive plant species. Approximately one acre of disturbed area will be reseeded and planted following the completion of the construction activities.
- Erosion control materials used during construction will be certified weed-free and only native grasses and forbs will be used for erosion control or re-vegetation purposes.
- Riparian vegetation removed or damaged will be replaced or allowed an opportunity for natural recruitment within the immediate area of disturbance to the extent feasible to maintain habitat quality.
- To ensure that the SJRRP's release of Restoration Flows is creating more riparian habitat than is being disturbed by construction actions, Reclamation will continue vegetation monitoring as described in SJRRP PEIS/R Conservation Strategy Measures RHSNC-1, RHSNC-2, and the 2014 Riparian Habitat Mitigation and Monitoring Plan in the vicinity of the action area - Reaches 3 and 4a of the Restoration Area.

WQHM-1: Staging Areas and Stockpiling of Materials and Equipment

- See GPM-6, GPM-10
- Stockpiling of materials, including portable equipment, vehicles and supplies, such as chemicals, shall be restricted to the designated construction staging areas, exclusive of any riparian and wetland areas.
- Construction BMPs for off-channel staging, and storage of equipment and vehicles, will be implemented to minimize the risk of contaminating the waters of the San Joaquin River by spilled materials. BMPs will also include minimization of erosion and stormwater runoff, as appropriate.

WQHM-2: Storm Water Pollution Prevention Plan

- Sedimentation and turbidity will be avoided and minimized by implementing construction BMPs and preparing and implementing a Stormwater Pollution and Prevention Plan (SWPPP) acceptable to the Regional Water Quality Control Board (Water Board).

WQHM-4: Hazardous Materials Management and Spill Response Plan

- A SWPPP will be developed to include BMPs for the storage and use of hazardous materials and waste, and spill response procedures. Hazardous materials and waste will be stored in containers that prevent the release of material or hazardous content and within secondary containment, and spill kits will be placed throughout the study area for immediate response to spills, such as those that might occur during onsite refueling. Following initial response, follow-on investigation and cleanup to any spill will be performed in accordance with the SWPPP. The SWPPP will include BMPs for the handling of contaminated soil. Operators and construction personnel will be asked to report unusual conditions to the appropriate personnel. If contaminated soil is encountered during construction, the area and/or material will be properly contained during investigative actions. If soils require temporary stockpiling, piles will be placed on and covered with plastic sheeting or tarps that are secured safely with sandbags and bermed with fiber rolls or silt fencing to prevent runoff from leaving the area. Samples will be collected and sent to a certified analytical laboratory for characterization. If contamination is detected, the waste will be handled and properly disposed of in an authorized waste management facility. In addition, the appropriate local, State, and federal agencies would be notified.
- Hazardous materials and waste will be handled in compliance with applicable Federal, State, and local laws and regulations, including licensing, training of personnel, accumulation limits and times, prevention and response to spills and releases, and reporting and record keeping. Construction activities will be temporarily stopped and remedial measures will be implemented immediately if spills occur in the San Joaquin River, or drainages leading to the San Joaquin River.
- The SWPPP will include BMPs for the storage and use of hazardous materials and waste, and spill response procedures. Hazardous materials and waste will

be stored in containers that prevent the release of material or hazardous content and within secondary containment, and spill kits will be placed throughout the Action Area for immediate response to spills, such as those that might occur during on-site refueling. Following initial response, follow-on investigation and cleanup of any spill will be performed in accordance with the SWPPP.

