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Addendum to the Suisun Marsh Habitat Management, Preservation, and Restoration Plan Final Environmental Impact Statement/ Environmental Impact Report

Chipps Island Tidal Habitat Restoration Project

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ACRONYMS AND ABBREVIATIONS

Acronym	Definition
ac	acre
APE	Area of Potential Effects
AQAP	air quality attainment plan
BiOps	Biological Opinions
BMP	Best Management Practice
^{o}C	Degrees Celsius
CAAQS	California Ambient Air Quality Standards
CAL FIRE	California Department of Forestry and Fire
CalRecycl	California Department of Resources Recycling and
CARB	California Air Resources Board
CCR	California Code of Regulation
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CDPH	California Department of Public Health
CDPR	California Department of Pesticide Regulation
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CGS	California Geological Survey
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	carbon monoxide
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Ranks
CSLC	California State Lands Commission
CVFPB	Central Valley Flood Protection Board
CVRWQC	Central Valley Regional Water Quality Control
CWA	Clean Water Act
DOGGR	Division of Oil, Gas, and Geothermal Resources
DPM	diesel particulate matter
DPR	Department of Parks and Recreation
DPS	distinct population segments

DTSC	Department of Toxic Substances Control
DWR	California Department of Water Resources
EC	electrical conductivity
EFH	Essential Fish Habitat
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
°F	Degrees Fahrenheit
FCAA	Federal Clean Air Act
FEMA	Federal Emergency Management Agency
FGC	Fish and Game Code
FHWA	Federal Highway Administration
fps	Foot or feet per second
ft	feet
GGERP	Greenhouse Gas Emissions Reduction Plan
GHG	greenhouse gas
HAP	Hazardous Air Pollutant
HSC	Health and Safety Code
HU	hydrogeologic unit
in	inch
LGP	low ground pressure
MBTA	Migratory Bird Treaty Act
MCL	maximum contaminant level
mi	mile
MPH	miles per hour
MSDS	material safety data sheets
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
NOP	Notice of Preparation
NPDES	National Pollution Discharge Elimination System
NPS	National Park Service
NPPA	Native Plant Protection Act
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places

NTU	Nephelometric Turbidity Units
NWIC	Northwest Information Center
O_3	ozone
OHP	Office of Historic Preservation
OPR	Office of Planning and Research
OSHA	Occupational Safety and Health Administration
Pb	lead
PM_{10}	particulate matter less than 10 microns in diameter
$PM_{2.5}$	particulate matter less than 2.5 microns in
ppt	parts per thousand water
PRC	Public Resources Code
RCRA	Resource Conservation and Recovery Act
RHA	Rivers and Harbors Act
RM	River mile
ROG	Reactive Organic Gases
RV	recreational vehicle
RWQCB	Regional Water Quality Control Board
SDWA	Safe Drinking Water Act
SIP	State Implementation Plan
SHPO	California State Historic Preservation Officer
SMARA	Surface Mining and Reclamation Act
SO_2	sulfur dioxide
SR	state route
SWA	State Wildlife Area
SWP	State Water Project
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	Toxic Air Contaminant
TDS	total dissolved solids
TMDL	Total Maximum Daily Load
TSCA	Toxic Substances Control Act of 1976
TTLC	total threshold limit concentration
USACE	U.S. Army Corps of Engineers
USBR	U.S. Bureau of Reclamation
USC	United States Code
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

1 INTRODUCTION

1.1 Suisan Marsh Plan Background

The *Suisun Marsh Habitat Management, Preservation, and Restoration Plan,* referred to as the Suisun Marsh Plan (SMP), was finalized in 2011 (U.S. Bureau of Reclamation et al. 2011). The SMP balances the benefits of tidal wetland restoration with wetland management and other land uses in the Suisun Marsh (Marsh), by evaluating alternatives that provide an acceptable change in Marsh-wide land uses, such as salt marsh harvest mouse habitat, managed wetlands, public use, and upland habitat. The SMP incorporates existing science and information developed through adaptive management. The SMP was prepared by the Suisun Principal Agencies, a group of agencies with primary responsibility for Suisun Marsh management. The Suisun Principal Agencies include the U.S. Fish and Wildlife Service (USFWS), U.S. Bureau of Reclamation (Reclamation), California Department of Fish and Wildlife (CDFW), California Department of Water Resources (DWR), National Marine Fisheries Service (NMFS), Suisun Resource Conservation District (SRCD), and Delta Stewardship Council (DSC). These agencies consulted with other participating agencies, including the U.S. Army Corps of Engineers (USACE), San Francisco Bay Conservation and Development Commission (BCDC), Regional Water Quality Control Board (RWQCB), and State Water Resources Board (SWRCB), to develop the SMP.

DWR served as a responsible agency under the California Environmental Quality Act (CEQA) for the SMP Environmental Impact Statement/Environmental Impact Report (EIS/EIR) and will rely on the SMP EIS/EIR in acting on the aspects of the SMP (i.e., the original project under CEQA) that require DWR's approval. DWR is the lead agency for actions taken as part of this Addendum to the SMP EIS/EIR, for the Chipps Island Tidal Habitat Restoration Project (Proposed Project), in compliance with CEQA and Section 15164 of the State CEQA Guidelines, to cover minor modifications to, and the resulting environmental effects of the project evaluated in the SMP EIS/EIR.

The SMP is intended to guide near-term and future actions related to restoring tidal wetlands and managed wetland activities. The SMP is a comprehensive plan which addresses various conflicts regarding the use of Marsh resources, with a focus on achieving an acceptable multi-stakeholder approach to restoration of tidal wetlands and management of wetlands and their functions. Thus, the SMP is a flexible, science-based management plan for the Marsh, consistent with Suisun Marsh Preservation Agreement (U.S. Bureau of Reclamation et al [1987, 2005]) and the CALFED Bay-Delta Program, the

predecessor of the Delta Stewardship Council. It also sets the regulatory foundation for future actions in the Marsh. The SMP reflects the following four major Marsh resources and functions, which are linked directly to the purpose and objective of the SMP EIS/EIR:

- **Habitat and Ecological Processes –** Restore lost tidal wetlands by implementing the Ecosystem Restoration Program Plan (ERPP) restoration target for the Suisun Marsh ecoregions (5,000 to 7,000 acres of tidal marsh), and by protecting and enhancing 40,000 to 50,000 acres of managed wetlands.
- **Public and Private Land Use –** Maintain the heritage of waterfowl hunting and other recreational opportunities and increase the surrounding communities' awareness of the ecological values of Suisun Marsh.
- **Levee System Integrity –** Maintain and improve the Suisun Marsh levee system's integrity to protect property, infrastructure, and wildlife habitats from catastrophic flooding.
- **Water Quality –** Protect and, where possible, improved water quality for beneficial uses in Suisun Marsh, including estuarine, spawning, and migrating habitat uses for fish species, as well as for recreational uses and associated wildlife habitat.

These resources and functions are interrelated and interdependent, and to some extent, objectives of all SMP actions. For example, restoration of certain properties (i.e., the Proposed Project) may help protect or improve water quality; habitat and ecological processes would help achieve private and public land use objectives. Based on these relationships, implementation of the SMP is expected to contribute to meeting each objective in parallel over the 30-year planning period.

The Final SMP EIS/EIR was completed and the EIR was certified on December 22, 2011 (State Clearinghouse No. 2003112039; Reclamation et al. 2011). USFWS and Reclamation served as joint lead agencies under the National Environmental Policy Act (NEPA) and signed a Record Decisions for the SMP in April 2014. The California Department of Fish and Wildlife (CDFW; formerly California Fish and Game [DFG]) served as lead agency under CEQA.

Multiple agencies were involved in preparing the SMP EIS/EIR, including all Suisun Principal Agencies. The EIS/EIR evaluated the SMP and documented all potentially significant environmental impacts that could result from implementing the SMP and activities associated with managed wetlands and tidal restoration.

The SMP EIS/EIR describes the agencies involved in preparing the SMP and the SMP EIS/EIR as well as those expected to use the SMP EIS/EIR. The agencies assumed roles and responsibilities either through their agency's authority or through their participation in the NEPA and CEQA process. These agencies included:

- USFWS and Reclamation as NEPA lead agencies, responsible primarily for preparing and certifying the EIS;
- NMFS and USACE as NEPA cooperating agencies, responsible primarily for providing special expertise and holding jurisdiction over the project; and
- CDFW as CEQA lead agency and trustee agency; responsible primarily for preparing and certifying the EIR and managing certain resources that are held in trust for the citizens of California. Table 1-1 lists additional responsible and trustee agencies.

The SMP EIS/EIR provided a programmatic evaluation of restoration of tidal habitat in the Marsh and associated activities regarding a wide variety of environmental resources. The SMP developed environmental commitments for implementation during restoration activities in the Marsh. These environmental commitments, where applicable, will be implemented as part of the Proposed Project. Applicable Environmental Commitments are outlined in Chapter 3, with additional details provided in Appendix A, *"Environmental Commitments and Mitigation Measures*".

The SMP EIS/EIR disclosed that impacts on most environmental resources from tidal restoration activities either were less than significant or did not occur (i.e., no impact). To reduce potentially significant impacts to less-than-significant, mitigation was incorporated in the SMP EIS/EIR with respect to the effects of restoration activities on environmental resources, as shown in Table 1-2. The SMP EIS/EIR found that impacts on air quality and utilities would be less than significant with proposed mitigation.

Table 1-1. Additional Responsible and Trustee Agencies

Agency	Jurisdiction
Responsible Agencies	
California Department of Fish and Wildlife	Impacts on state-listed species
California Office of Historic Preservation	Historic and cultural resources
California Department of Water Resources	Suisun Marsh Preservation Agreement funding, water management facilities
Suisun Resource Conservation District	Managed wetlands in Suisun Marsh
Regional Water Quality Control Board	Pollutant discharges to water bodies
San Francisco Bay Conservation and Development Commission	Development in the Suisun Marsh Primary Management Area as defined by the Suisun Marsh Protection Plan
Trustee Agency	
State Lands Commission	State-owned “sovereign” lands

Notes:
Trustee Agency: One that has jurisdiction over certain resources that are held in trust for citizens of California but does not necessarily have legal authority with respect to approving or carrying out the project.
Responsible Agency: One that has responsibility for carrying out or approving the project.

For cultural resources, the analysis determined that restoration activities could significantly and unavoidably affect known and as-yet-unidentified cultural resources by damaging or destroying them. Although mitigation measures were included in the SMP EIS/EIR (as summarized in Table 1-2), the analysis determined that the measures would not reduce the impacts to a less-than-significant level. Thus, impacts on cultural resources were identified as significant and unavoidable in the SMP EIS/EIR.

1.2 Addendum

Section 15164 of the State CEQA Guidelines states that a lead agency or responsible agency may prepare an addendum to a previously certified EIR if some changes or additions are necessary, but none of the conditions calling for preparation of a subsequent EIR have occurred or will occur.

The Proposed Project (described in Chapter 2) would not result in any significant or potentially significant environmental effects and would not substantially increase the severity or intensity of previously identified effects.

In addition, no new information of substantial importance has arisen showing that:

- ► the Proposed Project modifications would have new significant or potentially significant effects;
- ► the Proposed Project modifications would have substantially more severe effects than those analyzed in the SMP EIS/EIR;
- ► mitigation measures or alternatives previously found to be infeasible, in fact would be feasible; or
- ► mitigation measures or alternatives that are considerably different from those analyzed in the SMP EIS/EIR would substantially reduce one or more significant or potentially significant effects on the environment.

Table 1-2. Impacts of Restoration Project by Resource Area of the Proposed Project

Resource	Final SMP EIS/EIR Environmental Commitments	Proposed Project Mitigation Measures
Water Supply and Management		
Water Quality	EC-1:EC-4, EC-9	
Geology and Groundwater	EC-1:EC-4	
Flood Control and Levee Stability	EC-1, EC-3	
Sediment Transport	EC-1, EC-3, EC-4	
Transportation and Navigation	EC-1, EC-2	
Air Quality	EC-10, EC-10.1: EC-10.3	AQ-MM-2: Reduce Construction NO_X Conditions AQ-MM-3: Implement All Appropriate BAAQMD Mitigation Measures

Resource	Final SMP EIS/EIR Environmental Commitments	Proposed Project Mitigation Measures
Noise	EC-1, EC-2, EC-5	
Climate Change		
Fish	EC-1:EC-4, EC-9, EC-13, EC-14, EC-14.1, EC-15	
Recreation	EC-1, EC-7	
Vegetation and Wetlands	EC-1, EC-2, EC-7, EC-13, EC-13.1:EC-13.4, EC-13.4a, EC-13.4b, EC-14, EC-14.1, EC-15	
Wildlife	EC-1,:EC-3, EC-13, EC-13.1:EC-13.4, EC-13.4a, EC-13.4b, EC-14, EC-14.1	
Land Use		
Visual Aesthetic Resources	EC-1, EC-11	
Cultural Resources	EC-12, EC-16	CUL-MM-2: Evaluate Previously Recorded Cultural Resources and Fence NRHP- and CRHR-Eligible Resources prior to Ground-Disturbing Activities CUL-MM-5: Conduct Cultural Resource Inventories and Evaluations and Resolve Any Adverse Effects
Public Health and Environmental Hazards		
Growth-Inducing Impacts, including Population and Housing	EC-1, EC-2, EC-4, EC-8, EC-9	
Cumulative Impacts		

2 PROJECT DESCRIPTION

2.1 Introduction

The California Department of Water Resources (DWR) is planning tidal restoration of a combined 910 acres at Chipps Island within the eastern Suisun Marsh (Figure 2-1), a priority area in the 2008 United States Fish and Wildlife Service (USFWS) Biological Opinion Delta Smelt Crediting Decision Model (USFWS, 2008). The Proposed Project will restore tidal connection with interior portions of the marsh plain to promote the exchange of water, nutrients, fish food, and sediment, providing valuable nutrients to sustain the marsh and its valuable habitat for sensitive and special-status species.

Returning the Project Site to natural tidal influence would restore previously inaccessible managed marsh into rearing and/or food production habitat for Delta smelt (*Hypomesus transpacificus*) (Federally Threatened/California Endangered), longfin smelt (*Spirinchus thaleichthys*) (Candidate for federal listing/California Threatened), North American Green Sturgeon (*Acipenser medirostris*) (Federally Threatened), and salmonids including Central Valley DPS steelhead (*Oncorhynchus mykiss*) (Federally Threatened), Central California coast DPS steelhead (*Oncorhynchus mykiss*) (Federally Threatened), and multiple ESUs of Chinook Salmon (*Oncorhynchus tshawytscha*): Sacramento River winter-run Chinook Salmon (Federally Endangered/State Endangered), Central Valley spring-run Chinook Salmon (Federally Threatened/State Threatened), and Central Valley fall-/late fall-run Chinook Salmon (California species of concern).

The Proposed Project would contribute to meeting the purpose and objectives of the Suisun Marsh Plan (SMP) and is consistent with the evaluation in the SMP EIS/EIR. The Proposed Project would also partially fulfill the 8,000-acre tidal restoration obligations of the Fish Restoration Program Agreement (FRPA) (DWR, CDFG, USFWS, NMFS, 2012), satisfying the requirements of the USFWS 2008 Biological Opinion for Delta Smelt (USFWS 2008 BiOp) (USFWS, 2008), the 2009 NMFS Biological Opinion for the Coordinated Operations of the State Water Project (SWP) and the Federal Central Valley Project (CVP) (NMFS 2009 BiOp) (NMFS, 2009), and the Longfin Smelt Incidental Take Permit for the SWP (2009 LFS ITP) (CDFG, 2009). The 2008 USFWS BiOp Reasonable and Prudent Alternative (RPA) 4 and 2009 NMFS BiOp RPA 1.6.1 were carried forward as baseline conditions in the USFWS Biological Opinion for the Reinitiation of Consultation on the Coordinated Operations of the Central Valley Project and the

State Water Project (2019 USFWS BiOp) and the NMFS Biological Opinion on Long Term Operation of the Central Valley Project and the State Water Project (2019 NMFS BiOp). Additionally, the Incidental Take Permit for Long-Term Operation of the State Water Project in the Sacramento-San Joaquin Delta (2020 LTO ITP) carries forward the 8,000-acre tidal habitat restoration requirement and an additional 396.3 acres of tidal habitat restoration as compensatory mitigation for the covered activities.

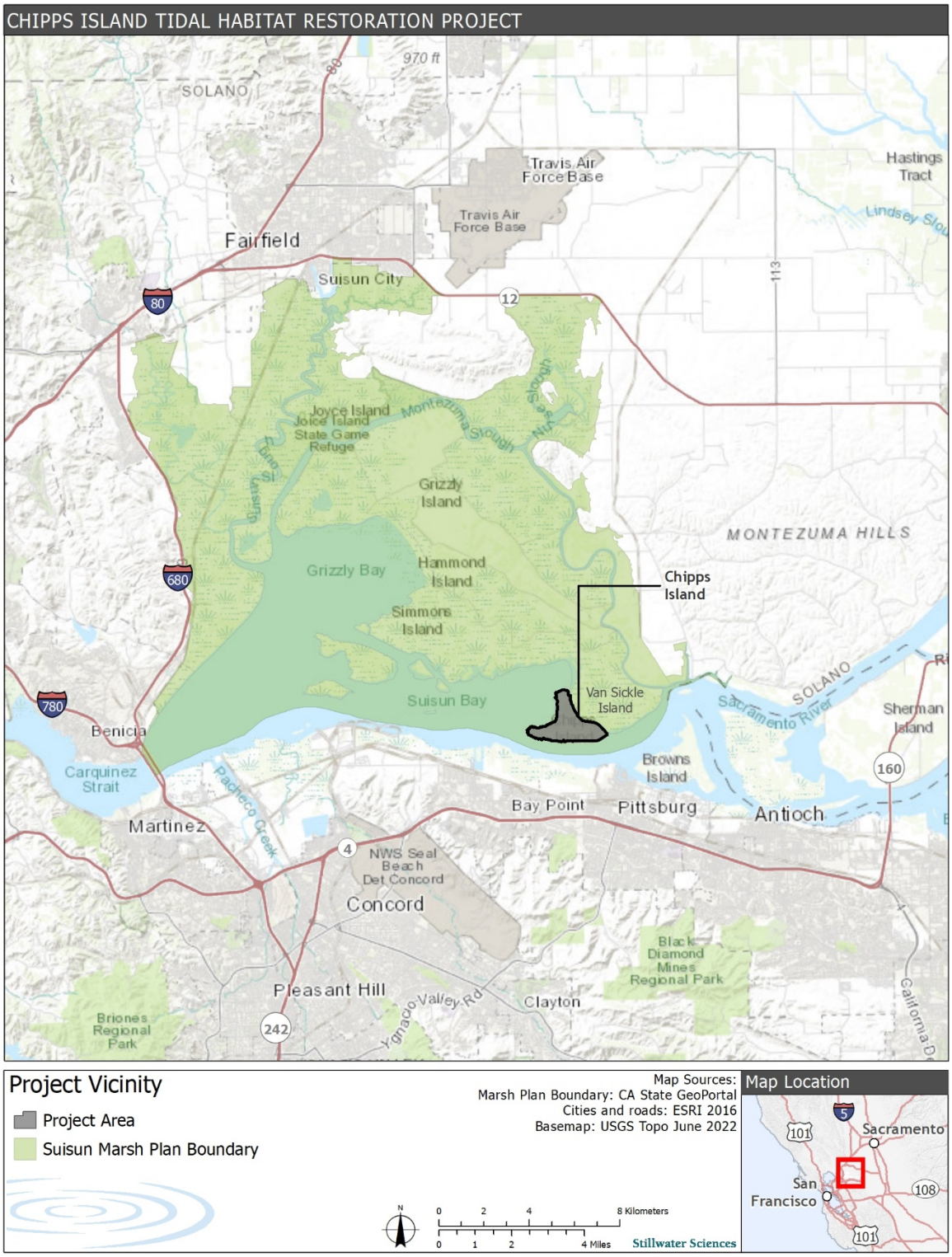

Figure 2-1. Chipps Island location within the Suisun Marsh Plan area.

2.2 Project Location

Located in the southeastern edge of Suisun Marsh, in Solano County, California, Chipps Island is within the southeastern portion (Region 4) of the SMP (Figure 2-1). The Proposed Project is bordered by Honker Bay to the west, the Sacramento River to the south, and Spoonbill Creek to the northeast. The nearest public boat ramp is located at the Pittsburg Marina to the south, and the nearest land to Chipps Island is Van Sickle Island across Spoonbill Creek.

2.3 Project Site Background and Ongoing Site Management

As shown in Figure 2-2, Chipps Island is composed of three separate parcels, historically managed as individual duck clubs: the north parcel (#915 – Chipps Island Shoot and Social Club) with approximately 362-acres of diked waterfowl hunting area with seasonal and permanent non-tidal wetlands; the east parcel (#910 – Dante Farms) with approximately 303-acres of tidal marsh with some tidal connectivity through culverts and openings in the levees; and the west parcel (#914, formerly owned by Metropolitan Water District) with approximately 243-acres of tidal marsh with tidal connectivity though eroded levees. All parts of the island have been used historically for waterfowl hunting and contain permanent sloughs, ponds, and ditches, as well as remnant infrastructure and debris from past land uses.

Around 1873, a cannery affiliated with Sacramento River Packing was located on Chipps Island until the salmon fisheries closed due to an accumulation of excess mining debris (Meyer et al. 2013). Later, duck hunting was noted on Chipps Island in a 1907 map of the region with “Chipps Lodge” labeled on the southeastern-most corner of the island (Punnett Brothers 1907). From about 1913 to 1957, the Oakland Antioch & Eastern Railroad, later named Sacramento Northern Railroad, had a spur line across Chipps Island to connect trains traveling between Oakland and Sacramento. A ferry was used to transport the entire train from West Pittsburg to Chipps Island and beyond. Waterfowl hunting has occurred on and around Chipps Island for many decades. Private duck clubs have owned various portions of the Project Site and developed diked hunting areas. As discussed further below, remnants of historical agriculture and more recent hunt clubs can be seen today.

Existing features on Chipps Island currently include bulkhead and corrugated metal pipe-mounted water control structures (WCS) through perimeter levees; three buildings; two abandoned shipping containers, outbuildings, equipment, pilings, and power poles; and a large metal frame associated with a former lodge of the Chipps Island/Delta Shoots (ownership no. 915), which appears to have

burned during the winter of 2013. Bridge footings from the historic Oakland Antioch & Eastern railroad bridge across Spoonbill Creek remain, as well as the berm of the former railroad bed separating the Northern and Eastern Parcels of the island. Currently, no track or other railroad infrastructure remain.

Consistent with permitted management practices of historic duck club uses, DWR has and continues to undertake interim management activities within the managed wetlands and perimeter levees of the north parcel. Activities covered by the existing US Army Corps of Engineering (USACE) Section 404 Regional General Permit 3, Permit Number SPN-2012-00258 (RGP3) include localized repair of eroded levee locations, removal and/or repair of WCSs and bulkheads, clearing of existing interior ditches, treatment and removal of invasive vegetation, and ongoing water management (flooding, draining, and/or circulation).

2.4 Project Goals and Objectives

The goal of the Proposed Project is to benefit native fish species by restoring unrestricted tidal connectivity to the interior of Chipps Island and to create open water and tidal wetland habitats on the site. The Proposed Project includes the following objectives, which are consistent with the SMP:

- Enhance habitat appropriate for rearing salmonids, Delta Smelt, Longfin Smelt, and other native fish species
- Enhance available productivity for native fish within and adjacent to the restoration site
- Provide connectivity to the marsh plain
- Avoid promoting conditions, such as invasive species infestations, that are in conflict with the above project objectives

The Proposed Project is consistent with the restoration activities analyzed in the SMP and the environmental evaluations in the SMP EIS/EIR. Table 2-1 summarizes the consistency of the Proposed Project with the SMP's purpose and objectives.

Table 2-1. Proposed Project Consistency with Suisun Marsh Plan Purpose and Objectives

Suisun Marsh Plan Purpose and Objectives	Proposed Project
Habitats and Ecological Processes-Implement the CALFED ERPP restoration target for the Suisun Marsh ecoregion (5,000 to 7,000 acres of tidal marsh) and protect and enhance 40,000 to 50,000 acres of managed wetlands.	The Proposed Project would restore approximately 362 acres of tidal marsh habitat.
Public and Private Land Use-Maintain the heritage of waterfowl hunting and other recreational opportunities and increase the surrounding communities' awareness of the ecological values of Suisun Marsh.	The Proposed Project would maintain the heritage of waterfowl hunting. Tidal areas below the ordinary high-water mark are public access areas.
Levee System Integrity-Maintain and improve the Suisun Marsh levee system integrity to protect property, infrastructure, and wildlife habitats from catastrophic flooding.	The Proposed Project design has been modeled to avoid potentially adverse effects, such as erosion, on the integrity of levees bordering Van Sickle Island along Spoonbill Creek.
Water Quality-Protect and, where possible, improve water quality for beneficial uses in Suisun Marsh, including estuarine, spawning, and migrating habitat uses for fish species, as well as recreational uses and associated wildlife habitat.	The Proposed Project design has been modeled to ensure no adverse changes in salinity and the protection of water quality.

Chipps Island has been identified as a priority restoration project under the California EcoRestore program and would partially fulfill the 8,396-acre tidal restoration obligations of the 2010 Fish Restoration Program Agreement (FRPA), including updated requirements established under Biological Opinions by the NMFS (2019) the USFWS (2019) for Long-Term Operations of the State Water Project (SWP) and the Federal Central Valley Project (CVP). The Proposed Project would also contribute to restoration of 1,196 acres of habitat (800 acres of mesohaline habitat and 396.3 acres of tidal wetland habit) required under the CDFW (2020) Incidental Take Permit No. 2081-2019-066-00 to benefit four state listed species, including spring-run Chinook, winter-run Chinook, Delta smelt, and longfin smelt.

Additionally, the Proposed Project will address agreements between DWR and the U.S. Army Corps of Engineers (USACE) from August 28, 2017, and between DWR and the Bay Conservation and Development Commission (BCDC) from August 17, 2017, to resolve a 2011 Notice of Violation (NOV) for the unauthorized placement of a sunken shipping container in Spoonbill Creek during repairs of a levee breach by the previous landowner (Appendix E). The placement of the sunken shipping container in Spoonbill Creek was determined by the USACE to not comply with the terms and conditions outlined in the Department of the Army, Regional General Permit 3 for Activities in Suisun Marsh (RGP3), so it was in violation of Section 404 of the Clean Water Act (33 U.S.C. § 1344) and Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. § 403). The Proposed Project will also meet compensatory mitigation requirements addressed in an agreement between DWR and the San Francisco Bay Regional Water Quality Control Board from October 13, 2020 to resolve an internal levee NOV for loss of wetlands (Appendix E). The Proposed Project will remove the unauthorized fill and potential navigation hazard in Spoonbill Creek posed by the sunken shipping container.

2.5 Description

The Proposed Project would restore tidal hydrology to approximately 362 acres as well as preserving and enhancing approximately 546 acres of existing tidal marsh habitat on Chipps Island (Figure 2-2). To maximize achievement of the objectives described above, the Proposed Project has been developed through an iterative and collaborative process between FRP team members, regional experts, resource agency biologists, the public, and adjacent landowners. Restoration planning included development and evaluation of ten conceptual alternatives developed between September 2018 and February 2022 through a combination of best professional judgement informed by existing DRERIP and IEP ecosystem conceptual models (DRERIP, IEP), hydrodynamic modeling (RMA 2023), GIS analyses, and preliminary design calculations. The selected alternative, previously referred to as Option 1C in RMA (2023) [Appendix C] is shown in Figure 2-2 below.

Figure 2-2. Proposed Project.

The Proposed Project would deepen several existing drainage ditches as well as create new channels in a meandering channel form, increasing channel edge habitat and complexity to mimic natural tidal channels in the Project vicinity. All channel excavation in the north parcel would be conducted while it is dewatered or through use of amphibious and low ground pressure (LGP) equipment if dewatering is not feasible. See Table 2-2 for detailed channel specifications. To accelerate development of a dendritic channel network connecting the marsh plain to the primary channels, shallow “starter” channels would be partially excavated in strategic locations. All starter channels would be 15 feet wide and range from 50-175 feet long. To encourage natural channel formation through incision and headward erosion by tidal flows, clearing and grubbing of preferred pathways may be extended from these starter channels into isolated portions of the marsh plain, as shown in Figure 2-4.

Following channel excavation, exterior levees of the north parcel would be breached in multiple locations to reintroduce full tidal exchange to the north parcel (Figure 2-2), including three breaches along Honker Bay to the west, three breaches along Spoonbill Creek to the east, a breach connecting the north and east parcels, as well as a breach connecting the north parcel to the Sacramento River to the south. Breaches would range between 25 to 75 feet at four-foot elevations, with complete breach specifications in Table 2-2. In addition to channel excavation to the interior of the west parcel, three remaining WCS in the east parcel would be removed, with one being plugged and the other two remaining unplugged to increase tidal exchange between the site interior and the surrounding waterways. Two WCS in the north parcel would be removed and remain unplugged to also increase tidal connectivity.

2.6 General Construction Methods and Activities

The Proposed Project (Figure 2-2) consists of a suite of actions to prepare the site for restoration, construct restoration features, and restore tidal action to the site. Restoration would consist of site preparation, excavation of the constructed channel network, filling of borrow pits and abandoned drainage ditches to match the existing marsh plain, planting and revegetation, breaching of interior and exterior levees, as well as long-term site management. Table 2-2 provides estimated material quantities and dimensions for the restoration activities and features of the Proposed Project. The following sections describe the methods and activities associated with the construction and long-term management of the Proposed Project.

Table 2-2. Estimated Material Quantities and Dimensions

No.	Restoration Activities and Proposed Project Features	Units	Quantities
1	Temporary Ramps and Roads		
	Ramps		
	Area	ac	0.03
	Volume of fill	cy	648
	Roads		
	Area	ac	4.89
	Volume of fill	cy	7,888
2	Excavate constructed channel network		
	Area	ac	4.96
	Excavation Volumes		
	Tapered connections at breach locations	cy	2,744
	Channel network	cy	27,435
	Channel 1	cy	7,156
	Channel 2	cy	6,933
	Channel 3	cy	2,133
		cy	333
	Channel 4	cy	2,113
	Channel 5	cy	7,467
	Channel 6	cy	1,300
	Starter channels	cy	615
	Channel Lengths		
	Channel 1	ft	1,150
	Channel 2	ft	1,950
	Channel 3	ft	600
		ft	500
	Channel 4	ft	620
	Channel 5	ft	1,200
	Channel 6	ft	450
	Channel Widths		
	Channel 1	ft	40
	Channel 2	ft	32
	Channel 3	ft	32
		ft	20
	Channel 4	ft	31
	Channel 5	ft	40
	Channel 6	ft	25
	Channel Depths		
	Channel 1	ft	6

No.	Restoration Activities and Proposed Project Features	Units	Quantities
	Channel 2	ft	4
	Channel 3	ft	4
		ft	1
	Channel 4	ft	4
	Channel 5	ft	6
	Channel 6	ft	6
3	Block or fill remnant agricultural ditches		
	Length	ft	1,860
	Area	ac	5.23
	Volume of fill (estimated)	cy	20,156
4	Remove Access Roads and Ramps		
	Area	ac	4.92
	Excavation Volume	cy	8,536
5	Remove Water Control Structures, Remove Shipping Container		
	Quantity	#	4
	Excavation Volume	ac	0.06
	Total volume of debris (hauled to landfill)	cy	2,380
6	Breach Exterior levees		
	No of Breaches	#	7
	Total Area	ac	0.12
	Excavation volume (above MHHW)	cy	1,475
	Excavation volume (below MHHW)	cy	3,824
	Breach width		
	Breach 1	ft	55
	Breach 2	ft	37
	Breach 3	ft	71
	Breach 4	ft	57
	Breach 5	ft	37
	Breach 6	ft	81
	Breach 7	ft	43
	Breach 8	ft	43

Pre-construction site preparation

Site preparation for the Proposed Project includes continued onsite water management, clearing along expected construction areas, structure removal, creation of staging and stockpile areas, and creation of interior access ramps and roads. Figure 2-3 illustrates site preparation elements and Figure 2-4 illustrates clearing areas. Additional site preparation activities are discussed below.

