



# Twitchell Island Wetland Enhancement and Restoration Project

Delta Consistency Determination: Detailed Findings



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# 1.0 Introduction

## 1.1 PROJECT LOCATION AND BACKGROUND

Reclamation District 1601 (RD 1601), in partnership with the California Department of Water Resources (DWR), and in consultation with the California Department of Fish and Wildlife (CDFW), is proposing to restore and enhance wetland and riparian habitat on Twitchell Island in Sacramento County, California. Historically, the area that became Twitchell Island was primarily tule marsh with some riparian forest. In approximately 1869, levees were constructed that ultimately formed Twitchell Island. RD 1601, formed in 1914, is responsible for operation and maintenance of the levees around the perimeter of Twitchell Island. Much of the island has been farmed since the early 1900s, and the levees have continued to be built up as the associated farmland subsides. In the early 1990s, DWR purchased approximately 90 percent of Twitchell Island to benefit water quality and to create wildlife habitat.

The Twitchell Island Wetland Enhancement and Restoration Project (Project) proposes to enhance and restore wetland and riparian and scrub-shrub habitat within a 185-acre Project Area footprint on Twitchell Island.

The Project Area is located on Twitchell Island, an approximately 3,500-acre island located in the western Sacramento-San Joaquin Delta, approximately 3.5 miles south of Isleton and approximately 3 miles southeast of Rio Vista in southwest Sacramento County (Figure 1, Table 1). The Project Area encompasses approximately 185 acres, located on two parcels (APN #s 157-0130-022-0000 and 157-0130-006-0000) owned by DWR. The Project would be located on the northern portion of Twitchell Island, near Sevenmile Slough. The latitude and longitude of the approximate center of the Project Area is 38.114785°, -121.657261°. The Project Area is currently used for agriculture, in particular alfalfa and cattle grazing (Figure 2).

**Table 1. Project Location Information**

<b>Assessor Parcel Numbers<sup>1</sup></b>	157-0130-022-0000
	157-0130-006-0000
<b>Latitude/Longitude<sup>2</sup></b>	38.114785°, -121.657261° (North American Datum 1983 [NAD83], State Plane Zone IV)
<b>USGS 7.5-minute Quadrangle</b>	Jersey Island, CA
<b>Section/Township/Range</b>	Sections 08, 09 / Township 3N / Range 3E
<sup>1</sup> Parcels were assessed using a subscription to the Parcelquest website. <sup>2</sup> Latitude and Longitude note the approximate center of the project area.	

## 1.2 PURPOSE AND OBJECTIVES

The purpose of the Project is to provide high-quality and cost-effective habitat for Delta Levees Special Flood Control Projects Program (Delta Levees Program or “DLP”) participants. Reclamation districts responsible for maintenance of levees throughout the Delta participate in the DLP. Reclamation districts that receive funding from DLP for levee maintenance and improvement work are required to have nonet long-term loss of riparian habitat and a net long-term habitat improvement for that work. CDFW oversees those mandates outlined in the California Water Code (CWC), and along with DWR, sees an advantage in addressing them programmatically. The Project would offset future riparian impacts associated with levee maintenance and improvement work implemented through DLP and, thereby, help satisfy the no net loss of riparian habitat mandate provided in CWC Sections 12314(c) and 12987(c). The wetland restoration portion of the Project would help to achieve the net long-term habitat improvement mandate provided in CWC Sections 12314(d) and 12987(d). Unlike the riparian restoration, wetland restoration would help to achieve the long-term habitat improvements mandated by CWC, and wetland restoration acreage would not be used to offset any future DLP levee maintenance project impacts.

## 1.3 PROJECT COMPONENTS

The Project proposes to enhance and restore approximately 40 acres of wetland and approximately 80 acres of riparian and scrub-shrub habitat within a 185-acre Project Area footprint on Twitchell Island. Approximately 50 acres within the Project Area would remain under agriculture use. The remaining portion of the Project Area would be undisturbed and primarily consists of the island perimeter levee side slope and access roadways. The Project would plant native riparian tree and shrub species interspersed with native grasses and redistribute onsite soil to create a mosaic of shallow open-water habitat, habitat islands, and emergent wetland communities. Additionally, the Project would construct shallow swales, incorporate water control structures for water delivery, and include management within the improved wetland units. See Figure 3. Once complete, the Project would result in a net increase in wetland acreage, improving aquatic resource functions and services onsite (See Attachment A - Design Plan Set).

### 1.3.1 Pipeline

Consistent with existing onsite hydrology, water would be delivered to the Project Area from Sevenmile Slough through an existing siphon. The Project proposes to install a three-way valve on the existing siphon outfall. The two outside valves could be utilized for agriculture and irrigation uses. The middle valve would connect to a siphon pipeline extension to deliver water to the wetland units proposed in the southern portion of the Project Area. An approximately 4,200-linear-foot, 16-inch polyvinyl chloride (PVC) pipeline extension would be installed at the existing siphon and would follow along the northern perimeter of the Project Area, turn south at the western Project Area boundary, then turn east, and terminate at the northwestern portion of the eastern wetland unit. The end of the siphon pipeline extension would be fitted with a valve to allow for operation of the water levels into the wetland units and provide water to the agricultural area in the southeast portion of the Project Area.

Excavation of an approximately 3-foot-wide trench, 24- inches below ground surface would be required to locate the pipeline extension below the final grade. The pipeline trench would be located approximately 10 feet away from new and existing ditches and fence lines. The excavated trench would be backfilled once the pipeline is installed.

### **1.3.2 Wetland Grading and Swales**

The Project would create two wetland units in the southwestern portion of the Project Area. Both wetland units would be graded to cut higher elevations and fill lower elevations in the interior. Water siphoned from Sevenmile Slough would be conveyed through the pipeline to the wetland units. Approximately 7,100 linear feet of swales would be constructed to provide water conveyance from the siphon pipeline extension through the wetland units. Swales would have 5:1 side slopes and 15-foot bottom widths. Water would flow through Unit 1 (the eastern wetland unit) first and then would be gravity fed into Unit 2 (the western wetland unit, located at a lower elevation than Unit 1). Water could then be discharged into the existing ditch along the southern boundary of the Project Area where it could be conveyed to the southern end of Twitchell Island and pumped out of the island into the San Joaquin River.

### **1.3.3 Potholes and Islands**

Two potholes would be constructed in Unit 1 and another pothole would be excavated in Unit 2. Potholes would have 5:1 side slopes and varying bottom widths. To increase habitat complexity, two new islands would be constructed in Unit 1 and another island would be constructed in Unit 2. These islands would provide foraging habitat for migratory birds and aquatic species within the units. Islands would vary in size and would be constructed with approximately 10:1 side slopes to create emergent marsh habitat and approximately 5:1 side slopes if adjacent to proposed swales or potholes to provide open water habitat.

### **1.3.4 Berms**

Perimeter berms would be constructed around the proposed wetland units in the southwestern portion of the Project Area. The berms would be constructed with compacted fill from the spoil materials excavated to grade the wetlands and construct the proposed potholes and swales. Berms would extend a total of approximately 7,200 linear feet, have approximately 3:1 side slopes, and approximately 12-foot top widths.

### **1.3.5 Perimeter Ditch**

A new perimeter ditch would be constructed along the northern boundary of the wetland units to capture stormwater runoff and seepage from the wetland units. The ditch would be constructed approximately 30 feet north of the proposed perimeter berm and would convey water to the larger existing drainage ditch south of the Project Area. The ditch would have approximately 2:1 side slopes and an approximately 4-foot bottom width.

### **1.3.6 Water Control Structures**

Four new water control structures would be installed in the proposed wetland units. The four water control structures would consist of high-density polyethylene (HDPE) pipe with risers and would be supported by timber

piles. Two water control structures are proposed to convey water between the two wetland units along the proposed swale pathways. Two additional water control structures are proposed at the southern ends of the swales within each wetland unit. These two water control structures would allow for water to drain into the existing ditch on the southern boundary of the Project Area.

### 1.3.7 Native Plantings

Trees and shrubs would be planted in the northern portion of the Project Area. Riparian forest trees would include Goodding's black willow (*Salix gooddingii*), red willow (*S. laevigata*), Pacific willow (*S. lasiandra*), cottonwood (*Populus fremontii*), box elder (*Acer negundo*), Oregon ash (*Fraxinus latifolia*), coast live oak (*Quercus agrifolia*), interior live oak (*Q. wislizeni*), valley oak (*Q. lobata*), Northern California black walnut (*Juglans hindsii*), and western sycamore (*Platanus racemosa*). Scrub-shrub species would include arroyo willow (*S. lasiolepis*), sandbar willow (*S. exigua*), blue elderberry (*Sambucus mexicana*), western redbud (*Cercis occidentalis*), California buckeye (*Aesculus californica*), big saltbush (*Atriplex lentiformis*), California wild grape (*Vitis californica*), California button willow (*Cephalanthus occidentalis*), American dogwood (*Cornus sericea*), California rose (*Rosa californica*), California blackberry (*Rubus ursinus*), and *Baccharis* spp.

### 1.3.8 Ongoing Invasive Plant Management

After construction of the proposed wetland units, various plant management treatments would be applied to control invasive plant growth and promote native wetland plant growth. Dependent on plant growth, labor availability, and funding, annual treatments may consist of one primary treatment, such as herbicide application, and one secondary treatment, such as mowing or grinding. The method(s) ultimately used to treat invasive plants would consider species, seasonality, weather, labor availability, cost, and other factors. Measures to avoid and/or minimize impacts to nesting birds, giant garter snake (*Thamnophis gigas*), and western pond turtle (*Actinemys marmorata*) (i.e., work windows, pre-construction surveys) would be implemented. The following provides a description of the various treatment methods that could be applied to remove invasive plants, such as common reed (*Phragmites* sp.), Russian thistle (*Salsola* sp.), and water primrose (*Ludwigia peploides*).

### 1.3.9 Treatment Methods

#### Mowing

Top-mowing would involve cutting above-ground stems, leaves, and flowering stalks using handheld gas-powered equipment (e.g., tri-bladed brushcutter, corded weedwhacker) or heavy equipment, where possible (e.g., Marshmaster outfitted with mowing attachment). Biomass generated during and as a result of mowing would be left in place to decompose and/or tilled into the soil as mulch during grinding (see below).

Mowing would be used to clear above-ground vegetation in preparation for other treatments, such as grinding or herbicide application, or could be used as a seed suppression measure. In general, handheld equipment would be used to mow areas with low to moderate plant density, limited access, or for seed suppression where handheld equipment can readily remove seedlings without compacting or disturbing too much soil. Where and when possible, heavy equipment would be used to treat larger areas, or areas supporting dense stands.

## **Grinding or Tilling**

Grinding would involve the use of gas-powered hand tools (e.g., brushcutter) or heavy equipment (e.g., Marshmaster outfitted with a rototiller attachment) to target rhizomes below the soil surface. After above ground vegetation has been removed, the blades of the brushcutter or rototiller would be used to grind (macerate) the root crown and rhizomes into small fragments. Grinding depths typically extend three to six inches below the ground surface, with precise depths depending on site conditions and plant maturity and density. Follow-up treatments, which are less intensive than the initial grinding, are typically required to address re-sprouts that regenerate from rhizome fragments remaining in the soil.

An alternative to grinding is tilling, where a mini-tiller may be used to macerate rhizomes. Mini-tillers, if utilized, are most advantageous when invasive plant cover is less than 50 percent.

## **Herbicide Use**

Herbicide, in conjunction with mechanical treatments (i.e., mowing, grinding), could be used to control invasive plants where other methods have proven ineffective, or where treatment costs would be substantially reduced. Herbicide use would be limited to those approved for use under National Pollutant Discharge Elimination System General Permit No. CAG990005, registered for use as aquatic herbicide, and classified as practically nontoxic to freshwater and estuarine/marine fish and invertebrates, birds, and bees.

Herbicide applications would be performed by a Qualified Applicator or under the supervision of a Qualified Applicator in accordance with the manufacturer's recommendations for aquatic use and application. Herbicide would be applied by workers moving through the Project Area on foot using backpack sprayers or wick applicators, or from spray equipment mounted on trucks or amphibious tracked vehicles. Aerial applications of herbicide, such as broadcasting herbicide from helicopters or airplanes, are not contemplated under the Project.

# **1.4 CONSTRUCTION METHODS**

Pending permit approval, construction would take place over the course of approximately a two-month construction period, beginning no sooner than May 1, 2025, and ending no later than October 1, 2025. If work is not completed in 2025, work would commence again the following year during the same time period (May 1 through October 1), or as funding is available. Construction activities would occur within permitted work windows to avoid impacts to special-status and other sensitive species (i.e., giant garter snake). Construction activities would be completed by a reputable contractor. Construction of the Project would involve excavating and relocating approximately 50,000 cubic yards (CY) of material within the Project Area to achieve a cut fill balance.

## **1.4.1 Access and Staging**

The Project Area would be accessed via Twitchell Island Road and Twitchell Island Ferry Road. Construction equipment would be brought on site and staged in dry areas located in north of the wetland restoration area.

## 1.4.2 Draw Down and Site Preparation

Prior to the start of ground-disturbance work, the siphon would be turned off to allow for draw down of any irrigation waters within the Project Area. If any remaining ponded water is encountered in the Project Area, portable pumps could be used to discharge water to adjacent agricultural fields, drainage ditches, or wetland units where the water can percolate into the soil. After water has been removed from the Project Area, existing herbaceous vegetation (mostly ruderal upland grasses and forbs) in areas that would be disturbed would be cleared and grubbed.

## 1.4.3 Construction Sequencing

The following summarizes the anticipated general sequence of construction. Outside of measures to establish the boundary of work areas and to install necessary best management practices (BMPs), these steps are not intended to be comprehensive or prescriptive. The construction contractor may elect to install components in a different order or concurrently based on site conditions, available equipment and operators, and Project schedule.

1. Stop water intake from the existing siphon and draw down any excess water from the Project Area via agricultural ditches.
2. Prepare access and staging areas and mobilize equipment.
3. Clear/grub work areas.
4. Replace siphon infrastructure.
5. Excavate pipeline trench, install pipeline, and backfill.
6. Grade wetland units, including excavation of wetland interior, swales, and potholes.
7. Place and compact excavated material along the footprint of the new berm and island footprints.
8. Install water control structures along the newly contoured berms.
9. De-compact soils and recontour areas temporarily disturbed during construction.
10. Plant native vegetation.
11. Demobilize and remove construction material from the Project Area.

## 1.4.4 Construction Equipment

Construction equipment likely to be used for the Project would include:

1. Tractors with disk attachments for disking and pull scraper attachments for transporting soils.
2. Dozers to shape berm side slopes and move material.
3. Backhoes for trenching, pipe installation/removal, and moving smaller objects.
4. Water trucks for dust control and moisture conditioning.

## 1.4.5 Protection Measures and Best Management Practices

Attachment B - Statewide Restoration General Order General Protection Measure Crosswalk, lists the General Protection Measures provided in the Statewide Restoration General Order, and summarizes their application to the Project. The attachment also summarizes proposed modifications to some measures to ensure consistency between the Central Valley Regional Water Quality Control Board RWQCB General Order and the Statewide Restoration Programmatic Biological Opinion that will be utilized by the Project; and the avoidance, minimization, and mitigation measures in the CEQA Initial Study/Mitigated Negative Declaration (IS/MND) for the Project.

The Project would also implement BMPs to reduce impacts on the environment. Representative BMPs include:

1. Plant management treatments would occur between September 1 and January 31, outside the avian nesting window, when possible, considering the applicable growing season.
2. Work would occur when work areas are dry/dewatered.
3. Although work would occur interior of berms separating the Project Area from Sevenmile Slough, stormwater BMPs would be utilized to reduce erosion and minimize potential to discharge of materials into waters.
4. Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [required by California Code of Regulations, Title 13, sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site and provide a plan for the enforcement of this requirement.
5. Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determine to be running in proper condition before it is operated. Check that tires are correctly inflated when equipment arrives on site and every two weeks for equipment that remains on site.
6. To the extent practicable, implement the following to reduce construction related emissions:
  - a. Encourage the construction contractor to use repowered engines, electric drive trains, or high-efficiency technologies, as well as trucks equipped with on-road engines for on-site material hauling.
  - b. Encourage the construction contractor to use alternative fuel generators.
  - c. Limit deliveries of materials and equipment to off peak traffic congestion hours.
  - d. Recycle construction waste (e.g., concrete, metal).
7. Avoid tillage and maintain vegetation on levees/berms to the extent possible to maximize carbon sequestration and minimize negative air quality impacts associated with erosion of bare soils.
8. Seed or plant native grasses and wildflowers in disturbed areas where feasible because those species will be best adapted to local conditions (drought, periodic inundation) and will often require minimal maintenance once established.
9. Mow vegetation, if necessary, rather than applying herbicides. The application of herbicides on a large scale requires fuel consumption for repeated treatments and entails risks to wildlife and water quality.

10. If mowing is conducted, use fuel efficient mowers in proper working condition and minimize idling time by requiring that equipment be shut down after five minutes when not in use.
11. If herbicides are to be applied, use spot applications (preferably by hand) rather than broadcast spraying where feasible to reduce impacts to native vegetation, wildlife, and water quality.
12. Control nonnative weed species as soon as populations are found to prevent the need for more future extensive eradication efforts.
13. Carefully plan and schedule vegetation maintenance activities to minimize driving time and return trips to a site.
14. When feasible, include requirements in landscaping contracts specifying the use of manual techniques such as rakes and weed removal by hand to the extent possible to reduce the use of gas-powered equipment and herbicides.

## 1.5 PERMIT AUTHORIZATIONS, AVOIDANCE, AND MINIMIZATION MEASURES

In partnership with DWR, Ducks Unlimited, Inc. (DU) is working to obtain authorizations from the U.S. Army Corps of Engineers (USACE), Central Valley Regional Water Quality Control Board (RWQCB), and the U.S. Fish and Wildlife Service (USFWS). Please see list of anticipated authorizations provided below.

- USACE, Nationwide Permit 27 Aquatic Habitat Restoration, Enhancement, and Establishment Activities.
- RWQCB, Order for Clean Water Act Section 401 Water Quality Certification and Waste Discharge Requirements for Restoration Projects Statewide (WQ-2022-0048-DWQ).
- USFWS Programmatic Biological and Conference Opinion California Statewide Programmatic Restoration Effort (2022-0005149-S7).

## 2.0 Consistency with the Delta Plan

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A state or local agency that proposes to undertake a covered action must submit a Certification of Consistency with the Delta Plan to the Delta Stewardship Council, with detailed findings demonstrating that the covered action is consistent with the Delta Plan (Water Code Section 85225). RD 1601 has determined that a consistency determination is required. A Certification of Consistency has been submitted electronically for this Project, via the Delta Stewardship Council's website online form. The purpose of this document is to provide detailed findings in support of this Certification of Consistency.

As defined by Section 85054 of the Water Code, the coequal goals of the Sacramento-San Joaquin Delta Reform Act of 2009 are the two goals of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem. The Project supports the achievement of these coequal goals by proposing to enhance and restore approximately 40 acres of wetland and approximately 80 acres of riparian and scrub-shrub habitat within a 185-acre Project Area footprint on Twitchell Island.

Section 2.1 of this document determines whether the project is covered by one or more of the Delta Plan regulatory policies, listed below, and provides an explanation regarding the consistency of the project with each regulatory policy.

- WR P1 (California Code of Regulations (CCR), Title 23, Section 5003): Reduce Reliance on the Delta Through Improved Regional Water Self-Reliance
- WR P2 (CCR Title 23 Section 5004): Transparency in Water Contracting
- ER P1 (CCR Title 23 Section 5005): Delta Flow Objectives
- ER P2 (CCR Title 23 Section 5006): Restore Habitats at Appropriate Elevations
- ER P3 (CCR Title 23 Section 5007): Protect Opportunities to Restore Habitat
- ER P4 (CCR Title 23 Section 5008): Expand Floodplains and Riparian Habitats in Levee Projects
- ER P5 (CCR Title 23 Section 5009): Avoid Introductions of and Habitat Improvements for Invasive Nonnative Species
- DP P1 (CCR Title 23 Section 5010): Locate New Urban Development Wisely
- DP P2 (CCR Title 23 Section 5011): Respect Local Land Use when Siting Water or Flood Facilities or Restoring Habitats
- RR P1 (CCR Title 23 Section 5012): Prioritization of State Investments in Delta Levees and Risk Reduction
- RR P2 (CCR Title 23 Section 5013): Protection for Residential Development in Rural Areas
- RR P3 (CCR Title 23 Section 5014): Protect Floodways
- RR P4 (CCR Title 23 Section 5015): Floodplain Protection

Section 2.2 of this document explains consistency of the project with the Delta Plan general policy and its four subdivisions.

## **2.1 COVERED ACTION DETERMINATION AND REGULATORY POLICY CONSISTENCY**

### **WR P1 (CCR, Title 23, Section 5003): Reduce Reliance on the Delta Through Improved Regional Water Self-Reliance**

The Project does not involve the export, transfer, or use of water in the Delta by a water supplier that has failed to contribute to reduced reliance on the Delta and improved regional self-reliance. As such, Policy WR P1 is not applicable.