- A spill prevention plan will be prepared describing measures to be taken to minimize the risk of fluids or other materials used during construction (e.g., oils, transmission and hydraulic fluids, cement, fuel) from entering the San Joaquin River or contaminating riparian areas adjacent to the river itself. In addition to a spill prevention plan, a cleanup protocol will be developed before construction begins and shall be implemented in case of a spill.
- Hazardous materials will be stored and used in accordance with the project's Health and Safety Plan during project operation and maintenance activities. The Health and Safety Plan will include guidelines on the storage and use of hazardous materials and spill response measures. Hazardous materials will be stored in containers that prevent the release of material or hazardous content and within secondary containment, and spill kits will be maintained throughout the project site for immediate response to spills.
- Transportation of hazardous materials and hazardous waste will comply with California Department of Transportation and California Highway Patrol regulations. Additionally, hazardous materials and wastes will only be transported along approved transportation routes. In the event of a vehicle accident, first responders will be notified immediately to direct emergency response requirements appropriate for the situation. Following initial emergency response, cleanup will be performed with agency oversight in accordance with applicable regulations.
- Before initiating ground-disturbing activities, Reclamation will survey the project site for unknown and abandoned wells. If the survey discovers an idle or abandoned well, ground- disturbing activities will not occur within 100 feet of the well, if feasible. If ground-disturbing activities need to occur within 100 feet of the abandoned well, Reclamation will either cover, fence, or otherwise clearly mark the well location and take measures to reduce hazards to workers and/or make sure that the well has been abandoned in accordance with State and local regulations, whichever is appropriate for the site. Madera County Department of Environmental Health or Fresno County Department of Public Health, Environmental Health Division will be notified, as appropriate.
- Reclamation will comply with Mitigation Measure PHH-4 as identified in Chapter 20 – Hydrology of the SJRRP Draft PEIS/R (p. 20-21), which includes workplace precautions against West Nile Virus (WNV) and Valley Fever at construction sites as follows:
    - Inspect work areas and eliminate sources of standing water that could potentially provide breeding habitat for mosquitoes. For example, eliminate uncovered upright containers that could accumulate water, and fill or drain potholes and other areas where water is likely to accumulate.

- Conduct employee training that covers the potential hazards and risks of WNV and Valley Fever exposure and protection, including proper construction apparel. Employees will be instructed not to touch any dead birds with their bare hands.
- Provide dust masks for worker use at construction sites during ground disturbing activities.
- Recommend workers use insect repellant at construction sites with a minimum of 23.8 percent diethyl-meta-toluamide.
- Notify the appropriate county health department of dead birds seen on the construction site.

WQHM-6: Accidental Discharge of Hazardous Materials

- Hazardous materials and waste will be handled in compliance with applicable federal, State, and local laws and regulations, including licensing, training of personnel, accumulation limits and times, prevention and response to spills and releases, and reporting and recordkeeping.
- Reclamation will ensure that PG&E and their contractors implement all applicable environmental commitments as described in the attached Horizontal Directional Drilling Inadvertent Release Plan

IWW-2: In-Water Vehicle Selection and Work Access

- IWW-2 from SRGO will be incorporated into project environmental commitments: *If work requires that equipment enter wetlands or below the bank of a waters of the state, equipment with low ground-pressure (typically less than 13 to 20 pounds per square inch (psi)) should be selected where feasible to minimize soil compaction. Low ground pressure heavy equipment mats should be used if needed to lessen soil compaction. Hydraulic fluids in mechanical equipment working in the waters of the state, will not contain organophosphate esters. Vegetable based hydraulic fluids are preferred, where feasible. The amount of time this equipment is stationed, working, or traveling in the waters of the state will be minimized. All equipment will be removed from the aquatic feature during non-work hours where appropriate or returned to the agency-approved staging area in the aquatic feature.*

IWW-3: In-Water Placement of Materials, Structures, and Operation of Equipment

- IWW-3 from SRGO will be incorporated into project environmental commitments: *Material used for bank stabilization or in-water restoration will minimize discharge sediment or other forms of waste to waters of the state. Where feasible, construction will occur from the top of the stream bank, or on a ground protection mat underlain with filter fabric, or a barge. All materials placed in streams, rivers or other waters will be nontoxic. Any combination of wood, plastic, cured concrete, steel pilings, or other materials used for in-channel structures will not contain coatings or treatments, or consist of substances toxic to aquatic organisms (e.g., zinc, arsenic, creosote, copper, other metals, pesticides, or petroleum-based products) that may leach into the surrounding environment in*