Figure 2-3. Site Preparation. The northern staging and stockpile area will encompass less than five acres and will be located within the larger area indicated on this map.

Figure 2-4. Clearing areas.

Dewatering and water management, for the purpose of creating suitable conditions for Proposed Project construction

Prior to tidal restoration, the interior restoration areas would be drained and/or pumped dry, consistent with historical annual duck club operations. To the extent feasible, passive dewatering of surface waters would rely on the existing network of drainage ditches and tidal flap-gates installed at existing WCSs. All, or portions of, the existing remnant agricultural drainage network would be cleared of vegetation and rehabilitated to improve site drainage, as needed. Temporary coffer dams created with sheet piles, earthen material, or other temporary fill may be necessary to facilitate dewatering for project construction.

Following passive dewatering during interim site management, active dewatering would be undertaken using drainage pumps installed at low points within the Proposed Project site. Temporary support platforms may be constructed using on-site soils supported by sheet piles, as necessary. As no electrical service remains to Chipps Island, all pumps would be diesel powered, or electrically powered using a diesel generator. Diesel fuel would either be stored at an on-site staging area or on a floating dock or support barge moored adjacent to Chipps Island. Once the pumps are no longer needed, the pump platform(s) would be removed, and any temporary fill material would be re-used on-site. All equipment and temporary sheet piles would be removed and transported off-site following restoration construction.

Debris and old infrastructure removal

DWR would remove and properly dispose of any man-made items, remnant infrastructure, or debris that would negatively affect the restoration sites (Figure 2-3). Remnant infrastructure associated with historic agriculture and utilities would be removed prior to ground disturbing activities (i.e., abandoned structures and equipment, debris, foundations, and pilings). Some existing WCS may be removed as part of construction or excavation of planned breaches. Additionally, remnant pilings would be removed at several locations throughout the site during the in-water work window. Pilings would likely be removed using horizontal snapping by pushing or pulling the pile laterally to break off the pile at or near the mudline. Debris would be dismantled on site to the extent feasible, removed, and transported to appropriately licensed waste facilities by barge and/or truck. In some cases, removal of debris and remnant infrastructure may require temporary access by construction equipment in areas supporting tidal marsh vegetation. When that access is required, marsh mats would be employed to limit damage to marsh vegetation.

Creation of temporary staging areas

The Proposed Project would create temporary staging areas for storage of materials and equipment and stockpiling required for construction (Figure 2-3). Because of challenging site access, multiple staging areas would be established in upland areas and in dewatered portions of Chipps Island and an additional staging and stockpile area would be established on the adjacent Van Sickle Island. Additional staging areas may also be established on barges set along the exterior levee. One staging and stockpile area would be located on the northern end of the island, the second on the eastern levee along Spoonbill Creek near the end of the railroad berm, and a third on the southern end of the railroad berm. An abandoned shipping container located at the southern staging area and an abandoned structure located along the staging area on Spoonbill Creek would be removed during site preparation activities.

Temporary access ramps and/or roads would be created using a combination of import and on-site materials to facilitate equipment entering and exiting Chipps Island (via Spoonbill Creek) and allow access to low elevation areas in the interior of the island. For example, portions of the northern staging area and areas within existing interior ditches may be used as a temporary soil source for creating elevated areas above MHHW as well as for the construction of temporary roads and ramps. Portions of the 3.3-mile North Parcel levee will be used as a haul route for material and equipment transportation (Figure 2-3).

Staging areas would incorporate appropriate BMPs for erosion control, including reseeding (if applicable). Prior to breaching, staging areas, temporary buildings, access ramps and/or roads would be removed. Excess soils would be used to fill any remaining borrow areas along the marsh plain, placed along the existing levee berms, or at designated stockpile locations at upland elevations. Excess soils may be used to repair the staging area, access roads, and adjacent upland levee on Van Sickle Island should any damage occur from project activities to existing or better condition.

Clearing and invasive plant species management

Prior to ground disturbing activities, vegetation in the Proposed Project area that is unable to be removed under the interim management would be cleared (Figure 2-4). Invasive vegetation, with a focus on *Phragmites australis*, would be treated in accordance with a proposed invasive vegetation management plan IVMP (Appendix B), including herbicide recommendations by a pest control advisor (PCA).

Vegetation clearing would occur within a 25 ft buffer surrounding any areas with planned ground disturbance. Areas targeted for excavation that contain mono-specific stands of native emergent aquatic vegetation (*Schoenoplectus spp. and Typha spp.*) vegetation may serve as source material for replanting. As feasible, salvaged native vegetation would be relocated to designated nursery areas within low-lying areas within Chipps Island when feasible, with irrigation supplied by water tanks or natural hydrology.

Excavate constructed channel network

Following site preparation, a network of tidal channels would be constructed by widening portions of the existing agricultural ditches, excavation of new channels, as well as excavation of shallow "starter" channels to enhance tidal connectivity and encourage natural formation of low order channels within the marsh plain (Figure 2-2). Soil moisture conditions and distances from staging areas would determine use of amphibious excavators, LGP or standard excavators.

The excavated channels would be constructed at approximately 2.5:1 side slope, with channel widths of approximately 40-45 ft at the marsh plain elevation (approximately 4 to 5 ft NAVD88), and channel bottom inverts generally excavated to subtidal elevations (approx. -2 ft NAVD88). Any excavated materials not used for construction of temporary ramps and staging areas or as fill materials within remnant agricultural ditches, would be side-casted within adjacent areas at intertidal elevations (5 to 6 ft NAVD88), placed along the existing levee berms, or at designated stockpile locations at upland elevations. In addition, a wood piling for water quality monitoring will be installed in Channels 2 or 3 prior to levee breaching.

Block or fill remnant agricultural ditches and borrow pits

To the extent feasible, existing agricultural drainage channels would be maintained to facilitate site drainage during construction as well as during daily low tides following restoration. Remnant agricultural ditches and borrow pits that may become tidally disconnected (i.e., ponded) during low tide would be filled with excavated on-site materials and graded to the elevation of the existing marsh plain (approx. 4 to 5 ft NAVD88) (Figure 2-2).

Planting and revegetation

Native wetland vegetation may be planted along the excavated channel network, within filled drainage ditches, and other areas providing open-water edge habitat following breaching of the exterior levees. To the extent feasible, areas for replanting of wetland vegetation would use native wetland vegetation materials

salvaged from the Project Site. *Schoenoplectus* spp. and *Typha* spp. may be planted in cleared areas where higher wind fetch and erosion might occur.

Following construction, areas used for temporary nurseries would be returned to previously existing conditions. Hydro-seeding of native herbaceous species may be used for erosion control of bare soil along levee slopes. In addition, planting of native vegetation appropriate to high marsh and/or upland elevations may be conducted along levee roads and staging areas disturbed during construction. Specific locations and extents of revegetation zones, plant species composition, planting methods, and any initial irrigation requirements would be determined during final design.

Remove access road and ramps

Following completion of site excavation and planting, temporary access ramps, roads, and temporary staging areas would be removed and regraded to design elevations. Any land-side excavation connecting breach locations to the excavated channel network would be completed prior to removal of access roads and ramps. Excess materials would either be side casted at intertidal elevations (5-6 ft NAVD88) or transported to upland and stockpile locations.

Removal of water control structures and sunken shipping container

The Proposed Project would remove any remaining WCSs on Chipps Island timed to limit in-water work (e.g., interior WCSs removed first) as well as avoiding stranding equipment or fragmenting site access along levee roads. All parts of the WCSs would be removed with heavy machinery (e.g., excavator). WCS parts may include culverts, flashboard risers, flap/screw gates, bulkheads, and/or a wheel to control flow.

Removal of WCSs that cannot be accomplished from the land side would be done from the water side and timed to coincide or follow planned breaches during applicable in-water work windows. Removal of water control structures may require temporary access by construction equipment in areas supporting tidal marsh vegetation. When that access is required, marsh mats would be employed to limit damage to marsh vegetation.

To resolve a 2011 USACE Notice of Violation for the unauthorized placement of a sunken shipping container in Spoonbill Creek, the Proposed Project will remove the potential navigation hazard prior to excavation of a levee breach at this location. Removal may require a barge, and access by underwater divers to cut open the container, with sediment removed around and within the container

by suction dredging and discharged to the site interior for settling. Dredging will only be done in approved in-water work windows (August 1 to November 30) and will include deployment of a silt curtain in Spoonbill Creek to minimize turbidity. Once the shipping container is empty and can be accessed safely, the container will be cut into sections for removal by crane and disposed at a local landfill.

Breach exterior levees

Excavators will be used to construct exterior breaches with widths of approximately 40–60 ft, side slopes of 2:1, and invert elevations to match the connecting excavated channels. The material excavated from the levee would be handled in one or more of the following ways: (1) placed within the site interior near the levee breach at intertidal elevations (approx. 5–6 ft NAVD88), (2) spread on the top or interior side slopes of the levee as reinforcement, or (3) placed at upland stockpile locations.

In-water work (i.e., exterior levee breaching) would be performed from 3 hours before to 3 hours after low tide to the extent feasible to minimize impacts on fish and water quality. To allow levee breaching to continue throughout a tidal cycle, a silt curtain may be placed across the opening to reduce sedimentation and siltation into the surrounding waterways.

Stockpile stabilization and ongoing vegetation management

After completion of restoration activities, any excess material from excavation or grading would be sidecast in mounds to create bathymetric diversity at intertidal elevations or placed on the disturbed upland levee tops and other upland staging areas for future levee maintenance. After Project completion, any upland stockpile locations, if used, would be seeded, mulched, and stabilized in accordance with applicable BMPs to minimize the potential for erosion.

New colonization by undesirable plant species is expected to be ongoing during and immediately following restoration construction. To successfully target project goals and objectives, DWR would continue vegetation management in accordance with a proposed invasive vegetation management plan (IVMP) provided in Appendix B, the adaptive management and monitoring plan, and the environmental commitments for the Proposed Project (Appendix A).

2.7 Construction Schedule, Equipment, and Labor Force

As shown in Table 2-3, Proposed Project construction is expected to be completed between January 1, 2024, and November 30, 2025, but specific construction schedule may change based on unforeseen circumstances. During

waterfowl hunting season, construction may be further restricted to accommodate for safety concerns related to waterfowl hunting on nearby Van Sickle Island and surrounding waterways.

Table 2-3. Construction schedule. Construction schedule is an estimate with years subject to change.

Construction Phase	Timing	Construction Activity
Site Preparation	2024	• Dewatering and water management of north parcel • Remove abandoned infrastructure and debris • Develop temporary roads, ramps, and staging areas • Clearing and grubbing, management of invasive species • Develop nursery area for salvaged wetland plant species
Restoration Construction Activities	2024–2025	• Continue dewatering as needed • Excavate constructed channel network • Fill remnant ditches • Planting and revegetation • Remove access roads and ramps • Restore staging and stockpile areas
In-water work	2024–2025, within appropriate work windows	• Remove water control structures • Remove sunken shipping container and other in-water debris • Breach exterior levees

Construction activities listed in Table 2-3 would take place within work windows approved by NMFS, USFWS, and CDFW. Site clearing, excavation and other work interior to the north parcel may be spatially or temporally restricted based on the results of pre-construction surveys and biological monitors if nesting birds or other terrestrial special-status species are identified. Work schedules would comply with the requirements of the Migratory Bird Treaty Act (MBTA) and other applicable legislation as described in the SMP. Clearing in habitats used by salt marsh harvest mouse (vegetation above 8 inches) would only occur between one hour after sunrise and one hour before sunset.

Construction within tidally influenced areas will be limited to in water work windows (September 1–November 30) if dewatering is not feasible. Pre-project surveys for California clapper rails and California black rails may allow work in wetland areas to begin by August 1st if springtime surveys do not indicate rails are present. All construction efforts in the east and west parcels would occur within the typical in-water work window. For open water habitats on the exterior of Chipps Island or interior areas that allow fish ingress and egress from the surrounding waterways, the applicable in-water work window for construction would be September 1st to November 30th of each year.

Table 2-4 summarizes the anticipated construction sequence, labor force, and equipment required for the Project. Construction would generally occur for 8 to 10 hours a day, 5 days a week. Temporary construction staffing would consist of approximately 4 to 12 personnel depending on the type of construction activity. Contractors will be transported to Chipps Island by watercraft from Pittsburg Marina or neighboring Van Sickle Island. Restoration of the project site would require many different equipment types as well as the potential use of amphibious and/or LGP equipment suitable for marsh operation. Conditions in the field at the time of construction would influence the type of equipment that would best be suited for the work and ultimately chosen by the construction contractor. Equipment would be delivered to the site by barge and maneuvered using tug/push boat. A floating barge would be used as an additional equipment storage and staging area. All contractors working on-site would be properly trained and certified for construction activities, including a Worker Environmental Awareness Program (WEAP) that includes training on identification of special-status plants and animals that may be encountered during construction, site specific best management practices (BMPs), and other requirements included in construction permits (e.g., SWPPP).

Table 2-4. Restoration activity timing, duration, equipment, and labor force estimates

Activity	Timing/Duration	Labor	Equipment
1. Pre-construction site preparation [1,2] Continue clearing existing agricultural ditches, dewatering, and levee repair.	June 1–Nov 30, 2024 and/or 2025: 10–30 days	Avg: 6 Max: 8	1: barge with crane 1: tug/push boat 1: floating dock 1–2: work boats 1–2: support vehicles, ATV 1–2: LGP/amphibious excavators 1–5: pumps 1–5: portable generators
Debris and old infrastructure removal	Mar 1–Nov 30, 2024 and 2025: 10–20 days	Avg: 6 Max: 8	1: barge with crane 1: tug/push boat 1: floating dock 1–2: work boats 1–2: support vehicles, ATV 1–2: rubber-tired backhoes 1–2: LGP/amphibious excavators 1–2: tracked mini-dumps
Temporary staging areas, roads, and ramps	Mar 1–Nov 30, 2024 and/or 2025: 10–20 days	Avg: 6 Max: 8	1: barge with crane 1: tug/push boat 1: floating dock 1-2: work boats 1–2: support vehicles, ATV 1–2: rubber-tired backhoes 1–2: LGP bulldozer 1–2: LGP/amphibious excavators
Clearing, wetland plant salvage and invasive species control	Apr 15–Nov 30, 2024 and/or 2025: 10–30 days	Avg: 4 Max: 6	1: barge with crane 1: tug/push boat 1: floating dock 1-2: work boats 1–2: support vehicles, ATV 1–2: LGP tractor with mower/disc 1–2: rubber-tired backhoes 1–2: tracked mini-dumps

Activity	Timing/Duration	Labor	Equipment
2. Excavate constructed channel network [1]	Apr 15–Nov 30, 2024 or 2025: 20–60 days	Avg: 6 Max: 12	1-2: work boats 1–2: support vehicles, ATV 1–2: LGP/amphibious excavators 1–2: LGP bulldozer 1–2: tracked mini-dumps
3. Block or fill remnant agricultural ditches[1,2]	Apr 15–Nov 30, 2024 or 2025: 20–60 days	Avg: 6 Max: 10	1-2: work boats 1–2: support vehicles, ATV 1–2: LGP/amphibious excavators 1–2: rubber-tired backhoes 1–2: tracked mini-dumps
4. Planting and revegetation[1,2]	2024 or 2025: 10–30 days	Avg: 4 Max: 6	1-2: work boats 1–2: support vehicles, ATV 1–2: rubber-tired backhoes 1–2: tracked mini-dumps
5. Remove access roads and ramps[1,2]	Sep 1–Nov 30, 2024 and/or 2025: 5–20 days	Avg: 6 Max: 8	1-2: work boats 1–2: LGP excavators 1–2: LGP bulldozer 1–2: tracked mini-dumps
6. Remove water control structures, remove remnant pilings and in-water debris remove sunken shipping container [3]	Sep 1–Nov 30, 2024 and/or 2025: 5–20 days	Avg: 6 Max: 8	1: barge with crane 1: tug/push boat 1–2: work boats 1–2: long reach excavators
7. Breach exterior levees [3]	Sep 1–Nov 30, 2024 or 2025: 5–20 days	Avg: 6 Max: 8	1: barge with crane 1: tug/push boat 1–2: work boats 1–2: Long reach excavators

Activity	Timing/Duration	Labor	Equipment
8. Stockpile stabilization[1,2]	Sep 1– Nov 30, 2024 and/or 2025: 10–20 days	Avg. 6 Max: 8	1: barge with crane 1: tug/push boat 1–2: work boats 1–2: LGP bulldozers 1–2: tracked mini-dumps 1–2: support vehicles, ATV

Notes:

1 Work may occur during the nesting bird season (February 15 through August 15), but additional mitigation measures may apply depending on species, such as clearance surveys, buffer zones around active nests or equipment type allowed.

2 Chipps Island is considered Salt Marsh Harvest Mouse Habitat, mitigation measures to avoid and minimize impacts to the species will be defined.

3 In water work allowed between August 1st and November 30th if springtime California clapper rail surveys show no rails are present, otherwise in water work limited to September 1st to November 30th.

2.8 Post-Construction Conditions

On completion of the Proposed Project, the interior portions of the north parcel would be reconnected with tidal waters from the surrounding waterways, creating new tidal wetland habitat. Estimated habitat acreage and wetland-type conversions resulting from the Proposed Project (Table 2-5) were calculated based on a digital elevation model used in the preparation of the DWR (2019) wetland delineation as modified based upon the Proposed Project design elevations, and the following rationale regarding tidal marsh development.

Table 2-5. Changes in Habitat and Natural Community types between existing and post restoration conditions

Habitat Classification	Existing (acres)[1]	Change (acres)	Post Restoration (acres)[2]
Open Water, muted tidal	18.8	-18.8	0.0
Open Water, tidal	45.3	23.3	68.6
Tidal Wetland	491.3	276.6	767.9
Managed Wetland	285.5	-285.5	0.0
Developed/Barren	0.1	-0.1	0.0
Upland/Grassland	13.4	4.6	18.0
Total	**854.4**		**854.4**

[1] Estimates from DWR (2019)

[2] Estimates from preliminary design, and may vary during final design and as built conditions

Under as-built conditions, the retained natural communities would initially be limited to emergent wetland vegetation remaining within intertidal habitats as well as upland/grassland habitats located along the levees and railroad berm. With the exception of areas that were actively replanted with salvaged vegetation, areas at intertidal elevations that were cleared for construction would be primarily tidal mudflat habitat, with tidal perennial aquatic (open-water) habitat limited to subtidal elevations corresponding to the excavated channel network and breaches. Within the first few years following construction, upland/grassland and tidal freshwater emergent wetland habitats on the restored site are anticipated to colonize and expand from the as-built condition. As emergent marsh vegetation establishes over time, tidal mudflats at intertidal elevations as well as open-water habitats at shallow subtidal elevations are expected to decrease from the as-built condition, with a corresponding increase in tidal freshwater emergent wetland habitat at intertidal and shallow subtidal elevations.

Based upon colonization of emergent marsh at intertidal elevations, the Proposed Project is expected to result in creation of approximately 300 acres of tidal wetland habitat and open tidal waters from areas that currently are managed (muted tidal) wetlands (Table 2-5). Approximately 490 acres of existing tidal marsh and channels on the east and west parcels would also be enhanced by increased connectivity with the north parcel as well as improved connectivity of the interior marsh plain with the surrounding waterways (Figure 2-2).

2.9 Environmental Commitments and Mitigation Measures

Applicable and appropriate environmental commitments from the SMP EIS/EIR would be incorporated into the Proposed Project; summarized in Chapter 2 of the SMP EIS/EIR. Additionally, mitigation measures from the Appendix F of the SMP EIS/EIR would be applied, as necessary, to minimize potential adverse effects of the Proposed Project. The full text of the measures and ECs are included in Appendix A.

2.10 Permits, Approvals, and Regulatory Requirements

As the lead agency, DWR has the principal responsibility for approving and carrying out the Proposed Project, and for ensuring that the requirements and applicable regulations are met. Table 2-6 lists the agencies that also may have authority over portions of the Proposed Project. In addition to preparation of this CEQA Addendum to the SMP Final EIS/EIR, DWR will be obtaining required permits and/or regulatory approvals from the Delta Stewardship Council (DSC), the San Francisco Bay Conservation and Development Commission (BCDC), California Department of Fish and Wildlife (CDFW), State Lands Commission, San Francisco Bay Regional Water Quality Control Board, US Army Corps of Engineers (USACE), US Fish and Wildlife Service (USFWS), and National Marine Fisheries Service(NMFS). DWR expects these permits and approvals by May 2024.

Table 2-6. Regulatory Agencies and Approvals

Agency	Approval/Permit
U.S. Army Corps of Engineers	Section 404 permit under the Clean Water Act and Section 10 of the Rivers and Harbors Act for activities within wetlands and waters of the United States (Nationwide Permit 27)
U.S. Coast Guard	Coordination with the U.S. Army Corps of Engineers on Section 10 of the Rivers and Harbors Act; aids to navigation
U.S. Fish and Wildlife Service	ESA Section 7 consultation; review of compliance by the Proposed Project with the existing programmatic BiOp for the SMP
National Marine Fisheries Service	ESA Section 7 consultation; review of compliance by the Proposed Project with the existing programmatic BiOp for the SMP
California Department of Fish and Wildlife	California Endangered Species Act compliance, California Fish and Game Code Section 2081 incidental take permit,
California State Lands Commission	Memorandum of Understanding
San Francisco Bay Regional Water Quality Control Board	Water quality certification/waste discharge requirements to control pollutant discharges to water bodies under Clean Water Act Section 401 certification
State Historic Preservation Office	Consultation under Section 106 of the National Historic Preservation Act
San Francisco Bay Conservation and Development Commission	Suisun Marsh development permit
Delta Stewardship Council	Consultation regarding consistency determination for Delta Plan covered actions; consistency determined by DWR through self-certification

3 SUPPLEMENTAL ENVIRONMENTAL REVIEW

3.1 Introduction

This chapter examines the changes to the environmental setting (where appropriate), evaluates the potential changes to environmental impacts, and identifies whether the impacts of the Proposed Project fall within the scope of the previously certified SMP EIS/EIR. Furthermore, this chapter summaries the impact conclusions and then presents a specific resource analysis. The following environmental resource topics are analyzed in detail in this section:

- Water Supply and Management
- Water Quality
- Geology and Groundwater
- Flood Control and Levee Stability
- Sediment Transport
- Transportation and Navigation
- Air Quality
- Noise
- Greenhouse Gas Emissions and Climate Change
- Fish
- Recreational Resources
- Vegetation and Wetlands
- Wildlife
- Land Use
- Utilities and Public Services
- Visual Aesthetic Resources
- Cultural Resources
- Public Health and Environmental Hazards
- Growth-Inducing Impacts, including Population and Housing
- Cumulative Impacts

3.2 Impact Conclusions

The Proposed Project, as presented through the analysis in this addendum, would not result in any new significant environmental effects or any substantial increases in the severity of environmental effects identified in the certified Final SMP EIS/EIR. Furthermore, the Proposed Project would not require mitigation measures that would differ considerably from those identified in the SMP EIS/EIR. The level of overall activities analyzed as part of the SMP EIS/EIR for restoration projects and the location are comparable to that under the Proposed Project. The potential environmental impacts associated with the Proposed

Project already were identified and adequately addressed in the SMP EIS/EIR. All mitigation measures included in the SMP EIS/EIR were adopted. Throughout this addendum, the mitigation measures, where applicable, would not differ considerably from those disclosed in the SMP EIS/EIR and would be adopted for the Proposed Project, where appropriate. In addition, the environmental commitments described in the SMP EIS/EIR would be adopted, as appropriate, for the Proposed Project. Based on further evaluation and because of a reduced project area, fewer impacts on cultural resources would occur, compared to the SMP EIS/EIR.

Table 3-1 summarizes impact determinations and the need for mitigation measures for restoration projects by resource area, based on the analysis in this addendum and compared to the SMP EIS/EIR. Appendix A provides a list of the environmental commitments and best management practices from the SMP EIS/EIR that are incorporated throughout the analysis in this addendum.

Table 3-1. Summary of Chipps Island Tidal Habitat Restoration Project Impacts by Resource Area of the Proposed Project Compared to the Final SMP EIS/EIR

Impact	Significance after Mitigation (Proposed Project/Final SMP EIS/EIR) [1]	Would Require Substantially Different or New Mitigation Measures for the Proposed Project?
Water Supply, Hydrology, and Delta Water Management	LTS/LTS	No
Water Quality	LTS/LTS	No
Geology and Groundwater	LTS/LTS	No
Flood Control and Levee Stability	LTS/LTS	No
Sediment Transport	LTS/LTS	No
Transportation and Navigation	LTS/LTS	No
Air Quality	LTS with Mitigation/LTS with Mitigation	No
Noise	LTS/LTS with Mitigation	No
Greenhouse Gas Emissions and Climate Change	LTS/LTS	No
Fish	LTS/LTS	No
Vegetation and Wetlands	LTS/LTS	No
Wildlife	LTS/LTS	No
Land Use and Delta Plan Policies	LTS/LTS	No
Utilities and Public Services	LTS with Mitigation/LTS with Mitigation	No
Recreation Resources	LTS/Not Applicable	No
Visual/Aesthetic Resources	LTS/LTS	No
Cultural Resources	LTS with Mitigation/SU with Mitigation	No

Impact	Significance after Mitigation (Proposed Project/Final SMP EIS/EIR) [1]	Would Require Substantially Different or New Mitigation Measures for the Proposed Project?
Public Health and Environmental Hazards	LTS with Mitigation/LTS with Mitigation	No
Growth-Inducing Impacts, Including Population and Housing	NI/[2]	No
Cumulative Impacts	LTCC/CC	No

Notes:
NI = No Impact; LTS = Less than Significant; SU = Significant and Unavoidable; LTCC = Less than Cumulatively Considerable; CC = Cumulatively Considerable

[1] The impact determinations summarized in this table reflect the most severe impact determination.

[2] The SMP EIS/EIR did not evaluate these specific impacts listed in the CEQA Appendix G Environmental Checklist Form because activities under the SMP would not result in direct or indirect population growth, the construction of homes, or the displacement of people.

3.3 Resources

The analysis in this addendum focuses on the changes to impacts on the environment that could occur by implementing the Proposed Project under the SMP EIS/EIR. The scope of analysis contained in this chapter addresses each environmental resource area that previously was analyzed in the SMP EIS/EIR. The following sections summarize the SMP EIS/EIR and present the Proposed Project analysis of specific resource areas.

3.4 Water Supply, Hydrology, and Delta Water Management

Water supply, hydrology, and Delta water management that could be affected by the Proposed Project and the type and severity of potential impacts are consistent with those evaluated in the SMP EIS/EIR.

Chipps Island is located in Region 4 of the Suisun Marsh and is surrounded by Honker Bay to the North and West, Spoonbill Slough to the East, and Sacramento River to the South. Managed wetland units flood and drain primarily into relatively large to medium-size tidal sloughs and Spoonbill Slough is in this region of the Marsh (Reclamation 2011).

As described in the *Chipps Island Tidal Habitat Restoration: Hydrodynamic, Particle Track and Salinity Modeling* (RMA 2023), the RMA Bay-Delta numerical model was applied to evaluate local and regional hydrodynamic and water quality impacts of the proposed Chipps Island tidal marsh restoration project for the dry period of January through December 2009. The northern parcel of Chipps Island was removed from the modeling as it is currently being operated as a managed wetland, but the east and west parcels were still included to obtain base information. This modeling identified changes to water velocities, island volumes, island depths, and salinity on the property and surrounding waterways.

The SMP EIS/EIR states that a change in average channel velocity to less than 2 feet per second (ft/s) or an increase of more than 1 ft/s in an existing channel would be considered a substantial change in tidal velocities and may result in local sediment scour and deposition. Due to the north parcel currently operating as a managed wetland, the base velocity was modeled from a southeastern channel in the eastern parcel and was measured to be about 2.6 ft/s. For the chosen project alternative, the peak velocities would occur near a proposed breach along Spoonbill Slough and would reach approximately 3.5-4 ft/s. According to the project specific modeling (RMA 2023), velocity increases or decreases would not significantly change, but will be shifting to new locations.

Since the potential velocity shift is still falls within the threshold of 1 ft/s increase established in the SMP EIS/EIR, this is not considered significant.

Because of the expanded area subject to tidal action, the Chipps Island tidal prism (volume of water moving through Chipps Island on flood and ebb tides) would increase by approximately 72 percent. Although this may seem like a large increase, it is due to the shift from the base condition of a managed wetland (no tidal action) to the north parcel being tidal. Thus, the beneficial increase is an important factor in achieving the project's goals and would not generate an adverse environmental effect.

Consistent with the findings in the SMP EIS/EIR, impacts of the Proposed Project on water supply and hydrology would be less than significant. None of the conditions described in Section 15162 of the State CEQA Guidelines would occur relative to water supply and hydrology. The analysis of potential impacts on water supply, hydrology, and Delta water management in the SMP EIS/EIR, supplemented by the information in this addendum, is sufficient to meet CEQA requirements and support the approval of the Proposed Project.

3.5 Water Quality

The SMP EIS/EIR evaluated the effects of implementing the SMP on water quality resulting from habitat restoration activities in the Marsh. The analysis presented in the SMP EIS/EIR addressed both short-term effects related to construction activities and longer-term effects associated with operation of restored habitat areas.

Turbidity

As concluded in the SMP EIS/EIR, remobilization of sediments into the water column caused by restoration activities such as levee breaching, levee grading or temporary levee overbuilds could lead to temporary, localized increases in turbidity. Best management practices (BMPs), as described in Section 2 of the SMP EIS/EIR, calling for the use of erosion control materials (e.g., baffles, fiber rolls, or hay bales; temporary containment berms) and erosion control measures such as straw application or hydroseeding with native grasses on disturbed slopes, and floating sediment booms and/or curtains are expected to minimize impacts that may occur from increased mobilization of sediments. Other measures that are implemented as part of the required stormwater pollution prevention plan (SWPPP) would also contribute to minimizing potential effects on water quality associated with increased turbidity and sediment mobilization. Because of the short duration of restoration actions, limited extent of local construction activities, implementation of the appropriate BMPs, and

environmental commitments to minimize and control erosion, these turbidity impacts would be less than significant. No new or more severe temporary impacts beyond those identified in the SMP EIS/EIR would occur to water quality.

Dissolved Oxygen and Salinity

Long-term impacts would include water quality effects including changes to dissolved oxygen (DO) and salinity resulting from the conversion of managed wetland to tidal marsh and open water. Tidal restoration is expected to have a beneficial impact on water quality because it would increase levels of DO and improve overall water quality in Marsh channels. The proposed changes to the project would further increase tidal flow into the restoration area, thereby contributing to avoiding low DO conditions.

The SMP EIS/EIR assumed a 10 percent change in the baseline salinity value would not be considered significant in an estuarine tidal slough or channel unless the baseline salinity was approaching the maximum monthly objective. For Suisun Marsh objectives, the lowest salinity (measured as EC) objective is 8 mS/cm in February and March, so an increase of more than 0.8 mS/cm in February or March could be considered significant. For the upper Delta water supply intakes, the salinity objective is 1 mS/cm, so the 10 percent guideline would be a change in salinity of more than 0.1 mS/cm. This guideline is intended to protect the water quality for managed wetland habitat, as well as the salinity at Delta drinking water intakes and agricultural diversions.