## **WR P2 (CCR Title 23 Section 5004): Transparency in Water Contracting**

The project is not part of the State Water Project and/or Central Valley Project and would not affect the contracting process for water from the State Water Project and/or Central Valley Project. As such, Policy WR P2 is not applicable.

## **ER P1 (CCR Title 23 Section 5005): Delta Flow Objectives**

The Project would occur within the interior of a diked Delta island. No portion of the Project is subject to the State Water Resources Control Board's Bay Delta Water Quality Control Plan flow objectives (State Water Resources Control Board, 2018). The Project would not affect in-stream flows. As such, Policy ER P1 is not applicable.

## **ER P2 (CCR Title 23 Section 5006): Restore Habitats at Appropriate Elevations**

The Project is consistent with Policy ER P2. ER P2 states:

Cal. Code Regs. Tit. 23, § 5006 - Restore Habitats at Appropriate Elevations

- (a) Habitat restoration must be carried out consistent with Appendix 3, which is Section II of the Draft Conservation Strategy for Restoration of the Sacramento-San Joaquin Delta Ecological Management Zone and the Sacramento and San Joaquin Valley Regions (California Department of Fish and Wildlife 2011). The elevation map attached as Appendix 4 should be used as a guide for determining appropriate habitat restoration actions based on an area's elevation. If a proposed habitat restoration action is not consistent with Appendix 4, the proposal shall provide rationale for the deviation based on best available science.
  
- (b) For purposes of Water Code section 85057.5(a)(3) and section 5001(j)(1)(E) of this Chapter, this policy covers a proposed action that includes habitat restoration.

The Project will comply with ER P2's requirements by enhancing and restoring approximately 40 acres of wetland and approximately 80 acres of riparian and scrub-shrub habitat within a 185-acre Project Area footprint on Twitchell Island consistent with Delta Plan Appendix 3.

Currently, Twitchell Island is listed as subtidal habitat based on its elevation (Delta Stewardship Council, 2013). Land subsidence within the Delta threatens levee stability and creates a larger void for saltwater penetration in the event of a levee breach. Although the land surface elevation is currently in a subtidal range, the objective to restore semi-permanent wetland within the Project Area is consistent with ER P2. Proposed marsh habitat would support rhizomatous vegetation growth, generating plant matter under anoxic conditions. This process increases carbon in the soil and decreases decomposition rates. Re-establishing marsh habitat would promote the raising of subsided island bottoms and the reduction of greenhouse gases (GHGs) through restoration of peat soils.

Wetland restoration projects are also appropriate within subsided islands in the near term, as they are expected to provide benefits to the local economy, wildlife, and waterfowl while protecting lands from uses that may be unsustainable over the longer term (Delta Stewardship Council, 2013b). The Project would provide critical wintering and resting habitat for migratory birds within the Pacific Flyway. As one of the largest remaining wetland areas in California, the Delta provides habitat to approximately 15 percent of waterfowl on the Pacific

Flyway. The proposed Project would improve the diversity and extent of wetland habitat within the Delta, increasing habitat functions and services for shorebirds, waterfowl, sandhill cranes and other wildlife. In addition, the preserved aquatic cropland would also provide crop residue that can sustain overwintering bird populations adjacent to the restored wetland units.

In addition, water conveyance improvements would increase management capabilities within the Project Area and allow the landowner to promote the establishment of native vegetation while restricting the spread of invasive plant species by mimicking natural hydroperiods through moist soil management techniques. As such, the Project is consistent with Policy ER P2.

### **ER P3 (CCR Title 23 Section 5007): Protect Opportunities to Restore Habitat**

The Project is located entirely within Twitchell Island, which is not a priority habitat restoration area identified in the Delta Plan. As such, Policy ER P3 is not applicable.

### **ER P4 (CCR Title 23 Section 5008): Expand Floodplains and Riparian Habitats in Levee Projects**

The Project is not a levee project and would not affect levees along Sevenmile Slough or the San Joaquin River, or involve any urban levee improvement project in West Sacramento or Sacramento. Although Sevenmile Slough is adjacent to the site all work would occur within the interior of the exterior levee separating Twitchell Island from the river. As such, Policy ER P4 is not applicable.

### **ER P5 (CCR Title 23 Section 5009): Avoid Introductions of and Habitat Improvements for Invasive Nonnative Species**

The Project is consistent with ER P5. ER P5 states:

Cal. Code Regs. Tit. 23, § 5009 - Avoid Introductions of and Habitat Improvements for Invasive Nonnative Species

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- (a) The potential for new introductions of or improved habitat conditions for nonnative invasive species, striped bass, or bass must be fully considered and avoided or mitigated in a way that appropriately protects the ecosystem.
- (b) For purposes of Water Code section 85057.5(a)(3) and section 5001(j)(1)(E) of this Chapter, this policy covers a proposed action that has the reasonable probability of introducing or improving habitat conditions for nonnative invasive species.

The Project is consistent with ER P5 because it includes two years of mechanical and chemical treatment of invasive vegetation prior to construction. As well as drill seeding native grasses to out compete invasive vegetation. During construction the Project will reduce the potential to import non-native and invasive seeds by implementing BMPs. These BMPs will include but are not limited to the following:

- 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.
- Wash sites must be in confined areas that limit run-off to any surrounding habitat and on a flat grade.

- 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.

The Project would promote the growth of native hydrophytic and riparian vegetation and would provide the landowner the ability to manage wetlands onsite using moist soil management techniques. Varied water management would allow the Project Area to develop a complex vegetation community with a mosaic of plant zones and vertical biotic structure throughout the wetland units due to the enhancements described above. The water management would also be utilized to eradicate non-native species by flooding and drying the unit at precise times over the growing period. The Project is consistent with Policy ER P5.

### **DP P1 (CCR Title 23 Section 5010): Locate New Urban Development Wisely**

This Project is a restoration project and does not involve any residential, commercial, or industrial development. As such, Policy DP P1 is not applicable.

### **DP P2 (CCR Title 23 Section 5011): Respect Local Land Use when Siting Water or Flood Facilities or Restoring Habitats**

The Project is consistent with DP P2. DP P2 states:

Cal. Code Regs. tit. 23 § 5011

(a) Water management facilities, ecosystem restoration, and flood management infrastructure must be sited to avoid or reduce conflicts with existing uses or those uses described or depicted in city and county general plans for their jurisdictions or spheres of influence when feasible, considering comments from local agencies and the Delta Protection Commission. Plans for ecosystem restoration must consider sites on existing public lands, when feasible and consistent with a project's purpose, before privately owned sites are purchased. Measures to mitigate conflicts with adjacent uses may include, but are not limited to, buffers to prevent adverse effects on adjacent farmland.

(b) For purposes of Water Code section 85057.5(a)(3) and section 5001(j)(1)(E) of this Chapter, this policy covers proposed actions that involve the siting of water management facilities, ecosystem restoration, and flood management infrastructure.

While the proposed Project Area is located on state-owned land, not subject to local planning; it is designated by Sacramento County as agricultural cropland and zoned Agricultural – 80 acres (Sacramento County 2013; Sacramento County 2023). Twitchell Island is located in the Western Delta, at the confluence of the Sacramento-San Joaquin Rivers, and it is strategically important for protecting the water quality of the Delta. Hence it is imperative to end land subsiding practices – including, in some cases, conventional agriculture such as grazing – and implement land use practices which accrete soil and reverse subsidence. The Project would accomplish those goals. Habitat restoration activities proposed on the remaining portion of the Project Area would improve soil conditions by enhancing wetland habitats to create additional peat soils and reverse subsidence. Accretion of soil on the interior of Twitchell Island may (over several years) in turn reduce the risk of flooding and reverse subsidence. This subsidence reversal may support some ongoing, appropriate agricultural activities.

The majority of the Project Area is currently used as pasture grazing land. However, the heavily subsidized location and high-water table makes the Project Area unsustainable for long-term agricultural crop production. Therefore, agricultural use of the Project Area is only feasible in the short term and any impacts are temporary in nature. Most of the Project is managed for grazing or agriculture on short-term leases. The Project would not convert prime farmland to a conflicting use such as urban development. Habitat restoration activities proposed by the Project do not conflict with, but rather enhance farming practices in the Delta due to their role in subsidence reversal. Further, approximately 50 acres of the Project Area would not be disturbed and would be preserved as pastureland and/or farmland for alfalfa production.

The Project Area is comprised of two parcels. The west parcel, APN 157-0130-022-0000, is fully encompassed by the Project Area boundary and is not under a Williamson Act contract. A portion of the eastern parcel, APN 157-0130-006-0000, is within the Project Area (approximately 140 acres of 358 acres) and is under Williamson Act contract 72-AP-092. On November 30, 2015, DWR contacted the Department of Conservation and was advised that the eastern parcel could be planted as riparian habitat and reported as a different land use – i.e., the wildlife habitat land use proposed by the Project would be compatible as an open space category under the Williamson Act. In addition, DWR filed a non-renewal notice for the eastern parcel in 2020 and the Williamson Act contract is scheduled to expire in 2030. Both parcels are zoned AG-80(F) under the Sacramento County Zoning Ordinance with a minimum parcel size of 80 gross acres. Wildlife habitat is an allowable land use under the AG-80(F) zoning designation.

The Project Area is south of Twitchell Island Road and west of the Center Island Road near two habitat areas used occasionally by the public for fishing and hunting. Access to these sites is outside the Project Area. There are no recreational opportunities within the Project Area. Access to the surrounding habitat area is traversed by the roads. Twitchell Island Road, adjacent to the Project Area experiences little traffic. Twitchell Island Road provides access from Brannan Island Road (to the northeast of the Project Area) and becomes a one-lane road beyond the Project Area, only providing access to landowners, land managers, and agricultural workers. Owl Harbor is located east of the site, just past the Twitchell Island Road turnoff from Brannan Island Road. Although Brannan Island State Recreation Area is just 1.2 miles west of the Project Area, the islands are separated by Sevenmile Slough and vehicle traffic to and from the Recreation Area and the Project Area is minimal. No other recreation or public access is provided in the Project vicinity. As such, the Project Area provides little to no public use under current conditions. Implementation of the Project Area would not change these conditions, and thus, would remain compatible with existing land use.

A more detailed description of the site can be found in the Mitigated Negative Declaration for the Project, Section 2.0 Project Description, and Section 4.2 Agriculture and Forestry Resources, and Section 4.11 Land Use and Planning.

The Project would not conflict with the land classification of AG-80 open space/agriculture. There are no Williamson Act contracts on the Project site. As such, the project is consistent with Policy DP P2.

### **RR P1 (CCR Title 23 Section 5012): Prioritization of State Investments in Delta Levees and Risk Reduction**

The Project is funded by the RD 1601 and is located within the interior of Twitchell Island. All work would occur within the interior of the exterior levee separating the island from Sevenmile Slough. The Project does not involve discretionary State investment in Delta flood risk management. As such, Policy RR P1 is not applicable.

### **RR P2 (CCR Title 23 Section 5013): Protection for Residential Development in Rural Areas**

The Project is located within Twitchell Island and does not propose new residential development. As such, Policy RR P2 is not applicable.

### **RR P3 (CCR Title 23 Section 5014): Protect Floodways**

All work associated with the Project would occur within the interior of Twitchell Island. All work including the modifications to the existing siphon would occur within the interior of the existing outboard levee and would not encroach within Sevenmile Slough. Sevenmile Slough is a Regulated Stream, as listed in the California Code of Regulations Title 23 Waters § 112 Table 8.1. Sevenmile Slough is jurisdiction of the Central Valley Flood Protection Board (CVFPB). On January 2, 2024, CVFPB reviewed the engineering design plans and acknowledged that no work would occur within Sevenmile Slough and would not require a permit (Lamb, 2024).

Since all work is located outside of Sevenmile Slough all construction would not unduly impede the free flow of water or jeopardize public safety. As such, Policy RR P3 is not applicable.

### **RR P4 (CCR Title 23 Section 5015): Floodplain Protection**

The Project is on Twitchell Island and would not involve any encroachment in the Yolo Bypass, Cosumnes River-Mokelumne River Confluence, or Lower San Joaquin River Floodplain Bypass. As such, Policy RR P4 is not applicable.

## **2.2 GENERAL POLICY G P1 (CCR TITLE 23 SECTION 5002)**

General Policy G P1 specifies what must be addressed in a certification of consistency filed by a State or local public agency with regard to a covered action. If a proposed action has been determined to be a covered action, a certification of consistency must: (1) demonstrate consistency with the regulatory policy for covered actions; (2) for all covered actions not exempt from CEQA, include all applicable feasible mitigation measures adopted and incorporated into the Delta Plan unless substitute mitigation measures that the agency that files the certification of consistency finds are equally or more effective; (3) document use of best available science; and (4) assure continued implementation of adaptive management for ecosystem restoration and water management covered actions. See the Delta Plan policy for specific language.

### **Consistency with Regulatory Policies**

The above sections demonstrate the Project is a covered action under the following policies, thereby requiring a certification of consistency. Please refer to the explanations under Section 3.1 regarding project consistency with regulatory policies.

- ER P2 (CCR Title 23 Section 5006): Restore Habitats at Appropriate Elevations
- ER P5 (CCR Title 23 Section 5009): Avoid Introductions of and Habitat Improvements for Invasive Nonnative Species
- DP P2 (CCR Title 23 Section 5011): Respect Local Land Use when Siting Water or Flood Facilities or Restoring Habitats

The purpose of the Project is to enhance and restore approximately 40 acres of wetland and approximately 80 acres of riparian and scrub-shrub habitat within a 185-acre Project Area footprint on Twitchell Island. Approximately 50 acres within the Project Area would remain under agriculture use. The remaining portion of the Project Area would be undisturbed and primarily consists of the island perimeter levee side slope and access roadways. The Project would plant native riparian tree and shrub species interspersed with native grasses and redistribute onsite soil to create a mosaic of shallow open-water habitat, habitat islands, and emergent wetland communities. Additionally, the Project would construct shallow swales, incorporate water control structures for water delivery, and include management within the improved wetland units. These actions would enhance wetland management capabilities within the interior of Twitchell Island. As such the Project is in alignment with the coequal goals of the Delta Plan to provide more reliable water supply and protect, restore, and enhance the Delta ecosystem.

### **CEQA Mitigation Measures**

An Initial Study / Mitigated Negative Declaration (IS/MND) has been prepared by RD 1601 (CEQA lead agency). The public draft has gone through public review (ending December 28, 2023). The Final Draft of the IS/MND was issued and a Notice of Determination was filed on February 22, 2024 (SCH No. 2023110643). The Project will implement all applicable environmental commitments and mitigation measures identified in the IS/MND.

A crosswalk table was prepared to demonstrate consistency of all mitigation measures included in the Delta Plan EIR MMRP with environmental commitments and/or mitigation measures for the project. See Appendix B.

### **Best Available Science**

RD 1601 and DWR are committed to utilizing the best available science to design and construct the project. Ongoing research related to waterfowl biology and habitat management continues to progress and provides greater insight on how to manage wetlands. The project design and adaptive management plan are based on best available science, as demonstrated by the following elements:

- Well-stated objectives
- Conceptual models of habitat requirements of sensitive fish and wildlife species
- Best professional judgment of experts

The Project is designed to improve water conveyance throughout newly created managed wetland units within the interior of Twitchell Island. Throughout Project planning and implementation, the Project Team has been committed to utilizing the best available science to design and construct the Project. The property owner is committed to manage and monitor the site. Adaptive management of the Project will be based on the utilization

of input from monitoring data in conjunction with adaptive review of whether restoration goals and objectives are being achieved.

Ongoing research related to waterfowl biology and habitat management continues to progress and provides greater insight on how to manage habitat. A list of current best available science applicable to the project is included in Appendix C.

### **Adaptive Management**

A management plan prepared by DWR for the project incorporates adaptive management for the site. The plan considers best available science and best professional judgement gained from wetland and riparian habitat management throughout the Delta. The management plan outlines the maintenance plan, performance standards, monitoring program, and remedial actions to ensure project success.

Operation of the project would assure continued implementation of adaptive management through regular inspection, maintenance, and repair. A DWR-designated land steward would maintain and operate the site. DWR has adequate staff and fiscal resources to operate and maintain water control infrastructure installed under the project. In addition, DWR provided input on project design to ensure project operation allows for efficient use of resources. The Management Plan prepared for the project is included in Appendix D.

## **3.0 Good Neighbor Checklist**

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### **3.1 SITING AND PLANNING**

The Project is situated on DWR owned land. Currently there are no agricultural or conservation easements that would be in conflict with the Project objectives. The Project does not include additional public access features. The Project has been designed not to impact existing locally used infrastructure or existing flood control and irrigation/drainage facilities.

The Project would occur within a diked Delta island where previous habitat restoration has already taken place. Given the nature and orientation of the island it is not anticipated that the restoration project would interfere with agricultural lands on Twitchell Island or on adjacent islands. Although special status wildlife species populations (e.g., giant garter snake, western pond turtle) could potentially increase in size within the Project Area, these species require specific habitat components (i.e., wetlands) not available in adjacent agricultural lands. Some species could utilize existing irrigation ditches to migrate through adjacent properties, but it is not anticipated that the population would significantly increase or spread to adjacent properties in a way that would impact agricultural production.

### **3.2 CONSTRUCTION, OPERATION, AND MAINTENANCE**

The Project is designed to avoid and minimize impacts to dust, traffic, vibrations, noise, and lights. Please see Section 1.5.5, Best Management Practices and Appendix B for appropriate avoidance and minimization measures. The Project plans to manage for native vegetation and reduce encroachment of nonnative and invasive

vegetation, see Section 1.4.9, Treatment Methods. An Adaptive Management Plan has been prepared and covers the management of nonnative and invasive weeds. Furthermore, the Project does not anticipate adverse impacts on water quality or changes to the water table that could affect neighboring agricultural activities.

### **3.3 ACCESSIBLE COMMUNITY INTERFACE**

The Project has engaged stakeholders, local landowners, and local agencies through the California Environmental Quality Act (CEQA) process. The below outlines the outreach that was conducted as part of the Project.

- October 20, 2022 - letters describing the Project were sent to Native American tribes. A representative from the United Auburn Indian Community of the Auburn Rancheria responded stating that they are deferring tribal consultation to the Wilton Rancheria, or other local tribes.
- March 30, 2023 - notification letters were sent to Native American tribes by the lead agency, Reclamation District 1601 inviting the tribes to participate in formal consultation, consistent with Assembly Bill 52.
- April 17, 2023 - a representative from Wilton Rancheria responded requesting formal consultation.
- June 9, 2023 - the Lead Agency and Project proponent met with Wilton Rancheria.
- November 27, 2023 – a CEQA Notice of Intent was received by the county clerk’s office, starting the public notice period. During the public notice period public comments were received from CDFW, the Central Valley Water Quality Control Board, the Delta Protection Commission, and the Delta Stewardship Council. All comments were reviewed and addressed, as determined appropriate by the Lead Agency.
- February 12, 2024 - Wilton Rancheria provided the Project Team with measures to reduce potential construction-related impacts to tribal cultural resources .
- February 22, 2024 – a CEQA Notice of Determination was issued by the Sacramento County Clerk’s office.

In addition, the RD 1601 conducts a monthly board meeting at which time the Project has been discussed at various meetings over the last year. Members of the public are welcome to attend and listen and can participate with questions or comments.

## 4.0 References

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### 4.1 LITERATURE CITED

Sacramento County. 2013. General Plan Land Use Diagram. 9 November. Sacramento County, CA.

\_\_\_\_\_. 2023. Online Map, County Zoning. Available at:

[https://generalmap.gis.saccounty.gov/JSViewer/county\\_portal.html#](https://generalmap.gis.saccounty.gov/JSViewer/county_portal.html#). Accessed September 19, 2023.