amounts harmful to aquatic organisms. Except for the following conditions, equipment must not be operated in standing or flowing waters without site-specific approval from State or Regional Board staff: • All construction activities must be effectively isolated from water flows to minimize the potential for runoff. This may be accomplished by working in the dry season or dewatering the work area in the wet season. • When work in standing or flowing water is required, structures for isolating the in-water work area and/or diverting the water flow must not be removed until all disturbed areas are cleaned and stabilized. The diverted water flow must not be contaminated by construction activities. • All open flow temporary diversion channels must be lined with filter fabric or other appropriate liner material to prevent erosion. Structures used to isolate the in-water work area and/or divert the water flow (e.g., coffer dam or geotextile silt curtain) must not be removed until all disturbed areas are stabilized.

IWW-5: Cofferdam Construction

- To maintain continuous irrigation service to Arroyo Canal, cofferdams [will] be constructed around the fish screen and trash-rack structures to allow construction in the dry. Additionally, if construction occurs outside of the scheduled maintenance period for Poso Canal, it is anticipated that a temporary diversion would be used during construction of the crossing to maintain continuous irrigation service.
- IWW-5 language from SRGO will be incorporated into project environmental commitments: *Cofferdams may be installed both upstream and downstream, and along portions of the cross section of a channel or other waterway if necessary to isolate the extent of the work areas. When feasible, construction of cofferdams will begin in the upstream area and continue in a downstream direction, allowing water to drain and allowing fish and aquatic wildlife species to leave (under their own volition), from the area being isolated by the cofferdam, prior to closure. The flow will then be diverted only when construction of the upstream dam is completed and the work area has been naturally drained of flow, at this point, the downstream dam, if necessary, would be completed and then flow would be diverted around the work area. Cofferdams and stream diversion systems will remain in place and fully functional throughout the construction period. In order to minimize adverse effects to aquatic species, stream diversions will be limited to the shortest duration necessary to complete in-water work. In-water cofferdams will only be built from materials such as sandbags, plastic, clean gravel (possibly wrapped in impermeable material), rubber bladders, vinyl, steel, or earthen fill, in a manner that minimizes siltation and/or turbidity. Sandbags may only be used to build cofferdams upstream of spawning gravels when filled with clean gravel (or other material acceptable to the approving Water Board). Where possible, cofferdams should be pushed into place. If pile driving (sheet piles) is required, vibratory hammers should be used and impact hammer should be avoided. If necessary, the footing of the cofferdam will be keyed into the channel bed at an appropriate depth to capture the majority of subsurface flow needed to dewater the streambed. When cofferdams with bypass pipes are installed, debris racks*

will be placed at the bypass pipe inlet in a manner that minimizes the potential for fish impingement and/or entrapment. As needed and where feasible, bypass pipes will be monitored for accumulation of debris. All accumulated debris will be removed. When appropriate, cofferdams will be removed so surface elevations of water impounded above the cofferdam will not be reduced at a rate greater than one inch per hour. Cofferdams in tidal waters should be removed during the lowest possible tide and in slack water to the extent feasible to minimize disturbance and turbidity. This will minimize the probability of fish and other aquatic species stranding as the area upstream becomes dewatered. All dewatering/diversion facilities will be installed such that natural flow is maintained upstream and downstream of project areas. An area may need to be dewatered for long enough to allow special-status species to leave on their own before final clearance surveys and construction can begin.

IWW-6: Dewatering/Diversion

- A Fish Rescue Plan will be prepared and implemented during any dewatering activities that may entrain fish. The plan will include using a qualified biologist to capture, remove, and relocate fish using areas to be dewatered. The Fish Rescue Plan will be provided to NMFS for approval prior to the onset of construction activities.

IWW-7: Fish and Aquatic Species Exclusion While Installing Diversion Structures

- Fish will be excluded from work area by installing cofferdams and dewatering during work windows that avoid fish presence.