The SMP EIS/EIR found that restoration of tidal wetlands within the Marsh would increase the tidal flows throughout the Marsh and could increase the salinity in the channels between Suisun Bay and the new tidal wetlands. The magnitude of the salinity effects would depend on the location (and breach connection) of the new tidal wetlands and the size (acreage) of the new tidal wetlands. Modeling performed and presented in Appendix A to the SMP EIS/EIR (5,000 to 7,000 acre tidal restoration scenario) found that maximum changes in monthly average salinity in the Marsh resulting from habitat restoration would be less than 10 percent.

The changes in DO and salinity levels resulting from the Proposed Project would be less severe than the changes identified in the SMP EIR/EIS. DWR recently performed additional tidal hydrodynamic simulations of the Proposed Project and its effect on the Delta system (Appendix C) (RMA 2023). The model was utilized to evaluate the potential salinity changes at D-1641 compliance locations and Contra Costa Water District intake locations listed in Table 3-2. The stations were

selected to cover key locations and provide broad spatial representation. The effects of the restoration project at these locations are considered representative of the effect of the project in various locations of the Delta as a whole. Changes to X2 have also been evaluated.

Table 3-2. D-1641 Compliance Stations used for salinity evaluation.

D-1641 Station ID	Location
D22	Sacramento at Emmaton
D15	San Joaquin at Jersey Point
D29	San Joaquin at Prisoner Point
C5	Contra Costa Canal at Pumping Plant 1
C9	West Canal at mouth of Clifton Court Forebay
DMC1	Delta-Mendota Canal at Tracy Pumping Plant
SLBAR3	Barker Slough NBA Intake
C19	City of Vallejo Intake (Abandoned) Cache Slough
C2	Sacramento at Collinsville
D12	San Joaquin at Antioch
*	CCWD Intake at Mallard Slough
*	CCWD Intake at Old River
*	CCWD Intake at Victoria Canal
D24*	Sacramento River at Rio Vista

* Evaluated for criteria below. There are no D-1641 salinity criteria for these locations.

The analysis was performed for January 10, 2009 to December 31, 2009 as the year 2009 is characterized as a dry year. The model results were stored at 15-minute intervals for all model computational points allowing both temporal and spatial analysis. Hydrodynamics, salinity, residence time, and particle exposure time were modeled.

Monthly averaged results of EC and absolute and relative (%) change from Base EC can be found in Table 3-3.

Table 3-3. Monthly average Base EC, and Proposed Project change and percent change from Base EC at Table 3-2 locations for 2009[1]

Month	D22 – Sacramento River at Emmaton			D15 – San Joaquin River at Jersey Point			D29 – San Joaquin River at Prisoners Point			C5 – Contra Costa Intake at Rock Slough		
	Base	Chipps Option 1c		Base	Chipps Option 1c		Base	Chipps Option 1c		Base	Chipps Option 1c	
	EC	EC change	EC change	EC	EC change	EC change	EC	EC change	EC change	EC	EC change	EC change
	µS/cm	µS/cm	%	µS/cm	µS/cm	%	µS/cm	µS/cm	%	µS/cm	µS/cm	%
Jan-2009	1796.8	-2.5	-0.1	1592.3	-1.1	-0.1	524.4	-0.2	0.0	810.7	-0.1	0.0
Feb-2009	569.2	-0.7	-0.1	859.8	-0.2	0.0	452.0	-0.2	0.0	892.8	-0.3	0.0
Mar-2009	220.8	0.0	0.0	266.2	0.0	0.0	219.3	0.0	0.0	519.9	0.0	0.0
Apr-2009	216.0	0.0	0.0	248.3	0.0	0.0	218.8	0.0	0.0	353.3	0.0	0.0
May-2009	160.8	0.0	0.0	199.0	0.0	0.0	211.1	0.0	0.0	345.7	0.0	0.0

Month	D22 – Sacramento River at Emmaton			D15 – San Joaquin River at Jersey Point			D29 – San Joaquin River at Prisoners Point			C5 – Contra Costa Intake at Rock Slough		
	Base	Chipps Option 1c		Base	Chipps Option 1c		Base	Chipps Option 1c		Base	Chipps Option 1c	
	EC	EC change	EC change	EC	EC change	EC change	EC	EC change	EC change	EC	EC change	EC change
	µS/cm	µS/cm	%	µS/cm	µS/cm	%	µS/cm	µS/cm	%	µS/cm	µS/cm	%
Jun-2009	289.7	-0.1	0.0	233.9	0.0	0.0	193.0	0.0	0.0	285.7	0.0	0.0
Jul-2009	471.7	-0.5	-0.1	715.0	1.1	0.2	221.7	0.1	0.1	319.8	0.2	0.0
Aug-2009	873.6	-0.8	-0.1	1307.6	2.4	0.2	354.9	0.4	0.1	622.6	0.8	0.1
Sep-2009	1326.9	-0.7	-0.1	1553.8	2.3	0.1	404.9	0.3	0.1	781.0	1.0	0.1
Oct-2009	1381.1	-0.7	0.0	1327.0	1.1	0.1	315.6	0.0	0.0	782.5	0.7	0.1
Nov-2009	1349.4	0.0	0.0	1148.7	0.8	0.1	315.7	0.0	0.0	642.2	0.3	0.0
Dec-2009	1318.3	-0.4	0.0	1332.5	1.2	0.1	394.3	0.0	0.0	663.9	0.2	0.0

Month	C9 – Clifton Ct Forebay Intake			DMC1 – Delta Mendota Canal at Tracy PP			SLBAR3 – Barker Slough NBA Intake			C19 – City of Vallejo Intake Cache Slough		
	Base	Chipps Option 1c		Base	Chipps Option 1c		Base	Chipps Option 1c		Base	Chipps Option 1c	
	EC	EC change	EC change	EC	EC change	EC change	EC	EC change	EC change	EC	EC change	EC change
	µS/cm	µS/cm	%	µS/cm	µS/cm	%	µS/cm	µS/cm	%	µS/cm	µS/cm	%
Jan-2009	773.9	-0.1	0.0	846.7	0.0	0.0	355.8	0.0	0.0	752.4	0.1	0.0
Feb-2009	793.8	-0.2	0.0	860.6	-0.2	0.0	389.3	0.0	0.0	653.6	0.1	0.0
Mar-2009	473.5	-0.1	0.0	623.5	0.0	0.0	437.4	0.0	0.0	536.6	0.1	0.0
Apr-2009	364.1	0.0	0.0	487.3	0.0	0.0	434.9	0.1	0.0	553.3	0.1	0.0
May-2009	345.2	0.0	0.0	363.2	0.0	0.0	293.3	0.1	0.0	408.5	0.2	0.0
Jun-2009	339.3	0.0	0.0	372.2	0.0	0.0	194.4	0.1	0.0	292.4	0.2	0.1

Month	C9 – Clifton Ct Forebay Intake			DMC1 – Delta Mendota Canal at Tracy PP			SLBAR3 – Barker Slough NBA Intake			C19 – City of Vallejo Intake Cache Slough		
	Base	Chipps Option 1c		Base	Chipps Option 1c		Base	Chipps Option 1c		Base	Chipps Option 1c	
	EC	EC change	EC change	EC	EC change	EC change	EC	EC change	EC change	EC	EC change	EC change
	µS/cm	µS/cm	%	µS/cm	µS/cm	%	µS/cm	µS/cm	%	µS/cm	µS/cm	%
Jul-2009	275.7	0.1	0.0	278.8	0.1	0.0	169.5	0.0	0.0	246.9	0.1	0.0
Aug-2009	473.0	0.6	0.1	442.6	0.5	0.1	155.0	0.0	0.0	228.6	0.1	0.0
Sep-2009	584.6	0.6	0.1	550.4	0.5	0.1	182.3	0.0	0.0	239.1	0.0	0.0
Oct-2009	560.0	0.3	0.1	529.8	0.2	0.0	199.0	0.0	0.0	485.4	0.1	0.0
Nov-2009	512.5	0.1	0.0	536.0	0.0	0.0	212.2	0.0	0.0	587.1	0.2	0.0
Dec-2009	556.3	0.0	0.0	613.2	0.0	0.0	225.7	0.0	0.0	637.5	0.2	0.0

Month	C2 – Sacramento River at Collinsville			D12 – San Joaquin River at Antioch			CCWD Intake at Mallard Slough			CCWD Intake at Old River		
	Base	Chipps Option 1c		Base	Chipps Option 1c		Base	Chipps Option 1c		Base	Chipps Option 1c	
	EC	EC change	EC change	EC	EC change	EC change	EC	EC change	EC change	EC	EC change	EC change
	µS/cm	µS/cm	%	µS/cm	µS/cm	%	µS/cm	µS/cm	%	µS/cm	µS/cm	%
Jan-2009	6768.3	0.0	0.0	4561.2	-0.4	0.0	11908.6	13.2	0.1	734.0	-0.1	0.0
Feb-2009	2248.9	2.3	0.1	1682.3	1.4	0.1	4998.4	14.5	0.3	778.8	-0.3	0.0
Mar-2009	273.4	0.2	0.1	280.8	0.0	0.0	476.3	1.0	0.2	394.1	0.0	0.0
Apr-2009	480.0	0.3	0.1	360.0	0.2	0.1	1584.1	5.1	0.3	303.9	0.0	0.0
May-2009	312.1	0.2	0.1	247.6	0.1	0.1	1043.0	4.7	0.5	326.1	0.0	0.0
Jun-2009	1099.0	2.1	0.2	623.2	1.0	0.2	3201.1	14.2	0.4	292.6	0.0	0.0
Jul-2009	2740.0	5.0	0.2	1948.0	4.3	0.2	6695.5	22.1	0.3	296.1	0.2	0.1

Month	C2 – Sacramento River at Collinsville			D12 – San Joaquin River at Antioch			CCWD Intake at Mallard Slough			CCWD Intake at Old River		
	Base	Chipps Option 1c		Base	Chipps Option 1c		Base	Chipps Option 1c		Base	Chipps Option 1c	
	EC	EC change	EC change	EC	EC change	EC change	EC	EC change	EC change	EC	EC change	EC change
	µS/cm	µS/cm	%	µS/cm	µS/cm	%	µS/cm	µS/cm	%	µS/cm	µS/cm	%
Aug-2009	4450.0	7.8	0.2	3211.8	6.7	0.2	9416.4	27.5	0.3	546.1	0.8	0.1
Sep-2009	5762.1	10.1	0.2	3978.6	7.7	0.2	11155.8	29.7	0.3	667.2	0.8	0.1
Oct-2009	5704.6	10.2	0.2	3745.0	6.6	0.2	11117.0	31.7	0.3	625.5	0.4	0.1
Nov-2009	5377.4	9.9	0.2	3403.8	5.9	0.2	10565.1	29.0	0.3	538.9	0.1	0.0
Dec-2009	5413.6	11.0	0.2	3614.9	7.2	0.2	10619.5	34.4	0.3	579.3	0.1	0.0

[1] Results are provided with tenths digit to provide reader with additional detail. While this level of precision is available from the model, the model's accuracy is likely only one-two significant digits.

Month	CCWD Intake at Victoria Canal			Sacramento River at Rio Vista		
	Base	Chipps Option 1c		Base	Chipps Option 1c	
	EC	EC change	EC change	EC	EC change	EC change
	µS/cm	µS/cm	%	µS/cm	µS/cm	%
Jan-2009	634.2	0.0	0.0	357.0	-0.4	-0.1
Feb-2009	692.3	-0.2	0.0	277.8	-0.1	0.0
Mar-2009	434.0	0.0	0.0	235.2	0.0	0.0
Apr-2009	310.7	0.0	0.0	196.5	0.0	0.0
May-2009	341.3	0.0	0.0	147.4	0.0	0.0
Jun-2009	305.9	0.1	0.0	163.6	0.0	0.0
Jul-2009	226.1	0.0	0.0	134.9	0.0	0.0
Aug-2009	312.6	0.3	0.1	186.7	-0.1	-0.1
Sep-2009	384.6	0.3	0.1	254.7	-0.2	-0.1
Oct-2009	408.6	0.1	0.0	245.5	-0.2	-0.1
Nov-2009	381.8	0.0	0.0	264.5	-0.2	-0.1
Dec-2009	401.2	-0.1	0.0	284.8	-0.2	-0.1

Source: RMA 2023

Overall, the changes in salinity predicted to occur as a result of the Proposed Project are considerably less than the natural variations between seasons and between the same time in different years. The general observations for the 2009 Chipps Island monthly-averaged EC results are:

- EC changes are very small at all locations, with the largest changes occurring primarily during the summer and fall months. The largest percent EC increases due to Option 1C restoration would occur at the CCWD intake at Mallard Slough (0.4 - 0.5% during May - June).
- The only locations showing salinity decreases are D22 – Sacramento River at Emmaton (-0.1% during January, February, July through September) and D24 – Sacramento River at Rio Vista (-0.1% during January and August – December).
- At all other locations, salinity increases range from 0.0 to 0.2%.

Invasive Vegetation Management

As described in Chapter 2, “Project Description,” DWR will continue to manage undesirable invasive plants with appropriate management actions, including hand removal, mowing, and, if necessary, spraying herbicides. Hand removal and mowing would not disturb soils and would cause minimal resuspension of silt, having little or no impact on water quality. Improper use of herbicides, however, can have significant impacts on water quality. To avoid potential impacts on water quality, any chemical application would be conducted in consultation with a certified PCA in accordance with state requirements, manufacturer’s instructions, standard BMPs recommended by the Suisun Resource Conservation District, and the General National Pollutant Discharge Elimination System **(**NPDES) Permit for Residual Aquatic Pesticide Discharges for Algae and Aquatic Weed Control Applications.

Summary

Implementing the following environmental commitments identified for water quality in the SMP EIS/EIR (described in Appendix A of this addendum) would reduce potential adverse impacts to a less-than-significant level:

- EC-1: Standard Design Features and Construction Practices
- EC-2: Access Points/Staging Areas
- EC-3: Erosion and Sediment Control Plan
- EC-4: Stormwater Pollution Prevention Plan
- EC-9: Hazardous Materials Management Plans

Consistent with the findings in the SMP EIS/EIR, there would be less than significant impacts on water quality from implementing the Proposed Project.

None of the conditions described in Section 15162 of the State CEQA Guidelines would occur relative to water quality. The analysis of potential water quality impacts in the SMP EIS/EIR, supplemented by the information in this addendum, is sufficient to meet CEQA requirements and support the approval of the Proposed Project.

3.6 Geology and Groundwater

Geology and groundwater resources that could be affected by the Proposed Project and the type and severity of potential impacts are consistent with those evaluated in the SMP EIS/EIR. Based on the environmental commitments in the SMP EIS/EIR and the expected construction practices and outcomes of restoration activities, the SMP EIS/EIR determined that restoration would have a less-than-significant impact related to geology, seismicity, soils, minerals, and groundwater.

Surface Fault Rupture, Seismic Ground Shaking, or Liquefaction

Several Quaternary aged (ruptured within the last 2.6 million years) faults are mapped in or near the Project Area; the Kirby Hills Fault runs through Chipps Island (CGS 2019). The Project Area is therefore in an area with potential for surface fault rupture and seismic ground shaking hazards. Per Section 5.3 of the SMP EIS/EIR, the area of Holocene Bay Mud substrate surrounding the Bay, which includes Suisun Marsh, is at high risk of liquefaction in moderate and larger earthquakes. The Proposed Project would not include construction of new structures and would therefore not increase the risk of damage to buildings or building occupants. Under the Proposed Project, levees would be breached and would no longer function to protect property from inundation, thus reducing the risk of damage to structures due to seismically induced levee failure. Therefore, the Proposed Project would have a less-than-significant impact on potential for damage to structures as a result of seismic activity. Impacts associated with seismic from the Proposed Project are within the scope of the seismic hazards impacts that were identified in the SMP EIS/EIR.

Landslides

Except for the exterior Chipps Island levees, the Project Area is located within flat marshland topography, and, per Section 5.3 of the SMP EIS/EIR, is not subject to landslide hazard. The Proposed Project would not include construction of any structures that would be occupied. Therefore, the Proposed project would not expose people or structures to new landslide hazards and would have a less-than-significant impact on landslide hazards. Impacts associated with landslide hazards from the Proposed Project are within the scope of the landslide hazards impacts that were identified in the SMP EIS/EIR.

Unstable Slopes from Cut and Fill Activities

Per Section 2.6, excavated channels would be constructed at approximately 2.5:1 side slope, with channel widths of approximately 40-45 ft at the marsh plain elevation and channel bottom inverts generally excavated to subtidal elevations. Remnant agricultural ditches and borrow pits that may become tidally disconnected and form ponds would be filled with excavated on-site materials and graded to elevation of the existing marsh plain. Vegetation will be planted along the excavated channel network and stockpiles will be seeded to further stabilize cut and fill slopes. Levee breaching and channel excavation would be designed and engineered based on standard practices (EC-1) to avoid creating unstable cut or fill slopes. Therefore, Proposed Project cut and fill activities would have a less-than-significant impact on slopes. Impacts associated with unstable slopes from the Proposed Project are within the scope of the cut and fill activities impacts that were identified in the SMP EIS/EIR.

Accelerated Soil Erosion

The Project Area is underlain by Suisun peaty muck and Joyce muck (NRCS and UC Davis 2019). Per Section 5.3 of the SMP EIS/EIR, these soils are not highly erodible. Ground disturbance would be confined to the minimum area necessary for Project construction, and equipment would be confined to staging areas and access routes (EC-2). As stated in Section 2.6, native wetland vegetation may be planted along the excavated channel network and other areas providing open-water edge habitat following breaching of the exterior levees. To the extent feasible, areas for replanting of wetland vegetation would use native wetland vegetation materials salvaged from Proposed Project activities (e.g., clearing). Tules would be planted in cleared areas where higher wind fetch and erosion might occur. Hydro-seeding of native herbaceous species would be used for erosion control of bare soil along levee slopes. In addition, planting of native vegetation appropriate to high marsh and/or upland elevations would be conducted along levee roads and staging areas disturbed during construction. Any stockpiles will be seeded, mulched, and stabilized. Vegetation would reduce runoff and suspended sediment loads and stabilize slopes. The Project would implement erosion and sediment control and stormwater pollution prevention plans (EC-3 and EC-4, respectively) to avoid accelerated soil erosion. Therefore, the Project would have a less-than-significant impact on soil erosion. Impacts associated with soil erosion from the Proposed Project are within the scope of soil erosion impacts that were identified in the SMP EIS/EIR.

Loss of Topsoil

Topsoil is the fertile, organic-rich upper portion of a soil profile that forms as the profile develops. Both the Suisun and Joyce soil series are classified as entirely

organic (NRCS and UC Davis 2019), so topsoil may be present in Project Area locations where minimal tidal disturbance allows for development of the soil profile. Ground disturbance would be confined to the minimum area necessary for Project construction, and equipment would be confined to staging areas and access routes (EC-2). The amount of topsoil lost as a result of construction would be reduced to the extent feasible. Per Section 5.3 of the SMP EIS/EIR, in consideration of the comparatively small loss of topsoil and the overall project outcome of restoring, enhancing, and preserving marshland ecology (including an intact soil profile, where originally present) over a large area, the Proposed Project would have a less-than-significant impact on topsoil. Impacts associated with loss of topsoil from the Proposed Project are within the scope of topsoil impacts that were identified in the SMP EIS/EIR.

Reduction in Availability of Natural Gas and Non-Fuel Mineral Resources

There are two plugged dry hole wells on Chipps Island: one operated by Chevron U.S.A. Inc. at the northern tip of the island and another operated by UMC Petroleum Corp. in the south-central portion of the island (CalGEM 2022). The nearest active natural gas field is the Van Sickle Island Gas field, located immediately to the northeast across Spoonbill Slough (CalGEM 2022). Because all natural gas wells in the Project Area are dry and plugged, new natural gas sources are unlikely to be present in the Project Area. Per Figure 5.3-3 of the SMP EIS/EIR, no active mines, mineral processing plants, or mineral resource zones are located within ten miles of the Project Area. Therefore, the Proposed Project would have no impact on mineral resources. Impacts associated with reduction in availability of natural gas and non-fuel mineral resources from the Proposed Project are within the scope of the natural gas and non-fuel mineral resources impacts that were identified in the SMP EIS/EIR.

Potential for Altered Salinity or Changes to Subsurface Groundwater Elevations in Shallow Suisun Marsh Groundwater

The Proposed Project would restore tidal wetland hydrology to 362 acres of Chipps Island. Chipps Island overlies a portion of the Suisun-Fairfield Valley Groundwater Subbasin. There are no monitoring wells in the Project Area; the nearest monitoring well to the Project Area within the Suisun-Fairfield Valley Groundwater Subbasin is located on Grizzly Island (State Well Number 04N01W32G001M). Shallow groundwater elevation fluctuates seasonally at this well, with no apparent long-term trends in data from the Department of Water Resources Water Data Library. Per the SMP EIS/EIR, restoring tidal connectivity and increasing the acreage of tidal wetlands would increase the area exposed to saline and brackish water. However, Spoonbill Slough separates Chipps from Van Sickle Island and represents a discontinuity in shallow, waterbearing

formations. Changes in groundwater salinity on Chipps Island are therefore unlikely to impact shallow groundwater in adjacent areas of Suisun Marsh. Wells in Suisun Marsh are not used for potable, municipal, or agricultural supply, and no domestic wells are documented on Chipps Island (CA DWR 2022a), so any local increase in groundwater salinity will not impact production. Restoration of tidal hydrology will not impact shallow groundwater elevation. Therefore, the project would have a less-than-significant impact on groundwater salinity and elevation. Impacts associated with potential for altered salinity or changes to subsurface groundwater elevations in shallow Suisun Marsh groundwater from the Proposed Project are within the scope of the groundwater impacts that were identified in the SMP EIS/EIR.

Implementing the following environmental commitments identified for geology and groundwater in the SMP EIS/EIR would reduce potential impacts to a less than significant level:

- EC-1: Standard Design Features and Construction Practices
- EC-2: Access Points/Staging Areas
- EC-3: Erosion and Sediment Control Plan
- EC-4: Storm Water Pollution Prevention Plan

Consistent with the findings in the SMP EIS/EIR, impacts of the Proposed Project on geology and groundwater would be less than significant. None of the conditions described in Section 15162 of the State CEQA Guidelines would occur. The analysis of potential geology and groundwater impacts in the SMP EIS/EIR, supplemented by the information in this addendum, is sufficient to meet CEQA requirements and support the approval of the proposed project.

3.7 Flood Control and Levee Stability

Flood control and levee stability that could be affected by the Proposed Project and the type and severity of potential impacts are consistent with those evaluated in the SMP EIS/EIR.

The Proposed Project will not create any new exterior levees, so no levee improvements would be necessary. During project construction, existing levees may be subject to ground-shaking and increased ground pressures from heavy equipment or fill placement. This additional loading may exceed the potential for the existing levee material or levee foundation material to support the levee section (i.e., shear strength) and may cause rapid settling or fracture of the levee section. As described in Chapter 2 of the SMP EIS/EIR, specific project proponents would control construction equipment access and fill placement to

maintain acceptable loading, based on the shear strength of the foundation material.

In addition, levee breaches and graded down levees would create additional tidal wetland habitat. This would be a beneficial change relative to flooding because the channels would have a greater carrying capacity during storm events.

According to the *Chipps Island Tidal Habitat Restoration: Hydrodynamic Particle Track and Salinity Modeling* (RMA 2023, Appendix C) the Proposed Project would result in approximately about a 67 percent change in the vertical difference between high and low tides estimated by the model and shown in Table 1 of the RMA report (Appendix C). This change would be minimal and consistent with restoration impacts analyzed in the SMP EIS/EIR.

Implementing the following environmental commitments identified for flood control and levee stability in the SMP EIS/EIR (described in Appendix A of this addendum) would reduce potential adverse impacts to a less-than-significant level:

- EC-1: Standard Design Features and Construction Practices
- EC-3: Erosion and Sediment Control Plan

Consistent with the findings in the SMP EIS/EIR, impacts of the Proposed Project on flood control and levee stability would be less than significant. None of the conditions described in Section 15162 of the State CEQA Guidelines would occur relative to flood control and levee stability. The analysis of potential flood control and levee stability impacts in the SMP EIS/EIR, supplemented by the information in this addendum, is sufficient to meet CEQA requirements and support the approval of the Proposed Project.

3.8 Sediment Transport

Conditions related to sediment transport that could be affected by the Proposed Project and the type and severity of potential impacts are consistent with those evaluated in the SMP EIS/EIR.

Ground-disturbing activities, such as earthwork and demolition of the existing structures, could result in the loss of topsoil and erosion. Each new levee breach would experience local scour as increased volumes of water pass through the opening on tidal cycles and during flood and heavy runoff events. Some adjacent channels would scour and increase their conveyance areas to supply additional tidal water volumes to the new habitats. In addition, the restoration areas would

have greater capacity to trap or accept deposited sediments. An increase in average channel velocity resulting in a velocity more than 2 ft/s or an increase of more than 1 ft/s in an existing channel is considered to result in significant impact on channel scouring because such increased tidal velocities may result in local sediment scour of fine silt, clay, or sand or cause vegetation disruption. The Bay-Delta Model (RMA 2023) estimated there would be a slight increase in tidal velocity, therefore associated channel velocities would remain below the significance threshold, and no significant impact would occur. No new or more severe water quality impact would occur, beyond that identified in the SMP EIS/EIR.

According to the *Chipps Island Tidal Habitat Restoration: Hydrodynamic Particle Track and Salinity Modeling,* the point in the channel where highest velocities occur, peak ebb tide velocities would slightly increase from the current velocities of about 2.6 ft/s to 3.5-4 ft/s with the Proposed Project (RMA 2023, Appendix C). Currently, the channel location with peak velocities is in the southeast of the eastern parcel along the Sacramento River. Post restoration however, the channel with peak velocities will be located at a proposed channel and breach in the east of the northern parcel along Spoonbill Slough. Although the locations of channel peak velocities will be moving, the proposed channel and breach location still fall within the acceptable range of a less than 2 ft/s increase in new channel velocities under the SMP. Thus, sediment transport impacts from the Proposed Project would be consistent with the findings in the SMP EIS/EIR. Regionally, the channels in the Marsh would adjust to accommodate the higher restored tidal flow and reach a new sedimentation equilibrium over time.

Implementing the following environmental commitments identified for sediment transport in the SMP EIS/EIR (described in Appendix A of this addendum) would reduce potential adverse impacts to a less-than-significant level:

- EC-1: Standard Design Features and Construction Practices
- EC-3: Erosion and Sediment Control Plan
- EC-4: Storm Water Pollution Prevention Plan (SWPPP)

Consistent with the findings in the SMP EIS/EIR, impacts of the Proposed Project on sediment transport would be less than significant. None of the conditions described in Section 15162 of the State CEQA Guidelines would occur relative to sediment transport. The analysis of potential sediment transport impacts in the SMP EIS/EIR, supplemented by the information in this addendum, is sufficient to meet CEQA requirements and support the approval of the Proposed Project.

3.9 Transportation and Navigation

Transportation and navigation resources that could be affected by the Proposed Project and the type and severity of potential impacts are consistent with those evaluated in the SMP EIS/EIR.

As described in the SMP EIS/EIR, Solano County maintains several roads in the interior Marsh that serve rural developments, managed wetlands, agricultural operations, and other uses. However, because no public roads connect to Chipps Island, access will be provided via boat from Pittsburgh Marina, or by agreements with private landowners on nearby Van Sickle Island. Heavy equipment (i.e., excavators) will be transported via barge to staging areas on the island. Construction workers would access the site via boat by agreement with local landowners on Van Sickle Island or using the Pittsburg Marina in Contra Costa County.

For workers arriving from Sacramento or the San Francisco Bay Area, access via Van Sickle Island would include Highway 80 to Highway 12, Grizzly Island Road, then following unpaved roads through the marsh to the Van Sickle Island Boat docks. Construction personnel arriving through Contra Costa County would use Highway 4. Boats will shuttle crew members and small equipment items onto the island.

In the Transportation and Circulation General Plan the access roads are categorized as Local Roads (unpaved rural roads through the marsh), Collector Road (Grizzly Island Road), Major Arterial (Highway 12), and Freeway (Highway 80) (Solano County 2008). Highways 12 and 80 are within a Route of Regional Significance, but both roads have a larger carrying capacity than the Local or Collector Roads.

Since the SMP EIS/EIR was certified, assessment for transportation impacts have been updated to vehicle miles traveled associated with the Project. However, in Section 21155.4 (a)(2) of Senate Bill No.743, the project is undertaken to implement and is consistent with a specific plan for which an environmental impact report has been certified, the project is exempt from the requirements of this division. Environmental impacts associated with vehicle miles traveled will still be discussed in Air Quality (Section 3.10) and Greenhouse Gas Emissions and Climate Change (Section 3.12).

Restoration-related construction work would be temporary and would result in sporadic increases in traffic on roadways in the project vicinity. However, the

Proposed Project would not result in substantial changes in traffic once restoration construction is complete. For construction impacts, this analysis used the Institute of Transportation Engineers (ITE) (1988) criterion for assessing temporary construction impacts. To account for the large percentage of heavy trucks associated with typical construction projects, ITE recommends a threshold level of 50 or more new peak-direction (one-way) trips during the peak hour. The Proposed Project's roadway travel would be limited to crew member commutes, estimated less than 20 per hour one-way trips (over the course of the Proposed Project), substantially less than the ITE criterion of 50 per hour one-way trips. Thus, crew member traffic would not conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system.

Project construction activities would occur within the footprint of Chipps Island; therefore, no traffic flow would be interrupted, diverted, or significantly impacted on any of the roadways mentioned above. Construction-related traffic increases (e.g., crew commute) would be minimal (relative to roadway capacity), temporary, and would occur in areas with low levels of existing traffic.

The Proposed Project would not add sufficient trips that would degrade existing operations or would conflict with the existing policies in the Transportation and Circulation chapter of the Solano County's General Plan (Solano County Board of Supervisors 2008). Addendum to the SMP Final EIS/EIR AECOM California Department of Water Resources 3-41 Supplemental Environmental Review With respect to traffic safety, crew members would use existing roads, and no new access roads or other transportation infrastructure would be needed. The Proposed Project would not require changes to the existing roadway design or introduce incompatible uses or traffic hazards. Thus, the safety of the local transportation network would not be affected by hazards because of a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

In addition, the Proposed Project would not require any road closures. Traffic flow would not be interrupted, and construction-related traffic and commutes increases would be minimal and temporary. Restoration activities would not impair or interfere with emergency access to local roads and would not result in traffic delays that could increase emergency response times substantially or reduce emergency vehicle access. Similarly, no public transit, bicycle, or pedestrian facilities are located near the project site or in the adjacent landside Van Sickle Island. The Proposed Project would not interfere with any transit

routes or service, or with the operation of public transit, bicycle, or pedestrian facilities. Therefore, the Proposed Project would not conflict with adopted policies, plans, or programs regarding roadway emergency access, public transit, bicycle, or pedestrian facilities, nor would it otherwise decrease the performance of such facilities.

Navigable waterways will be used in the Proposed Project to barge in equipment and materials, and removal of debris from the site. Chipps Island is bordered by Spoonbill Creek (northeast), Honker Bay (north and west), and the Sacramento River (south). The waterways adjacent to the Proposed Project are used by recreators, occasional shipping containers, and emergency service providers. The Sacramento River also connects to the Deep Water Ship Channel (DWSC) in the Sacramento River, which is a 30-foot deep channel used to connect the Port of West Sacramento to the Pacific Ocean. The DWSC, a low use 45.8-mile long navigation channel managed by the Port that runs from the confluence of the Sacramento and San Joaquin rivers in the western Delta, up the Sacramento River, through lower Cache Slough, and north to the Port. The DWSC runs through Contra Costa, Solano, Sacramento, and Yolo counties and serves the marine terminal facilities of the Port. The most common cargo transported by ships using the DWSC are products related to the agricultural industry, with rice now comprising 96% of the total cargo tonnage (City of West Sacramento 2013). The Pittsburg Marina is a marina and included boat dock near the project vicinity catering to boat owners and recreators, offering boat rentals, kayaking, and stand-up paddle boarding.