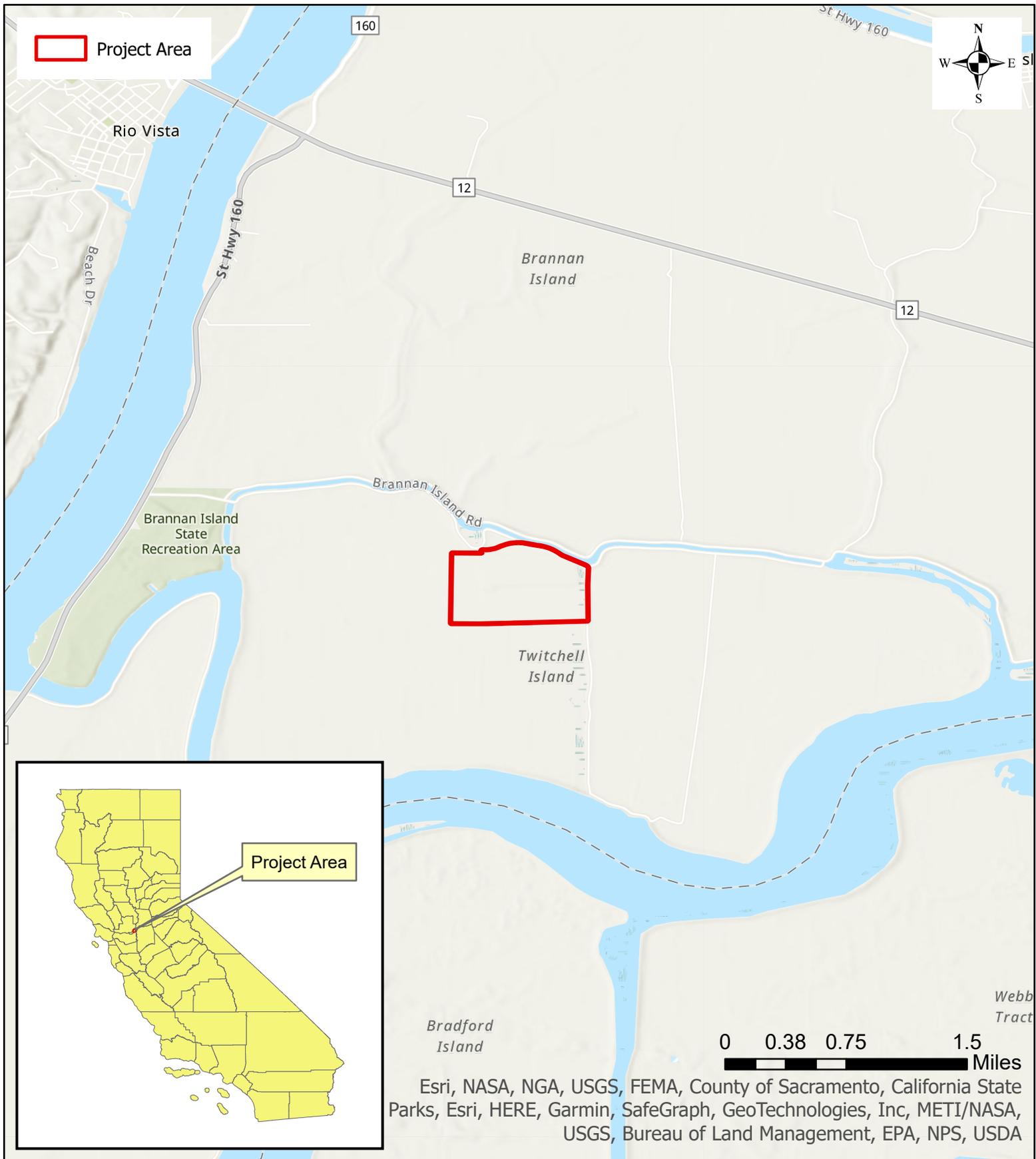
U.S. Bureau of Reclamation, U.S. Fish and Wildlife Service, and California Department of Fish and Game. 2011. *Suisun Marsh Habitat Management, Preservation, and Restoration Plan Environmental Impact Statement/Environmental Impact Report*. Sacramento and Napa, California. November.

### 4.2 PERSONAL COMMUNICATIONS

Steve Lamb, P.E. 2024. Email for Steve Lamb, P.E., to Nicholas Torrez regarding the need for a Central Valley Flood Protection Board permit for the Project. 2 January.

## Figures

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**Figure 1. Project Vicinity**  
**Twitchell Island Wetland Enhancement and Restoration Project**

Project Proponent: Department of Water Resources

Location: Sacramento County, CA

Sections 08, 09 / Township 3N / Range 3E

Latitude/Longitude: 38.114785, -121.657261

Prepared by: Ducks Unlimited

Date Prepared: December 2023





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*Twitchell  
Island*

0 500 1,000  
Feet

**Figure 2. Project Area and Action Area  
Twitchell Island Wetland Enhancement and Restoration Project**

Project Proponent: Department of Water Resources

Location: Sacramento County, CA

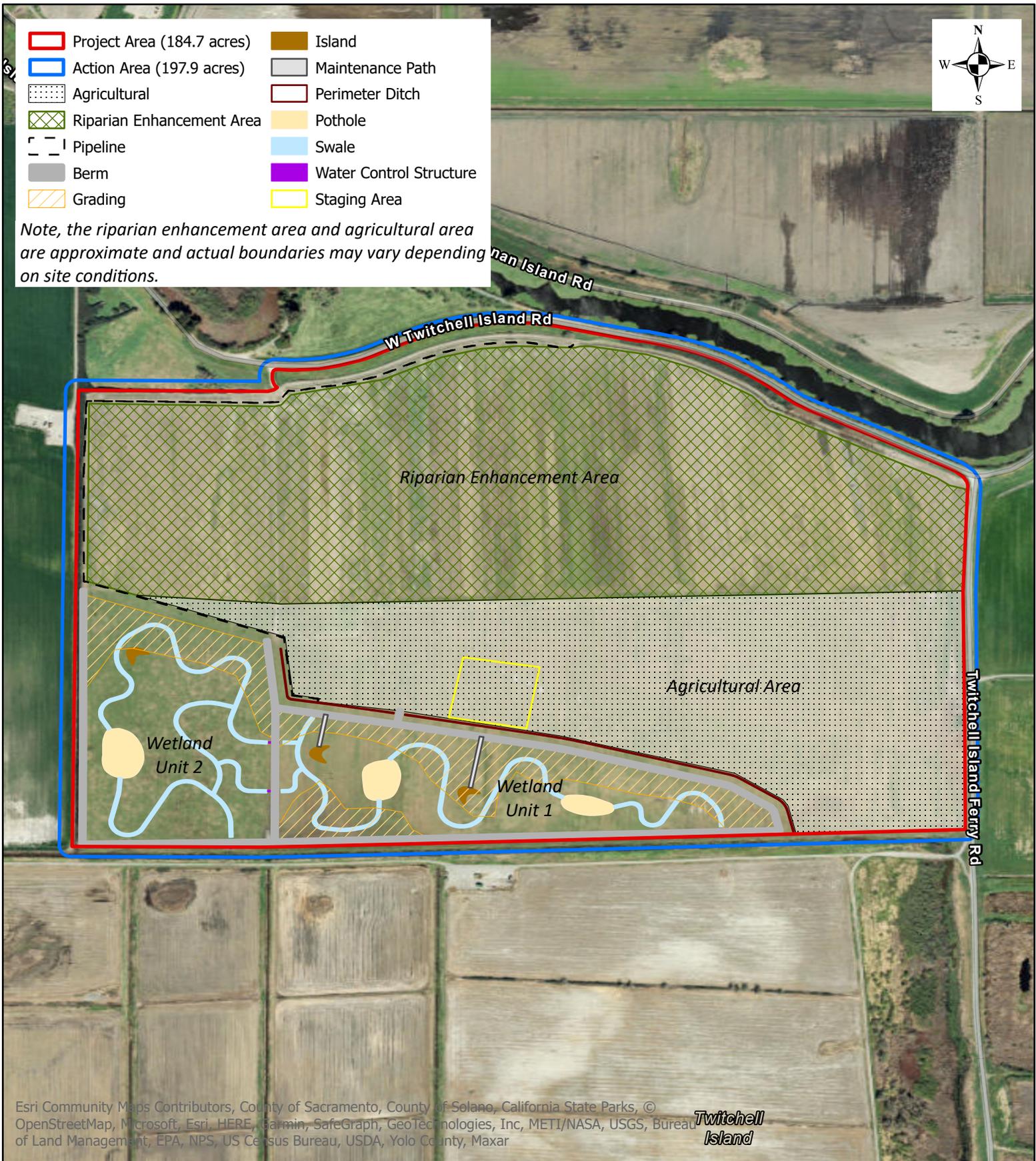
Sections 08, 09 / Township 3N / Range 3E

Latitude/Longitude: 38.114785, -121.657261

Prepared by: Ducks Unlimited

Date Prepared: December 2023





0 500 1,000 Feet

**Figure 3. Preliminary Design**  
**Twitchell Island Wetland Enhancement and Restoration Project**

Project Proponent: Department of Water Resources

Location: Sacramento County, CA

Sections 08, 09 / Township 3N / Range 3E

Latitude/Longitude: 38.114785, -121.657261

Prepared by: Ducks Unlimited

Date Prepared: December 2023



## Appendix A: Design Plan Set

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Design plan set provided under separate cover.

## Appendix B: Mitigation Measure Matrix

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# Twitchell Island Enhancement and Restoration Project - Consistency with Delta Plan Mitigation Measures

The following table details consistency between the Project, as evaluated in the Twitchell Island Wetland Enhancement and Restoration Project Initial Study / Mitigated Negative Declaration (ISMND) certified on February 22, 2024 (State Clearinghouse No. 2023110643).

Delta Plan Mitigation Measure Number	Delta Plan Mitigation Measure	Project Consistency
<b>Water Resources</b>		
3-1	<ul style="list-style-type: none"> <li>▪ For construction of new facilities, all typical construction mitigation measures shall be required. Typical mitigation measures include the following construction-related Best Management Practices (BMPs):               <ul style="list-style-type: none"> <li>○ Gravel bags, silt fences, etc., shall be placed along the edge of all work areas in order to contain particulates prior to contact with receiving waters.</li> <li>○ All concrete washing and spoils dumping shall occur in a designated location.</li> <li>○ Construction stockpiles shall be covered in order to prevent blowoff or runoff during weather events.</li> <li>○ Severe weather event erosion control materials and devices shall be stored onsite for use as needed.</li> <li>○ Soil stabilization, sediment control, wind erosion control, tracking control, non-storm water management, and waste management/materials pollution control.</li> </ul> </li> <li>▪ Apply other BMPs as determined necessary by the regulating entity (city, county).</li> <li>▪ Any new facility with introduced impervious surfaces shall include stormwater control measures that are consistent with the Regional Water Quality Control Board (RWQCB) National Pollutant Discharge Elimination System (NPDES) municipal stormwater runoff requirements. The stormwater control measures shall be designed and implemented to reduce the discharge of stormwater pollutants to the maximum extent practical. Stormwater controls such as bioretention facilities, flow-through planters, detention basins, vegetative swales, covering pollutant sources, oil/water separators, and retention ponds shall be designed to control stormwater quality to the maximum extent practical.</li> <li>▪ Mitigate sediment contaminant bioavailability impacts through (a) the exclusion of bird use or nesting areas from areas that may have excessive selenium or mercury; (b) minimization of methylmercury production; and/or (c) maximization of contaminant degradation before discharge of water, as appropriate.</li> </ul> <p>For any construction activities with the potential to cause in-river sediment disturbance associated with construction:</p> <ul style="list-style-type: none"> <li>○ Apply BMPs to avoid or reduce temporary increases in suspended sediment. These BMPs for in-channel construction and levee disturbance may include, but are not limited to, silt curtains, cofferdams, the use of environmental dredges, erosion control on all inward levee slopes, and various levee-stabilization techniques, including revegetation. All construction sites will include preparation of a Storm Water Pollution Prevention Plan and BMPs designed to capture spills and prevent erosion to the waterbody. Turbidity shall be monitored up- and downstream of construction sites as a measure of impact.</li> <li>○ Apply bank stabilization BMPs, as needed, for any in-channel disturbance, such as:</li> <li>○ A 100-foot vegetative or engineered buffer shall be maintained between the construction zone and surface water body.</li> <li>○ Native and annual grasses or other vegetative cover shall be established on construction sites immediately upon completion of work causing disturbance, to reduce the potential for erosion close to a waterway or water body.</li> </ul>	<p><b>Consistent.</b></p> <p>Best Management Practices included in Section 2.5.5 Best Management Practices of the Twitchell Island Wetland Enhancement and Restoration Project ISMND would be implemented by the Project including BMPs addressing construction-related impacts to water resources.</p> <p>Additional Measures addressing protection of water resources were adopted from the <a href="#">Statewide Restoration General Order</a> (WQ-2022-0048-DWQ).</p>

Delta Plan Mitigation Measure Number	Delta Plan Mitigation Measure	Project Consistency
	Dredging would be particularly prone to the production of re-suspended sediment and contaminants, but potential impacts could be reduced, but not necessarily fully mitigated through the use of submerged dredge cutter heads, silt curtains, and cofferdams, depending upon the site-specific soil conditions in the channel.	
3-2	<ul style="list-style-type: none"> <li>▪ Prior to construction, a survey should be made of all wells located adjacent to the construction site to determine location and depths of the wells and the groundwater surface. During construction of any project that requires dewatering of groundwater, monitoring wells should be installed adjacent to the groundwater dewatering wells or pumps. If the adjacent groundwater declines in a manner that would adversely affect adjacent wells following implementation of dewatering, the dewatering operations should be halted until the following measures are implemented:               <ul style="list-style-type: none"> <li>○ Install sheet piles to reduce the area influenced by shallow groundwater level declines.</li> <li>○ In case sheet piles are not an option and domestic well yields are affected, water supplies shall be trucked in to satisfy the well user's water supply needs.</li> <li>○ If sheet piles are not effective and the impact on the well yield is important, such that the trucking in of water is not economically feasible, the affected well shall be deepened. Another option for a well that is deep enough would be to lower the pump bowl such that deepened water can be pumped out of the well. If these two options are not feasible, a new, deeper, replacement well shall be installed for groundwater production.</li> </ul> </li> </ul>	<p><b>Not applicable.</b></p> <p>The Project would not involve the dewatering of groundwater.</p>
<b>Biological Resources</b>		
4-1	<ul style="list-style-type: none"> <li>▪ Avoid, minimize, and compensate for reduction in area and/or habitat quality of sensitive natural communities, including wetlands, by doing the following:               <ul style="list-style-type: none"> <li>○ Selecting project site(s) that would avoid sensitive natural communities, including jurisdictional wetlands and other waters, vernal pools, alkali seasonal wetlands, riparian habitats, and inland dune scrub.</li> <li>○ Designing, to the maximum extent practicable, project elements to avoid effects on sensitive natural communities.</li> <li>○ Replacing, restoring, or enhancing on a "no net loss" basis (in accordance with U.S. Army Corps of Engineers (USACE) and State Water Resources Control Board (SWRCB) requirements), wetlands and other waters of the United States and waters of the State that would be removed, lost, and/or degraded.</li> <li>○ Where impacts to sensitive natural communities other than waters of the United States or State are unavoidable, compensating for impacts by restoring and/or preserving in-kind sensitive natural communities on-site, or off-site at a nearby site, or by purchasing in-kind restoration or preservation credits from a mitigation bank that services the project site and that is approved by the appropriate agencies, in consultation with applicable regulatory agencies (at ratios that offset temporal loss of habitat value).</li> </ul> </li> <li>▪ Implement advanced mitigation planning for ecosystem restoration prior to construction.</li> <li>▪ Implement construction best management practices, including:               <ul style="list-style-type: none"> <li>○ Developing and implementing a Stormwater Pollution Prevention Plan (SWPPP).</li> <li>○ Minimizing soil disturbance, erosion, and sediment runoff from project site.</li> <li>○ Avoiding and minimizing contaminant spills.</li> </ul> </li> </ul>	<p><b>Consistent.</b></p> <p>The Project has been designed to avoid permanent impacts to wetlands and to minimize any temporary impacts to sensitive natural communities during construction. Best Management Practices included in Section 2.5.5 Best Management Practices of the ISMND would be implemented by the Project to address impacts to wildlife habitat, including wetlands. In addition, Section 4.4 of the ISMND evaluates Project specific impacts to biological resources and includes mitigation measures to reduce potential impacts to less than significant.</p> <p>Additional Measures addressing protection of water resources were adopted from the <a href="#">Statewide</a></p>

Delta Plan Mitigation Measure Number	Delta Plan Mitigation Measure	Project Consistency
	<ul style="list-style-type: none"> <li>○ Minimizing visual and noise disturbance from construction activities.</li> <li>○ Conducting biological construction monitoring to ensure that implemented Best Management Practices (BMPs) are effective.</li> <li>▪ Restore areas temporarily affected by construction activities, including: <ul style="list-style-type: none"> <li>○ Preparing restoration plan for temporary impacts sites for review by resource agencies.</li> <li>○ Minimizing soil disturbance and stockpiling topsoil for later use in any areas to be graded.</li> <li>○ Decompacting or amending soil if necessary, before planting and use native species for revegetation.</li> <li>○ Restoring natural communities with similar or improved function from communities that were affected.</li> </ul> </li> <li>▪ If a project may result in conversion of oak woodlands, as identified in section 21083.4 of the Public Resources Code, one or more of the following mitigation measures shall be implemented: <ul style="list-style-type: none"> <li>○ Conserve oak woodlands, through the use of conservation easements.</li> <li>○ Plant an appropriate number of trees, including maintaining plantings and replacing dead or diseased trees.</li> <li>○ Contribute funds to the Oak Woodlands Conservation Fund, as established under subdivision (a) of section 1363 of the Fish and Game Code.</li> </ul> </li> <li>▪ An invasive species management plan shall be developed and implemented for any project whose construction or operation could lead to introduction or facilitation of invasive species establishment. The plan shall ensure that invasive plant species and populations are kept below preconstruction abundance and distribution levels. The plan shall be based on the best available science and developed in consultation with Department of Fish and Wildlife (DFW) and local experts, such as the University of California Extension, county agricultural commissioners, representatives of County Weed Management Areas (WMA), California Invasive Plant Council, and California Department of Food and Agriculture. The invasive species management plan will include the following elements: <ul style="list-style-type: none"> <li>○ Nonnative species eradication methods (if eradication is feasible)</li> <li>○ Nonnative species management methods</li> <li>○ Early detection methods</li> <li>○ Notification requirements</li> <li>○ Best management practices for preconstruction, construction, and post construction periods</li> <li>○ Monitoring, remedial actions and reporting requirements</li> <li>○ Provisions for updating the target species list over the lifetime of the project as new invasive species become potential threats to the integrity of the local ecosystems</li> </ul> </li> </ul>	<p><a href="#">Restoration General Order</a> (WQ-2022-0048-DWQ). Further, conservation measures protecting biological resources are identified in the U.S. Fish and Wildlife Service (USFWS) Biological Assessment provided to the U.S. Army Corps of Engineers (USACE) for federal Endangered Species Act (ESA) consultation.</p>
4-2	<ul style="list-style-type: none"> <li>▪ Select project site(s) that would avoid habitats of special-status species (which may include foraging, sheltering, migration and rearing habitat in addition to breeding or spawning habitat), and to the maximum extent practicable, (re)design project elements to avoid effects on such species.</li> <li>▪ Schedule construction to avoid special-status species' breeding, spawning, or migration locations during the seasons or active periods that these activities occur.</li> <li>▪ Conduct preconstruction surveys (by a qualified biologist) for special-status species in accordance with U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS) and DFW survey methodologies and appropriate timing to determine presence and locations of any special-status species</li> </ul>	<p><b>Consistent.</b></p> <p>Project construction would occur within the work window when potential effects to giant garter snake and western pond turtle are least likely to occur.</p> <p>Best Management Practices</p>

Delta Plan Mitigation Measure Number	Delta Plan Mitigation Measure	Project Consistency
	<p>and their habitat, and avoid, minimize, or compensate for impacts to special-status species in coordination with DFW and USFWS or NMFS.</p> <ul style="list-style-type: none"> <li>▪ Establish buffers around special-status species habitats to exclude effects of construction activities. The size of the buffer shall be in accordance with USFWS and DFW protocols for the applicable special-status species. If nest tree removal is necessary, remove the tree only after the nest is no longer active, as determined by a qualified biologist.</li> <li>▪ Conduct construction monitoring (by qualified biologist) to ensure effectiveness of avoidance and minimization measures and implement remedial measures if necessary.</li> <li>▪ When appropriate, relocate special-status plant and animal species or their habitats from project sites following USFWS, NMFS, and DFW protocols (e.g., for special-status plant species or elderberry shrubs).</li> <li>▪ Where impacts to special-status species are unavoidable, compensate for impacts by restoring or preserving in-kind suitable habitat on-site, or off-site, or by purchasing restoration or preservation credits (in compliance with the California Endangered Species Act (CESA) and federal Endangered Species Act (ESA) for affected State- or federally-listed species from a mitigation bank that serves the project site and that is approved by the appropriate agencies, in consultation with the appropriate regulatory agencies (at ratios that offset the temporary loss of habitat value).</li> </ul>	<p>included in Section 2.5.5 Best Management Practices of the ISMND would be implemented by the Project to address impacts to wildlife habitat, including wetlands. In addition, Section 4.4 of the ISMND evaluates Project specific impacts to biological resources and includes mitigation measures to reduce potential impacts to less than significant.</p> <p>Additional Measures addressing protection of water resources were adopted from the <a href="#">Statewide Restoration General Order</a> (WQ-2022-0048-DWQ). Further, conservation measures protecting biological resources are identified in the U.S. Fish and Wildlife Service (USFWS) Biological Assessment provided to the U.S. Army Corps of Engineers (USACE) for federal Endangered Species Act (ESA) consultation.</p>
4-3	<ul style="list-style-type: none"> <li>▪ Select project site(s) that would avoid a substantial reduction in fish and wildlife species habitat.</li> <li>▪ To the maximum extent practicable, design project elements to avoid effects that would lead to a substantial loss of fish and wildlife habitat.</li> <li>▪ Replace, restore, or enhance habitats for fish and wildlife species that would be lost.</li> <li>▪ Where substantial loss of habitat for fish and wildlife species is unavoidable, compensate for impacts by preserving in-kind habitat.</li> </ul>	<p><b>Consistent.</b></p> <p>No listed fish are anticipated to be within the Project Area and therefore the Project will not impact fish species.</p> <p>Best Management Practices included in Section 2.5.5 Best Management Practices of the ISMND would be implemented by the Project to address impacts to wildlife habitat, including wetlands. In addition, Section 4.4 of the ISMND evaluates Project specific impacts to biological resources and includes mitigation measures to reduce potential impacts to less</p>