IWW-8: Removal of Diversion and Barriers to Flow

- IWW-8 from SRGO will be incorporated into project environmental commitments: *Upon completion of construction activities, any diversions or barriers to flow will be removed in a manner that will allow flow to resume with the least disturbance to the substrate and consideration of turbidity levels. Alteration of creek beds will be minimized to the maximum extent possible; any imported material that is not part of the project design will be removed from stream beds upon completion of the project.*

IWW-9: In-Water Pile Driving Plan for Sound Exposure

- Potential injury and mortality associated with in-water pile driving will be avoided or minimized by implementing the following measures:
    - A cofferdam will be installed around the in-channel construction area, which will be dewatered before additional H-pile driving and/or construction activities. Fish will not have access to the construction site, and underwater sounds produced by pile driving will be attenuated as a result of being performed in the dry;
    - A Fish Rescue Plan will be prepared and implemented prior to any dewatering activities that may entrain fish. The plan will include using a

qualified biologist to capture, remove, and relocate fish using areas to be dewatered. The Fish Rescue Plan will be provided to NMFS for approval prior to the onset of construction activities; and
    - Vibratory hammers will be used whenever feasible, with the exception of impact testing for H-piles.
- *The number and size of piles will be limited to the minimum necessary to meet the engineering and design requirements of the proposed project.*

IWW-10: In-Water Pile Driving Methods

- See IWW-9.
- IWW 10 from SRGO will be incorporated into project environmental commitments: *Pile driving will occur during approved work windows with reduced currents and only during daylight hours. Pile driving will be conducted with vibratory or low/nonimpact methods (i.e., hydraulic) that result in sound pressures below threshold levels to the extent feasible. Applied energy and frequency will be gradually increased until necessary full force and frequency are achieved. If it is determined that impact hammers are required and/or underwater sound monitoring demonstrates that thresholds are being exceeded, the contractor will implement sound dampening or attenuation devices to reduce levels to the extent feasible; these may include the following: • A cushioning block used between the hammer and pile. • Use of a confined or unconfined air bubble curtain. • If feasible, pile driving could be done in the dry area (dewatered) behind the cofferdam. Pile driving will follow the criteria outlined in the most recent version of the California Department of Transportation's Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish (Caltrans 2015).*

IWW-12: Pile-Driving Monitoring

- If individuals of listed species are observed present within the project area, then NMFS, would be notified. Implementing Agency personnel will have access to construction sites during construction and operation as appropriate to evaluate species presence and habitat conditions. Access to the action area by agency staff will be coordinated by Reclamation.

VHDR-1: Avoidance of Vegetation Disturbance

- Biological surveys were conducted to identify, map, and quantify riparian and other sensitive habitats in potential construction areas.
- Disturbance to existing Valley Riverine Habitat, and particularly shaded riverine aquatic habitat (SRA) and Valley Foothill Riparian Habitat, will be minimized to the extent practical to complete the proposed project.

VHDR-2: Native and Invasive Vegetation Removal Materials and Methods

- VHDR-2 from the SRGO will be incorporated into project environmental commitments: *If riparian vegetation is to be removed with chainsaws or other*

power equipment, machines that operate with vegetable-based bar oil will be used, as practicable. All invasive plant species (e.g., those rated as invasive by the California Invasive Plant Council or local problem species) will, if feasible, be removed from the project site, using locally and routinely accepted agriculture practices. Invasive plant material will be destroyed using approved protocols and disposed of at an appropriate upland disposal or compost area. Invasive plant materials stockpiled at sites known to experience flash flooding outside the flood season will be removed within 15 days of the initial creation of the stockpile in order to contain the potential spread of invasive plant material. Stockpiling of invasive plant materials is prohibited during the flood season.

VHDR-3: Revegetation Materials and Methods

- See GPM-15

VHDR-4: Revegetation Erosion Control Materials and Methods

- Erosion control materials used during construction of the proposed project will be certified weed-free and only native grasses and forbs will be used for erosion control or re-vegetation purposes.