The Proposed Project would use the Sacramento River and/or Honker Bay for access to Spoonbill Creek, however those waterways will not have substantial impacts to navigation or to the West Sacramento DWSC. Landside boat docking to the Proposed Project would occur in Spoonbill Creek. The Proposed Project may have minor impacts upon existing (public or private) recreation use in the project vicinity. During docking, Spoonbill Creek would still be accessible and passable, and all vessels will be properly secured and safely moored to land. All boat traffic associated with project activities will operate below wake-producing speeds. However, restoration project work, such as levee breaching, may limit or prohibit access to Spoonbill Creek to recreators due to safety hazards. Construction equipment and/or access is not expected to impede emergency access, shipping access. Additionally, no changes to the navigable waterways would occur on completion of the Proposed Project. As described in the environmental commitments in the SMP EIS/EIR, the project proponents would coordinate and comply with the U.S. Coast Guard and the Solano County Marine

Patrol before beginning any activities that may impede their boats, to ensure that response times in the project vicinity are not affected.

Implementing the following environmental commitments identified for transportation and navigation in the SMP EIS/EIR (described in Appendix A of this addendum) would reduce potential adverse impacts to a less-than significant level:

- EC-1: Standard Design Features and Construction Practices
- EC-2: Access Points/Staging Areas

The Proposed Project would be implemented over the entire 2-year period between 2024 and 2025, avoiding the potential for traffic or navigation impacts to be concentrated in any one area in the project vicinity. Consistent with the findings in the SMP EIS/EIR, no significant impacts on transportation and navigation would result from implementing the Proposed Project. None of the conditions described in Section 15162 of the State CEQA Guidelines would occur relative to transportation and navigation. The analysis of potential transportation and navigation impacts in the SMP EIS/EIR, supplemented by the information in this addendum, is sufficient to meet CEQA requirements and support the approval of the Proposed Project.

3.10 Air Quality

Air quality could be affected by the Proposed Project, and the type and severity of potential impacts are consistent with those evaluated in the SMP EIS/EIR. This section describes the current environment as it pertains to air quality and the impacts of restoration activities required at Chipps Island on existing air quality in the region.

The current setting with respect to air quality is described in the SMP EIS/EIR. The project site is in Solano County, which is part of the San Francisco Bay Area Air Basin (SFBAAB). The SFBAAB's boundaries have not changed since the 2011 SMP EIS/EIR, and the climate, meteorology, and precipitation are similar to those parameters described in the SMP EIS/EIR. From year to year, precipitation and average wind speeds vary; however, the overall climate in the region has not changed substantially.

Individual air pollutants at certain concentrations may adversely affect human or animal health, reduce visibility, damage property, or reduce the productivity or vigor of crops and natural vegetation. Since 2011, air pollutant levels within the SFBAAB have changed due to altered land uses and updates in emissions

technology, and National Ambient Air Quality Standards (NAAQS) for ozone and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$) have become more stringent (now 0.070 parts per million and 12 micrograms per cubic meter, respectively) (USEPA 2022). The SFBAAB is currently designated as either in attainment or unclassified for most criteria air pollutants but is designated as nonattainment for ozone, $PM_{2.5}$, and particulate matter less than 10 microns in diameter (PM_{10}) by either the State or national standards (CARB 2023, USEPA 2022). The SFBAAB is designated as a maintenance area for national carbon monoxide (CO) standards.

The project site is within the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). The BAAQMD CEQA Air Quality Guidelines (BAAQMD 2017) is an advisory document that provides lead agencies, consultants, and project applicants with recommended procedures for addressing air quality in environmental documents and provides current recommended thresholds of significance for criteria pollutants.

Criteria Air Pollutant Emissions

The SMP EIS/EIR assessed short-term construction emissions and long-term operational emissions for restoration activities using the Urban Land Use Emissions Model (URBEMIS) 2007 (version 9.2.4), the model that was recommended at the time in the BAAQMD CEQA Guidelines. Because restoration and management activities had the potential to occur simultaneously, they were modeled as such to determine the maximum potential impact of the SMP implementation on air quality. The air quality analysis in support of the SMP used Project-specific data inputs for construction equipment and the construction schedule. Tugboat emissions were calculated using the Puget Sound Maritime Air Emissions Inventory methodology (Starcrest Consulting Group 2007) and the South Coast Air Quality Management District Final Methodology to Calculate Particulate Matter $PM_{2.5}$ and $PM_{2.5}$ Significance Thresholds (SCAQMD 2006).

Construction equipment emissions were modeled using the California Emissions Estimator Model (CalEEMod), Version 2022.1. Project-specific construction information used for model input was derived from information described in Sections 2.6 and 2.7 using maximized values to depict a generalized worst-case scenario.

The total criteria air pollutant emissions from Proposed Project unmitigated construction activities are shown in Table 3-4.

Project construction would result in the temporary increase in emissions of criteria air pollutants. Although the Proposed Project would include a greater amount of construction equipment than was proposed in the SMP EIS/EIR, average daily emissions during Project construction would not exceed the BAAQMD-recommended quantitative thresholds of significance (Table 3-4). The BAAQMD recommends that all construction projects implement best management practices to reduce fugitive dust, PM_{10}, and $PM_{2.5}$. These best management practices are discussed in Appendix A, "Environmental Commitments" and Mitigation Measure AQ-MM-3. Therefore, fugitive dust emissions associated with proposed construction activities are assumed to be minimal and not typical of construction-related fugitive dust emissions.

Table 3-4. Summary of Modeled Average Daily Construction-Related Emissions of Criteria Air Pollutants and Precursors

Construction Year	**Average Daily Emissions (pounds per day)**				
Daily emissions (Avg. lbs per day) by Construction Year	**ROG**	**NO_X**	**CO**	**PM_{10}**	**$PM_{2.5}$**
2024	1.57	13.0	54.8	4.01	2.15
2025	1.05	7.77	51.0	1.91	1.00
BAAQMD significance threshold	*54*	*54*	*-*	*82*	*54*
Exceeds Threshold?	**No**	**No**	**No**	**No**	**No**

Notes:
ROG = reactive organic gases; CO = carbon monoxide; NO_X = oxides of nitrogen; PM_{10} = respirable particulate matter with a diameter of 10 microns or less; $PM_{2.5}$ = respirable particulate matter with a diameter of 2.5 microns or less; BAAQMD = Bay Area Air Quality Management District
Source: Modeled by Stillwater Sciences in 2022

The SMP EIS/EIR incorporated mitigation measures AQ-MM-1 through AQ-MM-3 to reduce potential impacts to a less-than-significant level, as well as included an environmental commitment to air quality best management practices (detailed below), to further reduce potential impacts on air quality. Mitigation Measure AQ-MM-1 would require that site preparation only occur on one parcel at a time within the SMP planning area; as this relates to implementation of all projects under the SMP, it would not be applicable to the Proposed Project. Mitigation

Measures AQ-MM-2 and AQ-MM-3 would be applicable to the Proposed Project. Mitigation Measure AQ-MM-2 would limit construction activity to ensure that emissions generated during construction would not exceed the BAAQMD threshold of significance for oxides of nitrogen (NO_X) and would require implementation of measures to limit NO_X emissions from construction equipment. Mitigation Measure AQ-MM-3 would require implementation of the BAAQMD standard mitigation measures. Although implementation of the Proposed Project would require more total construction equipment than was assumed in the SMP EIS/EIR analysis and Mitigation Measure AQ-MM-2, emissions generated by construction activities without implementation of mitigation still would be below the BAAQMD thresholds of significance. Nonetheless, the Proposed Project would be implemented in accordance with the requirements of Mitigation Measures AQ-MM-2 and AQ-MM-3, and the environmental commitments of the SMP EIS/EIR, further reducing temporary construction-related emissions.

Consistent with federal regulations and the findings in the SMP EIS/EIR, the Proposed Project emissions estimates also were compared with general conformity thresholds of significance. As described in the SMP EIS/EIR, the de minimis thresholds applicable to the Proposed Project are 100 tons per year of ozone precursors (i.e., reactive organic gases [ROG] or NO_X) and carbon monoxide (CO). Neither construction nor operations-related emissions from the Proposed Project would exceed these de minimis thresholds.

Model results indicate emissions generated by construction activities of the Proposed Project without implementation of mitigation would be below the BAAQMD thresholds of significance.

Diesel Health Risk Associated with Proposed Project Activities

As described in the SMP EIS/EIR, construction would generate diesel particulate matter (DPM) emissions from the use of off-road diesel-powered equipment. For this analysis, DPM from diesel-fueled engines is considered to be less than or equal to 10 microns in diameter. Therefore, PM_{10} represents the upper limit for DPM emissions associated with project construction.

Health risk is a function of the concentration of contaminants in the environment and the duration of exposure to those contaminants. Concentrations of mobile-source DPM emissions typically are reduced by approximately 60 percent at around 300 feet (Zhu and Hinds 2002). The nearest sensitive receptor to the Proposed Project is a residence on Little Honker Bay Road west of Shiloh Road, approximately 200 feet from the nearest construction area. Construction activities would be dispersed throughout the entire 1,097-acre project area, so the majority

of work would take place substantially farther than 300 feet from the nearest residence. The risks estimated for an exposed individual would be higher if a fixed exposure occurs over a longer period.

The SMP EIS/EIR found that health impacts associated with exposure to diesel exhaust from implementing activities would be less than significant because diesel particulate emission rates would be low, the emissions would be distributed over a large geographic area rather than clustered near any individual sensitive receptor, and construction activities would occur sporadically and would not result in long-term emissions of diesel exhaust in the project area.

Health effects from toxic air contaminants (TACs) often are described in terms of individual cancer risk, which is based on a 30-year lifetime exposure to TACs (OEHHA 2015). Project construction activities would occur over 2 years. As shown in Table 3-4, emissions of NO_X and PM during Project construction would not exceed the BAAQMD's recommended thresholds of significance. Emissions of these pollutants would be further reduced by implementation of Mitigation Measures AQ-MM-2 and AQ-MM-3, and the environmental commitment to air quality best management practices. Consistent with the findings in the SMP EIS/EIR, because of the intermittent and temporary nature of construction activities, and the dispersive properties of TACs, as well as the fact that PM emissions would be far less than the BAAQMD emission thresholds of significance, short-term construction activities would not expose sensitive receptors to DPM emission levels that would result in a health hazard. Therefore, the impact would be less than significant.

Construction-Related Odor

The SMP EIS/EIR identified a potential temporary increase in odors generated by construction-related activities. This analysis determined that environmental commitments would minimize the potential for odor generation, and any temporary generation of odors would not be any more objectionable than naturally occurring odors in the vicinity of the Proposed Project. The Proposed Project would be consistent with the activities proposed in the SMP EIS/EIR, and construction-related odor impacts would be less than significant.

Overall, impacts related to criteria air pollutant emissions would be within the scope of the impacts that were identified in the SMP EIS/EIR and below BAAQMD-recommended thresholds, and would therefore remain less than significant. As described above, Mitigation Measures AQ-MM-2 and AQ-MM-3 would be implemented for the Proposed Project. Implementation of these mitigation measures would further reduce the above described less-than-

significant impacts. The specific mitigation measures from the SMP EIS/EIR are as follows:

- Mitigation Measure AQ-MM-2: Reduce Construction NO_X Emissions. The project proponent will ensure that construction emissions do not exceed the BAAQMD's construction threshold of 54 pounds per day for NO_X. Tables 5.7-8 and 5.7-10 in the SMP EIS/EIR show appropriate levels of construction equipment that can be operating at any given time in the marsh. Such measures include, but are not limited to, the following:
  - Implement off road equipment mitigation, including installing first tier diesel particulate filters and diesel oxidation catalysts to reduce NO_X emissions by 40 percent.
- Mitigation Measure AQ-MM-3: Implement All Appropriate BAAQMD Mitigation Measures. The project proponent will implement BAAQMD standard mitigation measures where appropriate and feasible. These measures include:
  - Cover all haul trucks transporting soil, sand, or other loose materials off-site.
  - Remove all visible mud or dirt track-out onto adjacent public roads.
  - 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 the California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all points.
  - Maintain all construction equipment in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition before operation.
  - 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.

Implementing the following environmental commitments identified for air quality in the SMP EIS/EIR (described in Appendix A of this addendum) would further reduce potential adverse impacts to a less-than-significant level:

- ► EC-10: Air Quality Best Management Practices
  - EC-10-1: Basic Control Measures
  - EC-10-2: Enhanced Control Measures
  - EC-10-3: Additional Air Quality Best Management Practices

Consistent with the findings in the SMP EIS/EIR, impacts on air quality from the Proposed Project would be less than significant with implementation of the mitigation measures from the SMP EIS/EIR. None of the conditions described in Section 15162 of the State CEQA Guidelines would occur relative to air quality. The analysis of potential impacts on air quality in the SMP EIS/EIR, supplemented by the information in this Addendum, is sufficient to meet CEQA requirements and support approval of the Proposed Project.

3.11 Noise

The existing noise setting and the type and severity of potential impacts are consistent with those evaluated in the SMP EIS/EIR.

Existing Noise Environment

Noise levels in the Proposed Project area are primarily affected by boat traffic in the surrounding waterways or vehicular traffic and rail usage in Pittsburg, approximately 1 mile away from Chipps Island across the Sacramento River. Because of the rural nature of the Proposed Project area and its distance from these noise sources, ambient noise levels are expected to range between approximately 40 and 50 A-weighted decibels (dBA) (FTA 2018).

The nearest noise-sensitive land uses to the Proposed Project area are the few private residences on Van Sickle Island, approximately 200 feet away across Spoonbill Creek, and residences in Pittsburg, a minimum of 1 mile away across the Sacramento River. Ambient noise levels on Van Sickle Island are expected to be similar to those on Chipps Island (i.e., 40 to 50 dBA), while noise levels in Pittsburg are more characteristic of urban areas, typically ranging between 60 and 70 dBA (City of Pittsburg 2020).

Noise Standards

Solano County has established policies and regulations concerning the generation and control of noise that could adversely affect its citizens and noise-sensitive land uses. The Noise Element of the County's General Plan contains planning guidelines relating to noise and identifies goals and policies to support achievement of those goals. The Noise Element guidelines relate primarily to land use compatibility with noise sources that are not regulated at the local level, such as traffic, aircraft, and trains. The General Plan includes noise thresholds

for permanent facilities and construction-related activities. The maximum allowable noise level from construction equipment typically is 75 dBA at 50 feet. Solano County's Land Use Noise Compatibility Guidelines in the General Plan indicate that less than 70 community noise equivalent level (CNEL) is the normally acceptable standard for water-based recreational uses, and that less than 60 CNEL is the normally acceptable standard for residential uses (Solano County 2008).

Solano County's Noise Ordinance is the primary enforcement tool for regulating local noise sources, such as mechanical equipment and construction activity (Solano County 2017). The allowable interior noise standards for residential dwelling units are 55 dBA during daytime (7 a.m.–7 p.m.) and 45 dBA during nighttime (7 p.m.–7 a.m.). The maximum permissible exterior noise standards for residential and agricultural areas are 55 dBA during daytime (7 a.m.–7 p.m.) and 50 dBA during nighttime (7 p.m.–7 a.m.). Construction and demolition activities within 500 feet of a residential district are allowed only between 7 a.m. and 6 p.m. Monday through Friday, and between 8 a.m. and 5 p.m. on Saturday. The noise created by construction activity is not to cause the noise level to exceed a maximum noise at the receiving property line of more than 90 dBA at any time; and any construction that exceeds noise levels 45 dBA during the daytime and nighttime, and 55 dBA during the daytime (7 a.m.–7 p.m.) and 50 dBA during the nighttime (7 p.m.–7 a.m.), is to occur between 9 a.m. and 4 p.m. Monday through Friday.

The ordinance also requires that construction or demolition activity during the times otherwise prohibited may be allowed if the activity is found to be in the public interest. The request for such allowance must be in writing and needs to set forth detailed facts showing that the public interest will be served by the grant of such allowance. If the allowance is requested in connection with construction or demolition activities to be undertaken in connection with a land division, use permit, or other discretionary entitlement, the request needs to be submitted as part of the application for such entitlement and must be acted on by the official or decision-making body taking action on such application, after considering the recommendation of the noise control officer. If the allowance is being requested in connection with a building permit, demolition permit, or grading permit and is not in connection with a discretionary entitlement, the request has to be considered and acted on by the noise control officer before the construction or demolition permit has been issued.

Comparison of Project Noise to the Applicable Noise Standards

The Proposed Project would generate temporary and short-term construction noise, primarily from demolition of structures, excavation of the channel network, downgrading sections of the exterior levee, and filling in ditches near the breaches. Noise associated with construction activities and pumping operations would be highly localized. Noise from trucks and boats would not be localized and would occur on roads and waterways used to access the Project site. Because of the small number of construction vehicles that would be used and the sporadic nature of Project implementation, Project-related transportation noise would be minor.

Typical construction equipment noise levels for the Project are estimated to be between 76 and 81 decibels (dB), 50 feet from the source (Table 3-5). Expected noise levels were also calculated at 200 feet and 1 mile from the Proposed Project area (i.e., the distances to the nearest noise-sensitive receptors) using the following formula:

$$L_{eq.equip} = L_{emission} + 10\log\left(Adj_{Usage}\right) - 20\log\left(\frac{D}{50}\right)$$

where $L_{eq.equip}$ is the noise level at the sensitive receptors from the operation of a piece of equipment, Adj_{Usage} is the acoustical usage factor, $L_{emission}$ is the noise level of that piece of equipment at 50 feet, and D is the distance from the piece of equipment to the sensitive receptor (FTA 2018). Results are shown in Table 3-5. The maximum exterior noise level at the nearest sensitive receptors, 200 feet from the source equipment, would be 66 dB; however, exterior noise levels at residences in Pittsburg, approximately 1 mile from the Project site, would not exceed 38 dB. The walls of the residences would decrease indoor noise levels by another approximately 20 dB from the expected exterior values (Table 3-5) (FHWA 2017). These unmitigated noise levels would exceed the County's exterior noise threshold of 55 dBA L_{eq} at the few nearby residences on Van Sickle Island but would otherwise exceed no additional interior or exterior noise thresholds established by the County.

Table 3-5. Calculated Noise Levels at the Nearest Noise-Sensitive Uses from Project Construction Equipment

Equipment Sources	Typical Noise Level from 50 feet, dB[1]	Acoustical Usage Factor [1]	Expected Noise Level at Nearest Noise-Sensitive Uses, dB L_{eq}			
			Residences on Van Sickle Island (200 feet away)		Residences in Pittsburg (1 mile away)	
			Exterior	Interior	Exterior	Interior
Crane	81	20%	62	42	34	14
Excavator	81	40%	65	45	37	17
Pump	81	50%	66	46	38	18
Portable generator	81	50%	66	46	38	18
Tracked mini-dump	76	40%	60	40	32	12
Rubber-tired backhoe	78	40%	62	42	34	14

Notes:
dB = decibels
L_{eq} = equivalent continuous sound level
[1] USDT (2006)

However, Section 28.1-50 of the County's Noise Ordinance allows excavation and other construction activities to exceed established noise level standards between 9 a.m. and 4 p.m. Monday through Friday. Site restoration and other Project-related construction activities would not extend into the nighttime hours (7 p.m. to 7 a.m.), and thus would not exceed the applicable nighttime thresholds. Also, DWR would require the construction contractor to implement standard construction measures to reduce noise impacts. These measures would include limiting construction to daytime hours as required by the Noise Ordinance, locating stationary equipment (e.g., generators, compressors) as far as possible from noise-sensitive uses, rerouting construction traffic away from houses in selected locations as feasible, and minimizing equipment idling time. Therefore, because Project noise levels would comply with the applicable daytime and nighttime noise exposure limits established by the Solano County General Plan

(Solano County 2008) and Noise Ordinance, the construction noise impacts would be less than significant.

The following environmental commitments identified for noise in the SMP EIS/EIR (described in Appendix A of this addendum) would reduce potential adverse impacts to a less-than-significant level:

- EC-1: Standard Design Features and Construction Practices
- EC-2: Access Points/Staging Areas
- EC-5: Noise Compliance

Consistent with the findings in the SMP EIS/EIR, no significant noise impacts would result from implementing the Proposed Project. None of the conditions described in Section 15162 of the State CEQA Guidelines would occur relative to noise. The analysis of potential noise impacts in the SMP EIS/EIR, supplemented by the information in this addendum, is sufficient to meet CEQA requirements and support the approval of the Project.

3.12 Greenhouse Gas Emissions and Climate Change

The Proposed Project could generate greenhouse gas (GHG) emissions, and the type and severity of potential impacts would be consistent with those evaluated in the SMP EIS/EIR. This section describes the current environment as it pertains to greenhouse gases and climate change, the impacts of restoration activities required at Chipps Island on climate change, as well as how climate change may affect the Proposed Project.

The project site is in Solano County, under the jurisdiction of the BAAQMD. In 2022, the BAAQMD adopted updated thresholds of significance for climate impacts (BAAQMD 2022). However, the BAAQMD has not proposed any impact thresholds for construction-related GHG emissions because they are such a small portion of overall GHG emissions.

The SMP EIS/EIR estimated GHG emissions during Project construction using URBEMIS 2006 (version 9.2.4), the model that was recommended at that time in the BAAQMD CEQA Guidelines. For this Addendum, emissions estimates for the Proposed Project's short-term construction activities were modeled using CalEEMod, Version 2022.1, the currently recommended model. A summary of the methodology of the analysis for the SMP EIS/EIR and that for the Proposed Project is presented in Section 3.10, "Air Quality." The same data inputs and modeling approaches were used for GHG emissions estimates as those described for criteria air pollutants.

The SMP EIS/EIR estimated that approximately 276.3 tons of carbon dioxide (CO_2) per year would be generated from restoration activities and approximately 322.5 tons of CO_2 per year would be generated from management activities. However, these estimates were generated using the now outdated URBEMIS emissions model. As shown in Table 3-6, based on emissions modeling using CalEEMod, the Proposed Project would generate approximately 871 metric tons of carbon dioxide equivalent (MT CO_2e) over the 2 years of construction, or an average of about 435.5 MT CO_2 e per year for the 2-year construction period.

Table 3-6. Summary of Modeled Daily Construction-Related Emissions of Greenhouse Gas Emissions

Estimated GHG Emissions by Construction Year	CO_2e (lbs/day)	CO_2e (MT/year)
2024	3,113	515
2025	2,151	356

Notes:
CO_2e = carbon dioxide equivalent
lbs = pounds
MT = metric tons

The BAAQMD has not adopted a threshold of significance for construction-related GHG emissions. As a point of reference, the BAAQMD operation-related threshold of significance for GHG emissions is 1,100 MT CO_2e/year, which applies to long-term generation of emissions. GHG emissions from Project construction would be temporary and less than the long-term operation-related threshold recommended by the BAAQMD. In addition, as identified in the SMP EIS/EIR, construction emissions likely would be offset through changes in net GHG sources and sinks, because the Proposed Project would be a tidal restoration habitat project and would become a sink for CO_2. Therefore, generation of GHG emissions from construction activities would not result in a cumulatively significant impact, consistent with the analysis in the SMP EIS/EIR.

Consistent with the SMP, the Proposed Project would help maintain and restore natural wetland processes that would enhance ecosystem function. This would increase the capacity of the project area to adapt to changes induced by climate change and would result in a beneficial impact related to loss of wetland habitat, ecosystem health, and flood risk associated with climate change-induced sea level rise.

Consistent with the findings in the SMP EIS/EIR, impacts from the Proposed Project related to GHG emissions and climate change would be less than cumulatively considerable to the significant cumulative impact of global climate change. None of the conditions described in Section 15162 of the State CEQA Guidelines would occur relative to GHG emissions and climate change impacts. The analysis of potential impacts on GHG emissions and climate change in the SMP EIS/EIR, supplemented by the information in this Addendum, is sufficient to meet CEQA requirements and support approval of the Proposed Project.

3.13 Fish

Fish resources that could be affected by the Proposed Project and the type and severity of potential impacts on fish are consistent with those evaluated in the SMP EIS/EIR. As summarized in the SMP EIS/EIR, implementing the SMP (including the Proposed Project) would primarily involve internal channel excavation and filling, water control structure removal, levee breaching, and vegetation management. These actions may affect fish and fish habitat in Suisun Marsh. Environmental commitments in the SMP EIS/EIR, including avoidance and minimization measures such as using construction work windows, would be implemented to reduce impacts on water quality and fish in the immediate construction area. Therefore, levee breaching and water control structure removal would result in less-than-significant impacts. Creating subtidal and low intertidal wetland habitat through tidal restoration would provide refuge and foraging habitat for special-status fish species, and aquatic food web benefits. Special-status fish species also would indirectly benefit from increased primary production (i.e., plankton and other plant food sources), flushed from mid- and high-intertidal wetlands into Spoonbill Creek, the Sacramento River, and Honker Bay.

The SMP EIS/EIR included a plan outlining the need for and intent of monitoring and adaptive management, and general considerations for project proponents. As described in the adaptive management and monitoring plan, DWR would be responsible for monitoring as described in project planning documents. The approach for each restoration action would be determined by the specific lead agency and would be based on the SMP EIS/EIR, project-specific design components, any new information (including that obtained during implementation of the adaptive management and monitoring plan), and other factors. Adaptive management for the proposed project would include water quality, food web, vegetation, and fish monitoring to the extent allowed by federal and state take permits.

As described in the SMP EIS/EIR, the following listed and special-status native species occur in Suisun Marsh:

- Central Valley steelhead (*Oncorhynchus mykiss*)
- Sacramento River winter-run Chinook Salmon (*Oncorhynchus tshawytscha*)
- Central Valley spring-run Chinook Salmon (*O. tshawytscha*)
- Central Valley fall-/late fall–run Chinook Salmon (*O. tshawytscha*)
- Delta Smelt (*Hypomesus transpacificus*)
- Longfin Smelt (*Spirinchus thaleichthys*)
- Sacramento Splittail (*Pogonichthys macrolepidotus*)
- Green Sturgeon (*Acipenser medirostris*)

The SMP EIS/EIR includes information regarding the status, life history, distribution, and description of any designated critical habitat for these listed and special-status species. The information in the SMP EIS/EIR is current, except for the federal listing for Longfin Smelt, which now is considered a candidate for listing. Adult and juvenile Chinook Salmon, Steelhead, and Green Sturgeon migrate pass Chipps Island on their return to their upstream spawning habitats; juveniles are known or have the potential to occur in the waters around Chipps Island and must migrate pass Chipps to return to the ocean. Delta Smelt, Longfin Smelt, and Sacramento Splittail are found throughout Suisun Marsh and the waters surrounding Chipps Island. Subtidal, low-intertidal, low-marsh, mid-marsh, and high-marsh areas all provide habitat for special-status fish species (Reclamation et al. 2011:Section 6.1). The SMP EIS/EIR (in Tables 6.1-4 and 6.1-5) describes life-stage timing for these species in Suisun Marsh and their salinity and velocity tolerances. This information is current; however, Longfin Smelt (adults and juveniles) and Delta Smelt (estuarine-rearing adults and juveniles) may be found year-round in the project area, including the summer months. In general, juvenile native fish species use the Suisun Marsh as a rearing area in winter and spring, while nonnative species use the Marsh in summer and the early fall months when the water is warmer. The number of native fish found in Suisun Marsh has declined over the years (Moyle et al. 2016; Nobriga and Rosenfield 2016; Reclamation et al. 2011:Section 6.1). Additionally, recent fish monitoring results from CDFW's long-term monitoring programs indicate Delta Smelt (Figure 3-1) and Longfin Smelt (Figure 3-2) remain at historic lows.

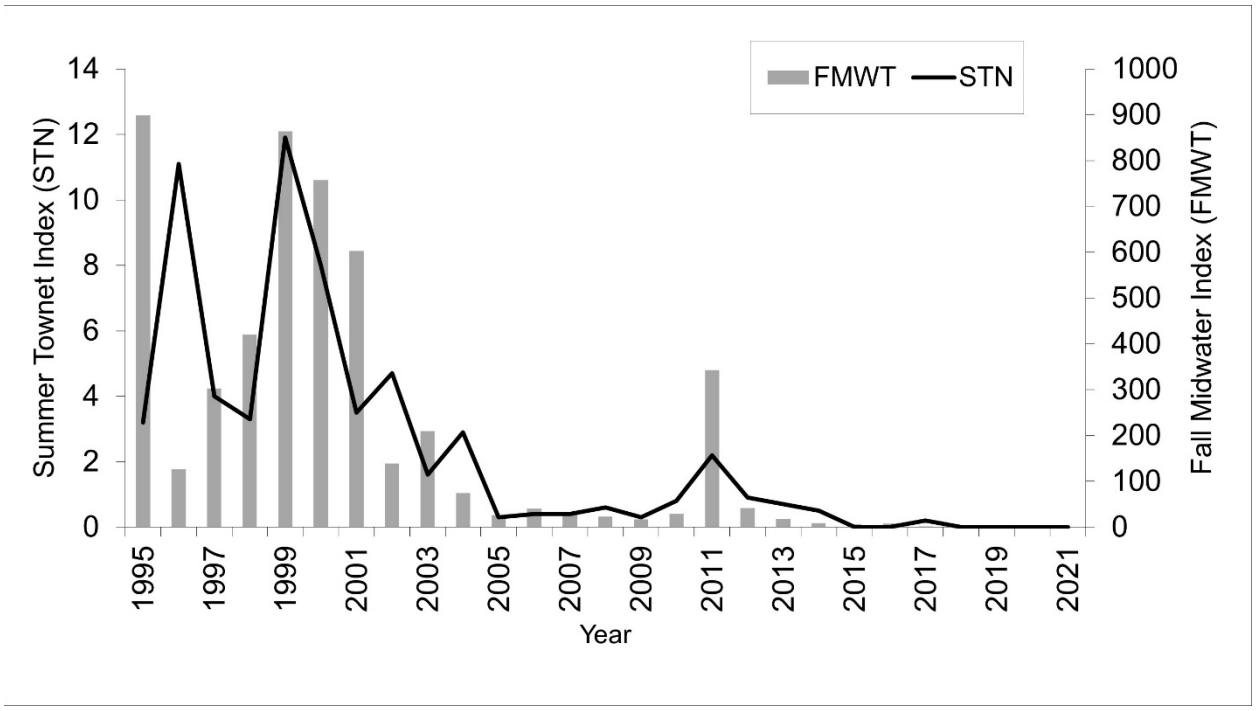

Figure 3-1. Delta Smelt abundance indices from CDFW's Summer Townet and Fall Midwater Trawl surveys, from 1995 through 2021 (source https://wildlife.ca.gov/Conservation/Delta).