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		<p>than significant..</p> <p>Additional Measures addressing protection of water resources were adopted from the <a href="#">Statewide Restoration General Order</a> (WQ-2022-0048-DWQ). Further, conservation measures protecting biological resources are identified in the U.S. Fish and Wildlife Service (USFWS) Biological Assessment provided to the U.S. Army Corps of Engineers (USACE) for federal Endangered Species Act (ESA) consultation.</p>
4-4	<ul style="list-style-type: none"> <li>▪ Protect habitat for migratory waterfowl and shorebirds by expanding existing wildlife refuges and management areas, and establishing new ones in or near wetland areas used by migratory waterfowl and shorebirds. Manage these areas by establishing suitable vegetation, hydrology and other habitat components to optimize the use by migratory waterfowl and shorebirds.</li> <li>▪ Protect, restore and enhance connectivity of habitats, including but not limited to wetland and riparian habitats that function as migration corridors for wildlife species (similar to how has been implemented through programs such as the California Essential Habitat Connectivity Project). Acquire areas with potential to increase connectivity between existing habitats, protect these areas in perpetuity through the acquisition of conservation easements, deed restrictions, or similar tools, and restore the habitat for wildlife species in these areas. Habitat restoration might be accomplished by establishing suitable hydrology or other physical conditions for desirable vegetation, planting desirable vegetation, fencing and managing grazing, and other means.</li> <li>▪ Protect migratory pathways for migratory aquatic species such as salmon, steelhead, and sturgeon including those that use Delta tributaries and floodplain habitats by screening new diversions, and screening existing diversions and removing existing migration barriers if the specific proposed project/activity (e.g., increased intake volume through an existing unscreened diversion, new diversion, new barrier, new barrier near an existing unscreened diversion, etc.) exacerbates the negative effect on migratory aquatic species caused by the existing barrier or unscreened diversion.</li> <li>▪ Avoid or minimize alteration of flow patterns and water quality effects that could disrupt migratory cues for migratory aquatic species by implementing water management measures and establishing programs to reduce water pollution.</li> </ul>	<p><b>Consistent.</b></p> <p>Best Management Practices included in Section 2.5.5 Best Management Practices of the ISMND would be implemented by the Project to address impacts to wildlife habitat, including wetlands. In addition, Section 4.4 of the ISMND evaluates Project specific impacts to biological resources and includes mitigation measures to reduce potential impacts to less than significant.</p> <p>Additional Measures addressing protection of water resources were adopted from the <a href="#">Statewide Restoration General Order</a> (WQ-2022-0048-DWQ). Further, conservation measures protecting biological resources are identified in the U.S. Fish and Wildlife Service (USFWS) Biological Assessment provided to the U.S. Army Corps of Engineers (USACE) for federal Endangered Species Act (ESA)</p>

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		consultation.
4-5	<ul style="list-style-type: none"> <li>▪ Prior to construction, evaluate impacts to trees or other biological resources protected by local policies and ordinances, and abide by any permit requirements associated with these policies and ordinances.</li> </ul>	<p><b>Consistent.</b></p> <p>The Project is located in a state-owned lands. Best Management Practices included in Section 2.5.5 Best Management Practices of the ISMND would be implemented by the Project to address impacts to wildlife habitat, including wetlands. In addition, Section 4.4 of the ISMND evaluates Project specific impacts to biological resources and includes mitigation measures to reduce potential impacts to less than significant.</p>
<b>Delta Flood Risk</b>		
5-1	<ul style="list-style-type: none"> <li>▪ Prepare a drainage or hydrology and hydraulic study that would assess the need and provide a basis for the design of drainage-related mitigations, such as new onsite drainage systems or new cross drainage facilities. Prepare the study in accordance with applicable standards of Federal Emergency Management Agency (FEMA), USACE, state Department of Water Resources (DWR), Central Valley Flood Protection Board (CVFPB), as well as the local reclamation districts and flood control agencies and the counties and cities. Design subsequent mitigation measures in accordance with the final study and with the applicable standards of FEMA, USACE, DWR, and CVFPB. The study would identify potential increases in flood risks, including those that may result from new facilities.</li> <li>▪ Provide temporary drainage bypass facilities that would reroute drainage around, along, or over the Proposed Project facilities and construction sites. The temporary bypass facilities would be designed in accordance with the results and recommendations of a drainage or hydrologic and hydraulic study and would be in place and fully functional until long-term replacement facilities are completed.</li> <li>▪ Provide onsite stormwater detention storage at construction and project facility sites that would reduce project- caused short- or long-term increases in drainage runoff. The storage space placement and capacity would be designed based on the drainage or hydrologic and hydraulic study.</li> <li>▪ Based on the results of the drainage or hydrologic and hydraulic study, arrange the length of any stockpiles or other construction features in the direction of the floodplain flow to maximize surface flows under flood flow conditions.</li> <li>▪ At in-stream construction sites that might reduce channel capacity, install setback levees or bypass channels to maintain channel capacity and to mitigate hydraulic impacts.</li> <li>▪ Where low channel velocities might result from construction, implement a sediment management program in order to maintain channel capacity.</li> </ul>	<p><b>Consistent.</b></p> <p>The Project would improve water control infrastructure in the Project Area within the interior of a subsided Delta island. The Project is not within a bypass, does not include municipal stormwater inputs, and would not modify in-stream capacity or flows.</p> <p>Topographic surveys were conducted and identify existing site condition drainage features. Existing site grades are located on the final engineering plan sets. Engineering plans and specifications detail the methods for maintaining drainage within the Project Area.</p> <p>Section 4.10 of the ISMND evaluates Project specific impacts to hydrology and water quality and</p>

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	<ul style="list-style-type: none"> <li>▪ Provide cross drainage, replacement drainage paths and facilities, and enlarged flow paths to reroute drainage around, under, or over the Proposed Project facilities and to restore the function of any affected existing drainage or flow paths and facilities.</li> <li>▪ Channel modifications for restoration actions would be required to be implemented to maintain or improve flood management functions and would be coordinated with the USACE, DWR, CVFPB, and other flood control agencies to assess the desirability and feasibility for channel modifications. To the extent consistent with floodplain land uses and flood control requirements, if applicable, woody riparian vegetation would be allowed to naturally establish.</li> <li>▪ For areas that would be flooded as a result of the project, or where existing flooding would be increased in magnitude, frequency, or duration, purchase a flowage easement and/or property at the fair-market value.</li> <li>▪ Provide a long-term sediment removal program at in-river structures.</li> <li>▪ To mitigate potential impacts of changes in the timing of reservoir releases or the possible combination of river peak flows, use forecasts to implement coordination of operations with existing reservoirs.</li> </ul>	<p>found that no potentially significant impacts would occur, and no further mitigation is necessary.</p>
5-2	<ul style="list-style-type: none"> <li>▪ Prepare a drainage or hydrology and hydraulics study that would assess the need and provide a basis for the design of drainage-related mitigations, such as new onsite drainage systems or new cross drainage facilities. Prepare the study in accordance with applicable standards of FEMA, USACE, DWR, CVFPB, as well as the local reclamation districts and flood control agencies and the counties and cities. Design subsequent mitigation measures in accordance with the final study and with the applicable standards of FEMA, USACE, DWR, and CVFPB.</li> <li>▪ Provide onsite stormwater detention storage at construction and project facility sites that would reduce project- caused short- and long-term increases in drainage runoff. The storage space would be designed based on the drainage or hydrologic and hydraulic study.</li> </ul>	<p><b>Not applicable.</b></p> <p>The Project would improve water control infrastructure in the Project Area within the interior of a subsidized Delta island.</p> <p>Section 4.10 of the ISMND evaluates Project specific impacts to hydrology and water quality and found that no potentially significant impacts would occur, and no further mitigation is necessary.</p>
5-4	<ul style="list-style-type: none"> <li>▪ Prepare a drainage or hydrology and hydraulics study that would assess the need and provide a basis for the design of drainage-related mitigations, such as new onsite drainage systems or new cross drainage facilities. Prepare the study in accordance with applicable standards of FEMA, USACE, DWR, CVFPB, as well as the local reclamation districts and flood control agencies and the counties and cities. Design subsequent mitigation measures in accordance with the final study and with the applicable standards of FEMA, USACE, DWR, and CVFPB.</li> <li>▪ Where high channel velocities might result from construction, provide bank protection, such as rip rap, to protect levees from erosion.</li> <li>▪ Where construction results in longer channel wind fetch lengths, install vegetative buffer zones or wave erosion protection on the water side slope of levees, such as rock or grouted rip rap, and increase levee freeboard to address higher wind and wave runoff.</li> <li>▪ Based on the drainage or hydrology and hydraulics study, determine any resulting changes to available evacuation plans or emergency response times.</li> <li>▪ To reduce emergency response times and public safety risks, raise structures and major roads out of the floodplain.</li> </ul>	<p><b>Not applicable.</b></p> <p>The Project would improve water control infrastructure in the Project Area within the interior of a subsidized Delta island.</p> <p>Section 4.10 of the ISMND evaluates Project specific impacts to hydrology and water quality and found that no potentially significant impacts would occur, and no further mitigation is necessary.</p>

Delta Plan Mitigation Measure Number	Delta Plan Mitigation Measure	Project Consistency
	<ul style="list-style-type: none"> <li>▪ Provide automated flood warning systems.</li> <li>▪ Develop and implement area-specific evacuation and emergency response plans.</li> <li>▪ Considering the results of the hydraulics study noted above, perform a seepage and stability analyses that would assess the need and act as a basis for design of other seepage- and stability-related mitigations, such as cutoff walls, adjacent levees, setback levees, berms, and subdrainage features. Perform the analyses in accordance with applicable standards of FEMA, USACE, and DWR.</li> <li>▪ Perform research and collect subsurface information in accordance with applicable standards of FEMA, USACE, and DWR and perform settlement analyses that would assess the need for monitoring and potential settlement- related mitigations, such as ground improvement or pre-construction surcharging. Perform the analyses in accordance with applicable standards of USACE.</li> <li>▪ Perform research and collect subsurface information in accordance with applicable standards of FEMA, USACE, and DWR and perform seismic and liquefaction analyses that would assess the need and provide the basis for design of other seismic-related mitigations, such as ground improvement. Perform the analyses in accordance with applicable standards of USACE and American Society of Civil Engineers and Southern California Earthquake Center.</li> <li>▪ Prepare and implement a plan for periodic maintenance, inspections, repair, and rehabilitation of new water storage and conveyance facilities that could cause flooding upon failure.</li> <li>▪ Provide redundancy and safety controls and devices on water storage and conveyance facilities (pump stations, canals, and tunnels) to protect against facility failure and subsequent flooding.</li> <li>▪ To limit flooding from the unlikely event of a conveyance facility failure, limit extensive flow escape with installation of safety devices such as gated checks.</li> <li>▪ Construct new evacuation roads and access roads, as necessary.</li> <li>▪ Conduct Golden Guardian emergency drills.<sup>1</sup></li> </ul>	
5-5	<ul style="list-style-type: none"> <li>▪ Prepare a drainage or hydrology and hydraulics study that would assess the need and provide a basis for the design of drainage-related mitigations, such as new onsite drainage systems or new cross drainage facilities. Prepare the study in accordance with applicable standards of FEMA, USACE, DWR, CVFPB, as well as the local reclamation districts and flood control agencies and the counties and cities. Design subsequent mitigation measures in accordance with the final study and with the applicable standards of FEMA, USACE, DWR, and CVFPB. Provide temporary drainage bypass facilities that would reroute drainage around, along, or over the Proposed Project facilities and construction sites. The temporary bypass facilities would be designed in accordance with drainage or hydrology and hydraulic study and would be in place and fully functional until long-term replacement facilities are completed.</li> <li>▪ Based on the results of the drainage or hydrologic and hydraulic study, arrange the length of any stockpiles or other construction features in the direction of the floodplain flow to maximize surface flows under flood conditions.</li> <li>▪ At in-stream construction sites that might reduce channel capacity, install setback levees or bypass channels to maintain channel capacity and to mitigate hydraulic impacts.</li> <li>▪ Provide cross drainage, replacement drainage paths and facilities, and enlarged flow paths to reroute drainage around, under, or over the Proposed Project facilities and to restore the function of any affected existing drainage or flow paths and facilities.</li> <li>▪ Channel modifications for restoration actions would be required to be implemented to maintain or improve flood management functions and would be coordinated with the USACE, DWR, CVFPB, and other flood</li> </ul>	<p><b>Not applicable.</b></p> <p>The Project would improve water control infrastructure in the Project Area within the interior of a subsided Delta island.</p> <p>Section 4.10 of the ISMND evaluates Project specific impacts to hydrology and water quality and found that no potentially significant impacts would occur, and no further mitigation is necessary.</p>

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	control agencies to assess the desirability and feasibility for channel modifications. To the extent consistent with floodplain land uses and flood control requirements, if applicable, woody riparian vegetation would be allowed to naturally establish.	
<b>Land Use and Planning</b>		
6-1	<ul style="list-style-type: none"> <li>▪ Minimize physical division of existing established communities or residential areas by designing new facilities and infrastructure to be located underground or with sufficient points of visual and physical access. Examples of methods of minimizing physical division include (but are not limited to):               <ul style="list-style-type: none"> <li>○ Burying or visually masking new infrastructure or facilities;</li> <li>○ Restoring disturbed landscapes back to preconstruction conditions;</li> <li>○ Reestablishing access (e.g., reconnecting roads, rebuilding bridges);</li> <li>○ Relocating landmark buildings; or</li> <li>○ Implementing other feasible mitigation to reduce the disturbance to a community's physical composition, visual character, or other features integral to the community's identity.</li> </ul> </li> </ul>	<p><b>Not applicable.</b></p> <p>Section 4.11 of the ISMND evaluates impacts related to land use and planning. The proposed Project would not physically divide an established community as none occur in or immediately adjacent to the Site. No significant impacts would occur, and no mitigation is needed.</p>
6-2	<ul style="list-style-type: none"> <li>▪ Compensate for the loss or reduction in environmental values protected by the subject plan or policy. For example, if the project would result in conversion of agricultural land to a non-agricultural use, potential mitigation actions could include:               <ul style="list-style-type: none"> <li>○ Recording a deed restriction that ensures permanent conservation and mitigation on other property of equal or greater environmental mitigation value;</li> <li>○ Creating a buffer or barrier between uses;</li> <li>○ Redesigning the project or selecting an alternate location that avoids or mitigates the impact; and/or</li> <li>○ Restoring disturbed land to conditions to provide equal or greater environmental value to the land affected by the covered action.</li> </ul> </li> </ul>	<p><b>Consistent.</b></p> <p>As described in Section 4.2 – Agriculture and Forestry Resources, Section 4.4 Biological Resources and Section 4.11 – Land Use and Planning of the ISMND, the Project would not significantly impact agricultural resources. Although the Project would convert some agricultural lands to managed wetlands, the lands are heavily subsided and have a high-water table making it unsustainable for long-term agricultural crop production.</p>
<b>Agriculture and Forestry Resources</b>		
7-1	<ul style="list-style-type: none"> <li>▪ Design proposed projects to minimize, to the greatest extent feasible, the loss of the highest valued agricultural land.</li> <li>▪ For projects that will result in permanent conversion of Farmland, preserve in perpetuity other Farmland through acquisition of an agricultural conservation easement, or contributing funds to a land trust or other entity qualified to preserve Farmland in perpetuity (at a target ratio of 1:1, depending on the nature of the</li> </ul>	<p><b>Consistent.</b></p> <p>As described in Section 4.2 – Agriculture and Forestry Resources, Section 4.4 Biological Resources and Section 4.11 – Land Use and</p>

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	<p>conversion and the characteristics of the Farmland to be converted, to compensate for permanent loss).</p> <ul style="list-style-type: none"> <li>▪ Redesign project features to minimize fragmenting or isolating Farmland. Where a project involves acquiring land or easements, ensure that the remaining non-project area is of a size sufficient to allow viable farming operations. The project proponents shall be responsible for acquiring easements, making lot line adjustments, and merging affected land parcels into units suitable for continued commercial agricultural management.</li> <li>▪ Reconnect utilities or infrastructure that serve agricultural uses if these are disturbed by project construction. If a project temporarily or permanently cuts off roadway access or removes utility lines, irrigation features, or other infrastructure, the project proponents shall be responsible for restoring access as necessary to ensure that economically viable farming operations are not interrupted.</li> <li>▪ Manage project operations to minimize the introduction of invasive species or weeds that may affect agricultural production on adjacent agricultural land.</li> <li>▪ Establish buffer areas between projects and adjacent agricultural land that are sufficient to protect and maintain land capability and agricultural operation flexibility. Design buffers to protect the feasibility of ongoing agricultural operations and reduce the effects of construction- or operation-related activities (including the potential to introduce special-status species in the agricultural areas) on adjacent or nearby properties. The buffer shall also serve to protect ecological restoration areas from noise, dust, and the application of agricultural chemicals. The width of the buffer shall be determined on a project-by-project basis to account for variations in prevailing winds, crop types, agricultural practices, ecological restoration, or infrastructure. Buffers can function as drainage swales, trails, roads, linear parkways, or other uses compatible with ongoing agricultural operations.</li> </ul>	<p>Planning of the ISMND, the Project would not significantly impact agricultural resources. Although the Project would convert some agricultural lands to managed wetlands, the lands are heavily subsidized and have a high-water table making it unsustainable for long-term agricultural crop production.</p>
7-2	<ul style="list-style-type: none"> <li>▪ Design proposed projects to minimize, to the greatest extent feasible, conflicts and inconsistencies with land protected by agricultural zoning or a Williamson Act contract and the terms of the applicable zoning/contract.</li> </ul>	<p><b>Consistent.</b></p> <p>DWR filed a non-renewal notice for the eastern parcel in 2020 and the Williamson Act contract is scheduled to expire in 2030.</p> <p>As described in Section 4.2 – Agriculture and Forestry Resources, Section 4.4 Biological Resources and Section 4.11 – Land Use and Planning of the ISMND, the Project would not significantly impact agricultural resources. Project would convert some agricultural lands to managed wetlands, the lands are heavily subsidized and have a high-water table making it unsustainable for long-term agricultural crop production.</p>

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7-3	<ul style="list-style-type: none"> <li>▪ Avoid land protected as forestland and timberland through site selection and/or project design. Where feasible, project proponents should take into account the value of the forest, not only in terms of direct products such as wood but also as part of the watershed ecosystem, when selecting a project site. Wherever possible, nonprotected sites should be preferred and selected instead of protected sites.</li> </ul>	<p><b>Not applicable.</b></p> <p>As described in Section 4.2 – Agriculture and Forestry Resources, Section 4.4 Biological Resources and Section 4.11 – Land Use and Planning of the ISMND, the Project would not significantly impact agriculture and forestry resources. The Project would not result in significant impacts and no mitigation is required.</p>
7-4	<ul style="list-style-type: none"> <li>▪ For projects that will result in permanent conversion of Forestland, preserve in perpetuity other forestland through a conservation easement or by acquiring lands or contributing funds to a land trust or other agency (at a target ratio of 1:1, depending on the nature of the conversion and the characteristics of the Forestland to be converted, to compensate for permanent loss).</li> <li>▪ Avoid land protected as forestland and timberland through site selection and/or project design. Where feasible, project proponents should take into account the value of the forest, not only in terms of direct products such as wood, but also as part of the watershed ecosystem, when selecting a project site. When possible, unprotected sites should be preferred and selected instead of protected sites.</li> <li>▪ When removal of existing forestland or timberlands is required as part of an action, proponents must acquire the property at fair market value.</li> </ul>	<p><b>Not applicable.</b></p> <p>As described in Section 4.2 – Agriculture and Forestry Resources, Section 4.4 Biological Resources and Section 4.11 – Land Use and Planning of the ISMND, the Project would not significantly impact to agriculture and forestry resources. The Project would not result in significant impacts and no mitigation is required.</p>
<b>Visual Resources</b>		
8-1	<ul style="list-style-type: none"> <li>▪ Use compatible colors for proposed structural features, such as intakes, pumping plants, and surge towers. Use earth tone paints and stains with low levels of reflectivity.</li> <li>▪ Minimize the vertical profile of proposed structures as much as possible. Where possible, use subgrades for floors of structures. Use landscaped berms instead of walls to mask views of structures from high-visibility sites. Use green roof design where roof structures would be highly visible.</li> <li>▪ Use vegetation plantings on proposed facility walls, such as climbing plants, espaliers, and other forms that soften the appearance of structures.</li> <li>▪ Develop a landscaping plan for all proposed structures. Provide vegetative screening to soften views of structures. Landscaping should complement the surrounding landscape.</li> <li>▪ Round the tops and bottoms of spoil disposal areas, and contour the faces of slopes to create more natural-looking landforms. Create visual diversity by planting vegetation with diverse growth forms on the spoil disposal areas; plant with more than just grasses.</li> <li>▪ Landscape parking areas at proposed facilities, and include low-impact design features, such as permeable pavers, tree basins, and bioswales, that reduce stormwater runoff and enhance visual quality.</li> <li>▪ Conduct only partial vegetative clearing of the limits of construction rather than clear the entire area; partial</li> </ul>	<p><b>Consistent.</b></p> <p>As described in Section 4.1 Aesthetics of the ISMND, the project would not result in significant impacts and no mitigation is required.</p>