VHDR-5: Revegetation Monitoring and Reporting

- Vegetation monitoring and reporting will be completed in accordance with all applicable environmental compliance documents, including the SWPPP and 404 permit.

VHDR-6: General Herbicide Use

- Pesticide use is not anticipated as part of construction activities. While not currently anticipated to be needed, if pesticide use is determined to be necessary during operation and maintenance of Reclamation's facilities, it will be implemented in accordance with the terms of the SRGO.

VHDR-7: Herbicide Application Planning

- Pesticide use is not anticipated as part of construction activities. While not currently anticipated to be needed, if pesticide use is determined to be necessary during operation and maintenance of Reclamation's facilities, it will be implemented in accordance with the terms of the SRGO.

VHDR-8: Herbicide Application Reporting

- Pesticide use is not anticipated as part of construction activities. While not currently anticipated to be needed, if pesticide use is determined to be necessary during operation and maintenance of Reclamation's facilities, it will be implemented in accordance with the terms of the SRGO.

Enclosure E:
Pacific Gas and Electric Company's Recommended Measures for the Sack Dam Pipeline Crossing Replacement

(This enclosure was provided by Pacific Gas and Electric Company.)

PG&E Recommended Measures for the Sack Dam Pipeline Crossing Replacement

BIOLOGICAL RESOURCES

SJVHCP Avoidance and Minimization Measures for all HCP Covered Activities and Covered Species

AMM 1:

Employees and contractors performing PG&E O&M activities will receive ongoing environmental education. Training will include review of environmental laws and guidelines that must be followed by all personnel to reduce or avoid effects on covered species during O&M activities.

AMM 2:

Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas to the extent practicable.

AMM 3:

The development of new access and ROW roads by PG&E will be minimized and clearing vegetation and blading for temporary vehicle access will be avoided to the extent practicable.

AMM 4:

Vehicles will not exceed a speed limit of 15 mph in the ROWs or on unpaved roads within sensitive land-cover types.

AMM 5:

Trash dumping, firearms, open fires (such as barbecues) not required by the PG&E O&M activity, hunting, and pets (except for safety in remote locations) will be prohibited in O&M work activity sites.

AMM 6:

No vehicles will be refueled within 100 feet of a wetland, stream, or other waterway unless a bermed and lined refueling area is constructed.

AMM 8:

During fire season in designated State Responsibility Areas (SRAs), all motorized equipment will have federal or state approved spark arrestors; a backpack pump filled with water and a shovel will be carried on all vehicles; and fire-resistant mats and/or

windscreens will be used when welding. In addition, during fire “red flag” conditions as determined by California Department of Forestry (CDF), welding will be curtailed, each fuel truck will carry a large fire extinguisher with a minimum rating of 40 B:C, and all equipment parking and storage areas will be cleared of all flammable materials.

AMM 9:

Erosion control measures will be implemented where necessary to reduce erosion and sedimentation in wetlands, waters of the United States, and waters of the state, and habitat occupied by covered animal and plant species when PG&E O&M activities are the source of potential erosion problems.

AMM 11:

When routine PG&E O&M activities are conducted in an area of potential VELB habitat, a qualified individual will survey for the presence of elderberry plants within a minimum of 20 feet from the worksite. If elderberry plants have one or more stems measuring 1 inch or more in diameter at ground level are present, the qualified individual will flag those areas to avoid or minimize potential impacts on elderberry plants. If impacts (pruning/trimming, removal, ground disturbance or damage) are unavoidable or occur, then additional measures identified in the VELB conservation plan and compliance brochure will be implemented. The VELB compliance brochure must be carried in all vehicles performing PG&E O&M activities within the potential range of VELB.

AMM 19:

If a Swainson’s hawk nest or white-tailed kite nest is known to be within 0.25 mile of a planned worksite, a qualified biologist will evaluate the effects of the planned O&M activity. If the biologist determines that the activity would disrupt nesting, a buffer and limited operation period (LOP) during the nesting season (March 15–June 30) will be implemented. Evaluations will be performed in consultation with the local DFG representative.