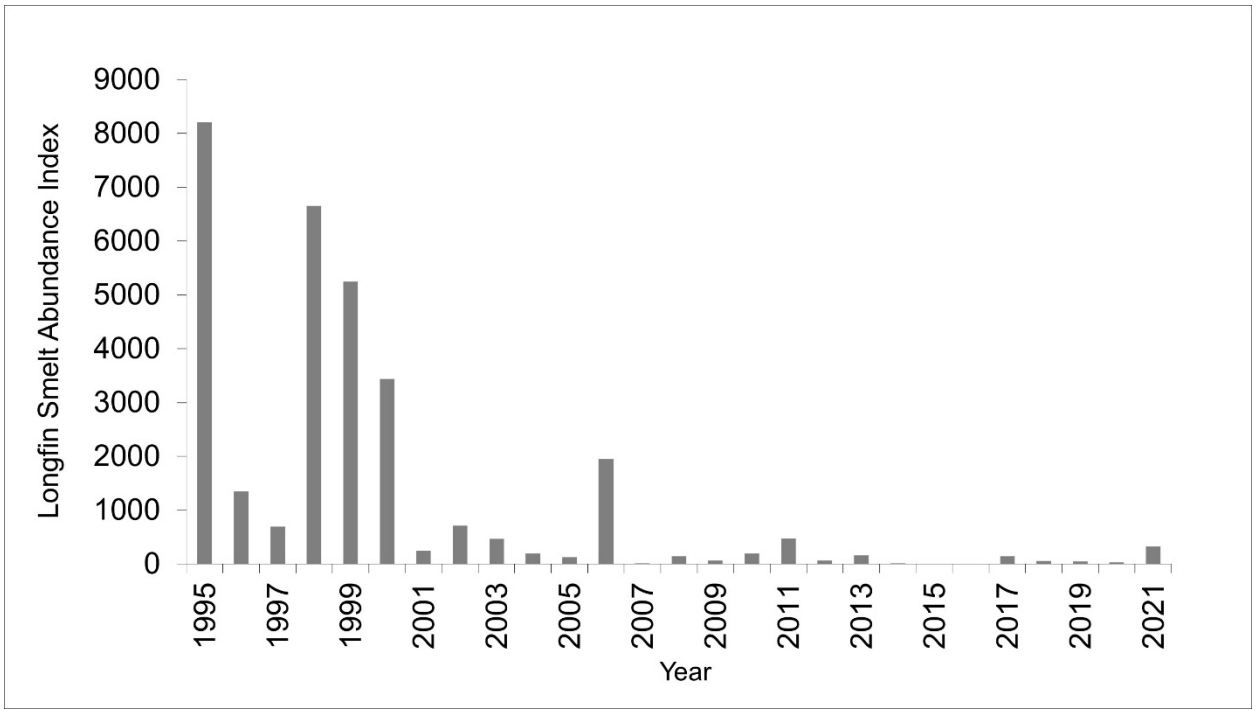

Figure 3-2. Longfin Smelt abundance index from CDFW's Fall Midwater Trawl survey, from 1995 through 2021 (source https://wildlife.ca.gov/Conservation/Delta).

Project-Specific Existing Conditions

Because of Chipps Island's geographical location at the confluence of the Sacramento and San Joaquin Rivers and at the low salinity zone where freshwater flowing down through the Delta meets saltier water pushed tidally from downstream bays and the ocean, the fish community is diverse and changes with the seasons and Delta outflow. Long-term fish monitoring by CDFW and USFWS at sampling stations near Chipps Island give a good indication of the fish species that will potentially occur in the Proposed Project area (Table 3-7, fish monitoring that targets adult and juvenile fishes; Table 13-8, fish monitoring that targets juvenile and larval fishes). For surveys that target adult and juvenile fishes, 40 of the fish species caught were native and 27 were nonnative (Table 3-7) and overall, the most abundant species was American Shad (60% of the total catch) followed by Chinook Salmon (13% of the total catch) and Striped Bass (11% of the total catch). For surveys that target larval fishes, 24 of the fish species caught were native species and 16 were nonnative (Table 3-8), and the most abundant species was Longfin Smelt (41% of the total catch) followed by Pacific Herring (22% of the total catch) and Striped Bass (11% of the total catch). In addition to the long-term monitoring program fish results, larval Longfin Smelt were also documented in the littoral habitats in and around Chipps Island in 2013 and 2014 (Grimaldo et al. 2017).

The long-term fish monitoring results (Tables 3-7 and 3-8) suggest fish in the surrounding waters of Chipps Island can range from species typically caught in the more marine conditions of San Francisco Bay (e.g., California Halibut, Pacific Staghorn Sculpin, Northern Anchovy, Pacific Herring), to low salinity species found in Suisun Marsh (e.g., Delta Smelt, Yellowfin Goby, Sacramento Spilttail, Mississippi Silverside), to freshwater species found in the Delta (e.g., Bluegill, Largemouth Bass, Threadfin Shad, Sacramento Pikeminnow), and to the anadromous species that are seasonally abundant (e.g., Chinook Salmon, Steelhead, Longfin Smelt, American Shad, White Sturgeon). This diverse fish community around Chipps Island varies seasonally depending on Delta outflow, water temperature and salinity, and the varying tolerance levels each fish species has to this dynamic aquatic environment.

Table 3-7. Raw catch data from CDFW's Bay Study midwater trawl (BS-MWT) and otter trawl (BS-OT), Fall Midwater Trawl Survey (FMWT), Summer Townet Survey (STN), and Spring Kodiak Trawl (SKT); and USFWS' Chipps Island Midwater Trawl (CIT). Native fishes are in bold italic.

Common Name	BS-MWT[1]	BS-OT[2]	FMWT[3]	STN[4]	SKT[5]	CIT[6]
American Shad	1,964	138	2,458	143	165	295,526
Bay Goby		9		1		
Bigscale Logperch		3				
Black Crappie						19
Bluegill	1				2	108
Brown Rockfish						1
California Halibut		4	1			
California Tonguefish		1				1
Chameleon Goby		1	4	1		
Channel Catfish	2	66	1			6
Chinook Salmon	334	10	88	5	439	66,008
Common Carp	10	16	7			3
Delta Smelt	636	138	1,910	1,855	59	2,662
English Sole	1	45				
Golden Shiner						45
Goldfish	1					1
Green Sturgeon		7				2
Green Sunfish	1					
Hardhead						2
Hitch						4
Jacksmelt	6			5		181
Largemouth Bass						40
Leopard Shark						1
Longfin Smelt	2,387	985	10,615	717	39	3,834
Mississippi Silverside		1	2		39	2
Night Smelt						1
Northern Anchovy	1,102	27	1,098	1,029	424	5,409
Pacific Herring	106	13	31	54	1,001	3,673
Pacific Lamprey	1	38	2	1	1	14

Common Name	BS-MWT[1]	BS-OT[2]	FMWT[3]	STN[4]	SKT[5]	CIT[6]
Pacific Sanddab			1			
Pacific Staghorn Sculpin	12	323	8			69
Pacific Tomcod	1					
Plainfin Midshipman	6	12	4	2		1
Prickly Sculpin	1	19				1
Rainwater Killifish						4
Redear Sunfish						1
River Lamprey	1	15	1			6
Sacramento Pikeminnow	1		1			60
Sacramento Sucker	1	3				
Shimofuri Goby	16	52	2	2	2	296
Shiner Perch	1		3			2
Shokihaze Goby	4	467	3	137		58
Speckled Sanddab		4				
Splittail	186	221	43	18	2	1,674
Spotted Bass						3
Starry Flounder	78	1,044	19	21		133
Steelhead	8		8		19	1,385
Striped Bass	4,496	9,361	7,404	14,673	8	18,530
Striped Mullet						3
Surf Smelt	1		1			6
Threadfin Shad	641	47		8	56	25,404
Threespine Stickleback	7	28	4	30		85
Topsmelt	3		17	54	3	981
Tule Perch	5	49			1	111
Unidentified Fish			51	944	1	7
Wakasagi			1			31
Warmouth						10
White Catfish	6	274	122	6		24
White Crappie						5
White Croaker	2	3	6			
White Sturgeon	68	112	47			14

Common Name	BS-MWT[1]	BS-OT[2]	FMWT[3]	STN[4]	SKT[5]	CIT[6]
Yellow Bullhead						1
Yellowfin Goby	352	1,688	125	112		104
Total	**12,449**	**15,224**	**24,088**	**19,818**	**2,261**	**426,552**

Notes:

1 San Francisco Bay Study; Midwater Trawl raw catch; Sample Stations 534 and 535; Sample Years 1980–2020.

2 San Francisco Bay Study; Otter Trawl raw catch; Sample Stations 534 and 535; Sample Years 1980–2020.

3 Fall Midwater Trawl Survey; Midwater Trawl raw catch; Sample Stations 507, 508, 509, and 510; Sample Years 1967–2020 (no samples in 1974 and 1979).

4 Summer Townet Survey; Townet raw catch; Sample Station 508; Sample Years 1959–2020

5 Spring Kodiak Trawl Survey; Kodiak Trawl raw catch; Sample Station 508; Sample Years 2002–2021.

6 USFWS Chipps Island Trawl; Midwater Trawl raw catch; Sample Stations SB0118 (N,M,S); Sample Years 2008–2021.

Table 3-8. Raw catch data from CDFW's 20mm Survey, Delta Smelt Larval Survey (DSLS), and the Smelt Larval Survey (SLS). Native fishes are in bold italic.

Common Name	20mm[1]	DSLS[2]	SLS[3]
American Shad	60	45	
Arrow Goby	14		15
Bay Goby	13		1
Bay Pipefish	1		
Bigscale Logperch		4	1
Channel Catfish	1		
Cheekspot Goby	2		
Chinook Salmon	18		1
Common Carp	10	1	
Delta Smelt	799	2	24
Goldfish	1		
Jacksmelt	150		8
Largemouth Bass	2		
Longfin Smelt	16,084	441	6,905
Longjaw Mudsucker	1		1
Mississippi Silverside	1	4	

Common Name	20mm[1]	DSLS[2]	SLS[3]
Northern Anchovy	470		10
Pacific Herring	2,603	162	9,618
Pacific Lamprey	1		
Pacific Staghorn Sculpin	1		3
Plainfin Midshipman	1		
Prickly Sculpin	187	243	1,208
Rainwater Killifish	1		
River Lamprey	2		
Sacramento Sucker	24	1	1
Shimofuri Goby	28		
Shokihaze Goby	53		
Smallmouth Bass	1		
Splittail	12		
Starry Flounder	35		
Striped Bass	6,380	57	
Threadfin Shad	153	111	
Threespine Stickleback	53	1	2
Topsmelt	18		
Tule Perch	1		
Unidentified Fish	4,767	2	44
Wakasagi	10		
White Catfish	4		
White Croaker	1		
White Sturgeon	13		
Yellowfin Goby	4,034	78	1,474
Total	**36,010**	**1,152**	**19,316**

Notes:

1 20mm Survey; Larval Net raw catch; Sample Stations 508 and 509; Sample Years 1995–2021.

2 Delta Smelt Larval Survey; Larval Net raw catch; Sample Station 508; Sample Years 2005–2006.

3 Smelt Larval Survey; Larval Net raw catch; Sample Station 508; Sample Years 2009–2021.

Pelagic invertebrates are an important part of productivity in Suisun Marsh, and several species of caridean shrimp, mysids, rotifers, and calanoid copepods, and several species of amphipods (*Corophium* spp.) are common (Hennessy 2009; O'Rear and Moyle 2010). Mesozooplankton collected as part of the 20mm

Survey at station 508, in the channel next to Chipps Island, from 1995 through 2020, included adult Pseudodiaptomus spp., juvenile calanoid copepods, juvenile cyclopoid copepods, copepod nauplii, adult Limnoithona spp., adult Tortanus spp., and rotifers (data available at https://filelib.wildlife.ca.gov/Public/Delta Smelt). Benthic invertebrates also play an important role in productivity in the project area. Benthic invertebrates that occur in Suisun Marsh include cladocera, amphipods, polychaete worms (*Polychaeta*), several marine mollusks, and a freshwater species of clam (*Corbicula fluminea*) that is present when river inflow is unusually high. In more brackish portions of Suisun Marsh, the invasion of the overbite clam (*Corbula amurensis*) in the late 1980s caused a fundamental shift in the benthic community. Across the San Francisco Bay Estuary as a whole, these clams filter a volume of water equivalent to the entire North Bay one to two times per day (Schroeter et al. 2006); however, the center of distribution of the overbite clam and other benthic species varies with freshwater flow and the resulting annual salinity regime. Because of these environmental variations, the composition of the benthic invertebrate community at any particular location in the estuary can change substantially from year to year.

Project-Specific Impacts

The SMP EIS/EIR identified 40 different potential impacts on fish resources, determining that all of those potential impacts would be less than significant or beneficial. Table 3-9 shows the fish resource impacts that were considered.

Table 3-9. Impacts on Fish Considered in the SMP EIS/EIR. Shaded impact rows indicate no further project-specific analysis is required.

FISH-1: Construction-related temporary impairment of fish survival, growth, and reproduction by accidental spills or runoff of contaminants (heavy metals)
FISH-2: Construction-related temporary reduction of special-status fish rearing habitat quality or quantity through increased input and mobilization of sediment
FISH-3: Short-term impairment of Delta Smelt passage and reduced availability of spawning and rearing habitat resulting from changes in channel morphology and hydraulics attributable to restoration activities
FISH-4: Short-term impairment of Chinook Salmon passage and reduced availability of rearing habitat resulting from changes in channel morphology and hydraulics attributable to restoration activities
FISH-5: Short-term impairment of Steelhead passage and reduced availability of rearing habitat resulting from changes in channel morphology and hydraulics attributable to restoration activities

FISH-6: Short-term impairment of Green Sturgeon passage and reduced availability of holding and rearing habitat resulting from changes in channel morphology and hydraulics attributable to restoration activities
FISH-7: Short-term impairment of Sacramento Splittail passage and reduced availability of rearing habitat resulting from changes in velocity attributable to restoration activities
FISH-8: Short-term impairment of Longfin Smelt passage and reduced availability of rearing habitat resulting from changes in velocity attributable to restoration activities
FISH-9: Temporary reduction of Delta Smelt habitat quantity or quality through removal and destruction of cover attributable to restoration activities
FISH-10: Temporary reduction of Chinook Salmon habitat quantity or quality through removal and destruction of cover as a result of restoration activities
FISH-11: Temporary reduction of Steelhead habitat quantity or quality through removal and destruction of cover as a result of restoration activities
FISH-12: Temporary reduction of Green Sturgeon habitat quantity or quality as a result of restoration activities
FISH-13: Temporary reduction of Sacramento Splittail habitat quantity or quality through removal and destruction of cover as a result of restoration activities
FISH-14: Temporary reduction of Longfin Smelt habitat quantity or quality through removal and destruction of cover as a result of restoration activities
FISH-15: Improved fish habitat due to increased dissolved oxygen concentrations in tidal channels attributable to restoration activities
FISH-16: Salinity-related reduction of Delta Smelt survival, growth, movement, or reproduction attributable to restoration activities
FISH-17: Salinity-related reduction of Chinook Salmon survival, growth, or movement as a result of restoration activities
FISH-18: Salinity-related reduction of Steelhead survival, growth, or movement as a result of restoration activities
FISH-19: Salinity-related reduction of Green Sturgeon survival, growth, or movement as a result of restoration activities
FISH-20: Salinity-related reduction of Sacramento Splittail survival, growth, movement, or reproduction as a result of restoration activities
FISH-21: Salinity-related reduction of Longfin Smelt survival, growth, movement, or reproduction as a result of restoration activities
FISH-22: Disturbance, injury, or mortality of individual fish resulting from work adjacent to bodies of water

FISH-23: Change in fish species composition attributable to changes in salinity or water quality from managed or natural wetland modifications
FISH-24: Change in benthic macroinvertebrate composition attributable to changes in channel morphology and hydraulics as a result of tidal restoration
FISH-25: Change in primary productivity as a result of tidal restoration
FISH-28: Construction-related mortality of fish from stranding[1]

Notes:

[1] FISH-28 is for managed wetlands but applies to the Proposed Project because the impact would be the same as that described in the SMP EIS/EIR.

Fish stranding impacts similar to FISH-28 could occur on the north parcel of Chipps Island when it is temporarily dewatered. If necessary and after consultation with CDFW, a fish rescue would be conducted to relocate stranded fish to nearby suitable tidal habitat. For most of the other potential impacts on fish, the Proposed Project would not have impacts greater in magnitude or duration than those presented in the SMP EIS/EIR, and no further analysis is required. For example, this applies to breaching-related impacts that would be similar regardless of the location of the project. To address the Project-specific potential impacts requiring additional analysis, this addendum provides further analysis of:

- Effects related to tidal hydrology (i.e., tidal exchange and current velocity) on habitat for listed and special status fish species (FISH-3 through FISH-8), and
- DO and salinity-related effects on survival, growth, movement, or reproduction of listed and special-status fish species (FISH-15 through FISH-21).

In addition, this addendum provides an analysis of impacts on fish not considered in the SMP EIS/EIR: invasive vegetation management in tidal waters.

Tidal Hydrology–Related Effects

The SMP EIS/EIR analyzed the short-term and temporary impacts of restoration-related changes on channel morphology, hydrology, and current velocity. Section 3.4 of this addendum, “Water Supply, Hydrology, and current velocity,” further analyzes the Proposed Project-specific impacts to local hydrology. This section expands on those discussions to present a more specific analysis of the long-term habitat alteration that listed and special-status fish could experience. The Proposed Project would alter fish habitat through the restoration of tidal waters; an increase in food web export to Spoonbill Creek, Honker Bay, and the

Sacramento River; and increase tidal exchange into Spoonbill Creek and to the east and west parcels.

The Proposed Project would restore tidal hydrology to approximately 362 acres on the north parcel and increase tidal exchange to the adjacent wetlands in east and west parcels. Much of the restored area would be suitable habitat for fish. In addition, this new tidal wetland area would increase the inputs of nutrients and potential forage items (e.g., detritus, phytoplankton, and invertebrates) for fish into Honker Bay and the Sacramento River. The Proposed Project would increase the tidal prism or flood volume of the project area by 668 ac-ft, approximately 67 percent increase over baseline, during an average high tide (RMA 2023). This would increase current velocities on the north parcel, improve DO, and increase the bulk transport of plankton and invertebrates off the restoration site. Although Striped Bass could be attracted to the breach locations and channels, the Proposed Project was designed to minimize flows and eddies that could be used by Striped Bass to ambush and prey upon native fishes. The Proposed Project could attract juvenile salmonids and Splittail that would forage on an abundance of aquatic insects and invertebrates, zooplankton, and benthic organisms. Delta Smelt may benefit from the increased productivity tidally exchanged from the site into the surrounding waterways. Longfin Smelt would likely take advantage of the newly created tidal wetland channels that could support potential spawning and rearing habitat. Longfin Smelt have been documented spawning and rearing in recently restored tidal wetlands of South San Francisco Bay (Lewis et al. 2020). Additionally, the excavated channels and restoration of full tidal action should also reduce the habitat suitability for invasive submerged vegetation. Overall, the changes to tidal hydrology caused by the Proposed Project would have long-term beneficial effects on habitat for listed and special-status fish species.

Dissolved Oxygen and Salinity Effects

As described in the SMP EIS/EIR “Water Quality” section, harmful low DO levels in Suisun Marsh under baseline conditions are related primarily to annual discharges of poor-quality water from adjacent managed wetlands, such as impounded seasonal waterfowl ponds that have residence times on the order of months (Reclamation et al. 2011: Section 5.2). When poor-quality water is discharged into sloughs with minimal tidal flushing, DO in the sloughs can decrease substantially. However, at Chipps Island, water flowing off the existing tidal wetlands on the west and east parcels, and water discharged off the managed wetland on the north parcel, probably does not have significant effects on surrounding DO conditions due to the highly dynamic river and tidal flows flushing by Chipps Island. Full tidal restoration of the north parcel would further

reduce the likelihood of low DO conditions, that may exist at times on managed wetlands, from flowing into the surrounding waterways. Converting managed wetland to tidal wetland has the potential to increase DO levels in adjoining portions of the estuary, thereby improving overall water quality conditions and resulting in a beneficial effect on fish.

As described in the SMP EIS/EIR, special-status fish species of Suisun Marsh have a wide range of salinity tolerances; thus, salinity changes would need to be large to have significant effects on survival, growth, and movement. Simulations of salinity (i.e., electrical conductivity) were performed for the 2009 calendar year to assess the potential impacts of the Chipps Island restoration project on local and regional salinity (RMA 2023). Modeling results suggest salinity impacts of the Proposed Project are very small at Compliance locations. The largest percent monthly-averaged salinity change occurred primarily during the summer and fall months at the CCWD intake at Mallard Slough (0.4% - 0.5% during May – June). The only stations that showed a salinity decrease (-0.1%) occurred at Emmaton, station D22 on the Sacramento River (January, February, and July -December) and at station D24 on the Sacramento River at Rio Vista (January and August – December). All other locations, salinity increases ranged from 0.0 to 0.2%. In general, the largest decreases in salinity compared to baseline occurred in Chipps Island itself (as much as -5%) and into Honker Bay to the north (approximately -1%).

Longfin Smelt, Delta Smelt, and Sacramento Splittail have salinity tolerances that vary among life stages. For example, spawning Longfin Smelt, their fertilized eggs, larvae, and juveniles experience lower levels of salinity than older fish (Table 3-10). The Proposed Project would decrease salinities (measured as EC) by up to 5 percent in Chipps Island during the summer (RMA 2023) and may incrementally increase the size of suitable spawning and early-stage larval Longfin Smelt rearing habitat, as well as Delta Smelt rearing habitat. For salmonids, this incremental reduction of salinity would likely have little effect on adult salmonid migration or smolt foraging and outmigration as salmonids in this part of the Delta are typically transitioning from salt to freshwater (upstream adult migration) or freshwater to saltwater (downstream juvenile migration). Adult and juvenile Green Sturgeon also have a broad salinity tolerance and would not be affected by any Project-related salinity changes. Therefore, salinity-related effects of restoration activities on fish survival, growth, movement, or reproduction would be minimal, and may have an overall beneficial effect for special-status fish species. These effects would be within the scope of the

impacts identified in the SMP EIS/EIR and therefore would be less than significant.

Table 3-10. Salinity Tolerances for Special-Status Fish at Various Life Stages

Species	Adult Tolerance	Larvae/Early Juvenile Tolerance	Spawning	Egg
Longfin Smelt	0 to 53,100 µS/cm	2,150 to 29,900 µS/cm	0 to 1,000 µS/cm	0 to 1,000 µS/cm
Delta Smelt	0 to 29,200 µS/cm	600 to 3,400 µS/cm	0 to 1,000 mS/cm	0 to 8,900 mS/cm
Chinook Salmon	0 to 49,000 µS/cm	~0 µS/cm	Occurs outside Estuarine waters	Occurs outside Estuarine waters
Steelhead	0 to 49,000 µS/cm	~0 µS/cm	Occurs outside Estuarine waters	Occurs outside Estuarine waters
Sacramento Splittail	0 to 35,000 µS/cm	0 to 13,900 µS/cm	0 to µS/cm	0 to 9,000 µS/cm
Green Sturgeon	0 to 49,000 µS/cm	1,000 µS/cm for larvae, up to 49,000 µS/cm as juveniles grow	Occurs outside Estuarine waters	Occurs outside Estuarine waters

Notes:

Values are converted from parts per thousand (ppt) to electrical conductivity, assuming a temperature of 25°C.

µS/cm = microsiemens per centimeter.

Invasive Vegetation Management

As described in the SMP EIS/EIR, DWR would include measures in the project construction specifications to minimize the potential for introduction of new noxious weeds and the spread of weeds previously documented in the project area. Invasive vegetation management would occur after restoration is completed, as described in Appendix B. During that time, vegetation management may occur in tidally influenced areas, and thus may affect water quality in these areas and in turn result in potential impacts on special-status fish that may be present in the vicinity. This vegetation management may include hand removal, mechanical removal (i.e., mowing), or herbicide application. Although hand and mechanical removal could affect nearby waters by introducing vegetative debris or could temporarily increase turbidity by disturbing

areas of mud or silt, such impacts would be brief, localized, and much smaller in magnitude compared to other ground disturbing actions that would cause the water quality impacts analyzed in the SMP EIS/EIR, such as levee breaching and grading. Herbicide application methods would be protective of water quality and aquatic organisms, as described in the water quality section. DWR would only use herbicides approved by EPA, following label instructions and EPA-approved protocols. EPA has evaluated the use of these chemicals in various ecosystems and has determined their use to be safe. All herbicide applications would occur during low tide to maximize plant coverage. The non-wetted portion of the plant would be targeted, to minimize the risk of water contamination, and herbicide applications would not occur in tidal mud flats. Only herbicides labeled for aquatic use would be applied in tidal areas. In addition, herbicides in tidal areas would be applied in accordance with the General NPDES Permit for Residual Aquatic Pesticide Discharges for Algae and Aquatic Weed Control Applications (Order No. 2013-0002-DWQ, NPDES No. CAG990005). With implementation of the proposed BMPs, impacts on fish resulting from invasive vegetation management would be less than significant.

3.14 Vegetation and Wetlands

Vegetation and wetland resources that could be affected by the Proposed Project, including the type and severity of potential impacts, are consistent with those evaluated in the SMP EIS/EIR.

Proposed activities that could affect vegetation and wetlands include dewatering; invasive plant species control; creation of temporary staging areas and access roads/ramps; filling ditches and borrow pits; widening existing and excavating new channels; breaching tidal levees; breaching and grading interior levees/berms; the placement of excavated material; temporary stockpiling and sidecasting of soil, construction materials, or other debris; and removing old infrastructure such as water control structures, remnant abandoned structures and equipment, a sunken shipping container, debris, foundations, and pilings within the Proposed Project Area. In some cases, removal of debris and remnant infrastructure may require temporary access by construction equipment in areas supporting tidal marsh vegetation. When that access is required, marsh mats would be employed to limit damage to marsh vegetation.

Temporary impacts would occur only during the construction period for restoration and enhancement of wetlands. Permanent impacts would cause irreversible changes on land cover types. The SMP EIS/EIR developed criteria for determining significant impacts on biological resources by reviewing the State

CEQA Guidelines, concluding that the SMP would likely result in a significant impact if any of the following criteria were met:

- ► Net loss of wetland acres and functions and values, including waters of the United States
- ► Substantial loss of occupied special-status species habitat
- ► Reduction in the area and functions within Suisun Marsh of rare natural communities
- ► Causing plant populations to drop below self-sustaining levels
- ► Spread or introduction of new noxious weed species in the plan area
- ► Reduction in the number or restriction in the range of an endangered, rare, or threatened plant species or plant species of special concern

The potential effects of the Proposed Project on vegetation resources would be consistent with the impacts that were evaluated in the SMP EIS/EIR (Table 3-11). Furthermore, the project was designed to minimize the impacts on special-status plant species and prevent the establishment of invasive plants. These activities would not introduce any new impacts and would not increase the severity of the previously documented impacts.

Table 3-11. Impacts on Vegetation and Wetland Resources Considered in the SMP EIS/EIR

Restoration Impacts
VEG-1: Short-Term Loss or Degradation of Tidal Wetlands and Tidal Perennial Aquatic Communities in Slough Channels Downstream of Restoration Sites as a Result of Increased Scour
VEG-2: Loss or Degradation of Tidal Wetlands Adjacent to Restoration Sites as a Result of Levee Breaching/Grading
VEG-3: Loss of Managed Wetlands as a Result of Tidal Wetland Restoration
VEG-4: Loss of Upland Plant Communities and Associated Seasonal Wetland Habitat as a Result of Tidal Wetland Restoration
VEG-5: Spread of Noxious Weeds as a Result of Restoration Construction
VEG-6: Loss of Special-Status Plants or Suitable Habitat as Result of Tidal Wetland Restoration
VEG-7: Degradation of Native Plant Species and Spread of Invasive Plant Species as a Result of Increased Public Access

Source: Table 4-1 in CDFG et al. (2011)

Vegetation

Special-status plants were included in the SMP EIS/EIR evaluations based on the presence of suitable habitat and the species' potential to occur within land cover types identified in the study area (see Table 6.2-3 of the SMP EIS/EIR). The SMP EIS/EIR concluded that the following special-status plant species have the potential to occur in tidal or managed wetlands in the plan area and could be directly or indirectly affected by the SMP and tidal restoration projects:

- ► Soft bird's-beak (*Chloropyron molle* subsp. *molle*) (formerly *Cordylanthus mollis* subsp. *mollis*)
- ► Suisun thistle (*Cirsium hydrophilium* var. *hydrophilium*)
- ► Suisun Marsh aster (*Symphyotrichum lentum*)
- ► Delta tule pea (*Lathyrus jepsonii* var. *jepsonii*)
- ► Mason's lilaeopsis (*Lilaeopsis masonii*)
- ► Delta mudwort (*Limosella subulata*) (synonym: *Limosella australis*)

In addition to evaluations made in the SMP, lists of special-status plant species and sensitive natural communities that may occur in the Proposed Project Area or vicinity were made by querying the following agency databases:

- The USFWS Information for Planning and Conservation Portal (IPaC) (USFWS 2022);
- The California Native Plant Society's (CNPS) online Inventory of Rare and Endangered Vascular Plants of California (CNPS 2022); and
- CDFW's California Natural Diversity Database (CNDDB) (CDFW 2022a).

Database queries were based on a search of the U.S. Geological Survey (USGS) 7.5-minute quadrangle in which the Project is located (Honker Bay) and the surrounding eight quadrangles (Antioch North, Antioch South, Birds Landing, Clayton, Denverton, Fairfield South, Vine Hill, and Walnut Creek).

The conclusion in the SMP EIS/EIR was based on information in CNDDB, USFWS, and CNPS databases, as well as past special-status plant surveys conducted in the region, but no special-status plant surveys were conducted specifically for the SMP EIS/EIR. To assess potential impacts on special-status native plant populations for the Proposed Project, special-status plant surveys were conducted by two qualified botanists with: (1) experience conducting floristic surveys; (2) knowledge of plant taxonomy and plant community ecology and classification; (3) familiarity with the plant species of the area; and (4) familiarity with appropriate state and federal statutes related to plants and plant collecting.

Surveys for all potential special-status plants were conducted in May, June, and July 2018 in a portion of the Proposed Project area (DWR 2019a); however, those preliminary surveys did not cover all areas with existing infrastructure proposed for removal (Figure 2-3), all Proposed Project features (Figure 2-2), all site preparation areas (Figure 2-3), or all areas proposed for clearing (Figure 2-4). Additional island-wide surveys for Mason's lilaeopsis were conducted in June and July 2022 throughout all suitable habitat at Chipps Island including interior channels and exterior islands surrounding the island (DWR 2022b). The surveys documented at least three special-status plant species located within the Proposed Project area:

- Delta tule pea, California Rare Plant Rank (CRPR) 1B.21
- Mason's lilaeopsis, CRPR 1B.1, and
- Suisun Marsh aster, CRPR 1B.2.

In addition to special-status plants, vegetation alliance types were reviewed in the field during the special-status plant surveys to determine if any sensitive natural communities (natural communities of special concern [S1–S3] on CDFW's List of California Sensitive Natural Communities [CDFW 2022b]) were present (DWR 2019a). Twelve vegetation alliances were mapped within the Project Area (Table 3-12; CDFW 2018 and DWR 2019a). Four of the mapped vegetation alliances within the Proposed Project are considered sensitive natural communities (CDFW 2022b):

- California rose briar patches (*Rosa californica* Shrubland Alliance);
- Pickleweed mats (*Salicornia pacifica* [*Salicornia depressa*] Herbaceous Alliance);
- Western sea-purslane marshes (*Sesuvium verrucosum* Herbaceous Alliance); and,
- Pondweed mats (*Stuckenia* [*pectinata*] Herbaceous Alliance).

[1] California Rare Plant Rank (CRPR)

1B.1 Plants rare, threatened, or endangered in California and elsewhere; seriously threatened in California.