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	<p>clearing would leave islands of vegetation and result in a more natural look. Use irregular clearing shapes with feathered edges instead of hard edges to promote a more natural effect.</p> <ul style="list-style-type: none"> <li>▪ Develop design form and materials with a goal to achieve aesthetic visual character instead of a strictly utilitarian objective. Use cast natural form elements or natural materials for facing to achieve texture and color compatible with the adjacent landscape; natural materials would be preferable for areas of high visibility and public use. Landscape areas adjacent to facilities. Use natural materials, such as wood and stone, for signage at proposed facilities.</li> <li>▪ Develop aesthetically pleasing landscaping for relocated roads at the shoulders, intersections, and on- and off- ramps from highways. Design turnouts and scenic vista points where appropriate for relocated roads with high visibility and high public use.</li> <li>▪ To the extent consistent with the safety and reliability of the electric grid, as well as site-specific considerations, use single-pole electrical transmission towers instead of lattice-form towers for proposed large electrical transmission lines, and put transmission lines underground along areas with high visibility and high public use.</li> <li>▪ Consider developing aesthetically well-designed visitor centers, vantage areas, or observation decks at appropriate facilities with interpretation features, walking paths, and other features. Although developing visitor centers would not reduce a visual impact, it would have the effect of making the facilities features of interest to the touring public.</li> </ul>	
8-2	<ul style="list-style-type: none"> <li>▪ Implement elements of Mitigation Measure 8-1 for temporary construction activities and new facilities that are visible from scenic vistas and designated roads and highways as appropriate.</li> <li>▪ Replace all scenic resources (e.g., large trees) that would be removed for the Proposed Project, when feasible. Identify compensatory mitigation for visual or aesthetic resources by providing improvements to areas with existing diminished scenic quality.</li> </ul>	<p><b>Consistent.</b></p> <p>As described in Section 4.1 Aesthetics of the ISMND, the project would not result in significant impacts and no mitigation is required.</p>
8-3	<ul style="list-style-type: none"> <li>▪ Use shields for proposed lighting facilities, and direct lighting downward and inward toward the facilities.</li> </ul>	<p><b>Not applicable.</b></p> <p>The project does not propose lighting facilities.</p>
<b>Air Quality</b>		
9-1	<ul style="list-style-type: none"> <li>▪ Use equipment and vehicles that are compliant with Air Resource Board (ARB) requirements and emission standards for on-road and off-road fleets and engines. New engines and retrofit control systems should reduce NO<sub>x</sub> and PM from diesel-fueled on-road and off-road vehicles and equipment.</li> <li>▪ Minimize idling times either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage should be posted for construction workers at all entrances to the site.</li> <li>▪ Maintain all equipment in proper working condition according to manufacturer's specifications.</li> <li>▪ Use electric equipment when possible. Use lower-emitting alternative fuels to power vehicles and equipment</li> </ul>	<p><b>Consistent.</b></p> <p>Best Management Practices included in Section 2.5.5 Best Management Practices of the ISMND would be implemented by the Project to address impacts to wildlife habitat, including wetlands. In addition, Section 4.3 Air Quality of the ISMND evaluates potential</p>

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	<p>where feasible.</p> <ul style="list-style-type: none"> <li>▪ Use low Volatile Organic Compounds (VOC) coatings and chemicals; minimize chemical use.</li> <li>▪ Prepare a dust control plan and apply dust control measures at the construction sites.</li> <li>▪ To minimize track-out of dirt and mud from dirt and gravel roads, all trucks and equipment, including their tires, shall be washed prior to leaving the site. Only exteriors of trucks and equipment are to be washed (no engine degreasing), no detergents or chemicals shall be used in the wash water, and off-site runoff of rinse water shall be prevented.</li> <li>▪ For projects involving land following, land conversion, or other agricultural operations, implement applicable BMPs from agencies such as the U.S. Department of Agriculture Natural Resources Conservation Service to reduce potential dust emissions.</li> </ul> <p>BMPs for fallowed lands could include, but are not limited to, the following:</p> <ul style="list-style-type: none"> <li>▪ Implement conservation cropping sequences and wind erosion protection measures, such as: <ul style="list-style-type: none"> <li>○ Plan ahead to start with plenty of vegetation residue, and maintain as much residue on fallowed fields as possible. Residue is more effective for wind erosion protection if left standing.</li> <li>○ If residues are not adequate, small grain can be seeded about the first of the year to take advantage of the winter rains and irrigated with a light irrigation if needed to get adequate growth.</li> <li>○ Avoid any tillage if possible.</li> <li>○ Avoid any traffic or tillage when fields are extremely dry to avoid pulverization.</li> </ul> </li> <li>▪ Apply soil stabilization chemicals to fallowed lands.</li> <li>▪ Re-apply drain water to allow protective vegetation to be established.</li> <li>▪ Reuse irrigation return flows to irrigate windbreaks across blocks of land including many fields to reduce wind fetch and reduce emissions from fallowed, farmed, and other lands within the block. Windbreak species, management, and layout would be optimized to achieve the largest feasible dust emissions reduction per unit water available for their irrigation. Windbreak corridors would provide ancillary aesthetic and habitat benefits.</li> </ul> <p>Project-specific lists of mitigation measures should also include the recommendations or requirements of the local air district(s). For example, the Bay Area Air Quality Management District (BAAQMD) lists the following basic and additional mitigation measures to reduce emissions from project construction (BAAQMD, 2010. California Environmental Quality Act Air Quality Guidelines. December 2010. San Francisco, California. Site accessed February 8, 2011. <a href="http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES.aspx">http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES.aspx</a>).</p> <p><b>Basic Construction Mitigation Measures Recommended for ALL Proposed Projects</b></p> <ol style="list-style-type: none"> <li>1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.</li> <li>2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.</li> <li>3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.</li> <li>4. All vehicle speeds on unpaved roads shall be limited to 15 mph.</li> <li>5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.</li> <li>6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.</li> </ol>	<p>impacts and determines that no significant impacts would occur, and no further mitigation is required.</p>

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	<p>7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator.</p> <p>8. Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.</p> <p><b>Additional Construction Mitigation Measures Recommended for Projects with Construction Emissions Above the Threshold</b></p> <ol style="list-style-type: none"> <li>1. All exposed surfaces shall be watered at a frequency adequate to maintain minimum soil moisture of 12 percent. Moisture content can be verified by lab samples or moisture probe.</li> <li>2. All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.</li> <li>3. Wind breaks (e.g., trees, fences) shall be installed on the windward side(s) of actively disturbed areas of construction. Wind breaks should have at maximum 50 percent air porosity.</li> <li>4. Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.</li> <li>5. The simultaneous occurrence of excavation, grading, and ground-disturbing construction activities on the same area at any one time shall be limited. Activities shall be phased to reduce the amount of disturbed surfaces at any one time.</li> <li>6. All trucks and equipment, including their tires, shall be washed off prior to leaving the site.</li> <li>7. Site accesses to a distance of 100 feet from the paved road shall be treated with a 6- to 12-inch compacted layer of wood chips, mulch, or gravel.</li> <li>8. Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than one percent.</li> <li>9. Minimizing the idling time of diesel powered construction equipment to two minutes.</li> <li>10. The project shall develop a plan demonstrating that the off-road equipment (more than 50 horsepower) to be used in the construction project (i.e., owned, leased, and subcontractor vehicles) would achieve a project wide fleet- average 20 percent NO<sub>x</sub> reduction and 45 percent PM reduction compared to the most recent ARB fleet average. Acceptable options for reducing emissions include the use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such become available.</li> <li>11. Use low VOC (i.e., reactive organic gases or ROG) coatings beyond the local requirements (i.e., Regulation 8, Rule 3: Architectural Coatings).</li> <li>12. Requiring that all construction equipment, diesel trucks, and generators be equipped with Best Available Control Technology for emission reductions of NO<sub>x</sub> and PM.</li> <li>13. Require all contractors to use equipment that meets ARB's most recent certification standard for off-road heavy duty diesel engines.</li> </ol>	
9-2	<ul style="list-style-type: none"> <li>▪ Applicants should develop and implement a project-specific Odor Management Plan. Odor control measures that can be incorporated into this plan include, but are not limited to, the following: <ul style="list-style-type: none"> <li>○ A list of potential odor sources</li> <li>○ Identification and description of the most likely sources of odor</li> <li>○ Identification of potential, intensity, and frequency of odor from likely sources</li> <li>○ A list of odor control technologies and management practices that could be implemented to</li> </ul> </li> </ul>	<p><b>Not applicable.</b></p> <p>The project does not anticipate having any significant odor release. The brief usage of heavy equipment, is not expected to create any additional discernible</p>

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	<ul style="list-style-type: none"> <li>○ minimize odor releases</li> <li>○ A protocol for monitoring, recording, reporting and responding to odor events, including notification of the local and downwind jurisdictions of projects that may result in odor complaints, including contact numbers for responsible individuals during construction. If odor an event occurs, construction activity should be suspended until conditions change, removing the cause and resultant odors, or until alternate management practices are implemented that significantly reduce the odors.</li> </ul>	pollutants or odors. See Section 4.3 Air Quality of the ISMND.
9-3	<p>The Air Quality Technical Report prepared for the Proposed Project should evaluate human health risks from potential exposures of sensitive receptors to substantial pollutant concentrations on a project-specific basis. The need for a human health risk analysis should be evaluated using approved screening tools, and discussed with the local Air Quality Management District (AQMD) or Air Pollution Control District (APCD) at the time of preparation of the Air Quality Technical Report.</p> <p>If the health risk is determined to be significant on a project-specific basis, control measures should be implemented to reduce health risks to levels below the applicable air district threshold.</p> <p>Implementation of one or more of the following requirements, where feasible and appropriate would reduce the effects of Impact 9-3a, Construction or Operation of Projects Would Expose Sensitive Receptors to Substantial Pollutant Concentrations:</p> <ul style="list-style-type: none"> <li>▪ Implement Mitigation Measure 9-1 to reduce air emissions and air quality impacts from construction and operations of the Proposed Project.</li> <li>▪ Use equipment with diesel engines designed or retrofitted to minimize DPM emissions, usually through the use of catalytic particulate filters in the exhaust.</li> <li>▪ Use electric equipment to eliminate local combustion emissions.</li> <li>▪ Use alternative fuels, such as compressed natural gas or liquefied natural gas.</li> </ul> <p>If the project would result in significant emissions of airborne, naturally occurring asbestos or metals from excavation, hauling, blasting, tunneling, placement, or other handling of rocks or soil, a dust mitigation and air monitoring plan would be required to specify site-specific measures to minimize emissions and that airborne concentrations of the toxic air contaminants (TACs) of concern do not exceed regulatory or risk-based trigger levels.</p>	<p><b>Not applicable.</b></p> <p>See Section 4.3 Air Quality of the ISMND. No significant impact related to exposure of sensitive receptors to substantial pollutant concentrations would occur and mitigation measures are not required.</p>
<b>Cultural Resources</b>		
10-1	<ul style="list-style-type: none"> <li>▪ Before any ground-disturbing activities begin, conduct intensive archaeological surveys, including subsurface investigations to identify the locations, extent, and integrity of presently undocumented archaeological resources that may be located in areas of potential disturbance. In addition, if ground-disturbing activities are planned for an area where a previously documented prehistoric archaeological site has been recorded but no longer may be visible on the ground surface, conduct test excavations to determine whether intact archaeological subsurface deposits are present. Also conduct surveys at the project site for the possible presence of cultural landscapes and traditional cultural properties.</li> <li>▪ If potentially CRHR-eligible prehistoric or historic-era archeological resources are discovered during the survey phase, additional investigations may be necessary. These investigations could include, but not necessarily be limited to, measures providing resource avoidance, archival research, archaeological testing and California Register of Historical Resources (CRHR) eligibility evaluations, and contiguous excavation unit data recovery. In addition, upon discovery of potentially CRHR-eligible prehistoric resources, coordinate</li> </ul>	<p><b>Consistent.</b></p> <p>See Section 4.5 Cultural Resources of the ISMND. The Project would implement Mitigation Measures CUL-MM-1 and CUL-MM-2 requiring the contractor to stop work if cultural resources or human remains are accidentally discovered during construction activities.</p> <p>A cultural resource report and pedestrian survey was completed</p>

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	<p>with the NAHC and the Native American community to provide for an opportunity for suitable individuals and tribal organizations, including federally recognized tribes, to comment on the proposed research.</p> <ul style="list-style-type: none"> <li>▪ If CRHR-eligible archaeological resources or cultural landscapes/properties are present and would be physically impacted, specific strategies to avoid or protect these resources should be implemented if feasible. These measures may include: <ul style="list-style-type: none"> <li>○ Planning construction to avoid the sensitive sites</li> <li>○ Deeding the sensitive sites into permanent conservation easements</li> <li>○ Capping or covering archaeological sites</li> <li>○ Planning parks, green space, or other open space to incorporate the sensitive sites</li> <li>○ Granting of cultural easements to Native American tribes for the purpose of protecting cultural resource properties</li> </ul> </li> <li>▪ If federal agencies are participants in the activity and Section 106 of the National Historic Preservation Act applies, conduct formal consultation with the State Historic Preservation Officer, Tribal Historic Preservation Officer (THPO) or Tribal Administrator for tribes that do not have a THPO, and the Native American community. Potential adverse effects on cultural resources recommended as eligible for listing in the National Register of Historic Places (NRHP) will be resolved through the development of a memorandum of agreement and/or a program-level agreement.</li> <li>▪ As part of efforts to identify, evaluate, and consider cultural resources, including prehistoric sites, Native American human remains, and traditional cultural properties, Native Americans would be consulted. The California Native American Heritage Commission (NAHC) would be asked to provide a list of Native Americans who should be contacted concerning an identified future project. The NAHC would also be asked to search its Sacred Lands Files. Native Americans identified by the NAHC would be contacted by letter to request information on cultural resources of importance. They also would be asked to identify concerns they have about the project. THPOs and Tribal Administrators of federally recognized tribes would be contacted and asked to search their files and provide information necessary for the identification and consideration of cultural resources.</li> <li>▪ Before any project-specific ground-disturbing activities begin, conduct investigations to identify submerged cultural resources. These investigations would include review of State Lands Commission (SLC) Shipwrecks Database and other SLC files, and remote sensing surveys conducted under the direction of a qualified maritime archaeologist. If avoidance of significant submerged cultural resources is not feasible, a permit from SLC may be necessary to conduct resource documentation and possible salvage of artifacts, ship components, and other data and objects.</li> <li>▪ If CRHR-eligible archaeological resources, including submerged or buried shipwrecks or other maritime-related cultural resources, are discovered during construction activities, work would halt within 100 feet of the discovery until the find can be evaluated by a qualified archaeologist or maritime archaeologist as appropriate. In addition, SLC would be consulted.</li> </ul>	<p>and USACE will secure NHPA Section 106 concurrence.</p>
<p><b>10-2</b></p>	<p>The identification, evaluation, and determination of disposition of Native American human remains shall be conducted in accordance with Native American consultation procedures described below and in Mitigation Measure 10-1. The location, content, and character of Native American human remains are confidential and shall not be released to the public. Native American human remains and associated funerary objects shall be treated with the utmost respect and in accordance with the direction of the identified Most Likely Descendant (MLD).</p> <ul style="list-style-type: none"> <li>▪ If human remains are encountered during ground-disturbing construction activities, stop work that would</li> </ul>	<p><b>Consistent.</b></p> <p>See Section 4.5 Cultural Resources and Section 4.18 Tribal Cultural Resources of the ISMND. The Project would implement Mitigation Measures CUL-MM-1 and CUL-</p>

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	<p>potentially affect the find and contact the county coroner.</p> <ul style="list-style-type: none"> <li>○ In accordance with the California Health and Safety Code and the California Native American Grave Protection and Repatriation Act (CNAGPRA), if human remains are uncovered during ground-disturbing activities, the contractor shall immediately halt potentially damaging excavation in the area of the burial and notify the county coroner, a professional archaeologist to determine the nature of the remains, and a representative of California Indian tribes. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or State lands (Health and Safety Code section 7050.5[b]). If the coroner determines that the remains are those of a Native American, he or she must contact the NAHC by telephone within 24 hours of making that determination (Health and Safety Code section 7050[c]).</li> <li>○ Following the coroner's findings, the property owner, contractor or project proponent, an archaeologist, and the NAHC-designated Most Likely Descendent (MLD) shall determine the ultimate treatment and disposition of the remains and take appropriate steps to ensure that additional human interments are not disturbed. The responsibilities for acting upon notification of a discovery of Native American human remains are identified in California Public Resources Code section 5097.9.</li> <li>○ Upon the discovery of Native American remains, the landowner shall ensure that the immediate vicinity (according to generally accepted cultural or archaeological standards and practices) is not damaged or disturbed by further development activity until consultation with the MLD has taken place. The MLD shall have 48 hours to complete a site inspection and make recommendations after being granted access to the site.</li> <li>○ A range of possible treatments for the remains, including nondestructive removal and analysis, preservation in place, relinquishment of the remains and associated items to the descendants, or other culturally appropriate treatment may be discussed. California Public Resources Code section 5097.9 suggests that the concerned parties may extend discussions beyond the initial 48 hours to allow for the discovery of additional remains. The following is a list of site protection measures that the landowner shall employ: <ul style="list-style-type: none"> <li>▪ Record the site with the NAHC or the appropriate information center.</li> <li>▪ Use an open space or conservation zoning designation or easement.</li> <li>▪ Record a document with the county in which the property is located.</li> </ul> </li> <li>○ The landowner or his or her authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity on the property in a location not subject to further subsurface disturbance if the NAHC is unable to identify a MLD or if the MLD fails to make a recommendation within 48 hours after being granted access to the site. The landowner or his or her authorized representative may also reinter the remains in a location not subject to further disturbance if he or she rejects the recommendation of the MLD and mediation by the NAHC fails to provide measures acceptable to the landowner.</li> <li>▪ If the discovery of human remains occurs on lands owned and administered by a federal agency, the provisions of the Native American Graves Protection and Repatriation Act (NAGPRA) will apply. NAGPRA requires federal agencies and certain recipients of federal funds to document Native American human remains and cultural items in their collections, notify native groups of their holdings, and provide an opportunity for repatriation of these materials. The act also requires planning for dealing with potential future collections of Native American human remains and associated funerary objects, sacred objects, and objects</li> </ul>	<p>MM-2 requiring the contractor to stop work if cultural resources or human remains are accidentally discovered during construction activities.</p>

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	of cultural patrimony.	
10-3	<ul style="list-style-type: none"> <li>▪ Inventory and evaluate historic-era buildings, structures, and linear features. Conduct cultural resources studies to determine whether historic-era buildings, structures, and linear features in the project area are eligible for listing in the CRHR.</li> <li>▪ Before construction activities begin, an inventory and evaluation of historic-era resources in the project area should be conducted under the direct supervision of an architectural historian meeting the Secretary of the Interior's Professional Qualification Standards for history or architectural history. The documentation should include conducting an intensive field survey, background research on the history of the project area, and property-specific research. Based on this research, the eligibility of historic-era resources located in the project area should be evaluated by the architectural historian using criteria for listing in the CRHR. The resources would be recorded on DPR 523 forms and the findings documented in a technical report. If federal funding or approval is required, then the project implementation agencies would comply with Section 106 of the National Historic Preservation Act.</li> <li>▪ Identify measures to avoid significant historic resources. Avoidance through project redesign is the preferred mitigation measure for mitigating potential effects on historic-era buildings, structures, linear features, and archaeological sites that appear to be eligible for listing in the NRHP or CRHR.</li> <li>▪ Record photographic and written documentation to Historic American Building Survey (HABS)/Historic American Engineering Record (HAER) standards. If avoidance of a significant historic resource is not feasible, the lead agency should ensure that HABS/HAER documentation is completed. Through HABS/HAER documentation, a qualified architectural historian and qualified photographer should formally document the historic resource through large-format photography, measured drawings, written architectural descriptions, and historical narratives. The completed documentation should be submitted to the Library of Congress.</li> <li>▪ Conform to the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings in the event of relocation. If any historic buildings, structures, or levees are relocated or altered, the lead agency should ensure that any changes to significant buildings or structures conform to the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings. Implementation of this measure can mitigate potential changes to significant architectural resources.</li> <li>▪ Conform to the Secretary of the Interior's Guidance for the Treatment of Cultural Landscapes to preserve landscapes' historic form, features, and details that have evolved over time.</li> </ul>	<p><b>Consistent.</b></p> <p>See Section 4.5 Cultural Resources and Section 4.18 Tribal Cultural Resources of the ISMND. The Project would implement Mitigation Measures CUL-MM-1 and CUL-MM-2 requiring the contractor to stop work if cultural resources or human remains are accidentally discovered during construction activities.</p> <p>A cultural resource report and pedestrian survey was completed and USACE will secure NHPA Section 106 concurrence.</p>
10-4	<ul style="list-style-type: none"> <li>▪ Mitigation Measures 10-1 and 10-3 will also mitigate Impact 10-4, Disturbance or Destruction of Cultural Landscapes and Traditional Cultural Properties. However, to mitigate Impact 10-4, Mitigation Measure 10-1 surveys and Mitigation Measure 10-3 inventories would focus on cultural landscapes and traditional cultural properties.</li> </ul>	<p><b>Consistent.</b></p> <p>See Section 4.5 Cultural Resources and Section 4.18 Tribal Cultural Resources of the ISMND. The Project would contribute to and improve the quality and integrity of the Sacramento River Tribal Cultural Landscape.</p> <p>A cultural resource report and pedestrian survey was completed</p>