AMM 22:

All vegetation management activities will implement the nest protection program to avoid and minimize effects on Swainson’s hawk, white-tailed kite, golden eagle, bald eagle, and other nesting birds. Additionally, trained pre-inspectors will use current data from DFG and CNDDB and professional judgment to determine whether active Swainson’s hawk, golden eagle, or bald eagle nests are located near proposed work. If pre-inspectors identify an active nest near a proposed work area, they will prescribe measures to avoid nest abandonment and other adverse effects to these species, including working the line another time of year, maintaining a 500-foot setback, or if the line is in need of emergency pruning, contacting HCP Administrator.

Recommended Project-Specific AMMs for Non-Covered Species

Environmental Training Program:

An environmental training program will be developed and presented by a qualified biologist, approved by CSLC staff. All contractors and employees involved with the Project will be required to attend the training program. At a minimum, the program will cover special-status species that could occur on the site, their distribution, identification characteristics, sensitivity to human activities, legal protection, penalties for violation of state and federal laws, reporting requirements, and required Project avoidance, minimization, and mitigation measures.

Western Pond Turtle Pre-Construction Surveys:

A qualified biologist will conduct pre-construction surveys for WPT within 48 hours prior to ground disturbance within suitable habitat areas to ensure that individuals are not present in the work area. Prior to ground disturbance activities, a barrier, such as wildlife exclusion fencing, will be placed around the excavation area to prevent WPT from moving into work areas. A qualified biological monitor will be present to monitor project activities during all in-water work and initial ground disturbance that has the potential to impact special-status species.

Biological Monitoring:

A qualified biological monitor, approved by CSLC staff, will survey the onshore work area for sensitive species or other wildlife that may be present no more than 24 hours prior to commencement of Project activities. In addition, the biological monitor will monitor Project activities within surface water and sensitive habitats, and other activities that have the potential to impact special-status species on a daily basis once Project activity begins. If at any time during Project activities any special-status wildlife species are observed within the Project area, work around the animal's immediate area will be stopped or work will be redirected to an area within the Project area that would not impact these species until the animal is relocated by a qualified biologist. Listed species would be allowed to leave of their own volition, unless coordination with USFWS and/or CDFW provide authorization for relocation by a qualified biologist with appropriate handling permits. Work would resume once the animal is clear of the work area. In the unlikely event a special-status species is injured or killed by Project-related activities, the biological monitor would stop work and notify CSLC and consult with the appropriate agencies to resolve the impact prior to re-starting work in the area.

Seasonal Aquatic Work Window:

Construction activities in surface water will be conducted within the seasonal aquatic work window of July 1 – September 30 to avoid season spawning migrations. This coincides with the period when listed anadromous fish species are least likely to occur.

Turbidity Monitoring:

A Turbidity Monitoring Plan will be implemented during all in-water work to ensure that turbidity levels upstream and downstream of the Project area remain compliant with regulatory requirements. A qualified environmental monitor will be present during in-water work to regularly monitor turbidity levels upstream and downstream of in-water work activities.

If the results of the turbidity monitoring plan detect a Project-related increase in turbidity that exceeds the allowable thresholds for increased turbidity, as defined by regulatory permits, corrective measures will be implemented. Corrective measures may include the use of a turbidity curtain or other sediment control devices, alteration to the timing and duration of in-water work and excavation, or minor modifications in methodology that result in reducing the in-water excavation.

HAZARDS AND HAZARDOUS MATERIALS

Project Work and Safety Plan:

A Project Work and Safety Plan (PWSP) will be submitted to CSLC staff and all other pertinent agencies for review and approval at least 30 days prior to the implementation of each Project Phase. The PWSP will include the following information (at a minimum):

- Contact information
- Hazardous Spill Response and Contingency Plan
- Emergency Action Plan
- Summary of the Project Execution Plan
- Project Management Plan
- Site Safety Plan, including measures for proper handling of hazardous materials including, but not limited to soils containing residual pesticides
- Permit Condition Compliance Matrix

Inadvertent Release Contingency Plan:

The draft Inadvertent Release Contingency Plan will be finalized and implemented to detect and address any inadvertent drilling fluid migration outside of the HDD drill hole, including potential drilling fluid migration into the Sacramento River. At least 30 days prior to Phase 1 implementation, the Applicant will submit a Final Inadvertent Release Contingency Plan to CSLC for review and approval.