1B.2 Plants rare, threatened, or endangered in California and elsewhere; fairly threatened in California

Table 3-12. Vegetation alliances documented on Chipps Island (CDFW 2018 and DWR 2019a)

Common Name	Scientific Name	Sensitive Natural Community[a]	Acres
Native vegetation alliances			
Coyote brush scrub	*Baccharis pilularis* Shrubland Alliance	no	1.39
Baltic and Mexican rush marshes	*Juncus arcticus* (var. *balticus, mexicanus*) Herbaceous Alliance	no	14.8
California rose briar patches	*Rosa californica* Shrubland Alliance	S3	8.4
Pickleweed mats	*Salicornia pacifica* (*Salicornia depressa*) Herbaceous Alliance	S3	0.4
Hardstem and California bulrush marshes	*Schoenoplectus* (*acutus, californicus*) Herbaceous Alliance	no	227.3
Western sea-purslane marshes	*Sesuvium verrucosum* Herbaceous Alliance	S2	0.1
Pondweed mats	*Stuckenia* (*pectinata*) Herbaceous Alliance	S3?	9.5
Cattail marshes	*Typha* (*angustifolia, domingensis, latifolia*). Herbaceous Alliance	no	206.8
Non-native vegetation alliances			
Eucalyptus groves	*Eucalyptus spp.* Woodland Semi-natural Alliance	no	0.8
Water primrose wetlands	*Ludwigia (hexapetala, peploides)* Provisional Herbaceous Semi-Natural Alliance	no	0.1
Mediterranean California naturalized annual and perennial grassland	*Bromus* (*diandrus, hordeaceus, madritensis*) Herbaceous Alliance	no	1.9

Common Name	Scientific Name	Sensitive Natural Community[a]	Acres
Common and giant reed marshes	*Phragmites australis* Herbaceous Alliance	no	305.7
Himalayan blackberry riparian scrub	*Rubus armeniacus* Shrubland Alliance	no	5.7

[a] State rank (CDFW 2022b):

S2 **Imperiled**: At high risk of extirpation due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.

S3 **Vulnerable**: At moderate risk of extirpation in the jurisdiction due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.

Additional Threat Ranks:

? Inexact numeric rank.

In summary, both special-status plant species (i.e., Mason's lilaeopsis within some Proposed Project breach locations [DWR 2022b], and Delta tule pea and Suisun Marsh aster around the island exterior [DWR 2019a]) and sensitive natural communities (i.e., California rose briar patches, pickleweed mats, western sea-purslane marshes, and pondweed mats [DWR 2019a]) are known to be present within the Proposed Project. All three documented special-status plant species also were documented in the SMP EIS/EIR, which includes appropriate mitigation measures and environmental commitments to avoid or minimize potential impacts to special-status plant species. Implementing the following environmental commitments identified in the SMP EIS/EIR (described in Appendix A of this addendum) would reduce potential adverse impacts to a less-than-significant level:

- EC-1: Standard Design Features and Construction Practices
- EC-2: Access Points/Staging Areas
- EC-3: Erosion and Sediment Control Plan
- EC-13: Biological Resources Best Management Practices
  - EC-13-1: General Best Management Practices
  - EC-13-2: Worker Training
  - EC-13-3: Special Status Plant Species Protection
  - EC-13-4: Special-Status Wildlife Species Protection
    - EC-13-4a: Mammals
    - EC-13-4b: Birds

- ► EC-14: Biological Monitoring
  - EC-14-1: Construction Period Restrictions
- ► EC-15: Nonnative Plant Control

As described in Chapter 2, “Project Description,” DWR will continue to manage undesirable invasive plants with appropriate management actions to maintain and achieve project goals. Vegetation management would include hand removal, mowing, and, if necessary, spraying herbicides. DWR would adhere to best management practices (detailed in Appendix A) to avoid effects on protected species to the greatest extent feasible.

Consistent with the findings in the SMP EIS/EIR, no significant impacts on vegetation would result from implementing the Proposed Project. None of the conditions described in Section 15162 of the State CEQA Guidelines would occur relative to vegetation. Implementation of the Proposed Project would have no or minimal impacts on any special-status plant species or sensitive natural communities that occur within the Proposed Project area outside of areas of earthwork. Implementation of the Proposed Project would have minimal impacts on any sensitive natural communities that occur within areas of earthwork. Occurrences of Mason’s lilaeopsis located within areas of earthwork or potentially impacted by scour adjacent to breach locations will be either salvaged and transplanted or mitigated for by the establishment of habitat management lands (HM lands) that provide for the preservation, permanent protection, and management of occupied Mason’s lilaeopsis habitat on the Project site; any HM lands would include a 10:1 ratio of area preserved to area of Mason’s lilaeopsis impacts. Occurrences of other special-status plants located within areas of earthwork will be salvaged and transplanted according to a special-status plant monitoring and management plan developed in coordination and approved by relevant resource agencies. Therefore, impacts on special-status plants or sensitive natural communities resulting from implementation of the Proposed Project would be less than significant with mitigation. The analysis of potential impacts on vegetation in the SMP EIS/EIR, supplemented by the information in this addendum, is sufficient to meet CEQA requirements and support the approval of the Proposed Project.

Wetlands

Wetlands were included in the SMP EIS/EIR evaluations based on prior regional mapping data (see Table 6.2-2 of the SMP EIS/EIR). Land cover types documented in the SMP EIS/EIR that could be directly or indirectly affected by the SMP include bays, sloughs, tidal wetlands, managed wetlands, riparian

areas, uplands, seasonal wetlands, vernal pools, and developed areas. Of those habitat types, tidal wetlands and managed wetlands represent the majority area by land cover types within the boundaries of the Proposed Project.

In addition to evaluations made in the SMP, a delineation of jurisdictional waters and wetlands within the Proposed Project area was conducted in January and February 2018 by qualified personnel, including a lead wetland specialist, botanist, and 1–2 wetland field technicians (DWR 2019b). Delineations were conducted in accordance with the *Corps of Engineers Wetlands Delineation Manual* (USACE 1987) and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Arid West Region Supplement) (USACE 2008). Mapped wetlands were then classified according to the *Classification of Wetlands and Deepwater Habitats of the United States* (Federal Geographic Data Committee 2013) based on vegetation composition and structure.

The National Wetlands Inventory (NWI) *Wetlands Mapper* categorized the Proposed Project area predominantly as Estuarine and Marine Wetland on the exterior of the island and Freshwater Emergent Wetland on the interior in the north (USFWS 2018). In addition, several areas were mapped as Freshwater Pond, Riverine, Estuarine, and Marine Deepwater. Within the Proposed Project Area, the delineation documented traditionally navigable waters (i.e., waters that support interstate and foreign commerce and are subject to the tides) at the confluence of the San Joaquin and Sacramento rivers at Suisun Bay, tidal waters of the U.S. external to the relatively intact levees, muted tidal waters of the U.S. on the internal side of the levees, and both tidal and muted tidal freshwater perennial emergent wetlands (Figure 3-3; DWR 2019b).

As described in the SMP EIS/EIR, tidal wetland restoration projects would result in the loss or conversion of managed wetland or other land cover types to tidal wetlands. Restoration design includes construction of new channel networks, the filling of remnant agricultural ditches, and other features that would be constructed before levee breaching and would provide some of the functions and values found in managed wetlands. In addition, as the tidal wetlands become established, they would increase a variety of wetland functions and values that provide habitat and food sources that benefit tidal wetland–dependent species.

Implementation of the Proposed Project would result in the conversion of approximately 304 acres of muted tidal open water, managed wetland, and barren habitat to mostly tidal wetland with some subtidal/open water habitat and

upland areas. Nearly all the existing tidal wetlands on the levee exteriors would remain unchanged with estimated less than 0.1 acres that would be converted to subtidal/open water and less than 0.1 acres of tidal low marsh/mudflat mosaic at the breach locations. A detailed breakdown of the Proposed Project's estimated restoration outcome by habitat type is summarized in Chapter 2, "Project Description." The habitat conversions described above are consistent with the impact analyzed and presented in the SMP EIS/EIR for wetlands (see Table 6.2-1 of the SMP EIS/EIR).

Consistent with the findings in the SMP EIS/EIR, no significant impacts on wetlands would result from implementing the Proposed Project. None of the conditions described in Section 15162 of the State CEQA Guidelines would occur relative to wetlands. Implementation of the Proposed Project would have minimal to beneficial impacts on wetlands that occur within the Proposed Project area. Therefore, impacts on wetlands resulting from implementation of the Proposed Project would be less than significant. The analysis of potential impacts on wetlands in the SMP EIS/EIR, supplemented by the information in this addendum, is sufficient to meet CEQA requirements and support the approval of the Proposed Project.

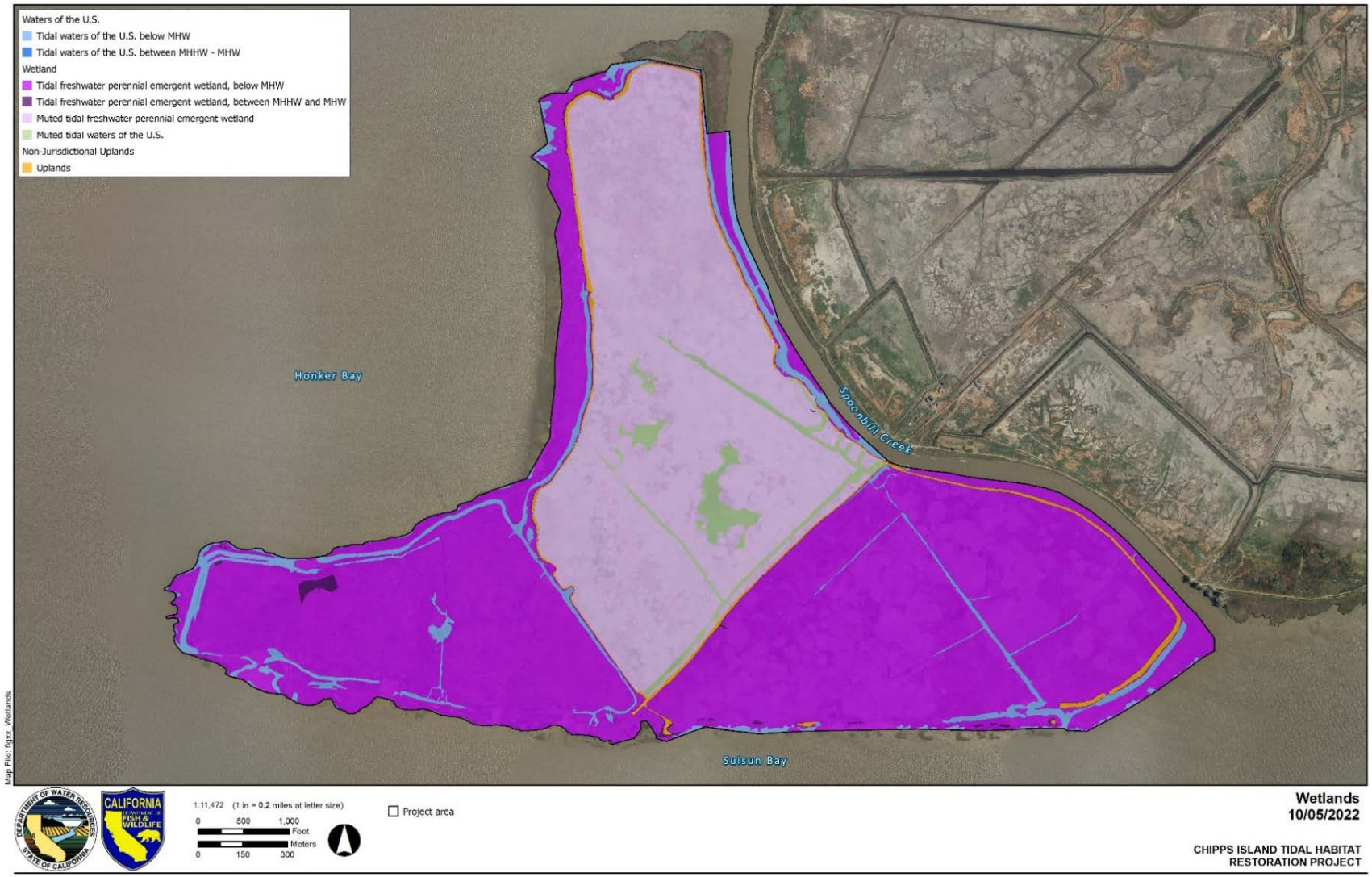

Figure 3-3. Chipps Island Waters of the U.S., including Wetlands

3.15 Wildlife

Wildlife that could be affected by the Proposed Project and the type and severity of potential impacts are consistent with those evaluated in the SMP EIS/EIR.

The following special-status wildlife species (each described in detail in the EIS/EIR, with the exception of nesting colonies of Tricolored Blackbird, which was state listed as threatened in 2018) have potential to occur in the project area and could be affected directly or indirectly by Proposed Project actions:

- Salt marsh harvest mouse (Reithrodontomys raviventris)
- Suisun shrew (Sorex ornatus sinuosus)
- Western pond turtle (Actinemys marmorata)
- California Black Rail (Laterallus jamaicensis coturniculus)
- California Ridgway's Rail (Rallus obsoletus obsoletus), formerly California Clapper Rail (Rallus longirostris obsoletus)
- Northern Harrier (Circus hudsonius)
- Salt Marsh Common Yellowthroat (Geothlypis trichas sinuosa)
- Suisun Song Sparrow (Melospiza melodia)
- Swainson's Hawk (Buteo swainsoni)
- Tricolored Blackbird (Agelaius tricolor)
- White-tailed Kite (Elanus leucurus)

The Proposed Project includes restoration of tidal wetlands, environmental commitments, and adaptive management. Tidal wetlands would be restored by excavation of the constructed channel network, filling of borrow pits and abandoned drainage ditches to match the existing marsh plain, planting and revegetation, and breaching of interior and exterior levees in strategic locations. These actions would contribute to the recovery of special-status wildlife species that occur or have the potential to occur on Chipps Island.

As described in the SMP EIS/EIR, implementing the Proposed Project could adversely affect wildlife resources. Actions to restore tidal wetlands—specifically, breaching levees—would initially result in the establishment of tidally influenced habitat. Tidal wetland vegetation and dispersed sediment would become established and reach a new equilibrium over time. Initial impacts on managed wetlands would include conversion from managed wetlands to tidal wetland and subtidal habitat, which would result in a loss of habitat availability and suitability for some wildlife species that foraged in the managed wetland habitat (e.g., waterfowl). However, once the Project Area is converted to tidal wetland, habitat availability and suitability would increase for special status and other wildlife

species that depend on marine, mesohaline and tidal wetland habitat and resources. This would result in an overall benefit to wildlife and meet the restoration goals of the SMP. As described in Chapter 2, “Project Description,” DWR will continue to manage undesirable invasive plants with appropriate management actions, including hand removal, mowing, and, if necessary, spraying herbicides. Any chemical application would be conducted in consultation with a certified chemical applicator in accordance with state requirements, manufacturer’s instructions, standard BMPs recommended by the SRCD, and the RWQCB’s General NPDES Permit for Residual Aquatic Pesticide Discharges for Algae and Aquatic Weed Control Applications.

The following actions could cause short-term adverse effects on wildlife, such as loss of special-status species or degradation of habitat:

- Levee breaching, grading, channel excavation, and other ground-disturbing activities
- Channel dewatering or installation of temporary water diversion structures
- Temporary stockpiling and sidecasting of soil, construction materials, or other construction wastes
- Placement of material adjacent to the landside of levees

The Proposed Project would result in temporary and permanent impacts on wildlife resources. Temporary impacts would occur only during the construction and maintenance periods. Potential temporary impacts on wildlife potentially would include harassment from short-term behavioral disruptions caused by habitat disturbance, habitat removal, and noise associated with project activities, such as construction access, removal of various structures (buildings, the sunken shipping container, water control structures, pilings), filling of borrow ditches, levee repair and breaching, use of staging areas, stockpiling of materials, and vegetation management. Potential permanent impacts would include conversion of habitat types, such as the conversion of managed wetlands to tidal wetlands.

Implementing the following environmental commitments identified for wildlife in the SMP EIS/EIR (described in Appendix A of this addendum) would reduce potential adverse impacts to a less-than-significant level:

- EC-1: Standard Design Features and Construction Practices
- EC-2: Access Points/Staging Areas
- EC-7: Recreation Best Management Practices
- EC-13: Biological Resources Best Management Practices
    - EC-13-1: General Best Management Practices
    - EC-13-2: Worker Training

  - EC-13-4: Special-Status Wildlife Species Protection
    - EC-13-4a: Mammals
    - EC-13-4b: Birds
- EC-14: Biological Monitoring
  - EC-14-1: Construction Period Restrictions

Minor modifications to the BMPs identified in the SMP EIS/EIR have been made based on consultation with species experts. The new environmental commitments described in Appendix A are equally protective of the listed species and do not introduce any new significant impacts.

Consistent with the findings in the SMP EIS/EIR, impacts of the Proposed Project on wildlife resources would be less than significant. None of the conditions described in Section 15162 of the State CEQA Guidelines would occur relative to wildlife. The analysis of potential wildlife impacts in the SMP EIS/EIR, supplemented by the information in this addendum, is sufficient to meet CEQA requirements and support the approval of the Proposed Project.

3.16 Land Use

Land uses that could be affected by the Proposed Project and the type and severity of potential impacts are consistent with those evaluated in the SMP EIS/EIR.

The land use designation for the entirety of Chipps Island is “marsh.” The marsh designation, listed in the resource conservation overlay for Chipps Island, provides for protection of marsh and wetland areas and permits aquatic and wildlife habitat, marsh-oriented recreational uses, agricultural activities compatible with the marsh environment and marsh habitat, and restoration of historical tidal wetlands (Solano County 2008:Table LU-5). The resource conservation overlay identifies and protects areas of the county with special resource management needs; this designation recognizes the presence of certain important natural resources while maintaining the validity of underlying land use designations (Solano County 2008:Table LU-5).

Wetlands at Chipps Island were historically managed as waterfowl habitat; the wetlands were flooded during fall and drained in spring and kept dry to allow for land management activities during the summer. Since DWR acquired the three parcels comprising Chipps Island, remnant water control infrastructure has remained in place, muting tidal flow. The proposed project will not change land use designations within the Project Site and will primarily convert managed

wetland to tidal wetland, and all marsh designation is expected to remain as such.

The Proposed Project's tidal restoration activities would be consistent with the marsh land use designations and the resource conservation overlay. Consistent with the SMP EIS/EIR, impacts of the Proposed Project on land use would be less than significant.

Consistent with the findings in the SMP EIS/EIR, impacts of the Proposed Project on land use would be less than significant. None of the conditions described in Section 15162 of the State CEQA Guidelines would occur relative to land use. The analysis of potential land use impacts in the SMP EIS/EIR, supplemented by the information in this addendum, is sufficient to meet CEQA requirements and support the approval of the Proposed Project.

In addition, the Proposed Project includes an adaptive management and monitoring plan that incorporates practicable and feasible monitoring and approaches to control nonnative invasive species. Furthermore, the restoration would help promote native species suited to a tidal wetland habitat.

3.17 Utilities and Public Services

Utilities and public services, including electricity and natural gas, water supply, stormwater, wastewater, solid waste disposal, and emergency services that could be affected by the Proposed Project and the type and severity of potential impacts are consistent with those evaluated in the SMP EIS/EIR.

No active/operational natural gas wells are in the project area. Chipps Island contains two dry hole gas wells: one on the northern end of the north parcel and one on the western side of the east parcel. There is a Chevron Pipeline easement with a maximum footprint of 1.5 acres crossing from the northern to western end of the island. Energy services, including natural gas and electricity for Solano County, were formerly provided by Pacific Gas and Electric Company (PG&E). A PG&E easement is located on the southeast corner of the north parcel. All powerlines were removed from the project site in 2022.

The Proposed Project would not require construction of new water, wastewater, stormwater drainage facilities, or landfills, and therefore would not affect these public services. No groundwater wells are present on the project site. As described in the SMP EIS/EIR, no wastewater infrastructure is in unincorporated Solano County, and wastewater needs are met by self-contained septic systems,

installed by individual landowners. No septic systems are present on the project site. No new contaminants would be introduced to the bay or exceed any RWQCB wastewater treatment requirements.

The Proposed Project's solid waste disposal needs would be served by Contra Costa Waste Services in Pittsburg or similar landfills in the region with sufficient capacity to accept the Proposed Project's small volume of solid waste. As stated in the SMP EIS/EIR, project construction is not expected to generate substantial amounts of solid waste, and materials removed from levees would be used on site as part of the restoration. All solid waste generated by the Proposed Project would be disposed in accordance with federal, State, and local statutes and regulations.

Consistent with findings in the SMP EIS/EIR, the Proposed Project would result in a temporary increase in the number of construction vehicles traveling on local roadways. These construction vehicles are not expected to cause a substantial reduction in response times by emergency service providers, because they would be limited in number and would be active for a limited duration. Thus, they would not be expected to affect emergency services. As stated in the SMP EIS/EIR, any emergency access via water would not be disrupted because the in-water work would not result in channel inaccessibility or other delays. Because the Proposed Project would not involve construction of any residence, buildings, or infrastructure, it would be adequately served by existing emergency service providers and would not create a need for construction of police and fire protection facilities.

Implementing the following environmental commitment identified for utilities and public services in the SMP EIS/EIR (described in Appendix A of this addendum) would reduce potential adverse impacts, although not to a less-than-significant level:

- EC-1: Standard Design Features and Construction Practices

Consistent with the findings in the SMP EIS/EIR, these potential impacts would be less than significant. None of the conditions described in Section 15162 of the State CEQA Guidelines would occur relative to utilities and public services. The analysis of potential utilities and public services impacts in the SMP EIS/EIR, supplemented by the information in this addendum, is sufficient to meet CEQA requirements and support the approval of the Proposed Project.

3.18 Recreation Resources

Recreational resources that could be affected by the Proposed Project and the type and severity of potential impacts are consistent with those evaluated in the SMP EIS/EIR.

As stated in the SMP EIS/EIR, restoration activities that would affect the waterside of exterior levees could temporarily disrupt recreational boating, personal watercraft use, and fishing in the area. In-channel or near-channel work may require temporarily blocking a portion of the channel to reduce the risk of boating hazards. Restoration activities are not proposed to occur in established recreation areas. The project site has historically been used by waterfowl hunting clubs on private lands, with no public use or access to lands or waterways.

The Proposed Project would add new estuarine recreation opportunities to previously inaccessible areas of Suisun Marsh by converting managed wetlands to navigable waters. This would involve providing public access to an estimated 910 acres of new navigable estuarine waterways traversable by small watercraft, via a nearby launch at Pittsburg Marina. DWR would install interpretive signs and no-trespassing signs on the Chipps Island property to protect sensitive marsh habitat and allow access consistent with navigable waters. Boaters would view the signs from their watercraft but would not be allowed to disembark from their watercraft due to safety concerns and the potential for negative impacts on sensitive wildlife (including protected and endangered species) and their habitat.

Implementing the following environmental commitments identified for recreation in the SMP EIS/EIR (described in Appendix A of this addendum) would reduce potential adverse impacts to a less-than-significant level:

- EC-1: Standard Design Features and Construction Practices
- EC-7: Recreation Best Management Practices

Consistent with the findings in the SMP EIS/EIR, no significant impacts on recreation would result from implementing the Proposed Project. None of the conditions described in Section 15162 of the State CEQA Guidelines would occur relative to recreation. The analysis of potential recreation impacts in the SMP EIS/EIR, supplemented by the information in this addendum, is sufficient to meet CEQA requirements and support the approval of the Proposed Project.

3.19 Visual/Aesthetic Resources

Visual/aesthetic resources that could be affected by the Proposed Project and the type and severity of potential impacts are consistent with those evaluated in the SMP EIS/EIR.

A private duck hunting club that could be affected by construction activities is located to the east of Chipps Island across Spoonbill Creek. Wheeler Island, which is also occupied by a private duck hunting club, is located approximately 1.4 km north of Chipps Island across Honker Bay. The restoration site is not accessible by land, with the nearest boat launch located over one mile to the south across the Sacramento River at Pittsburg Marina. There are no Officially Designated State Scenic Highways in Solano County, and the nearest eligible State Scenic Highway is State Route 160, which is greater than 7 miles east of the project site in a straight line and requires a 9-mile drive by roads and over one mile ride by boat to reach from the site (Caltrans 2017a, 2017b).

Construction activities for the Proposed Project would occur during daytime working hours Monday through Friday (7 a.m. to 6 p.m.) and Saturday through Sunday (8 a.m. to 5 p.m.). This ensures the Proposed Project would not create a new source of light or glare at night. The timing of restoration construction activities would depend on the type of activity, presence or absence of sensitive resources, tides, and/or water management in wetlands. In general, landside work would occur between July and September and in-water activities would occur from August through November.

Construction activities for the Proposed Project would create temporary visual impacts. Such activities would include site preparation, which would involve establishing staging and stockpile areas and removing existing infrastructure and waste material; invasive vegetation removal and management operations; other interior island modifications, including channel dredging and modification; in-water work; breaches of external levees; placement of ditch blocks; and final site grading and finishing. The Proposed Project would establish staging areas for equipment storage and construction materials.

All construction and demolition methods and activities would be performed in accordance with the best management practices described further in Appendix A of this addendum. As stated in the SMP EIS/EIR, construction would be temporary and environmental commitments would be implemented; thus, the impact of temporary changes in views during construction would be less than

significant. Because the visual effects would be temporary, the impact of construction activities under the Proposed Project would be less than significant.

Implementing the following environmental commitments identified for visual/aesthetic resources in the SMP EIS/EIR (described in Appendix A of this addendum) would reduce potential adverse impacts to a less-than-significant level:

- EC-1: Standard Design Features and Construction Practices
- EC-11: Visual/Aesthetic Best Management Practices

Consistent with the findings in the SMP EIS/EIR, either no impacts or less-than-significant impacts on visual/aesthetic resources would result from implementing the Proposed Project. None of the conditions described in Section 15162 of the State CEQA Guidelines would occur relative to visual/aesthetic resources. The analysis of potential impacts on visual/aesthetic resources in the SMP EIS/EIR, supplemented by the information in this addendum, is sufficient to meet CEQA requirements and support the approval of the Proposed Project.

3.20 Cultural Resources

Cultural resources that could be affected by the Proposed Project and the type and severity of potential impacts on cultural resources are consistent with those evaluated in the SMP EIS/EIR.

A cultural resources evaluation of the project area was conducted in March 2023 (Appendix E, “Cultural Resources Report”), and included background research and field inventories. This evaluation determined that there are two previously recorded cultural resources within a 0.25-mile radius of the Area of Potential Effects (APE). These include the Suisun Marsh Duck Hunting Clubs, none of which were recorded on Chipps Island, and a segment of the Sacramento Northern Railway. The Sacramento Northern Railway segment encompasses the approximately three-mile section of the Sacramento Northern Railroad that crossed both Van Sickle Island and Chipps Island. Most of the features of the railway segment such as the tracks had deteriorated or been removed, however, two groupings of pier pilings remained, which had supported the deck surrounding the ferry slip on the southern end of Chipps Island. Therefore, the spur of the former Sacramento Northern Railway which spans across Chipps Island, including the grouping of ferry pier pilings, is the only previously recorded resource within the proposed project APE. Although a 22-mile long segment of the railway north of Van Sickle and Chipps Islands was listed on the National Register of Historic Places (NRHP), the three mile

railroad segment from the former Montezuma station to the site of the former Chipps Island Ferry was determined to be ineligible to the National Register due to the lack of integrity as key features of the segment had been removed such as the tracks and railroad ties.

Through both archival research and field surveys, it is anticipated that there will be no historic properties affected by the proposed project. While the railroad segment has significance under Criterion A of the NRHP, it does not appear to be eligible to the National Register because of lack of integrity, due to loss of integrity of feeling, materials, design, and workmanship (Brookshear 2013).

Human remains constitute a special class of cultural resource and are protected by State and federal legislation. Human remains have been identified at previously recorded Native American archaeological sites in the overall SMP plan area; however, no evidence of their presence was observed specifically in the project site, and human remains most likely are not present there. However, human remains, particularly those of Native Americans, have occasionally been found in levees because archaeological sites inadvertently have been used as borrow material for levee construction. Although human remains most likely are not present, the procedures to be implemented in the event of the unanticipated discovery of human remains would be consistent with State and federal laws as outlined in the environmental commitment “EC-12: Inadvertent Discovery of Cultural Resources” (Chapter 2 of the SMP EIS/EIR).

Implementing the following environmental commitments identified for cultural resources in the SMP EIS/EIR (described in Appendix A of this addendum) would reduce potential adverse impacts to a less-than-significant level:

- ► EC-12: Inadvertent Discovery of Cultural Resources
- ► EC-16: Cultural Resources

Impacts from the Proposed Project would be less than significant. None of the conditions described in Section 15162 of the State CEQA Guidelines would occur relative to cultural resources. The analysis of potential cultural resources impacts in the SMP EIS/EIR, supplemented by the information in this addendum, is sufficient to meet CEQA requirements and support the approval of the Proposed Project.

3.21 Public Health and Environmental Hazards

Public health and environmental hazards that could be affected by the Proposed Project and the type and severity of potential impacts are consistent with those evaluated in the SMP EIS/EIR.

The existing infrastructure on Northern Parcel includes three wood frame buildings, six WCS's, three remnant structures, and a sunken shipping container. The existing infrastructure on Eastern Parcel includes three WCS's and two locations of abandoned equipment. The Western parcel contains two WCS's and an abandoned shipping container, and the Eastern Parcel contains one WCS. Chipps Island contains two natural gas wells that are dry and capped. There is a Chevron Pipeline easement with a maximum footprint of 1.5 acres crossing from the northern to western end of the island. Any potential hazards associated with past natural gas production have been resolved. Therefore, there is no potential that natural gas could be released during construction.

A search was conducted of the State Water Resources Control Board's GeoTracker and California Department of Toxic Substances Control's EnviroStor Web sites to identify toxic releases, hazardous waste, or other violations on or in the vicinity of Chipps Island (SWRCB 2022; DTSC 2022). In addition, a search was conducted of the U.S. Environmental Protection Agency's Envirofacts database to identify hazardous waste sites and National Priorities List sites being assessed under the Superfund program (EPA 2022). The records search did not find documentation of known contaminated municipal groundwater wells, leaking underground or aboveground storage tanks, or active or inactive landfills located on, adjacent to, or within one-half mile of Chipps Island. No confirmed State or federal Superfund sites were identified within 1 mile of the project area.

Infrastructure removal and internal site modifications would include site preparation activities such as establishing staging and stockpile areas and access roads; removing existing infrastructure and waste material, including modular structures, shipping containers; removing WCSs, culverts; placing ditch blocks; and completing final grading and finishing of the stockpile. These activities would involve the incidental storage, use, and transport and use of common hazardous materials such as oils, lubricants, and fuels. Should improper handling occur, construction workers and the environment could be exposed to hazardous materials. Project construction contractors are required by law to implement and comply with existing hazardous material regulations. Construction contractors would be required to comply with California Environmental Protection Agency's (Cal/EPA's) Unified Program; regulated activities would be managed by

the Solano County Environmental Health Department, the designated certified unified program agency for Solano County, in accordance with the regulations included in the Unified Program. Each of these regulations is specifically designed to protect the public health through improved procedures for the handling of hazardous materials, better technology in the equipment used to transport these materials, and a more coordinated quicker response to emergencies.

In addition, all construction and demolition methods and activities would follow the environmental commitments identified in the SMP EIS/EIR (described further in Appendix A of this addendum) related to staging areas, spill prevention and control, and hazardous materials management. Staging areas would be established as far from water bodies as feasible for equipment storage and maintenance, construction materials, fuels, lubricants, solvents, and other possible contaminants. A spill prevention and control plan would be developed and implemented as part of the storm water pollution prevention plan to minimize effects from spills of hazardous, toxic, or petroleum substances during construction of the Proposed Project. In addition, a hazardous materials management plan would be prepared and implemented to identify the hazardous materials to be used during construction; describe measures to prevent, control, and minimize the spillage of hazardous substances; describe storage and disposal procedures for these substances; and outline procedures to be followed in case of a spill of a hazardous material. Therefore, implementing environmental commitments would reduce the potential adverse impact from exposure of construction workers and the environment to hazardous materials to a less-than-significant level.