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		and USACE will secure NHPA Section 106 concurrence.
<b>Geology and Soils</b>		
11-1	<ul style="list-style-type: none"> <li>▪ For construction that occurs in an Alquist-Priolo Special Studies Zone, a determination must be made by a licensed practitioner (California Certified Engineering Geologist) that no fault traces are present within the building footprint of any structure intended for human occupancy. The standard of care for such determinations includes direct examination of potentially affected subsurface materials (soil and/or bedrock) by logging of subsurface trenches. Uncertainties regarding the exact locations of future ground ruptures associated with such determinations generally are resolved by providing a minimum setback of 50 feet from any known surface trace of an active fault. For critical structures, such as hospitals, dams, and emergency facilities, more stringent mitigation measures are required, including but not limited to greater structural setbacks and heavier reinforcement against strong ground motion, in compliance not only with California regulations but in many cases in compliance with additional Federal regulations.</li> <li>▪ Lead agencies shall ensure that geotechnical design recommendations are included in the design of facilities and construction specifications to minimize the potential impacts from seismic events and the presence of adverse soil conditions. Recommended measures to address adverse conditions shall conform to applicable design codes, guidelines, and standards.</li> </ul>	<p><b>Not applicable.</b></p> <p>See Section 4.7 Geology and Soils of the ISMND. . The proposed project is not located within the Alquist-Priolo Special Studies Zone.</p>
11-2	<ul style="list-style-type: none"> <li>▪ Require adherence, at minimum, to the precepts of the current approved version of the International Building Code (IBC). Included in the IBC are measures for mitigation of the impacts of strong ground motion on constructed works. In addition to the California –required conformance with the IBC, for critical structures, such as dams (including levees), hospitals, and emergency facilities, additional construction requirements are codified in federal statutes and the regulations of various federal agencies. Lead agencies will, by force of law, require conformance with these codified mitigation measures.</li> </ul>	<p><b>Not applicable.</b></p> <p>See Section 4.7 Geology and Soils of the ISMND. The proposed project does not include a facility or structure subject to the IBC.</p>
11-3	<ul style="list-style-type: none"> <li>▪ For projects that would result in significant or potentially significant grading operations, a geotechnical investigation shall be performed and a geotechnical report prepared. The geotechnical report shall include a quantitative analysis to determine whether excavation or fill placement would result in a potential for damage due to soil subsidence during and/or after construction. Project designs shall incorporate measures to reduce the potential damage to an insignificant level, including but not limited to removal and recompaction of existing soils susceptible to subsidence, ground improvement (such as densification by compaction or grouting, soil cementation), and reinforcement of structural components to resist deformation due to subsidence. The site-specific potential for and severity of cyclic seismic loading shall be analyzed in the assessment of subsidence for specific projects.</li> <li>▪ A geotechnical investigation shall be performed by an appropriately licensed professional engineer and/or geologist to determine the presence and thickness of potentially liquefiable sands that could result in loss of bearing value during seismic shaking events. Project designs shall incorporate measures to mitigate the potential damage to an insignificant level, including but not limited to ground improvement (such as grouting or soil cementation), surcharge loading by placement of fill, excavation, soil mixing with non-liquefiable finer-grained materials and replacement of liquefiable materials at shallow depths, and reinforcement of structural components to resist deformation due to liquefaction. An analysis of site-specific probable and credible</li> </ul>	<p><b>Not applicable.</b></p> <p>See Section 4.7 Geology and Soils of the ISMND. Grading associated with the project is limited to installation of water control infrastructure and creating minor topographic variability. In this case no Geotechnical Report was deemed necessary.</p>

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	<p>seismic acceleration values, in accordance with current applicable standards of care, shall be performed to provide for suitable project design.</p> <ul style="list-style-type: none"> <li>▪ For projects that would result in construction of wells intended for groundwater extraction, a hydrogeological/geotechnical investigation shall be performed in accordance with the current standards of care for such work by an appropriate licensed professional engineer or geologist to identify and quantify the potential for groundwater extraction-induced subsidence. The study shall include an analysis of existing conditions and modeling of future conditions to assess the potential for aquifer compaction/consolidation.</li> <li>▪ For projects that would result in construction of surface reservoirs and canals a hydrogeological/geotechnical investigation shall be performed by a licensed professional engineer or geologist to identify and quantify the potential for seeps and springs to develop in areas adjacent to the proposed improvements and to propose mitigation measures. Mitigation of such seepage could include, without limitation, additives to concrete that reduce its permeability, construction of impervious liner systems, and design and construction of subdrainage (passive control) or dewatering systems (active control).</li> </ul> <p>Geotechnical investigations and preparation of geotechnical reports shall be performed in the responsible care of California licensed geotechnical professionals including professional civil engineers, certified geotechnical engineers, professional geologists, certified engineering geologists, and certified hydrogeologists, all of whom should be practicing within the current standards of care for such work.</p>	
11-4	<ul style="list-style-type: none"> <li>▪ Any covered action that would have significant soil erosion and topsoil loss impacts (Impact 11-4) shall incorporate specific measures for future projects that would expand the use of BMPs or optional erosion control measures listed in the SWPPPs. The SWPPP shall identify an effective combination of BMPs to reduce erosion during construction and to prevent erosion during operation. Examples of typical BMPs include: <ul style="list-style-type: none"> <li>○ Erosion control measures such as silt fencing, sand bags, straw bales and mats, and rice straw wattles shall be placed to reduce erosion and capture sediment. Straw used for erosion control shall be new cereal grain straw derived from rice, wheat, or barley; free of mold and noxious weed seed; and neither derived from dry-farmed crops nor previously used for stable bedding. Clearance shall be obtained from the County Agricultural Commissioner before straw obtained from outside the county is delivered to the work site. Monitoring requirements of the newly revised General Construction Permit shall be implemented, and more effective BMPs shall be identified and installed if runoff samples indicate excessive turbidity.</li> <li>○ During construction activities, topsoil shall be removed, stockpiled, and saved for reapplication following completion of construction. The top 6 inches shall be salvaged and reapplied to a comparable thickness. Soil material shall be placed in a manner that minimizes compaction and promotes plant reestablishment.</li> <li>○ If catch basins are used for sediment capture, the site shall be graded to ensure stormwater runoff flows into the basins, and basins shall be designed for the appropriate storm interval as provided in the General Construction Permit.</li> <li>○ Temporary work areas shall be surfaced with a compacted layer of well-graded gravel. They may be covered with a thin asphalt binder. Where expansive or compressible soils are present in temporary work areas, construction trailers shall be supported with concrete pads or footings.</li> <li>○ Dust control shall conform to all federal, State, and local requirements and may include use of water trucks, street sweepers, or other methods described in the SWPPP.</li> </ul> </li> </ul>	<p><b>Consistent.</b></p> <p>Best Management Practices included in Section 2.5.5 Best Management Practices of the ISMND would be implemented by the Project addressing construction-related impacts to soil erosion. See Section 4.7 Geology and Soils of the ISMND.</p> <p>Additional Measures addressing protection of water resources were adopted from the <a href="#">Statewide Restoration General Order</a> (WQ-2022-0048-DWQ).</p>

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	<ul style="list-style-type: none"> <li>○ Spoils shall be placed in 12-inch-thick loose lifts and compacted to reduce erosion and minimize future subsidence. Placement of peat spoils shall be on agricultural land where possible. Following construction, spoils sites shall be restored to avoid erosion.</li> </ul>	
11-5	<ul style="list-style-type: none"> <li>▪ In areas where expansive clays exist, a hydrogeological/geotechnical investigation shall be performed by a licensed professional engineer or geologist to identify and quantify the potential for expansion, particularly differential expansion of clayey soils due to leakage and saturation beneath new improvements. Measures could include, but are not limited to removal and recompaction of problematic expansive soils, soil stabilization, and/or reinforcement of constructed improvements to resist deformation due to expansion of subsurface soils.</li> </ul>	<p><b>Not applicable.</b></p> <p>See Section 4.7 Geology and Soils of the ISMND. No significant impact related to expansive clays would occur and mitigation measures are not required.</p>
11-6	<ul style="list-style-type: none"> <li>▪ For projects that would result in construction of canals, storage reservoirs and other surface impoundments, project design shall provide for protection from leakage to the subsurface. Measures could include, but are not limited to rendering concrete less permeable by specifying concrete additives such as bentonite, design of impermeable liner systems, design of leakage collection and recovery systems, and construction of impermeable subsurface cutoff walls.</li> <li>▪ For ecosystem restoration projects that might cause subsurface seepage of nuisance water onto adjacent lands: <ul style="list-style-type: none"> <li>○ Perform seepage monitoring studies by measuring the level of shallow groundwater in the adjacent soils, to evaluate the baseline conditions. Continue monitoring for seepage during and after the project implementation.</li> <li>○ Develop a seepage monitoring plan if subsurface seepage constitutes nuisance water to the adjacent land.</li> <li>○ Implement seepage control measures if adjacent land is not useable, such as installing subsurface agricultural drainage systems to avoid raising water levels into crop root zones. Cutoff walls and pumping wells can also be used to mitigate for the occurrence of subsurface nuisance water.</li> </ul> </li> </ul>	<p><b>Consistent.</b></p> <p>See Section 4.7 Geology and Soils of the ISMND. Engineering plans and specifications detail the methods for berm compaction and standards of care at the project site. See engineering plans, General and Technical Specifications.</p>
11-7	<ul style="list-style-type: none"> <li>▪ For projects that would result in construction of levees, surface impoundments and other fill embankments project design shall incorporate fill placement in accordance with local and State regulations and in accordance with the prevailing standards of care for such work. Measures could include, but are not limited to blending of soils most susceptible to landsliding with soils having higher cohesion characteristics, installation of slope stabilization measures, designing top-of-slope berms or v-ditches, terrace drains and other surface runoff control measures, and designing slopes at lower inclinations.</li> </ul>	<p><b>Consistent.</b></p> <p>See Section 4.7 Geology and Soils of the ISMND. Engineering plans and specifications detail the methods for berm compaction and standards of care at the project site. See engineering plans, General and Technical Specifications.</p>
11-8	<ul style="list-style-type: none"> <li>▪ A geotechnical investigation shall be performed and a geotechnical report prepared. The geotechnical report shall include a quantitative analysis to determine whether on-site soils would be suitable for an on-site wastewater treatment system. If it is determined that the soil could not support a conventional on-site treatment system, non- conventional systems shall be analyzed. Potential alternative systems include</li> </ul>	<p><b>Not applicable.</b></p> <p>The proposed project does not propose a wastewater treatment</p>

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	<p>(SWRCB, 2011, Onsite Wastewater Treatment System Scoping Document. <a href="http://www.swrcb.ca.gov/water_issues/programs/owts/index.shtml">http://www.swrcb.ca.gov/water_issues/programs/owts/index.shtml</a>):</p> <ul style="list-style-type: none"> <li>○ Containment systems that do not generate waste</li> <li>○ Anoxic and anaerobic systems</li> <li>○ Attached and suspended growth aerobic treatment systems</li> <li>○ Natural treatment systems</li> <li>○ Disinfection systems</li> <li>○ Engineered-fill leach fields</li> <li>○ Monitoring control systems</li> </ul>	system.
11-9	<ul style="list-style-type: none"> <li>▪ For projects that would result in significant or potentially significant risk to structures due to the presence of highly organic soils, lead agencies shall require geotechnical evaluation prior to construction to identify measures to mitigate organic soils. The following measures may be considered: <ul style="list-style-type: none"> <li>○ Over-excavation and import of suitable fill material</li> <li>○ Structural reinforcement of constructed works to resist deformation</li> <li>○ Construction of structural supports below the depth of highly organic soils into materials with suitable bearing strength</li> </ul> </li> </ul>	<p><b>Not applicable.</b></p> <p>The project consists of habitat restoration and does not include structures. Engineering plans and specifications detail the methods for berm compaction and standards of care at the project site. See engineering plans, General and Technical Specifications.</p>
<b>Paleontological Resources</b>		
12-1	<ul style="list-style-type: none"> <li>▪ During the project-level analysis, a Paleontological Resources Monitoring and Recovery Plan (PRMRP) shall be developed and implemented for all actions. The PRMRP shall include protocols for paleontological resources monitoring in those areas where sediment with moderate to high paleontological sensitivity would be affected by construction-related excavations. The PRMRP also shall set forth the following procedures: <ul style="list-style-type: none"> <li>○ Confirming the paleontological sensitivity (high, moderate, or low) of the areas to be impacted through review of project-level geological and geotechnical data</li> <li>○ Determining the qualifications of the paleontologist as established by the Society of Vertebrate Paleontology (SVP) (SVP, 1991. Standard Measures for assessment and mitigation of adverse impacts to nonrenewable paleontological resources. Society of Vertebrate Paleontology News Bulletin 152:2 – 5; SVP, 1995. Assessment and mitigation of adverse impacts to nonrenewable paleontological resources: Standard guidelines. Society of Vertebrate Paleontology News Bulletin 163: 22 – 27; SVP, 1996. Conditions of Receivership for Palaeontologic Salvage Collections. Society of Vertebrate Paleontology News Bulletin. Vol. 166, pp. 31 – 32</li> <li>○ The assessment and recovery of discovered fossil resources</li> <li>○ The preparation and curation of fossil finds</li> </ul> </li> </ul> <p>The PRMRP would provide guidelines for the establishment of a yearly or biannual monitoring program led by a qualified paleontologist to determine the extent of fossiliferous sediment being exposed and affected by erosion, and determine whether paleontological resources are being lost. If loss of scientifically significant paleontological resources can be documented, then a recovery program should be implemented.</p>	<p><b>Not applicable.</b></p> <p>See Section 4.7 Geology and Soils of the ISMND. Because of its geologic history, the project area is considered an unlikely environment for the presence of paleontological resources and for unique geologic features. No known paleontological resources or sites occur in the Project Area. No significant impacts to paleontological resources would occur and mitigation measures are not required.</p>

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<b>Mineral Resources</b>		
13-1	<ul style="list-style-type: none"> <li>▪ Ensure land use compatibility between existing mineral resource extraction activities and projects, activities or actions that may be implemented as the result of the Proposed Project.</li> <li>▪ Maintain adequate buffer between future projects and designated MRZ-2 sectors.</li> <li>▪ Explore opportunities to classify and designate new MRZ-2 sectors (e.g., in existing MRZ-3 sectors) to ensure that important mineral resources are conserved and continue to be available for future construction needs.</li> <li>▪ Ensure future land use changes within designated mineral resource extraction areas recognize mineral resource extraction as a compatible use.</li> <li>▪ Limit use of construction aggregate to local sources with sufficient capacity to meet both project and future local development needs, to the extent possible.</li> <li>▪ Use recycled aggregate where possible, to decrease the demand for new aggregate.</li> </ul>	<p><b>Not applicable.</b></p> <p>See Section 4.12 Mineral Resources of the ISMND. No mineral resources have been identified within the project area. No significant impacts to mineral resources would occur and mitigation measures are not required.</p>
13-2	<ul style="list-style-type: none"> <li>▪ Ensure access is maintained to existing, active mineral resource extraction sites both during and after project construction.</li> <li>▪ Implement recommendations identified in Division of Oil, Gas, and Geothermal Resources of the U.S. Geological Survey (DOGGR) construction site well review program (DOC 2007, California Department of Conservation, Division of Oil, Gas and Geothermal Resources, Well Review Program: Introduction and Application.), such as: <ul style="list-style-type: none"> <li>○ For all future projects, identify all existing natural gas well sites and oil production facilities within or in close proximity to the project area.</li> <li>○ Identify any oil and natural gas well within 100 feet of any navigable body of water or watercourse perennially covered by water or any officially recognized wildlife preserve as a “critical well” (California Code of Regulations, Title 14, Chapter 4, Article 2, Section 1720(a)(2)(B) and (C)). The DOC requires that a “critical well” include more stringent blowout prevention equipment than non-critical wells based on pressure testing and rating.</li> <li>○ Identify safety measures to prevent unauthorized access to equipment.</li> <li>○ Include safety shut-down devices on oil and natural gas wells and other equipment, as appropriate.</li> <li>○ Notify DOC of new oil and natural gas wells or changes in oil and natural gas well operations or physical conditions, receive written approval from DOC of the changes, and receive written notification of DOC’s inspection of new or changed equipment. The approvals will be primarily related to the ability to: (1) protect all subsurface hydrocarbons and fresh water, (2) protect the environment, (3) use adequate blowout prevention equipment, and (4) use approved drilling and cementing techniques.</li> <li>○ If any plugged/abandoned or unrecorded oil and natural gas wells are uncovered during construction, the DOC should be notified, the wells should undergo remedial well plugging actions, and no structures should be constructed over the abandoned oil and natural gas wells.</li> <li>○ If oil and natural gas wells are under the jurisdiction or a lease from the California State Lands Commission, project proponents should provide additional plans and environmental documentation as required prior to modification of the oil or natural gas wells.</li> </ul> </li> </ul>	<p><b>Not applicable.</b></p> <p>See Section 4.12 Mineral Resources of the ISMND. No mineral resources have been identified within the project area. No significant impacts to mineral resources would occur and mitigation measures are not required.</p>

Delta Plan Mitigation Measure Number	Delta Plan Mitigation Measure	Project Consistency
<b>Hazards and Hazardous Materials</b>		
14-1	<ul style="list-style-type: none"> <li>▪ Refueling and maintenance of vehicles and equipment to occur only in designated areas that are either bermed or covered with concrete, asphalt, or other impervious surfaces to control potential spills.</li> <li>▪ Refueling of vehicles and equipment to occur only when employees are present.</li> <li>▪ Vehicle and equipment service and maintenance conducted only by authorized personnel.</li> <li>▪ Refueling conducted only with approved pumps, hoses, and nozzles.</li> <li>▪ Catch-pans placed under equipment to catch potential spills during servicing.</li> <li>▪ All disconnected hoses placed in containers to collect residual fuel from the hoses.</li> <li>▪ Vehicle engines shut down during refueling.</li> <li>▪ No smoking, open flames, or welding allowed in refueling or service areas.</li> <li>▪ Refueling performed away from bodies of water to prevent contamination of water in the event of a leak or spill.</li> <li>▪ When refueling is completed, the service truck to leave the project site.</li> <li>▪ Service trucks provided with fire extinguishers and spill containment equipment, such as absorbents.</li> <li>▪ Should a spill contaminate soil, the soil shall be placed in containers and disposed of as appropriate. All containers used to store hazardous materials to be inspected at least once per week for signs of leaking or failure. All maintenance and refueling areas to be inspected monthly. Results of inspections to be recorded in a logbook maintained onsite.</li> <li>▪ Provision of an automatic sprinkler system for indoor hazardous material storage areas.</li> <li>▪ Provision of an exhaust system for indoor hazardous material storage areas.</li> <li>▪ Separation of incompatible materials by isolating them from each other with a noncombustible partition.</li> <li>▪ Spill control in all storage, handling, and dispensing areas.</li> <li>▪ Separate secondary containment for each chemical storage system. The secondary containment is required to hold the entire contents of the tank plus the volume of water for the fire suppression system that could be used for fire protection for a period of 20 minutes in the event of a catastrophic spill.</li> </ul> <p>In the unlikely event of a spill, the spill shall be reported to the appropriate regulatory agencies and contaminated soil shall be cleaned, treated, and/or removed in accordance with regulatory requirements. Small spills shall be contained and cleaned up immediately by trained, onsite personnel. Larger spills shall be reported via emergency phone numbers to obtain help from offsite containment and cleanup crews. All personnel working on the project during the construction phase shall be trained in handling hazardous materials and the dangers associated with hazardous materials. An onsite health and safety person shall be designated to implement health and safety guidelines and to contact emergency response personnel and the local hospital, if necessary.</p> <p>If there is a large spill from a service or refueling truck, contaminated soil shall be placed into barrels or trucks by service personnel for offsite disposal at an appropriate facility in accordance with law. If a spill involves hazardous materials quantities equal to or greater than the specific Reportable Quantities as required by regulatory agencies (42 gallons for petroleum products), all federal, State, and local reporting requirements shall be followed. In the event of a fire or injury, the local fire department shall be called.</p>	<p><b>Consistent.</b></p> <p>Best Management Practices included in Section 2.5.5 Best Management Practices of the ISMND would be implemented by the Project addressing construction-related impacts to hazards and hazardous materials.</p> <p>See Section 4.9 Hazards and Hazardous Materials of the ISMND.</p> <p>Additional Measures addressing protection of water resources were adopted from the <a href="#">Statewide Restoration General Order</a> (WQ-2022-0048-DWQ).</p>
14-2	<ul style="list-style-type: none"> <li>▪ To reduce the risk due to increased exposure to materials that could be released during soil disturbance, worker training programs and breathing apparatus shall be provided. Monitoring programs shall be implemented as areas are excavated to determine the potential for exposure to soil organisms or other constituents.</li> </ul>	<p><b>Consistent.</b></p> <p>Best Management Practices included in Section 2.5.5 Best</p>