Pre- and Post-Project Bathymetric and Surficial Features Multi- Beam Debris Survey:

Pre- and post-Project Bathymetric and Surficial Features Multi-Beam Debris Surveys of the riverbed will be conducted using a vessel equipped with a multi-beam sonar system. The pre-Project survey, used in conjunction with previously collected data, will serve to

fully identify pre-Project bottom contours, debris, and any exposed utilities, and a copy of the survey will be submitted to CSLC staff for review 30 days prior to Project implementation. A post-Project Bathymetric and Surficial Features MultiBeam debris survey will also be performed, and the results compared to the initial baseline survey. Any anomalous objects that were not already found and identified in the pre-Project survey and that remain unidentified during the bathymetric and debris surveys would be positively identified using methods such as divers or ROV. All Project-related debris would be recovered. A Project close-out report with drawings will be submitted to the CSLC within 60 days of work completion.

Asbestos Handling Procedures:

Construction personnel will be informed of the potential presence of asbestos-containing material (ACM) at the Project site prior to their assignment. After exposing the existing pipeline for removal, and prior to the start of cutting and tie-in activities, a certified asbestos inspector/consultant will test whether the coating consists of ACM greater than 1 percent by weight. If testing reveals the coating contains ACM less than 1 percent by weight, the pipeline segment will be treated as normal construction waste and no additional measures are required. If testing reveals the coating contains ACM equal to or greater than 1 percent by weight, the materials will be controlled by a certified asbestos abatement contractor in accordance with the regulations and notification requirements of SMAQMD Rule 902 or YSAQMD Rule 4.3, and in accordance with applicable worker safety regulations. All ACM removed from the pipeline segment(s) will be labeled, transported, and disposed of at a verified and approved ACM disposal facility.

HYDROLOGY AND WATER QUALITY

Stormwater Pollution Prevention Plan:

The Applicant or their contractor will develop and implement a Stormwater Pollution Prevention Plan (SWPPP) consistent with the Statewide NPDES Construction General Permit (Order No. 2012-0006-DWQ). At a minimum, the SWPPP will include measures for:

- Maintaining adequate soil moisture to prevent excessive fugitive dust emissions, preservation of existing vegetation, and effective soil cover (e.g., geotextiles, straw mulch, hydroseeding) for inactive areas and finished slopes to prevent sediments from being dislodged by wind, rain, or flowing water.
- Installing fiber rolls and sediment basins to capture and remove particles that have already been dislodged.
- Standard best management practices, such as the use of silt fencing and straw wattle, within the disturbance footprints at each terrestrial excavation location.

- Establishing good housekeeping measures such as construction vehicle storage and maintenance, handling procedures for hazardous materials, and waste management BMPs including procedural and structural measures to prevent the release of wastes and materials used at the site.
- The SWPPP will also detail spill prevention and control measures to identify the proper storage and handling techniques of fuels and lubricants, and the procedures to follow in the event of a spill. The SWPPP will be provided to implementation.

NOTES

The purpose of the pipeline relocation project is to avoid conflict with a river restoration project being implemented by the U.S. Bureau of Reclamation (BOR). The disturbance footprint associated with decommissioning activities in the San Joaquin River and adjacent riparian habitat is entirely within the footprint of the overall BOR Project; therefore, restoration of temporary impacts to riparian habitat will be completed by the BOR in accordance with their project design plans and permits issued for the federal project. PG&E is not proposing any site restoration activities within the riparian area after completion of their project to avoid conflict and redundancy with the federal project. Temporary impacts to agricultural and developed lands associated with the HDD will be restored to pre-construction conditions in accordance with landowner agreements.