The existing wood frame buildings may contain asbestos-containing materials, and lead-based paint may have been used on these structures. If any materials containing asbestos or lead are suspected, they would be investigated and removed by an accredited contractor in accordance with California Code of Regulations 17 Section 36000 and 36100 (lead-based paint) and Section 39658(b)(1) of the Health and Safety Code (asbestos). Furthermore, the construction contractor is required to submit a completed Bay Area Air Quality Management District Asbestos Renovation (Removal) and Demolition Notification Form at least 10 working days before demolition and removal begins. The materials containing asbestos and lead would be disposed of properly at an appropriately permitted off-site disposal facility.

The Proposed Project requires the removal of bulkheads. These bulkheads are made of treated lumber that may contain creosote. Treated wood waste (i.e., removed bulkheads) would be cut, removed, stored, handled, and transported in accordance with California Health and Safety Code Section 25143.15 and other applicable regulations. All wooden debris created by demolition of bulkheads would be removed and hauled off-site to an appropriate licensed Class 1 or composite-lined portion of a solid waste landfill.

The tidal restoration occurring as part of the Proposed Project has the potential to increase mosquito production in Suisun Marsh. As discussed in the SMP EIS/EIR, managed wetlands more than tidal wetlands demonstrate the characteristics that can lead to increased mosquito production; thus, the change from the baseline managed-wetland condition to tidal wetlands along with appropriate tidal wetland design and the implementation of best management practices (BMPs) for mosquito abatement would reduce the potential for mosquito production. As described in the environmental commitments in Appendix A of this addendum, site-specific plans would be developed to address mosquito production for each restoration activity. These site-specific plans could include developing a management program consistent with marsh-wide management actions for the control of mosquitoes, obtaining an engineering survey to locate depressions that would retain tidal water, and designing site restoration to promote water drainage. The site-specific plans would be implemented before any levee or water control structure is removed or breached. Therefore, implementing environmental commitments would reduce the potential adverse impact associated with increases in mosquito production to a less-than-significant level.

Implementing the following environmental commitments identified for public health and environmental hazards in the SMP EIS/EIR (described in Appendix A of this addendum) would reduce potential adverse impacts to a less-than-significant level:

- EC-1: Standard Design Features and Construction Practices
- EC-2: Access Points/Staging Areas
- EC-4: Stormwater Pollution Prevention Plan
- EC-8: Mosquito Abatement Best Management Practices
- EC-9: Hazardous Materials Management Plan

Consistent with the findings in the SMP EIS/EIR, the impacts on public health from implementation of the Proposed Project would be less than significant with mitigation incorporated or no impacts would occur. None of the conditions

described in Section 15162 of the State CEQA Guidelines would occur relative to public health and environmental hazards. The analysis of potential impacts on public health and environmental hazards in the SMP EIS/EIR, supplemented by the information in this addendum, is sufficient to meet CEQA requirements and support the approval of the Proposed Project.

3.22 Growth-Inducing Impacts, Including Population and Housing

Growth-inducing impacts, including those associated with population and housing, that could be affected by the Proposed Project and the type and severity of potential impacts are consistent with those evaluated in the SMP EIS/EIR.

The SMP EIS/EIR did not evaluate population and housing impacts because activities under the SMP would not involve constructing new homes or businesses, extending roadways or other infrastructure, or displacing people. Similarly, the Proposed Project consists of restoring tidal hydrology on Chipps Island would not involve constructing new homes or businesses or extending roadways or other infrastructure. In addition, there are no occupied homes or structured on Chipps Island, therefor the Proposed Project will not result in the displacement of any existing houses or people.

The source of the construction labor force would likely come from the local labor pool. No additional DWR staff would be required for maintenance of the restoration sites or monitoring and adaptive management activities. Therefore, the Proposed Project would not directly or indirectly induce unplanned population growth.

Consistent with the findings in the SMP EIS/EIR, no growth-inducing or population and housing impacts would result from implementing the Proposed Project. None of the conditions described in Section 15162 of the State CEQA Guidelines would occur relative to growth inducement. The analysis of potential growth inducement impacts in the SMP EIS/EIR, supplemented by the information in this addendum, is sufficient to meet CEQA requirements and support the approval of the Proposed Project.

3.23 Cumulative Impacts

The State CEQA Guidelines (State CEQA Guidelines Section 15130) require that cumulative impacts be analyzed in an EIR. Cumulative impacts do not refer to project-related impacts, but the impacts of a proposed project when considered with the impacts of past, present, and probable future projects producing related

impacts. Cumulative impacts are impacts on the environment that result from the incremental impacts of a proposed action when added to other past, present, and reasonably foreseeable future actions (State CEQA Guidelines Section 15355[b]). Such impacts can result from individually minor but collectively significant actions taking place over time.

Cumulatively considerable "means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects" (State CEQA Guidelines Section 15065[a][3]).

As set forth in Section 15130(b) of the State CEQA Guidelines, "the discussion of cumulative impacts must reflect the severity of the impacts, as well as the likelihood of their occurrence; however, the discussion need not be as detailed as the discussion of environmental impacts attributable to the project alone. The analysis should be guided by the standards of practicality and reasonableness, and it should focus on the cumulative impacts to which the other identified projects contribute to the cumulative impact." In addition, as per the State CEQA Guidelines, the "mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable."
As discussed further below, cumulative impacts that could result from implementation of the Proposed Project and the type and severity of potential impacts are consistent with those evaluated in the SMP EIS/EIR.

SMP EIS/EIR Impacts

A list of related projects was developed as part of the SMP EIS/EIR to evaluate cumulative impacts, which included:

- Other tidal restoration projects in the San Francisco Bay Area that could result in impacts and benefits similar to those of the SMP;
- Related projects, including CALFED, BDCP/California Water Fix, Delta Vision, Delta Regional Ecosystem Restoration Implementation Plan, San Francisco Bay Long-Term Management Strategy, Delta Risk Management Strategy, San Francisco Bay Ecosystems Goals, the Delta Plan, and the various USFWS recovery plans for species that use Suisun Marsh; City and county development projects (e.g., new or expanded residential, commercial, or industrial development projects); and
- Regional and local agency infrastructure projects (e.g., water and wastewater facility construction and/or improvements and flood protection projects).

Regional plans were also reviewed to characterize development trends and growth projections in Solano County over the 30-year planning period of the SMP. These projects were considered in conjunction with the SMP to determine whether the combined effects of all of the projects would be cumulatively considerable and result in significant cumulative impacts.

The SMP EIS/EIR determined that the combination of all of the projects had the potential to result in cumulatively considerable impacts on the following resources, depending on project-specific considerations, project design, and geographic conditions:

- Biological Resources–Fish
- Biological Resources–Vegetation and Wetlands
- Biological Resources–Wildlife
- Water Quality
- Geology and Groundwater
- Sediment Transport
- Transportation and Navigation
- Air Quality
- Noise
- Utilities and Public Services
- Cultural Resources

For all resources except cultural resources, the SMP EIS/EIR determined that cumulative impacts would either not occur or the SMP's incremental contribution to the cumulative impact would not be cumulatively considerable or significant. Generally, this is because:

- SMP restoration activities would be restricted to areas within the Marsh; many of the other projects that could result in cumulatively considerable impacts on resources (such as air quality, biological resources, cultural resources, noise, traffic, water quality, and utilities) would occur outside the vicinity of the Marsh;
- SMP restoration activities would occur on a different temporal and geographic scale than some of the restoration and development/infrastructure projects;
- SMP restoration modeled scenarios contribution to changes in water quality (i.e., salinity) would not be considerable, and restoration would be subject to the various regulations in place to control salinity in the Marsh and throughout the Delta;

- ► SMP restoration activities would include design criteria and environmental commitments to reduce substantial changes related to water supply, water quality, terrestrial and aquatic biological resources, sediment and geology, and transportation and navigation;
- ► SMP restoration activities would be small, sporadic, and short term in nature and magnitude over the entire Marsh, through plan implementation;
- ► SMP restoration activities would result in an increase in quality and quantity for sensitive terrestrial and aquatic biological resources;
- ► SMP restoration activities would implement, as appropriate, mitigation measures related to air quality, cultural resources, and utilities and public services, as described in the SMP EIS/EIR; and
- ► SMP restoration activities would not result in impacts on some resource, such as aesthetics, recreation, flood control and levee stability, noise, and land use.

The SMP EIS/EIR determined that for cultural resources, restoration activities associated with the SMP would be cumulatively considerable and significant because significant impacts would occur to numerous cultural resources, including the Montezuma Hills Rural Historic Landscape. Impacts on the Montezuma Hills Rural Historic Landscape resource would be especially consequential because several constituent features—some of which would be likely to have individual significance—would be affected by the restoration activities described in the SMP.

Proposed Project

Table 3-13 shows wetland and tidal restoration and enhancement projects in the vicinity of the SMP area, which have been updated since the time of certification of the SMP EIS/EIR. Several tidal restoration projects have been completed, are under way, or are proposed throughout the San Francisco Bay Area. Each of these restoration projects is expected to increase natural habitats for species that have historically occupied these areas. Because all of them would require a shift in habitat types, they all would have some level of habitat loss associated with conversion. In addition, managed wetland activities have been proposed through the North American Waterfowl Conservation Act and the San Francisco Bay Joint Venture. Associated activities are expected to improve management capabilities and habitat functions and values. Other major projects that could have a restoration component to them are also shown in Table 3-13, such as the BDCP/California WaterFix and the Delta Plan. Table 3-14 shows other non-restoration related projects that were identified in the SMP EIS/EIR that could result in cumulative impacts.

As demonstrated in the analysis in Sections 3.1 through 3.22 of this Addendum, the Proposed Project would not result in impacts not previously disclosed in the SMP EIS/EIR. In addition, the Proposed Project would not result in new significant and unavoidable impacts on any resources, would not require additional mitigation measures beyond those identified in the SMP EIS/EIR, would not result in any new significant and unavoidable impacts beyond those previously disclosed in the SMP EIS/EIR, and would not result in impacts on resources beyond those previously disclosed in the SMP EIS/EIR. Furthermore, impacts on cultural resources would be less than significant under the Proposed Project because of the baseline conditions and project location, and thus would be less severe when compared to the impact determination disclosed for those resources in the SMP EIS/EIR (i.e., significant and unavoidable).

Implementing the environmental commitments and Mitigation Measures UTL-MM-1 to UTL-MM-4, identified for utilities and public services in the SMP EIS/EIR, would reduce potential adverse impacts to a less-than-significant level.

Past, present, and reasonably foreseeable future projects that are shown in Table 3-13 may result in cumulatively considerable impacts on certain resources. However, for the reasons described below, the Proposed Project would not include activities that would result in new cumulatively considerable contribution to any significant cumulative impacts or change the cumulative impact analysis and the conclusions in the SMP EIS/EIR. The Proposed Project would:

- ► Be restricted to areas within the Marsh; many of the other projects that could result in cumulatively considerable impacts related to resources (such as noise, traffic, utilities and public services, and cultural resources) would occur outside the Marsh;
- ► Occur on a different temporal and geographic scale than some of the restoration and development/infrastructure projects shown in Tables 3-13 and 3-14;
- ► Include environmental commitments and project-specific monitoring and adaptive management protocols as intended by the SMP to reduce substantial changes related to water supply, water quality, fish and wildlife species, vegetation and wetlands, and sediment and geology;
- ► Be relatively small and short term in nature and magnitude during construction over the entire Marsh, and thus would have very limited, localized, or temporary effects related to air quality, water quality, fish and wildlife species, vegetation and wetlands, sediment and geology, and hazards and hazardous materials during construction;

- ► Benefit listed fish species, including Delta smelt and longfin smelt, and would benefit special-status and native wildlife species; and
- ► Not need to implement new mitigation measures related to air quality, cultural resources, noise, public health, or utilities and public services.

Table 3-13. Updated Wetland Restoration and Enhancement Cumulative Project List

Project	Status at the Time of SMP Certification	County	Total Acres	Current Status
Blacklock Tidal Marsh Restoration	Completed	Solano	70	N/A
Bradmoor, Arnold, and Blacklock Tidal Marsh Restoration Project	Not Included	Solano	616.9	Completed
Decker Island Tidal Habitat Restoration Project	Not Included	Solano	140	Completed
Dutch Slough Tidal Marsh Restoration Project	Not Included	Contra Costa	1,200	In progress
Hill Slough West Restoration Project	Planned	Solano	223	In progress
Honker Bay Conservation Bank	Not Included	Solano	125	Planned
Lower Yolo Ranch Tidal Restoration Project	Not Included	Yolo	1,100	Completed
Mallard Farms Conservation Bank	Not Included	Solano	700	In Progress
Montezuma Wetlands Project	In progress	Solano	2,229	In Progress
Prospect Island Tidal Restoration Project	Not Included	Solano	1,600	Planned
Tule Red Restoration Project	Not Included	Solano	610	Completed
Wings Landing Tidal Habitat Restoration Project	Not Included	Solano	270	Completed

Project	Status at the Time of SMP Certification	County	Total Acres	Current Status
Winter Island Tidal Habitat Restoration Project	Not Included	Contra Costa	589	Completed
Yolo Flyway Farms Tidal Habitat Restoration	Not Included	Yolo	359	Completed

Table 3-14. Updated Other Projects – Cumulative Project List

Project	SMP EIS/EIR Status	County	Total Acres	Current Status
Sacramento Deep Water Ship Channel Dredging	Planned	Sacramento	--	In progress
Potrero Hills Landfill Expansion Project	Planned	Solano	250	In progress
Industrial Development (south of SR 12 and north of Cordelia Road)	Planned	Solano	--	In progress

3.24 Mandatory Findings of Significance

The analysis in this document concluded that the Proposed Project would not have a significant impact on the environment with implementation of the environmental commitments discussed in Appendix A, “Environmental Commitments,” from the SMP EIS/EIR. As evaluated in Section 3.13, “Fish,” Section 3.15, “Vegetation and Wetlands,” and Section 3.16, “Wildlife,” with the implementation of all environmental commitments, the Proposed Project would not substantially degrade the quality of the environment; substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; or reduce the number or restrict the range of an endangered, rare, or threatened species.

As discussed in Section 3.20, “Cultural Resources,” the Proposed Project would not eliminate important examples of the major periods of California history or prehistory and impacts on cultural resources would be less than significant with the implementation of all environmental commitments.

Project activities would result in short-term, temporary impacts that would mainly be limited to the project area. As discussed in Section 3.23, “Cumulative Impacts,” the Proposed Project would result in less-than-significant impacts or no impacts on water supply and management; water quality; geology and groundwater; flood control and levee stability; sediment transport; transportation and navigation; air quality and greenhouse gas emissions; noise; climate change; fish; recreation; vegetation and wetlands; wildlife; land use; utilities; visual/aesthetic resources; cultural resources; public health and environmental hazards; or growth-inducing impacts, including population and housing. Therefore, the Proposed Project would not make a cumulatively considerable incremental contribution to any significant cumulative adverse impacts on these resource areas.

The analysis in this document has determined that implementing the Proposed Project would not make a cumulatively considerable incremental contribution to any significant cumulative impacts on any resources affected by past, current, or probable future projects in the vicinity. As discussed above, the Proposed Project would result in less-than-significant impacts and would not cause substantial adverse effects on human beings, either directly or indirectly.

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Appendices

Appendix A

Environmental Commitments and Mitigation Measures

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Environmental Commitments and Mitigation Measures

ENVIRONMENTAL COMMITMENTS

As part of plan implementation, individual project proponents would incorporate certain environmental commitments and best management practices (BMPs), identified in the Suisun Marsh Plan (SMP) Environmental Impact Statement (EIS)/Environmental Impact Report (EIR), into specific projects to avoid or minimize potential impacts as applicable. In addition, several BMPs will be implemented in order to comply with the Department of Water Resources' (DWR) Greenhouse Gas Emissions Reduction Plan (GGERP). Numbering of the environmental commitments has been added for ease of reference. Project proponents and the appropriate agencies also would coordinate the planning, engineering, and design phases of the project. For restoration activities, "project proponent" is defined as any federal, State, or local agency, landowner, or implementing body of a restoration action. The following BMPs and environmental commitments would be implemented during restoration activities.

EC-1: Standard Design Features and Construction Practices

The U.S. Fish and Wildlife Service (USFWS), U.S. Bureau of Reclamation (Reclamation), and California Department of Fish and Wildlife (CDFW), as lead agencies for the SMP, determined that the following design features and construction practices potentially are feasible and implementable measures to reduce or mitigate certain short-term, construction-related effects. These measures will be implemented on a site-specific level, as appropriate, depending on the location of construction, potential effects of the specific project, and surrounding land uses. The identified measures are as follows:

- If a conflict with a utility facility occurs, stop work immediately and notify the affected utility of the conflict, assist it in coordinating repairs, and coordinate with the utility to avoid additional conflicts in the field.
- Construct structures in accordance with California Building Code and county general plan standards, to resist seismic effects and meet the implementation standards outlined in the Solano County General Plan.
- To ensure that changes to the Suisun Marsh channels will not significantly affect navigation and emergency access, have personnel from the Rio Vista and Vallejo Coast Guard stations review the plans to assess safety issues associated with the changes when in-channel work can affect access.

- Implement BMPs to minimize any presence of disease-carrying mosquitoes and threats to public health, if project components are found to pose a threat to public health.
- Control construction equipment access and placement of fill to maintain acceptable loading, based on the shear strength of the foundation material.
- Minimize degradation of wetland habitats where feasible by conducting work from the levee crown.
- Implement BMPs and measures to minimize water quality impacts, such as temporary increases in turbidity (see “Erosion and Sediment Control Plan” below).
- Inspect all equipment for oil and fuel leaks every day before use.
- Avoid using equipment with oil or fuel leaks within 100 feet of wetlands.
- Require the construction contractor to remove all trash and construction debris after construction, and to implement a revegetation plan for temporarily disturbed vegetation in the construction zones.
- Maintain waste facilities (i.e., concrete wash-out facilities, chemical toilets, and hydraulic fluid containers) and remove waste to an appropriate disposal site.

EC-2: Access Points/Staging Areas

In coordination with the resource agencies, project proponents will establish staging areas for equipment storage and maintenance, construction materials, fuels, lubricants, solvents, and other possible contaminants. Practices and procedures for construction activities along city and county streets will be consistent with the policies of the affected local jurisdictions.

Each staging area will have a stabilized entrance and exit and will be at least 100 feet from water bodies, unless site-specific circumstances do not allow such a setback, in which case the maximum possible setback will be used. If an off-road site is chosen, qualified biological and cultural resources personnel will survey the selected site, to verify that staging activities will not disturb any sensitive resources. If sensitive resources are found, an appropriate buffer zone will be staked and flagged to avoid impacts. If impacts on sensitive resources cannot be avoided, the site will not be used and an alternate site will be selected.

Where possible, no equipment refueling or fuel storage will take place within 100 feet of a water body. Vehicular traffic will be confined to existing roads and the

proposed access route. Ingress and egress points will be clearly identified in the field, using orange construction fencing. Work will not be conducted outside the designated work area.

EC-3: Erosion And Sediment Control Plan

For projects that may result in substantial erosion, project proponents will prepare and implement an erosion and sediment control plan, to control short and long-term erosion and sedimentation effects and restore soils and vegetation in areas affected by construction activities. The plan will include all necessary requirements as established by local jurisdictions for erosion control and will involve implementing BMPs for erosion and sediment control as required. Furthermore, the plan will ensure that construction activities do not increase erosion and sedimentation levels during rain events. This plan will include the use of erosion control materials (i.e., baffles, fiber rolls, or hay bales, and temporary containment berms) and measures such as straw application or hydroseeding with native grasses on disturbed slopes. The plan also will include floating sediment booms and/or curtains to minimize any potential impacts from increased mobilization of sediments.

EC-4: Stormwater Pollution Prevention Plan

For projects that involve grading or disturbance of more than 1 acre, an SWPPP will be developed by a qualified engineer or erosion control specialist and will be implemented before the start of construction. The objectives of the SWPPP will be twofold: to identify pollutant sources associated with construction activity and project operations that may affect the quality of stormwater; and to identify, construct, and implement stormwater pollution prevention measures to reduce pollutants in stormwater discharges during and after construction.

The project proponents and/or their contractor(s) will develop and implement a spill prevention and control plan as part of the SWPPP, to minimize effects from spills of hazardous, toxic, or petroleum substances during project construction. Implementation of this measure will comply with federal and State water quality regulations. A copy of the SWPPP will be kept on site during construction activity and project operation, and will be made available on request to representatives of the San Francisco Bay Regional Water Quality Control Board. The SWPPP will include the following:

- a description of pollutants that can reach stormwater from erosion,

- management of dredged sediments and hazardous materials present on site during construction (including fuels from vehicles and equipment),
- details regarding how the sediment and erosion control practices will comply with federal and State water quality regulations, and
- a description of pollutants that can reach stormwater from project operation.

EC-5: Noise Compliance

The project proponents and/or their contractors will comply with local noise regulations when construction activities occur near residences, by limiting construction to the hours specified by Solano County. Construction activities are anticipated to occur during normal working hours, between 7 a.m. and 6 p.m. Monday through Friday and between 8 a.m. and 5 p.m. Saturday and Sunday.

In addition, when a site-specific analysis determines that construction can occur near residences, the following noise-reduction practices will be implemented:

- Use electrically powered equipment instead of internal combustion equipment where feasible.
- Locate staging and stockpile areas and supply and construction vehicle routes as far from sensitive receptors as possible.
- Establish and enforce construction site and haul road speed limits.
- Restrict the use of bells, whistles, alarms, and horns to safety warning purposes.
- Design equipment to conform to local noise standards.
- Locate equipment as far from sensitive receptors as possible.
- Equip all construction vehicles and equipment with appropriate mufflers and air inlet silencers.
- Restrict hours of construction to periods permitted by local ordinances.
- Locate redirected roadways away from sensitive receptors.

EC-6: Traffic And Navigation Control Plan and Emergency Access Plan

For projects that will substantially affect traffic or navigation patterns or can result in hazardous road or waterway conditions, the project proponents will develop and implement a traffic and navigation control plan in coordination with affected jurisdictions. This plan will include an emergency access plan, to reduce construction-related effects on local roadways and waterway systems and avoid hazardous traffic and circulation patterns during construction. All construction

activities will follow the standard construction specifications and procedures of the appropriate jurisdictions, and major construction activities will be avoided on days known or expected to experience a significant increase in traffic because of events in Suisun Marsh.

The emergency access plan will provide access into and adjacent to the construction zone for emergency vehicles. This plan, which will require preconstruction coordination with emergency service providers such as the U.S. Coast Guard, will require effective traffic and navigation direction, substantially reducing the potential for disruptions to response routes.

The traffic and navigation control plan will include the following actions, depending on site-specific conditions:

- Coordinate with the affected jurisdictions regarding hours of construction.
- Follow the local jurisdiction's guidelines for road closures caused by construction activities.
- Install traffic control devices as specified in the Manual of Traffic Controls for Construction and Maintenance Works Zones (Caltrans 2004).
- Notify the public of road closures in the immediate vicinity regarding the open trenches in the construction zone and regarding temporary closures of recreation trails.
- Post signs conforming to the California Uniform State Waterway Marking System in locations upstream and downstream from the dredge areas, to warn boaters of project-related work.
- Provide access to driveways and private roads outside the immediate construction zone.
- Coordinate with Solano County to monitor and repair damage to levee roads and any other roads damaged during construction, to the extent allowed by law, depending on the specific project proponent. A memorandum of understanding may be implemented for specific restoration projects and may include the following measures, as suggested by Solano County:
    - The restoration project will be responsible for the cost of maintaining, repairing, paving, and/or reconstructing roads affected during construction, operation, and maintenance of the restoration projects.
    - Repairs will be implemented to comply with the current Solano County Road Improvement Standards, except that repairs to damaged paved sections of roadway may be made within 5 inches of asphalt concrete at the discretion of Solano County, while repairs to damaged gravel

roadway sections will involve replacing the pre-existing depth of aggregate base but not less than 12 inches in depth.

- Coordinate with the Union Pacific Railroad before beginning any work within the right-of-way of a rail line to ensure that the line's integrity is maintained and minimize service disruptions.
- Coordinate with emergency service providers before the start of construction to develop an access plan for emergency vehicles in and adjacent to the construction zone. The emergency access plan will need to include effective traffic direction, substantially reducing the potential for disruptions to response routes.

EC-7: Recreation Best Management Practices

The project proponents will implement the following measures related to recreation and recreation facilities to reduce impacts:

- Avoid nesting habitats and other sensitive areas, such as important roosting and foraging sites during critical nesting periods.
- To minimize temporary impacts on boating access:
  - Do not allow construction to occur during major summer holiday periods.
  - Maintain boat access to prime areas.
  - Provide public information regarding alternate access.
  - Post warning signs and buoys in channels upstream of and downstream from all construction equipment, sites, and activities during construction.
  - Post signs describing alternate boating routes in convenient locations when boating access is restricted.
  - Minimize fluctuations in water levels during construction.

EC-8: Mosquito Abatement Best Management Practices

As described in Section 7.8, "Public Health and Environmental Hazards" of the SMP EIS/EIR, the Solano County Mosquito Abatement District is concerned that tidal restoration will have the potential to increase mosquito production in Suisun Marsh. However, tidal restoration will be designed to minimize such effects. In addition, the Solano County Mosquito Abatement District has recommended several measures to reduce the potential for the production and subsequent spread of diseases carried by mosquitoes. Project proponents will develop site-

specific plans to address mosquito production for each restoration activity, based on the following recommendations, which will be implemented before any levee or water control structure is removed or breached:

1. Develop a management program consistent with Marsh-wide management actions for the control of mosquitoes.
2. If necessary, obtain an engineering survey to locate depressions that will retain tidal water and design site restoration to promote water drainage.

EC-9: Hazardous Materials Management Plan

A hazardous materials spill plan will be developed before construction of each action. The plan will describe the actions that will be taken in the event of a spill. The plan also will incorporate the preventive measures to be implemented for activities such as vehicle and equipment staging, cleaning, maintenance, and refueling, and for management and storage of contaminants (including fuel). In the event of a contaminant spill, work at the site will cease immediately until the contractor has contained and mitigated the spill. The contractor will immediately prevent further contamination, notify the appropriate authorities, and mitigate damage as appropriate. Adequate spill containment materials, such as oil diapers and hydrocarbon cleanup kits, will be available on site at all times. Containers for storage, transportation, and disposal of contaminated absorbent materials will be provided on the project site.

The project proponents and their contractors will not use any hazardous material in excess of reportable quantities, as specified in Title 40, Section 355.50 of the Code of Federal Regulations (40 CFR 355.50), unless approved in advance by the Governor's Office of Emergency Services. The annual compliance report to that office will list the hazardous materials contained at a project site in reportable quantities. Hazardous materials that exceed the reportable quantities identified in 40 CFR Part 355 must be reported annually to the Solano County Environmental Health Services Division as the County's certified unified program agency.

For large-scale projects, the project proponents will prepare a risk management plan. The plan will be submitted to the U.S. Environmental Protection Agency (EPA) and will reflect the comments of the Solano County Certified Unified Program Agency. The risk management plan will address acutely hazardous materials, such as chlorine gas, ammonia gas, hydrogen chloride, and flammable gases. This document will be submitted to the EPA as well as to the Solano County Environmental Health Services Division as the certified unified program agency. The plan will describe procedures, requirements for protective

equipment, and training, and it will contain a checklist. At least 60 days before the start of construction, or a lesser period of time as mutually agreed on, the project proponents will provide the final risk management plan and the safety plan to the certified property manager.

EC-10: Air Quality Best Management Practices

The following control practices will be used to offset any air quality issues that may arise (BAAQMD 1999).

EC-10-1: Basic Control Measures

The following control will be implemented at all construction sites:

- Treat all graded surfaces to prevent nuisances from dust or spillage on roads or adjacent properties.

EC-10-2: Enhanced Control Measures

The following measures will be implemented at construction sites greater than 4 acres in area:

- Hydroseed with native or noninvasive species appropriate to that specific location or apply (nontoxic) soil stabilizers to inactive construction areas (i.e., previously graded areas inactive for 10 days or more).
- Limit traffic speeds on unpaved roads to 15 miles per hour.
- Install sandbags or other erosion control measures to prevent runoff of silt to public roadways.
- Replant vegetation with native or non-invasive species appropriate to that specific location in disturbed areas as quickly as possible.

EC-10-3: Additional Air Quality Best Management Practices

In addition to the above BMPs, the following measures will be required to further reduce construction emissions:

- Maintain properly tuned engines.
- Minimize the idling time of diesel-powered construction equipment to 2 minutes.
- Use alternative-powered (e.g., hybrid, compressed natural gas, biodiesel, electric) construction equipment.

- Use add-on control devices, such as diesel oxidation catalysts or particulate filters.
- Require all contractors to use equipment that meets the California Air Resources Board's most recent certification standard for off-road, heavy-duty diesel engines.

EC-11: Visual/Aesthetic Best Management Practices

For projects that have the potential to affect views or create a new source of light or glare, project proponents will identify sensitive view receptors for site-specific analysis and ensure that contractors minimize fugitive light from portable sources used for nighttime operations. Also, a visual barrier will be installed to prevent light spill from truck headlights in areas with sensitive view receptors.

EC-12: Inadvertent Discovery Of Cultural Resources

Federal and State laws and regulations outline the courses of action required in the event of inadvertent discoveries of cultural resources, including human remains. Section 106 of the National Historic Preservation Act (NHPA) allows federal agencies to plan for post-Section 106 review, or inadvertent discoveries of cultural resources before authorization of a federal action or undertaking (36 CFR 800.13[a]). One avenue for planning is through a programmatic agreement (PA) (see 36 CFR 800.13[a][2]). Such PAs must define the parties responsible for action in the event of cultural resource discoveries, communication protocols, response times, and specific action items. The cultural resources analysis in this EIS/EIR identifies a PA as a critical element in mitigating significant effects on cultural resources; the PA will include provisions for inadvertent discoveries.

Federal and State laws and regulations impose additional requirements specific to the discovery of human remains and associated artifacts. On federal or tribal land, human remains discoveries are subject to the Native American Grave Protection and Repatriation Act (NAGPRA). In addition, Reclamation has specific policies for the implementation of the NAGPRA provisions (Reclamation Directives and Standards LND 07-01). For human remains discoveries on non-federal land, the requirements of the California Public Resources Code and Health and Safety Code apply, as described below. In the event that human remains are discovered inadvertently during ground-disturbing activities, the lead State or federal agency will implement the following measures. These measures also will be discussed, with explicit treatment of roles and responsibilities under the various applicable regulations, in the PA referenced previously.

- The contractor immediately will cease work within 100 feet of the find. All construction personnel will leave the area. Vehicles and equipment will be left in place until a qualified archaeologist identifies a safe path out of the area. The on-site supervisor will flag or otherwise mark the location of the find and keep all traffic away from the resource. The on-site supervisor immediately will notify the lead State or federal agency of the find.
- The lead federal agency is responsible for compliance with NAGPRA (43 CFR 10) if inadvertent discovery of Native American remains occurs on federal lands. The lead federal agency is responsible for compliance with State laws relating to the disposition of Native American burials (Public Resources Code [PRC] 5097 and California Health and Safety Code 7050.5[b]) for human remains discoveries on non-federal lands.
- If human remains of Native American origin are discovered during ground-disturbing activities on non-federal land, the lead State or federal agency must comply with State laws relating to the disposition of Native American burials, which fall within the jurisdiction of the Native American Heritage Commission (NAHC) (PRC 5097). If human remains are discovered or recognized in any location other than a dedicated cemetery, the lead State or federal agency will not allow further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:
  - the Solano County coroner has been informed and has determined that no investigation of the cause of death is required; and
  - if the remains are of Native American origin,
    - the descendants of the deceased Native Americans have made a recommendation to the landowner or the person responsible for the excavation work for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in PRC 5097.98; or
    - the NAHC was unable to identify a descendant or the descendant failed to make a recommendation within 48 hours after being notified by the NAHC.