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	<ul style="list-style-type: none"> <li>▪ To reduce risk to the community due to increased exposure to materials that could be released during soil disturbance, public outreach programs shall be conducted to educate the public of the types of construction activities and risks that could occur. In areas near extreme hazards, such as construction in areas with identified petroleum-product pipelines or soils with high concentrations of petroleum products, warning sirens shall be used at construction sites to immediately notify workers and residents. Emergency procedures shall be included in the education and outreach programs for the workers and the community.</li> </ul>	<p>Management Practices of the ISMND would be implemented by the Project addressing construction-related impacts to hazards and hazardous materials.</p> <p>See Section 4.9 Hazards and Hazardous Materials of the ISMND.</p> <p>Additional Measures addressing protection of water resources were adopted from the <a href="#">Statewide Restoration General Order</a> (WQ-2022-0048-DWQ).</p>
14-3	<ul style="list-style-type: none"> <li>▪ Freshwater habitat management to include water-control-structure management, vegetation management, mosquito predator management, drainage improvements, and other best management practices, and coordination with the DFG and local mosquito and vector control agencies regarding these strategies and specific techniques to help minimize mosquito production.</li> <li>▪ Maintenance of permanent ponds that increase the diversity of waterfowl yet decrease the introduction of vectors through constant circulation of water, vegetation control, and periodic draining of ponds.</li> <li>▪ Tidal management focused on mosquito problems arising from the residual tidal and floodwaters remaining in depressions and cracked ground (SCMAD 2011. San Joaquin County Mosquito and Vector Control District. <a href="http://www.sjmosquito.org/">http://www.sjmosquito.org/</a>).</li> <li>▪ Avoidance of ponding in tidal marsh habitat or in areas within the waterside of setback levees. Design of ecosystem restoration areas, waterfowl hunting areas, setback levees, parks, canals, and surface water storage facilities to minimize standing water, or use of other methods such as mosquito fish to reduce mosquito breeding.</li> </ul>	<p><b>Not applicable.</b></p> <p>No significant impacts regarding mosquito or vector control for managed wetland activities were identified and mitigation measures are not required.</p>
14-4	<ul style="list-style-type: none"> <li>▪ Avoid creating hazardous wildlife attractants within a distance of 10,000 feet of an Airport Operations Area.</li> <li>▪ Maintain a distance of 5 statute miles between the farthest edge of the Airport Operations Area and hazardous wildlife attractants.</li> </ul>	<p><b>Not applicable.</b></p> <p>See Section 4.9 Hazards and Hazardous Materials of the ISMND. The project area is not located near an airport. No significant impacts regarding airport operations were identified and mitigation measures are not required.</p>
14-5	<ul style="list-style-type: none"> <li>▪ Prepare and implement a fire management plan to minimize potential for wildland fires.</li> </ul>	<p><b>Not applicable.</b></p> <p>See Section 4.20 Wildfire of the ISMND. No significant impacts regarding wildland fires were</p>

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		identified and mitigation measures are not required.
<b>Noise</b>		
15-1	<ul style="list-style-type: none"> <li>▪ Limit the hours of operation at noise-generation sources located near or adjacent to noise-sensitive areas, wherever practicable, to reduce the level of exposure to meet applicable local standards.</li> <li>▪ Locate construction equipment away from sensitive receptors, to the extent feasible, to reduce noise levels below applicable local standards.</li> <li>▪ Maintain construction equipment to manufacturers' recommended specifications, and equip all construction vehicles and equipment with appropriate mufflers and other approved noise-control devices.</li> <li>▪ Limit idling of construction equipment to the extent feasible to reduce the time that noise is emitted.</li> <li>▪ Conduct individual traffic noise analysis of identified haul routes and provide mitigation, such as reduced speed limits, at locations where noise standards cannot be maintained for sensitive receptors.</li> <li>▪ Incorporate use of temporary noise barriers, such as acoustical panel systems, between construction activities and sensitive receptors if it is concluded that they would be effective in reducing noise exposure to sensitive receptors.</li> <li>▪ Near sensitive receptors, avoid or minimize use of construction equipment known to generate high levels of ground borne vibration (for example, pile drivers).</li> </ul>	<p><b>Consistent.</b></p> <p>See Section 4.13 Noise of the ISMND. The project is not located near sensitive receptors. No significant impacts would occur and no mitigation measures are required.</p>
15-2	<ul style="list-style-type: none"> <li>▪ Conduct a preliminary ground borne vibration analysis report to determine future construction-related ground borne vibration levels based on, but not limited to, a detailed equipment list, hours of operation and distances to sensitive receptors located within 500 feet of project sites.</li> <li>▪ Provided that future ground borne vibration results in significant impacts at sensitive receptors, the following measures shall be implemented: <ul style="list-style-type: none"> <li>○ Designate a complaint coordinator and post this person's contact information in a location near construction areas where it is clearly visible to the nearby receptors most likely to be affected. The coordinator will manage complaints and concerns resulting from activities that cause vibrations. The severity of the vibration concern should be assessed by the coordinator and, if necessary, evaluated by a qualified noise and vibration control expert.</li> <li>○ Vibration monitoring will be conducted before and during vibration generating operations occurring within 100 feet of historic structures. Every attempt will be made to limit construction-generated vibration levels during pile driving and other ground borne noise and vibration-generating activities in the vicinity of the historic structures in accordance with recommendations of the appropriate agency with authority.</li> <li>○ Adjacent historic features will be covered or temporarily shored, as necessary, for protection from vibrations, in consultation with the appropriate cultural resources authority.</li> <li>○ Pile driving required within a 50-foot radius of residences will use alternative installation methods where possible (e.g., pile cushioning, jetting, predrilling, cast-in-place systems, resonance-free vibratory pile drivers). This would reduce the number and amplitude of blows required to seat the pile.</li> <li>○ Pile-driving activities conducted within 285 feet of sensitive receptors will occur during daytime hours to avoid sleep disturbance during evening and nighttime hours.</li> </ul> </li> </ul>	<p><b>Not applicable.</b></p> <p>See Section 4.13 Noise of the ISMND. The project is not located within 500 feet of sensitive receptors.</p>

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15-3	<ul style="list-style-type: none"> <li>▪ Identify noise-sensitive receptors in the vicinity of project activities and design projects to minimize exposure of sensitive receptors to long-term, operational noise sources (for example, water pumps) to reduce noise levels below applicable local standards.</li> <li>▪ Conduct a preliminary noise analysis report to determine future operation-related noise and distances to sensitive receptors. Provided that future operation-related noise results in significant at sensitive receptors, incorporate into construction design measures such as a structure encasing the new noise generating infrastructure. Materials (masonry brick, metal shed, wood) used to house the infrastructure will be of solid construction and void of gaps at the ground, roof line, and joints. All vents will include acoustically rated louvers.</li> <li>▪ Locate dog parks no closer than 200 feet from the nearest residential property line and at least 75 feet from habitat for noise-sensitive wildlife species.</li> <li>▪ Locate parking lots no closer than 65 feet from the nearest residential property line and at least 25 feet from habitat for noise-sensitive wildlife species unless a detailed noise study is conducted that determines that placement of parking lots closer than the distances specified above will not result in noise levels that exceed 67 dBA at the nearest residential property line or 60 dBA from noise-sensitive habitat, or appropriate mitigation measures, including permanent noise barriers, can be incorporated to reduce noise levels to equal the ambient noise level or referenced thresholds for residential property and noise sensitive habitat.</li> <li>▪ Locate playing fields no closer than located at least 125 feet from the nearest residential property line and at least 50 feet from habitat for noise-sensitive wildlife species unless a detailed noise study is conducted that determines that placement of playing fields closer than the distances specified above will not result in noise levels that exceed 67 dBA at the nearest residential property line or 60 dBA from noise-sensitive habitat, or appropriate mitigation measures, including permanent noise barriers, can be incorporated to reduce noise levels to equal the ambient noise level or referenced thresholds for residential property and noise sensitive habitat.</li> </ul>	<p><b>Not applicable.</b></p> <p>See Section 4.13 Noise of the ISMND. The project is not located near sensitive receptors.</p>
<b>Population and Housing</b>		
16-1	<ul style="list-style-type: none"> <li>▪ Require compliance with applicable local policies and regulations regarding the provision of affordable housing.</li> <li>▪ Construct replacement housing if existing housing will be displaced.</li> </ul>	<p><b>Not applicable.</b></p> <p>See Section 4.14 Population and Housing of the ISMND. No housing construction or displacement is associated with the proposed project.</p>
<b>Public Services</b>		
17-1	<ul style="list-style-type: none"> <li>▪ Establish construction fee schedules by local agencies for the new or modified facilities to fund additional emergency services potentially required during construction. If emergency services are not needed, a portion of the fees could be refunded.</li> <li>▪ Develop worker training programs to reduce construction and operations risks.</li> <li>▪ Develop appropriate emergency access routes and equipment for both land and water access, if applicable (such as in the Delta), that provides for adequate response time. If use of an existing emergency access</li> </ul>	<p><b>Not applicable.</b></p> <p>See Section 4.15 Public Services of the ISMND. The project would not impact public services or emergency response times and no</p>

Delta Plan Mitigation Measure Number	Delta Plan Mitigation Measure	Project Consistency
	<p>route becomes limited due to new or modified facilities, additional routes or placement of duplicate equipment on each side of the route limitation could be considered.</p> <ul style="list-style-type: none"> <li>▪ Develop traffic plans and emergency response plans for construction and operations phases of new facilities.</li> <li>▪ Develop all facilities, including parks and ecosystem restoration areas, in accordance with applicable fire codes and regulations, and with adequate fire equipment access routes, occupancy limitations, and fire-protection equipment.</li> </ul>	mitigation is required.
<b>Recreation</b>		
18-1	<ul style="list-style-type: none"> <li>▪ If the substantial impairment, degradation, or elimination of recreational facilities occurs, replacement facilities of equal capacity and quality with ongoing funding provided for maintenance of these facilities.</li> <li>▪ If degradation or impairment of recreational facilities, settings, and activities occur from implementation of water use efficient practices and water conservation measures at recreational areas, the park and recreation areas shall be redeveloped with drought-tolerant plant materials, water efficient irrigation systems, and synthetic turf substitutes where appropriate, in such a way as to retain recreational facilities and use areas.</li> <li>▪ If the volume of water exported from the Delta declines over multiple years, the lead agencies that implement local water supplies may be unable to develop a long-term replacement water supply for the south-of-Delta surface water reservoirs with recreation uses. At these sites, facilities must be modified (including access facilities, as necessary) to accommodate lower water elevations or more frequent fluctuations in water elevations that could occur more frequently in the Proposed Project than under existing conditions.</li> </ul>	<p><b>Not applicable.</b></p> <p>See Section 4.16 Recreation of the ISMND. No impacts to recreation would occur. No mitigation is required.</p>
18-2	<ul style="list-style-type: none"> <li>▪ If substantial temporary or permanent impairment, degradation, or elimination of recreational facilities causes users to be directed towards other existing facilities, lead agencies shall coordinate with impacted public and private recreation providers to direct displaced users to under-utilized recreational facilities.</li> <li>▪ Lead agencies shall provide additional operations and maintenance of existing facilities in order to prevent deterioration of these facilities.</li> <li>▪ If possible, lead agencies shall provide temporary replacement facilities.</li> <li>▪ If the increase in use is temporary, once use is decreased back to existing conditions, degraded facilities shall be rehabilitated or restored.</li> <li>▪ Where impacts to existing facilities are unavoidable, compensate for impacts through mitigation, restoration, or preservation off-site or creation of additional permanent new replacement facilities.</li> </ul>	<p><b>Not applicable.</b></p> <p>See Section 4.16 Recreation of the ISMND. No impacts to recreation would occur. No mitigation is required.</p>
18-3	<ul style="list-style-type: none"> <li>▪ Projects shall be sited in areas that would have minimal adverse physical effect on the environment.</li> <li>▪ Where impacts to the environment are unavoidable, compensate for impacts through mitigation, restoration, or preservation off-site or creation of additional permanent new replacement facilities.</li> </ul>	<p><b>Consistent.</b></p> <p>See ISMND. The project has been designed to have minimal adverse physical effects on the environment and mitigation measures have been identified when necessary.</p>

Delta Plan Mitigation Measure Number	Delta Plan Mitigation Measure	Project Consistency
<b>Traffic and Transportation</b>		
19-1	<ul style="list-style-type: none"> <li>▪ Avoid modifications to federal, State, and county highways, local roadways, and bridges that may reduce vehicle capacity, to the extent feasible.</li> <li>▪ Develop and implement a traffic control plan to reduce effects of roadway construction activities, including full and partial lane closures, bicycle and pedestrian facility closures, and reduced access to adjacent properties. Minimize lane closures during morning and evening peak hours. Limit lane closures near the affected segment. Reroute bicycle and pedestrian access around the project area. Prevent bicyclists and pedestrians from entering the work area.</li> <li>▪ As part of the traffic control plan, identify specific project-vehicle access routes that would avoid additional traffic in residential areas or would adversely affect other sensitive land uses, where feasible.</li> <li>▪ Install roadway status signs at strategic locations in the Delta to inform the public of roadway closures and limits to ingress to/egress from Delta Islands. The signs shall include maps showing the relative locations of road closures and access restrictions to other Delta features.</li> <li>▪ For project operations that increase traffic, prepare a traffic study. Determine haul routes that would be used. Evaluate the levels of service at affected intersections and road segments during the peak a.m. and peak p.m. periods. Model changes in traffic with project traffic. If the level of service is maintained at levels acceptable to the appropriate agency, then no additional mitigation is required. If project traffic causes an intersection or road segment to perform below the minimum level of service standard, then select an alternate route for project traffic or schedule project trips for non-peak-hour periods. If alternate routes are not feasible, then design and construct facility improvements to intersections or road segments to maintain the acceptable level of service.</li> <li>▪ During the planning and analysis of site-specific actions, coordinate with Caltrans and/or other local agencies with jurisdiction over transportation system features for the purpose of minimizing impacts on bridges, roadways, culverts, or other features that may be affected. Agencies responsible for constructing and maintaining levees on which a public roadway may be located shall also be consulted to ensure consistency with levee design criteria.</li> <li>▪ For roads that will be flooded during floodplain operation, prepare and implement vehicular traffic detour planning as necessary. Provide convenient and parallel vehicular traffic detours for routes closed because of inundation. A detour plan shall be prepared and implemented in accordance with current Caltrans Standard Plans and Specifications. (A temporary crossing structure, for example a Bailey Bridge, may be used to maintain circulation and avoid a detour plan.) The detour plan shall be implemented before roadway inundation. The detour plan will include an assessment of existing roadway conditions, whether paved or unpaved, and provisions for repair and maintenance if the roadway conditions are substantially degraded from increased use. After the detour route is identified and before flood flows are released that would overtop roads, the condition of the detour road surface will be assessed and documented. The documentation will be submitted to the local agency responsible for maintenance of the road. After the detour is no longer needed, the condition of the road surface will be assessed and documented. The documentation will identify substantial changes in the condition of the road surface, such as potholing or rutting. Repair and maintenance actions needed to restore the road surface to pre-detour conditions will be identified. In coordination with the local maintenance agency, the repair and maintenance actions may be conducted by the agency conducting the floodplain operation or by the local maintenance agency to be proportionately reimbursed by the flood</li> </ul>	<p><b>Not applicable.</b></p> <p>See Section 4.17 Traffic and Transportation of the ISMND. No significant impacts regarding traffic and transportation were identified and mitigation measures are not required.</p>

Delta Plan Mitigation Measure Number	Delta Plan Mitigation Measure	Project Consistency
	<p>management authority.  The detour plan will prioritize paved roads for use as detour routes. If use of paved roadway detours is not feasible during flood flow road inundation periods, the detour plan will require that visible dust emissions from unpaved detour routes will be limited to the percent opacity indicated by the appropriate air pollution control district. The following dust control measures may be used to stabilize unpaved roadways:</p> <ul style="list-style-type: none"> <li>○ Watering</li> <li>○ Uniform layer of washed gravel</li> <li>○ Roadmix</li> <li>○ Paving</li> </ul> <p>Any other method that can be demonstrated to the satisfaction of the appropriate air pollution control district that effectively limits visible dust emission to the local percent opacity standard and meets the conditions of a stabilized unpaved road.</p> <ul style="list-style-type: none"> <li>▪ Traffic impact reports shall be prepared that meet the applicable agencies' standards to assess potential impacts on appropriate street segments and intersections. The traffic impact reports shall identify impacts that exceed the agencies' guidelines for significance and identify appropriate mitigation. Acceptable mitigation measures may include: <ul style="list-style-type: none"> <li>○ Turn restrictions</li> <li>○ Roadway widening to add lanes or shoulders</li> <li>○ Redesign of freeway on- and off-ramps</li> <li>○ Median construction/modification to restrict access</li> <li>○ Flaring of intersections to add turn lanes</li> <li>○ Provision of passing lanes or turnouts</li> <li>○ Acceleration and deceleration lanes</li> <li>○ Removal of obstructions</li> <li>○ Roundabouts</li> <li>○ Restriping to add lanes with or without parking removal and restrictions</li> <li>○ Protected left-turn pockets or free right-turn lanes</li> <li>○ Parking restrictions, daily or during peak hours</li> <li>○ Fair share contributions to approved projects identified in the agency's Capital Improvement Plan</li> <li>○ Fair share contributions to traffic signals identified in the agency's traffic signal plan.</li> </ul> </li> <li>▪ Prepare and implement a waterway traffic control plan to ensure safe and efficient vessel navigation during construction in waterways. The plan shall identify vessel traffic control measures to minimize congestion and navigation hazards to the extent feasible. Construction areas in the waterway will be barricaded or guarded by readily visible barriers or other effective means to warn boaters of their presence and restrict access. Warning devices and signage will be consistent with the California Uniform State Waterway Marking System and effective during non-daylight hours and periods of dense fog.</li> <li>▪ Where temporary partial channel closure is necessary, a temporary channel closure plan shall be developed. The waterway closure plan will identify and implement alternate detour routing and procedures for notifying boaters of construction activities and partial closures, including coordination with the U.S. Coast Guard, local boating organizations and marinas.</li> <li>▪ To the extent feasible, ensure that safe boat access to public launch and docking facilities, businesses, and residences is maintained.</li> <li>▪ Coordinate with transit system operators to establish appropriate alternate transit system routes to be</li> </ul>	

Delta Plan Mitigation Measure Number	Delta Plan Mitigation Measure	Project Consistency
	<p>rerouted during construction activities, as appropriate.</p> <ul style="list-style-type: none"> <li>▪ Boat passage facilities shall be provided as an integral component of operable gate facilities, when feasible. Boat passage facilities shall be designed to provide uninterrupted boat passage when gate are in the “up” position. Floating docks with mooring bits shall be provided along the shoreline on both sides of the boat passage facility for boaters to use while they await passage. Floating barriers will guide boats into the passage facility chambers.</li> <li>▪ Implement a program to provide boater education on procedures for waiting at and using the boat passage facility.</li> <li>▪ Minimize impacts on bicycle and pedestrian circulation where feasible by avoiding impacts, minimizing closure of paths, and providing for temporary or permanent relocation of the facility to the extent feasible. Consult with the appropriate public works department to determine the most feasible alignment for facility relocation.</li> </ul>	
19-2	<ul style="list-style-type: none"> <li>▪ Develop and implement a program that will include procedures for routine inspections and emergency facility operation to allow safe navigation should the facility become damaged or malfunction. The program will include the following specific components: <ul style="list-style-type: none"> <li>○ Routine inspections and correction procedures to ensure that facility safety features are in good working order.</li> <li>○ Routine inspections and correction procedures for navigational hazards around facilities, including floating or submerged debris and the formation of shoals.</li> <li>○ Contingency and emergency operating procedures to address the possibility that a boat colliding with the flow control facilities will damage the facilities or otherwise render them unable to operate as engineered, and provisions to allow safe navigation.</li> </ul> </li> </ul>	<p><b>Not applicable.</b></p> <p>See Section 4.17 Traffic and Transportation of the ISMND. No significant impacts regarding traffic and transportation were identified and mitigation measures are not required.</p>
19-3	<ul style="list-style-type: none"> <li>▪ Coordinate with responsible local agencies to establish appropriate emergency routes during construction activities and before existing emergency routes are reclassified to a nonemergency route use.</li> <li>▪ Phase construction activities, and use multiple routes to and from offsite locations to minimize the daily amount of traffic on individual roadways.</li> <li>▪ Post warnings about the potential presence of slow-moving vehicles.</li> <li>▪ Use traffic-control personnel when appropriate.</li> <li>▪ Place and maintain barriers, and install traffic-control devices necessary for safety, as specified in Caltrans’ Manual of Traffic Controls for Construction and Maintenance Work Zones and in accordance with city and county requirements.</li> <li>▪ Notify appropriate emergency service providers of project construction throughout the construction period to ensure that emergency access through construction areas is maintained.</li> </ul>	<p><b>Consistent.</b></p> <p>See Section 4.17 Traffic and Transportation of the ISMND. No significant impacts regarding traffic and transportation were identified and mitigation measures are not required. The project would not impact emergency routes or traffic flow.</p>
19-4	<ul style="list-style-type: none"> <li>▪ Projects where construction- and operations conflict with adopted policies, plans, or programs regarding bicycle or pedestrian facilities should implement Mitigation Measure 19-1, above. The portion of the measure that addresses minimizing impacts on bicycle and pedestrian circulation also would be applicable to this measure.</li> </ul>	<p><b>Not applicable.</b></p> <p>See Section 4.17 Traffic and Transportation of the ISMND. No significant impacts regarding traffic and transportation were identified and mitigation measures are not required. The project would not</p>

Delta Plan Mitigation Measure Number	Delta Plan Mitigation Measure	Project Consistency
		conflict with adopted policies, plans, or programs regarding bicycle or pedestrian facilities.
<b>Utilities and Service Systems</b>		
20-1	<ul style="list-style-type: none"> <li>▪ Establish construction debris disposal fee schedules to promote recycling and minimize solid waste.</li> <li>▪ Limit disposal of construction debris and other solid waste at local landfills if the landfills have limited capacity.</li> <li>▪ Dispose of all construction debris at landfills and disposal facilities that are licensed for the type of wastes to be disposed. If the landfills and disposal facilities are not located near future construction sites, include analysis of transportation of solid waste in future environmental documentation for specific projects.</li> <li>▪ Require construction contractors to prepare construction debris management plans and require reuse or recycling of construction debris.</li> <li>▪ Develop project-specific solid waste plans to maximize practices that reduce and recycle solid waste and sludge generated by water, wastewater, and stormwater treatment facilities; and collect, recycle, or compost litter and solid waste generated at new facilities designed for visitor use (such as parks and visitor centers).</li> </ul>	<p><b>Not applicable.</b></p> <p>See Section 4.19 Utilities and Service Systems of the ISMND. No significant impacts regarding utilities were identified and mitigation measures are not required.</p>
20-2	<ul style="list-style-type: none"> <li>▪ Relocate or modify existing water, wastewater, and stormwater facilities or electricity transmission systems in a manner that does not affect current operational reliability to existing and projected users.</li> <li>▪ Coordinate utility relocation and modification with utility providers and local agencies to integrate potential other construction projects and minimize disturbance to the communities.</li> <li>▪ Verify utility locations through field surveys and services such as Underground Service Alert.</li> </ul>	<p><b>Consistent.</b></p> <p>See Section 4.19 Utilities and Service Systems of the ISMND. No significant impacts regarding utilities were identified and mitigation measures are not required.</p>
<b>Climate Change and Greenhouse Gas Emissions</b>		
21-1	<ul style="list-style-type: none"> <li>▪ Implement GHG mitigation measures listed in the most recent California Air Pollution Control Officers Association (CAPCOA), BAAQMD, and other air district guidance documents (e.g., CAPCOA, 2010. Quantifying Greenhouse Gas Mitigation Measures. A Resource for Local Government to Assess Emission Reductions from Greenhouse Gas Mitigation Measures. Sacramento, California. August, p. 210-232; BAAQMD, 2011. California Environmental Quality Act Air Quality Guidelines. San Francisco, California. Updated May 2011, p. 8-6). Current versions of such guidance documents list the following for construction: <ol style="list-style-type: none"> <li>1. Use alternative fuels for construction equipment.</li> <li>2. Use electric and hybrid construction equipment.</li> <li>3. Limit construction equipment idling beyond regulatory requirements.</li> <li>4. Institute a heavy-duty off-road vehicle plan.</li> <li>5. Implement a construction vehicle inventory tracking system.</li> <li>6. Use local building materials for at least ten percent of total materials.</li> <li>7. Recycling or reusing at least 50 percent of construction waste or demolition materials.</li> </ol> </li> </ul> <p>In addition, the California Attorney General's Office has developed a list of various measures that may reduce GHG emissions at the individual project level. A selected list of those proposed measures that could be applied to DWR</p>	<p><b>Consistent.</b></p> <p>See Sections 4.6 Energy and 4.8 Greenhouse Gas Emissions of the ISMND. The project would not result in significant impacts related to energy use or climate change.</p>

Delta Plan Mitigation Measure Number	Delta Plan Mitigation Measure	Project Consistency
	<p>projects was appended to the DWR guidance document, titled Guidance for Quantifying Greenhouse Gas Emissions and Determining the Significance of their Contribution to Global Climate Change for CEQA Purposes (DWR, 2010c. Guidance for Quantifying Greenhouse Gas Emissions and Determining the Significance of their Contribution to Global Climate Change for CEQA Purposes. California Department of Water Resources Internal Guidance Document. CEQA Climate Change Committee. Sacramento, CA. January, Appendix B). As appropriate, the measures can be included as design features of a project, required as changes to the project, or imposed as mitigation (whether undertaken directly by the project proponent or funded by mitigation fees). The measures are examples; the list is not intended to be exhaustive. The following may serve as BMPs to be considered and implemented (as applicable) during design, construction, operation, and maintenance of project facilities.</p> <p><b>Efficiency</b></p> <ol style="list-style-type: none"> <li>1. Design buildings to be energy efficient. Site buildings to take advantage of shade, prevailing winds, landscaping and sun screens to reduce energy use.</li> <li>2. Install efficient lighting and lighting control systems. Use daylight as an integral part of lighting systems in buildings.</li> <li>3. Install light colored "cool" roofs, cool pavements, and strategically placed shade trees.</li> <li>4. Install energy efficient heating and cooling systems, appliances and equipment, and control systems.</li> <li>5. Install light-emitting diodes for street and other outdoor lighting.</li> <li>6. Limit the hours of operation of outdoor lighting.</li> <li>7. Provide education on energy efficiency.</li> </ol> <p><b>Renewable Energy</b></p> <ol style="list-style-type: none"> <li>1. Install solar and wind power systems and energy-efficient heating ventilation and air conditioning.</li> <li>2. Install solar panels over parking areas.</li> <li>3. Use combined heat and power in appropriate applications.</li> </ol> <p><b>Water Conservation and Efficiency</b></p> <ol style="list-style-type: none"> <li>1. Create water-efficient landscapes.</li> <li>2. Install water-efficient irrigation systems and devices, such as soil moisture-based irrigation controls.</li> <li>3. Use reclaimed water for landscape irrigation. Install the infrastructure to deliver and use reclaimed water.</li> <li>4. Design buildings to be water-efficient. Install water-efficient fixtures and appliances.</li> <li>5. Restrict watering methods (e.g., prohibit systems that apply water to non-vegetated surfaces) and control runoff.</li> <li>6. Restrict the use of water for cleaning outdoor surfaces and vehicles.</li> <li>7. Implement low-impact development practices that maintain the existing hydrologic character of the site to manage stormwater and protect the environment. (Retaining stormwater runoff on-site can drastically reduce the need for energy-intensive imported water at the site.)</li> <li>8. Devise a comprehensive water conservation strategy appropriate for the project and location. The strategy may include many of the specific items listed above, plus other innovative measures that are appropriate to the specific project.</li> <li>9. Provide education about water conservation.</li> </ol> <p><b>Solid Waste Measures</b></p> <ol style="list-style-type: none"> <li>1. Reuse and recycle construction and demolition waste (including, but not limited to, soil, vegetation, concrete, lumber, metal, and cardboard).</li> </ol>	

Delta Plan Mitigation Measure Number	Delta Plan Mitigation Measure	Project Consistency
	<p>2. Provide interior and exterior storage areas for recyclables and green waste and adequate recycling containers located in public areas.</p> <p>3. Recover by-product methane to generate electricity.</p> <p><b>Transportation and Motor Vehicles</b></p> <p>1. Limit idling time for commercial vehicles, including delivery and construction vehicles.</p> <p>2. Use low or zero-emission vehicles, including construction vehicles.</p> <p>3. Institute a heavy-duty off-road vehicle plan and a construction vehicle inventory tracking system for construction projects.</p> <p>4. Promote ride sharing.</p> <p>5. Provide the necessary facilities and infrastructure to encourage the use of low or zero-emission vehicles (e.g., electric vehicle charging facilities and conveniently located alternative fueling stations).</p> <p>6. Increase the cost of driving and parking private vehicles by, e.g., imposing tolls and parking fees.</p> <p>7. Provide shuttle service to public transit/[work sites].</p> <p>8. Provide information on all options for individuals and businesses to reduce transportation-related emissions.</p> <p><b>Carbon Offsets</b></p> <p>1. If, after analyzing and requiring all reasonable and feasible on-site mitigation measures for avoiding or reducing greenhouse gas-related impacts, the lead agency determines that additional mitigation is required, the agency may consider additional off-site mitigation. The project proponent could, for example, fund off-site mitigation projects (e.g., alternative energy projects, or energy or water audits for existing projects) that will reduce carbon emissions, conduct an audit of its other existing operations and agree to retrofit, or purchase carbon “credits” from another entity that will undertake mitigation.</p> <p>2. The topic of offsets can be complicated, and a full discussion is outside the scope of this summary document. Issues that the lead agency should consider include:</p> <ul style="list-style-type: none"> <li>a. The location of the off-site mitigation. (If the off-site mitigation is far from the project, any additional, non-climate related benefits of the mitigation will be lost to the local community.)</li> <li>b. Whether the emissions reductions from off-site mitigation can be quantified and verified.</li> <li>c. Whether the mitigation ratio should be greater than 1:1 to reflect any uncertainty about the effectiveness of the offset.</li> </ul> <p><b>SmartWay Truck Efficiency</b></p> <p>The strategy involves requiring existing trucks/trailers to be retrofitted with the best available “SmartWay Transport” and/or ARB approved technology. Technologies that reduce GHG emissions from trucks may include devices that reduce aerodynamic drag and rolling resistance. Aerodynamic drag may be reduced using devices such as cab roof fairings, cab side gap fairings, cab side skirts, and on the trailer side, trailer side skirts, gap fairings, and trailer tail. Rolling resistance may be reduced using single wide tires or low-rolling resistance tires and automatic tire inflation systems on both the tractor and the trailer.</p> <p><b>Tire Inflation Program</b></p> <p>The strategy involves actions to ensure that vehicle tire pressure is maintained to manufacturer specifications.</p> <p><b>Blended Cements</b></p> <p>The strategy to reduce CO2 emissions involves the addition of blending materials such as limestone, fly ash, natural</p>	

Delta Plan Mitigation Measure Number	Delta Plan Mitigation Measure	Project Consistency
	<p>pozzolan and/or slag to replace some of the clinker in the production of Portland cement.</p> <p><b>Anti-idling Enforcement</b>  The strategy guarantees emission reductions as claimed by increasing compliance with anti-idling rules, thereby reducing the amount of fuel burned through unnecessary idling. Measures may include enhanced field enforcement of anti-idling regulations, increased penalties for violations of anti-idling regulations, and restriction on registrations of heavy-duty diesel vehicles with uncorrected idling violations.</p>	
21-2	<ul style="list-style-type: none"> <li>▪ Prepare a drainage or hydrology and hydraulics study that would assess the need and provide a basis for the design for flood protection of the facilities constructed along waterways. Prepare the study in accordance with applicable standards of Federal Emergency Management Agency (FEMA), USACE, DWR, Central Valley Flood Protection Board, San Francisco Bay Conservation and Development Commission (BCDC), as well as the local reclamation districts and flood control agencies and the counties and cities. Design subsequent mitigation measures in accordance with the final study and with the applicable standards of FEMA, USACE, DWR, Central Valley Flood Protection Board, and BCDC.</li> <li>▪ Design intakes/diversions and outfalls to be operated at multiple surface water elevations between existing conditions and maximum projected surface water elevations during a high flow event with sea level rise for the life of the facility.</li> <li>▪ Prepare a hydrogeologic study that would assess long-term groundwater recharge and safe yield of wells and wellfields under a sustainable groundwater management plan. If the wells can be used to a greater degree in some years in a manner that would support the sustainable groundwater management plan to avoid long-term groundwater overdraft, wells could be drilled to deeper depths than would be required under existing conditions.</li> </ul>	<p><b>Consistent.</b></p> <p>See Sections 4.10 Hydrology and Water Quality of the ISMND. The project has been designed to utilize the existing water right and maintain the site at varying surface water elevations.</p> <p>Best Management Practices included in Section 2.5.5 Best Management Practices of the ISMND would be implemented by the Project addressing hydrology, drainage, and water quality.</p> <p>Additional Measures addressing protection of water resources were adopted from the <a href="#">Statewide Restoration General Order</a> (WQ-2022-0048-DWQ).</p>
21-3	<ul style="list-style-type: none"> <li>▪ Prepare a drainage or hydrology and hydraulics study that would assess the need and provide a basis for the design for ecosystem habitat restoration, including adjacent areas that would allow for migration of the habitat to higher elevations as the surface water elevations increase. Prepare the study in accordance with applicable standards of FEMA, USACE, DWR, and BCDC. Design subsequent mitigation measures in accordance with the final study and with the applicable standards of FEMA, USACE, DWR, Central Valley Flood Protection Board, and BCDC.</li> </ul>	<p><b>Consistent.</b></p> <p>See Sections 4.10 Hydrology and Water Quality of the ISMND. The project has been designed for resiliency and to provide habitat at the site at varying surface water elevations.</p> <p>Best Management Practices included in Section 2.5.5 Best Management Practices of the ISMND would be implemented by the Project addressing hydrology, drainage, and water quality.</p>

Delta Plan Mitigation Measure Number	Delta Plan Mitigation Measure	Project Consistency
		Additional Measures addressing protection of water resources were adopted from the <a href="#">Statewide Restoration General Order</a> (WQ-2022-0048-DWQ).
21-4	<ul style="list-style-type: none"> <li>▪ Prepare a drainage or hydrology and hydraulics study that would assess the need and provide a basis for the design for projects that reduce risks of floods in the Delta. Prepare the study in accordance with applicable standards of FEMA, USACE, DWR, and BCDC. Design subsequent mitigation measures in accordance with the final study and with the applicable standards of FEMA, USACE, DWR, Central Valley Flood Protection Board, and BCDC.</li> <li>▪ Based on the results of the drainage or hydrologic and hydraulic study, arrange the length of flood management facilities in the direction of the floodplain flow to maximize surface flows under flood conditions.</li> <li>▪ Install setback levees or bypass channels to maintain channel capacity and to mitigate hydraulic impacts of high flow events and higher surface water elevations due to climate change and sea level rise.</li> <li>▪ Channel modifications for restoration actions would be required to be implemented to maintain or improve flood management functions and would be coordinated with the USACE, DWR, Central Valley Flood Protection Board, BCDC, and other flood control agencies to assess the desirability and feasibility for channel modifications. To the extent consistent with floodplain land uses and flood control requirements, if applicable, woody riparian vegetation would be allowed to naturally establish.</li> </ul>	<p><b>Not applicable.</b></p> <p>The proposed project is not a flood risk reduction project.</p>

## Appendix C: List of Best Available Science

# Twitchell Island Wetland Enhancement and Restoration Project

## Best Available Science

### Carbon Sequestration

- Byrd, K.B., J.L. O'Connell, S. Di Tommaso, and M. Kelly. 2014. Evaluation of Sensor Types and Environmental Controls on Mapping Biomass of Coastal Marsh Emergent Vegetation. *Remote Sensing of Environmental* 149: 166-180.
- Drexler, J.Z., K.W. Krauss, M.C. Sasser, C.C. Fuller, C.M. Swarzenski, A. Powell, K.M. Swanson, J. Orlando. 2013. A Long-term Comparison of Carbon Sequestration Rates in Impounded and Naturally Tidal Freshwater Marsh Along the Lower Waccamaw River, South Carolina. *Wetlands* 33(5): 965-974.
- Hatala, J. 2013. Spatiotemporal Dynamics of Carbon Dioxide and Methane Fluxes from Agricultural and Restored Wetlands in the California Delta. PhD Dissertation, University of California, Berkeley, Spring 2013.
- Hatala, J. A., M. Detto, O. Sonnentag, S.J. Deverel, J. Verfaillie, D.D. Baldocchi. 2012. Greenhouse gas (CO<sub>2</sub>, CH<sub>4</sub>, H<sub>2</sub>O) Fluxes from Drained and Flooded Agricultural Peatlands in the Sacramento-San Joaquin Delta. *Agriculture, Ecosystems and Environment* 150: 1-18.
- Hatala, J.A., M. Detto, and D.D. Baldocchi. 2012. Gross Ecosystem Photosynthesis Causes a Diurnal Pattern in Methane Emission from Rice. *Geophysical Research Letters* 39(6), L06409.
- Kelly, M. 2014. Remotely-Sensed Indicators of N-Related Biomass Allocation in *Schoenoplectus acutus*. *PLOS One* 9(3): 1-9.
- Miller, R.L. and R. Fujii. 2009. Plant Community, Primary Productivity, and Environmental Conditions Following Wetland Re-establishment in the Sacramento-San Joaquin Delta, California. *Wetlands Ecology Management* 18(1): 1-16.
- Teh, Y. A., W.L. Silver, O. Sonnentag, M. Detto, M. Kelly, and D. D. Baldocchi. 2011. Large Greenhouse Gas Emissions from a Temperate Peatland Pasture. *Ecosystems* 14(2): 311-325.

### Subsidence Reversal

- Deverel, S.J., J.Z. Drexler, T. Ingrum, C. Hart. 2008. Simulated Holocene, Recent and Future Accretion in Channel Marsh Islands and Impounded Marshes for Subsidence Mitigation, Sacramento-San Joaquin Delta, California, USA. Project Final Report to the CALFED Science Program of the Resources Agency of California, 60 pp.
- Miller, R.L., M. Fram, R. Fujii, and G. Wheeler. 2008. Subsidence Reversal in a Re-established Wetland in the Sacramento-San Joaquin Delta, California, USA. *San Francisco Estuary and Watershed Science* 6(3): 1-20.

## Vegetation Management

- Moore, P. L., K. D. Holl, D. M. Wood. 2011. Strategies for restoring native riparian understory plants along the Sacramento River: Timing, shade, non-native control, and planting method. *San Francisco Estuary and Watershed Science*. 9 (2).
- River Partners. 2024. Year 5 (2024) Annual Vegetation Monitoring Report, Bacon Island Habitat Enhancement Project, San Joaquin County, California. In Progress. Prepared for California for Reclamation District No. 2028, Stockton, California.
- Stillwater Sciences. 2015. Twitchell Enhancement Plan. Prepared by Stillwater Sciences, Berkeley, California for Reclamation District 1601, Rio Vista, California.
- Stillwater Sciences. 2019. Draft Bacon Island Management Plan for Revegetation and Habitat Enhancement. Prepared by Stillwater Sciences, Berkeley, California for Reclamation District No. 2028 (Bacon Island), Stockton, California.
- Stillwater Sciences. 2021. Twitchell Island Habitat Enhancement Project: Year 5 Performance Monitoring. Technical Memorandum. Prepared by Stillwater Sciences, Berkeley, California for Reclamation District 1601, Rio Vista, California.
- Viers, J. H., A. K. Fremier, R. A. Hutchinson, J. F. Quinn, J. H. Thorne, and M. G. Vaghti. 2012. Multiscale patterns of riparian plant diversity and implications for restoration. *Restoration Ecology* 20: 160–169.
- Whipple, A. A., Grossinger, R. M., Rankin, D., Stanford, B., and Askevold, R. A. 2012. Sacramento-San Joaquin Delta historical ecology investigation: exploring pattern and process. Prepared for the California Department of Fish and Game and Ecosystem Restoration Program. A Report of SFEI-ASC's Historical Ecology Program, Publication #672, San Francisco Estuary Institute-Aquatic Science Center, Richmond, California.

## Waterfowl Habitat

- Ackerman, J.T., J.Y. Takekawa, D. L. Orthmeyer, J.P. Fleskes, J.L. Yee, and K.L. Kruse. 2006. Spatial Use by Wintering Greater White-Fronted Geese Relative to a Decade of Habitat Change in California's Central Valley. *Journal of Wildlife Management* 70(4): 965-976.
- Buler, J.J., W.C. Barrow, and L. Randall. 2010. An Assessment of Wintering Waterfowl Use of Wetland Reserve Program Restored Wetlands in California Using NEXRAD Weather Radar: Final Report. November 2010.
- Frazer, S. E., and G.W. Kramer. 1984. Assisting Private landowners with Wetlands Habitat Developments in California. CAL-NEVA Wildlife Transactions.
- Smith, W.D., Rollins, G.L., R. Shinn. 1995. A Guide to Wetland Habitat Management in the Central Valley. Prepared by California Department Fish and Game and California Waterfowl Association.

Whitcraft, C.R., B.J. Grewell, P.R. Baye. 2011. Estuarine Vegetation at Rush Ranch Open Space Preserve, San Francisco Bay National Estuarine Research Reserve, California. *San Francisco Estuary and Watershed Science* 9(3)..

Appendix D: Management Plan

Management Plan provided under separate cover.