EC-13: Biological Resources Best Management Practices

The following section outlines the potential BMPs that will be implemented to avoid or minimize impacts on biological resources. The BMPs that are implemented for each specific project will depend on the project location,

potential to adversely affect biological resources, and guidance and requirements set forth by resource agencies through informal and formal consultations. Environmental commitments, including an erosion and sediment control plan, SWPPP, hazardous materials management plan, spoils disposal plan, and environmental training content will be provided to the National Marine Fisheries Service (NMFS), USFWS, and CDFW 30 days before the start of construction at a restoration site. Any adverse effects on special-status species, critical habitat, or essential fish habitat (EFH) attributable to construction activities may require implementation of additional avoidance or mitigation measures. NMFS, USFWS, and CDFW will be consulted, and additional avoidance and mitigation measures may be implemented on a site-specific basis.

EC-13-1: General Best Management Practices

- No firearms (except for those carried by federal, State, or local law enforcement officers and security personnel) will be permitted on the project site, to avoid harassment, killing, or injuring wildlife.
- No pets will be permitted on the project site, to avoid harassment, killing, or injuring wildlife.
- Native vegetation that is trimmed or removed on the project site will be stockpiled during project work. After construction completion, removal of temporary mats and construction-related materials, and application of native seed mix, stockpiled native vegetation will be re-applied over temporarily disturbed wetlands to provide temporary soil protection and as a seed source.
- Where vegetation removal is required, work will be conducted using hand-held tools to enable wildlife to escape, where feasible and effective. Invasive vegetation may be removed by mechanical or chemical methods if other methods are not feasible or effective. Vegetation will be removed under the supervision of a qualified biologist, pre-approved by CDFW and USFWS. If a mouse of any species is observed within the areas where vegetation is being removed, CDFW and USFWS will be notified. Vegetation removal may begin when no mice are observed and will start at the edge farthest from the salt marsh or the poorest habitat and work its way toward the salt marsh or the better salt marsh habitat.
- Removal of vegetation in wetland habitat will be conducted with a qualified biological monitor present. This monitor will watch for special-status wildlife species and temporarily will stop work if special-status species are encountered. Wildlife will be allowed to escape before work is resumed. Monitors with the appropriate qualifications to handle special-status species

will be allowed to move special-status species to safe locations as permitted by their authorizations.

- Temporarily affected wetlands will be restored by removing construction-related debris and trash. Affected areas will be seeded with a seed mix of local native wetland species.

EC-13-2: Worker Training

Project proponents will provide training to field management and construction personnel on the importance of protecting environmental resources. Communication efforts and training will be conducted during preconstruction meetings, so that construction personnel are aware of their responsibilities and the importance of compliance.

Construction personnel will be educated on the types of sensitive resources in the project area and the measures required to avoid impacts on these resources. Materials covered in the training program will include environmental rules and regulations for the specific project and requirements for limiting activities to the construction right-of-way and avoiding demarcated, sensitive resources areas. Training seminars will educate construction supervisors and managers on:

- the need for resource avoidance and protection,
- construction drawing format and interpretation,
- staking methods to protect resources,
- the construction process,
- roles and responsibilities,
- project management structure and contacts,
- environmental commitments, and
- emergency procedures.

If new construction personnel are added to the project, the contractor will ensure that they receive the mandatory training before starting work. A representative will be appointed during the employee education program to be the contact for any employee or contractor who inadvertently may kill or injure a listed species, or who finds a dead, injured, or entrapped individual. The representative's name and telephone number will be provided to USFWS before the start of ground disturbance.

EC-13-3: Special-Status Plant Species Protection

A botanical survey of restoration areas will be completed using the Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants (USFWS 1996) and Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (CDFW 2009):

- Special-status plant surveys required for project-specific permit compliance will be conducted within 1 year before the start of construction. The purpose of these surveys will be to verify that the locations of special-status plants that were identified in previous surveys are extant, identify any new special-status plant occurrences, and cover any portions of the project area not previously identified. The extent of mitigation of direct loss of or indirect impacts on special-status plants will be based on these survey results.
- Locations of special-status plants in project construction areas will be recorded using a global positioning system (GPS) unit and will be flagged.
- If initial screening by a qualified biologist identifies the potential for special-status plant species to be directly or indirectly affected by a specific project, the biologist will establish an adequate buffer area to exclude activities that may directly remove or alter the habitat of an identified special-status plant population or result in indirect adverse effects on the species.
- Access may be restricted around restoration sites where necessary to protect special-status plant populations though appropriate management plans and the design of the tidal marsh restoration. This may include signage, buffers, seasonal restrictions and design or no access, depending on the sensitive species in question.
- The project proponents will oversee installation of a temporary, plastic mesh–type construction fence (Tensor Polygrid or equivalent) at least 4 feet tall around any established buffer areas, to prevent encroachment by construction vehicles and personnel. A qualified biologist will determine the exact location for the fencing. The fencing will be strung tightly on posts that are set at maximum intervals of 10 feet and will be checked and maintained weekly until all construction is completed. The buffer zone established by the fencing will be marked by a sign stating the following:
    - This is habitat of [the special-status species being protected], a [identify the species' status] plant species, and must not be disturbed. This species is protected by [the Endangered Species Act of 1973, as amended/California Endangered Species Act/California Native Plant Protection Act]. Violators are subject to prosecution, fines, and imprisonment.

- No construction activity, including grading, will be allowed until this condition is satisfied.
- No grading, clearing, storage of equipment or machinery, or other disturbance or activity will occur until all temporary construction fencing has been inspected and approved by a qualified biologist.
- Where feasible for stump-sprouting vegetation, construction will limit removal of woody vegetation by trimming vegetation to approximately 1 foot above ground level.

EC-13-4: Special-Status Wildlife Species Protection

If individuals of listed wildlife species may be present and subject to potential injury or mortality from project construction activities, a qualified biologist will conduct a preconstruction survey. Minimum qualifications for the qualified biologist will be a 4-year college degree in biology or related field and 2 years of professional experience in the application of standard survey, capture, and handling methods for the species of concern. However, in the case of fully protected species, no capture or handling will be done. Fully protected wildlife species are listed in Section 6.3, “Wildlife” in the SMP EIS/EIR. Any special-status mammal, bird, or other species observed during surveys will be reported to CDFW, so that the observations can be added to the California Natural Diversity Database.

EC-13-4a: Mammals

- Only two special-status mammal species occur in Suisun Marsh: salt marsh harvest mouse and Suisun shrew. Suisun shrews use habitat similar to salt marsh harvest mouse, and thus any measures implemented to protect salt marsh harvest mouse also will apply to shrews. The following measures or other USFWS approved methods will be implemented:
- A CDFW and USFWS-approved biologist with previous salt marsh harvest mouse experience will be on site during construction activities occurring in wetlands. The biologist will document compliance with the project permit conditions and avoidance and conservation measures. The biologist has the authority to stop project activities if any requirement associated with these measures is not being fulfilled. If the biologist requests a work stoppage because of mortality of any of the listed species, USFWS and CDFW will be notified within 1 day by e-mail or telephone.
- Current duck club-related maintenance of existing roads and paths (e.g., mowing or grading) will continue to prevent these areas from becoming

desirable habitat. Vegetation will be mowed at least four times per year or as needed to prevent it from growing higher than 8 inches.

- A USFWS-approved biologist with previous salt marsh harvest mouse monitoring and surveying experience will identify suitable salt marsh habitat for the mouse before the start of the project.
- Disturbance of native or beneficial tidal wetland vegetation will be avoided to the extent feasible, to reduce potential impacts on salt marsh harvest mouse habitat. If tidal wetland vegetation cannot be avoided, it will be removed by hand where feasible. The biologist, approved by USFWS and CDFW, will be on site to monitor all wetland vegetation removal activities. At isolated breach locations in inaccessible tidal areas, vegetation will be excavated, as follows:
    1) The excavator will be located on an already disturbed area, floating barge, or be of amphibious nature to operate with limited ground disturbance. If landside excavation is possible, the excavator will be confined to disturbed areas or unsuitable habitat for SMHM such as a levee crown or designated turnarounds (areas where existing routine maintenance or construction activities have occurred).
    2) Before removing any vegetation, the excavator bucket will be moved slowly through wetland vegetation, to rustle it and encourage mice to move from the areas of removal.
    3) The excavator will begin at one end of the area to be cleared, at the outer edge along the water. The excavator will remove the vegetation just below the roots, shake each clump over land as it is removed, and place the excavator bucket with its contents on the adjacent levee to allow the on-site biologist to also disturb the vegetation to encourage any potential remaining mice to flee, as well as to break up any clumps of vegetation that potentially can contain mouse nests. These steps will be repeated for each bucketful until the area is bare dirt. The excavator operator will remain in constant communication with the biologist. to assure that the size of each scoop is appropriate for the biologist to inspect. If any injured or young mice in a nest are encountered, the biologist will stop work and contact CDFW and USFWS. If no immediate response is possible from these agencies, the animals will be taken to the Suisun Wildlife Center and cared for at DWR's expense.
    4) All non-native vegetation will be hauled off-site and disposed, following inspection, at an appropriate waste facility. Native vegetation will be stored on site for later use. The vegetation may be re-used beneficially

(native species), by placing it on top of ditch blocks near the breach sites, or may be hauled away for disposal (non-native undesirable species or a mixture of native and invasive).

- The upper 6 inches of soil excavated within salt marsh harvest mouse habitat will be stockpiled separately, if feasible, and placed in adjacent, unvegetated ditch fill areas, excluding invasive plants. Invasive vegetation removed for construction activities will be hauled off-site and disposed, following inspection, at an appropriate waste facility.
- In staging areas where habitat is to be disturbed, vegetation must be cleared to bare ground or stubble no higher than 1 inch.
- Work will be scheduled to avoid extreme high tides (6.5 feet or above), when feasible, when the potential exists for salt marsh harvest mouse to move to higher, drier grounds, except in areas that are being cleared following the described cutting and flooding method. All equipment will be staged on existing roadways, away from the project site when not in use.
- In lieu of fencing that excludes mice from entering the construction area, construction in salt marsh harvest mouse habitat, with the exception of vegetation clearing, will occur only between 1 hour after sunrise to 1 hour before sunset, when mice are the least active. Vegetation clearing will occur during dusk and dawn (1 hour before sunrise and/or sunset to 1 hour following sunrise and/or sunset). Construction areas that have been cleared of vegetation (e.g., haul routes, constructed channels) will be cleared by the biological monitor prior to work each day.
- If any mouse is discovered, construction activities will cease in the immediate vicinity of the individual until the individual has been allowed to leave the construction area on its own.

EC-13-4b: Birds

If construction activities occur during active nesting periods, the project proponents will perform preconstruction surveys to determine whether nesting birds, including migratory birds, raptors, and special-status bird species, are present on or immediately adjacent to the project sites and associated staging and storage areas. Bird species using the managed wetland habitat include waterfowl, shorebirds, Suisun song sparrow, Suisun common yellowthroat, and several other resident and migratory songbirds.

- The project proponents will remove all woody and herbaceous vegetation from construction areas (earthwork areas) during the nonbreeding season (September 1–February 1), to minimize effects on nesting birds.

- During the breeding season, all vegetation subject to impacts will be maintained to a height of approximately 6 inches to minimize the potential for nesting.
- If construction occurs during the breeding season and not all affected vegetation has been removed, a qualified biologist will survey the construction area for active nests and young migratory birds immediately before construction.
- If active nests or migratory birds are found within the boundaries of the construction area, the project proponents will develop appropriate measures and coordinate with CDFW to determine an acceptable buffer width.
- Inactive nests for migratory birds (excluding raptors) located outside construction areas will be preserved. If an inactive migratory bird nest is found in the area of effect, it will be removed before the start of the breeding season (approximately February 1).
- Impacts on great blue heron rookeries will be avoided; mature trees will not be removed; and nearby work will occur outside the nesting season.

Raptors

- Preconstruction surveys will be performed before and during the raptor nesting season (bimonthly, i.e., two times per month), to identify existing nests that may be used during the nesting season.
- Raptors may nest from later winter through mid-summer; therefore, multiple nesting-season surveys will be performed.
- CDFW will be notified of all raptor nests that are located during the preconstruction surveys. If a raptor nest is in the recommended buffer, the project proponents will coordinate with CDFW to determine an acceptable buffer width.
- If an active raptor nest is found outside the construction areas, a buffer zone will be created around the nest tree. For special-status species, a larger buffer will be required (e.g., 0.5-mile Swainson's hawk buffer). The project proponents will coordinate with CDFW before project implementation, to determine species-specific buffer widths.

California Clapper Rail and California Black Rail

If construction activities are necessary during the breeding season, preconstruction surveys for California clapper rail and black rail will be conducted in and adjacent to areas of potential tidal and managed wetlands habitats for California clapper rail and black rail. The surveys will focus on potential habitat

that may be disturbed by construction activities during the breeding season, to ensure that these species are not nesting in these locations.

Survey methods will follow the protocols used by CDFW during previous rail surveys in Suisun Marsh (CDFW 2007; USFWS 2017). The specific project proponent will implement the following survey protocols:

- Surveys will begin sometime between January 15 and February 1.
- A minimum of four surveys will be conducted. The survey dates will be spaced at least 2–3 weeks apart and will cover the time from the date of the first survey through the end of March or mid-April. This will allow the surveys to encompass the period when the highest frequency of calls is likely to occur.
- Listening stations will be established at 150-yard intervals along roadways, trails, and levees that will be affected by plan implementation.
- Recordings of California clapper rail and California black rail vocalizations will be played at each station.
- For California clapper rails, each listening station will be occupied for 10 minutes, followed by 1 minute of playing California clapper rail vocalization recordings, followed by an additional minute of listening.
- For black rails, each listening station will be occupied for 1 minute of passive listening, 1 minute of “grr” calls, followed by 30 seconds of “ki-ki-krrr” calls, then by another 3.5 minutes of passive listening.
- Sunrise surveys will begin 60 minutes before sunrise and conclude 75 minutes after sunrise (or until presence is detected).
- Sunset surveys will begin 75 minutes before sunset and conclude 60 minutes after sunset (or until presence is detected).
- Surveys will not be conducted when tides are greater than 4.5 feet National Geodetic Vertical Datum or when sloughs and marshes are more than bankfull.
- Vocalizations of California clapper rails and California black rails will be recorded. A GPS receiver will be used to identify call location and distance. Call types, locations, distances, and times will be recorded on a data sheet.

If California clapper rail or black rail is present in the immediate project area, the following measures will apply during construction activities:

- To avoid the loss of individual California clapper rails or black rails, activities will not occur within or adjacent to California clapper rail or black rail habitat within 2 hours before or after extreme high tides (6.5 feet or above, as

measured at the Golden Gate Bridge) when the marsh plain is inundated, because protective cover for California clapper rails is limited and activities could prevent them from reaching available cover.

- To avoid the loss of individual California clapper rails or black rails, activities within or adjacent to tidal marsh areas will be avoided during the California clapper rail breeding season (February 1–August 31) each year, unless surveys are conducted to determine the locations of California clapper rails and the activities can avoid California clapper rail and black rail territories.
- If breeding California clapper rails or black rails are determined to be present, activities will not occur within 700 feet of an identified calling center. If an intervening distance of more than 200 feet exists across a major slough channel or across a substantial barrier between the California clapper rail calling center and any activity area, activity may proceed at that location during the breeding season.
- *Exception:* Only inspection, maintenance, research, or monitoring activities may be performed during the breeding season for California clapper rail or black rail in areas within or adjacent to California clapper rail breeding habitat, with approval of USFWS and CDFW and under the supervision of a qualified biologist.

California Least Tern

- No activities will be performed within 300 feet of an active least tern nest during the least tern breeding season, April 15 to August 15 (or as determined through surveys).
- *Exception*: Only inspection, maintenance, research, or monitoring activities may be performed during the least tern breeding season in areas within or adjacent to least tern breeding habitat, with approval of USFWS and CDFW and under the supervision of a qualified biologist.

EC-14: Biological Monitoring

- The project proponents will provide a biologist/environmental monitor, who will be responsible for monitoring implementation of the conditions in the federal and State permits (i.e., Clean Water Act Sections 401, 402, and 404; Endangered Species Act Section 7; California Fish and Game Code Section 1602 and/or Section 2050; project plans [SWPPP]; and EIS/EIR mitigation measures).
- The biologist/environmental monitor will determine the locations of environmentally sensitive areas adjacent to each project site, based on

mapping of existing land cover types and special-status plant species. If such maps are not available, the biologist/environmental monitor will map and quantify the land cover types and special-status plant populations in the Proposed Project footprint before construction.

- To avoid construction-phase disturbance of sensitive habitats immediately adjacent to a project site, the monitor will identify the boundaries of sensitive habitats and add at least a 100-foot buffer, where feasible, using orange construction barrier fencing. The fencing will be mapped on project specifications. Erosion-control fencing also will be placed at the edges of construction, where activities occur upslope from wetlands and channels, to prevent sediment from washing off-site. Sensitive habitat and erosion-control fencing will be installed before the start of any construction activities and will be maintained throughout the construction period.
- During dredging operations, the biologist/environmental monitor will ensure that all sensitive habitat areas outside direct project footprints, including patches of tidal wetland along channel banks, are avoided to the extent practical.
- Plants for revegetation primarily will come from natural recruitment. Plants imported to restoration areas will come from local stock, and to the extent possible, from local nurseries. Only native plants will be used for restoration efforts.

The timing of restoration construction activities will depend on the type of activity, presence or absence of sensitive resources, tides, and/or water management in wetlands. In general, landside work will occur between July and September. In-water activities will be conducted from August through November. Work outside this time frame will require additional approvals from the resource agencies. Other timing restrictions may be necessary during the hunting season, such as limiting work to days other than Saturday, Sunday, and Wednesday.

EC-15: Nonnative Plant Control

The project proponents will include the following measures in project specifications, to minimize the potential for the introduction of new noxious weeds and the spread of weeds previously documented to be in the project area:

- Use certified, weed-free, imported erosion control materials (or rice straw in upland areas).

- Coordinate with the Solano County agricultural commissioner and land management agencies to ensure that the appropriate BMPs are implemented.
- Educate construction supervisors and managers on weed identification and the importance of controlling and preventing the spread of noxious weeds.
- Clean all equipment at designated wash stations after leaving noxious-weed infestation areas.
- Treat isolated infestations of noxious weeds that are identified in the project area with approved eradication methods at an appropriate time, to prevent further formation of seed, and destroy viable plant parts and seed.
- Minimize surface disturbance to the greatest extent possible.
- Use certified, weed-free native mixes for any restoration planting or seeding as may be necessary, as provided in the revegetation plan developed in cooperation with CDFW. Mulch with certified, weed-free mulch. Rice straw may be used to mulch upland areas.
- Use native, noninvasive species or nonpersistent hybrids in erosion control plantings, to stabilize site conditions and prevent invasive species from colonizing.

EC-16: Cultural Resources

- If any previously unknown historic or archaeological artifacts are discovered while accomplishing the authorized work, DWR will stop work immediately and notify the U.S. Army Corps of Engineers. The activity will not be authorized until the requirements of Section 106 of the National Historic Preservation Act are satisfied.
- Work will not be authorized within 100 feet of archaeological site CAL-SOL-13.

EC-17: Greenhouse Gases

The following BMPs will be implemented in order to comply with the Department of Water Resources' (DWR) Greenhouse Gas Emissions Reduction Plan (GGERP):

Pre-Construction and Final Design BMPs

- Evaluate project characteristics, including location, project work flow, site conditions, and equipment performance requirements, to determine whether the specifications for the use of equipment with repowered

engines, electric drive trains, or other high-efficiency technologies are appropriate and feasible for the project or specific elements of the project.

- Evaluate the feasibility and efficacy of performing on-site material hauling with trucks equipped with on-road engines.
- Ensure that all feasible avenues have been explored for providing an electrical service drop to the construction site for temporary construction power. When generators must be used, use alternative fuels, such as propane or solar, to power generators to the maximum extent feasible.
- Evaluate the feasibility and efficacy of producing concrete on site and specify that batch plants be set up on site or as close to the site as possible.
- Evaluate the performance requirements for concrete used on the project and specify concrete mix designs that minimize GHG emissions from cement production and curing while preserving all required performance characteristics.
- Limit deliveries of materials and equipment to the site to off peak traffic congestion hours.

Construction BMPs

- Minimize idling time by requiring that equipment be shut down after five minutes when not in use (as required by the State airborne toxics control measure [13 CCR Section 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
- Maintain all construction equipment in proper working condition and perform all preventative maintenance. Required maintenance includes compliance with all manufacturer's recommendations, proper upkeep and replacement of filters and mufflers, and maintenance of all engine and emissions systems in proper operating condition. Maintenance schedules shall be detailed in an Air Quality Control Plan prior to commencement of construction.
- Implement tire inflation program on jobsite to ensure that equipment tires are correctly inflated. Check tire inflation when equipment arrives on site and every two weeks for equipment that remains on site. Check vehicles used for hauling materials off site weekly for correct tire inflation. Procedures for the tire inflation program shall be documented in an Air Quality Management Plan prior to commencement of construction.

- Develop a project specific ride share program to encourage carpools, shuttle vans, transit passes and/or secure bicycle parking for construction worker commutes.
- Reduce electricity use in temporary construction offices by using high efficiency lighting and requiring that heating and cooling units be Energy Star compliant. Require that all contractors develop and implement procedures for turning off computers, lights, air conditioners, heaters, and other equipment each day at close of business.
- For deliveries to project sites where the haul distance exceeds 100 miles and a heavy-duty class 7 or class 8 semi-truck or 53-foot or longer box type trailer is used for hauling, a SmartWay1 certified truck will be used to the maximum extent feasible.
- Minimize the amount of cement in concrete by specifying higher levels of cementitious material alternatives, larger aggregate, longer final set times, or lower maximum strength where appropriate.
- Develop a project specific construction debris recycling and diversion program to achieve a documented 50 percent diversion of construction waste.
- Evaluate the feasibility of restricting all material hauling on public roadways to off-peak traffic congestion hours. During construction scheduling and execution minimize, to the extent possible, uses of public roadways that would increase traffic congestion.

REFERENCES

BAAQMD (Bay Area Air Quality Management District). 1999. BAAQMD CEQA Guidelines Assessing the Air Quality Impacts of Projects and Plans. Available at: http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqaguid.pdf.

Caltrans (California Department of Transportation). 2004. Manual of Traffic Controls for Construction and Maintenance Works Zones.

CDFW (California Department of Fish and Wildlife). 2007. California Clapper Rail California Black Rail, Survey Report 2006.

CDFW. 2009. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities.

USFWS (U.S. Fish and Wildlife Service). 1996. Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants.

USFWS. 2017. Site Specific Protocol for Monitoring Marsh Birds: Don Edwards San Francisco Bay and San Pablo Bay National Wildlife Refuges. Survey ID Numbers FF08RSFB00-003 and FF08RSNP00-008.

Appendix B

Invasive Vegetation Management Plan

Appendix B

Invasive Vegetation Management Plan

B. INVASIVE VEGETATION MANAGEMENT PLAN

B.1 Current Conditions and Interim Management Strategies

California Department of Water Resources (DWR) is currently undertaking interim management activities within Chipps Island's north parcel. This parcel consists of approximately 362-acres of diked waterfowl hunting area with seasonal and permeant non-tidal wetlands and management activities will be consistent with permitted management practices of historic duck club uses. Activities covered by the existing US Army Corps of Engineering (USACE) Section 404 Regional General Permit 3, Permit Number SPN-2012-00258 (RGP3) include treatment and removal of invasive vegetation, as well as localized repair of eroded levee locations, removal and/or repair of WCSs and bulkheads, clearing of existing interior ditches, and ongoing water management (flooding, draining, and/or circulation).

Interim Invasive Plant Management will focus on common reed (*Phragmites australis*). To facilitate vegetation management, managed wetland areas would be drained using existing water control structures and pumped dry using portable pumps as needed. Herbicides labeled for aquatic use would be used to control nuisance vegetation in tidal areas. These herbicides would be mixed with appropriate surfactant/activator, in accordance with the manufacturer's recommendations.

After the treatment sites are dry, common reed patches would be sprayed with aquatic-labeled glyphosate, and dead standing vegetation would be mowed, according to the methods prescribed by the Blacklock Restoration: Phragmites Control Study (Thomas and Darin, 2023). All application of herbicides will be done in consultation with a certified chemical applicator and following standard best management practices (BMPs), as recommended by the Suisun Resource Conservation District to avoid impacts on sensitive resources.

DWR would continue treating the sites following initiation of restoration construction to provide better long-term control and re-establishment of more desirable native wetland plant assemblages.

B.2 Ongoing Management

Prior to ground disturbing activities, vegetation in the Proposed Project area that is unable to be removed under the interim management would be removed in accordance with Project requirements (e.g., conservation measures, BMPs,

and/or environmental commitments) on-site. Invasive vegetation, with a focus on common reed, would be treated with herbicide.

Vegetation management on the levees and roads (before completion of tidal restoration) would be necessary to maintain access for site maintenance activities. Access roads and levee crowns would be mowed and sprayed as needed, up to 6 times per year, to keep tall vegetation from growing.

B.2.1 Herbicide and General BMPs

The following herbicide and general BMPs will be implemented to avoid and minimize impacts:

- ► Herbicides will be mixed off-site or in designated upland staging areas, to prevent spills in wetland areas, and tanks will be rinsed offsite following application.
- ► Equipment will be fueled in designated staging areas or off-site, and will be equipped with spill prevention materials.
- ► Equipment will be checked for leaks daily before use in wetland areas.
- ► Spill prevention and response measures will be identified before application of herbicides and identified in a Hazardous Materials Management Plan for the activity.
- ► No herbicide will be discharged directly into surface waters during application.
- ► All herbicides will be used in accordance with manufacturer's recommendations.
- ► Herbicide use in tidal areas will be done in accordance with the General National Pollutant Discharge Elimination System (NPDES) Permit for Residual Aquatic Pesticide Discharges for Algae and Aquatic Weed Control Applications (Order No. 2013-0002-DWQ, NPDES No. CAG990005), including receiving water monitoring, to ensure that the receiving waters are below listed limitations.
- ► Herbicides would not be used when wind exceeds 10 miles per hour, during gusty conditions, or during potential inversions.
- ► Herbicides will not be used when local rainfall greater than 0.5 inches is forecasted within a 24-hour period from planned application events. All herbicides are registered with the California Department of Pesticide Regulation and U.S. Environmental Protection Agency (EPA).

B.2.2 Managed Wetlands BMPs

The following managed wetlands BMP will be implemented to avoid and minimize impacts:

- Invasive vegetation management activities within managed wetlands will be performed when conditions are dry.

B.2.3 Tidal Wetlands BMPs

The following tidal wetlands BMPs will be implemented to avoid and minimize impacts:

- Herbicides used in tidal wetland areas below mean high water will be labeled for aquatic use.
- Any herbicide application in tidal areas will occur at low tide and will be applied by hand to minimize overspray.

Herbicides labeled for aquatic use (Table B-1) would be sprayed with a backpack sprayer, a spray rig attached to a truck, boat, or all-terrain vehicle, or by a drone-mounted sprayer, depending on patch size and accessibility. After the herbicide begins to take effect, the vegetation would be mowed without disturbing rhizomes or scarifying soil. Spraying and mowing would be repeated as necessary.

No more than 220 acres total per year would be sprayed with herbicide (but multiple treatments of the same patch may occur). This would not be considered additive acreage. Herbicides would be applied up to four times per year.

Table B-1. Herbicides that Could Be Used for Future Invasive Vegetation Management[1]

Habitat Type[2]	Herbicide	IUPAC Name
Aquatic	Imazapyr	(RS)-2-(4-Methyl-5-oxo-4-propan-2-yl-1H-imidazol-2-yl) pyridine-3-carboxylic acid
Aquatic	Glyphosate	N-(phosphonomethyl) glycine

Notes:

[1] Chemicals not listed here may be substituted for these chemicals if analysis is provided that demonstrates that effects similar or less than was analyzed for the listed chemicals.

[2] Herbicides are included in the General NPDES Permit for Residual Aquatic Pesticide Discharges for Algae and Aquatic Weed Control Applications (Order No. 2013-0002-DWQ, NPDES No. CAG990005)

Sources: DiTomaso et al. 2013; Thomas and Darin, 2023

B.3 Post-Construction Management

DWR expects that new colonization of undesirable plants would be ongoing, following restoration construction. DWR would continue to monitor the sites for undesirable invasive vegetation for 5 years after tidal restoration is completed, as part of the Proposed Project. When invasive vegetation is found at the sites, DWR would assess the invasive species, and appropriate management actions would be taken to attempt to control it. Methods could include hand removal, mowing using a tracked amphibious vehicle, and spraying herbicides (Table B-1). Pest control methods would be implemented on detection of known invasive species. When possible, plants would be removed by hand or other mechanical methods. Herbicides would be used if mechanical methods are infeasible or ineffective. Currently, no approved, effective, biological control agents exist for the expected invasive plants in Suisun Marsh. Plant management methods would be informed by the best available information. Five years after tidal restoration, the site would be monitored in accordance with the long-term monitoring and management plan, which would include ongoing management of invasive species.

B.3.1 Mechanical

Mechanical control could include hand removal (e.g., pulling or cutting) or mowing. Mowing would be done with conventional tools and equipment where possible and using specialized amphibious tracked equipment where necessary. Mowing would be done at low tide, and residual vegetation material would be hauled off-site for disposal.

B.3.2 Chemical

The herbicides listed above and potentially others would be selected to target specific invasive plant species, minimize off-target effects, and limit the potential for herbicide resistance. Herbicide application in tidal areas would be applied during low tide to minimize the potential for any chemicals to be discharged into surface waters and would be applied following the manufacturer's recommendations, including tank mixes or surfactants. Table B-1 shows the herbicides that may be used to control invasive plants during and after restoration construction. With the exception of Chlorsulfuron, all herbicides would be aquatic formulations. Chlorsulfuron would be used only above mean high water (5.5 feet NAVD88), in accordance with the manufacturer's recommendations.

B.3.3 Post Disturbance Restoration

Following removal of invasive plants, native plants would be planted where necessary to reduce further establishment of invasive plants. Appropriate planting species and methods would be determined based on elevation and surrounding plant types. Plantings would include bulrush (*Schoenoplectus* sp.), cattails (*Typha* sp.), or other appropriate mid to high-marsh species. Native vegetation may be broadcast via seeds, rhizomes, or adult plugs, and may include bundles of rhizomes and vegetation.

B.4 References

Thomas, M. and G. Darin. 2023. Final Grant Report Prop1-1803, Blacklock Restoration: Phragmites Control Study. California Department of Water Resources. Contact: Gina.Darin@water.ca.gov

DiTomaso, J. M., G. B Kyser, et al. 2013. Weed Control in Natural Areas in the Western United States. Weed Research and Information Center, University of California.

Saltonstall, K. 2005. Fact Sheet: Giant Reed. Plant Conservation Alliance, Alien Plant Working Group. Available at: https://www.invasive.org/weedcd/pdfs/wgw/commonreed.pdf.

Appendix C

Hydrodynamic Modeling Report

Materials associated with this Appendix to the CEQA Addendum to the Suisun Marsh Plan Final EIS/EIR are available upon request. Please contact the following representatives below:

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Appendix D

Cultural Resources Report

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Appendix E

Sunken Shipping Container Notice of Violation Documentation

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