Draft

Supplemental Environmental Impact Report

McCormack-Williamson Tract Levee Modification and Habitat Restoration Project – Phase B

State Clearinghouse Number 2003012112

Prepared for:

California
Department of Water Resources

February 2022

Prepared by:

GEI Consultants

Consulting
Engineers and
Scientists

Draft
Supplemental Environmental Impact Report

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Abbreviations and Acronyms

AB 32	Assembly Bill 32
AB 52	Assembly Bill 52
AFY	acre-feet per year
AST	above-ground storage tanks
Bay-Delta Plan	Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary
BMP	Best Management Practice
CAAQS	California ambient air quality standards
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CalEEMod	California Emissions Estimator Model
CalGEM	California Geologic Energy Management Division
CARB	California Air Resources Board
CBSC	California Building Standards Code
CCR	California Code of Regulations
CDBW	California Department of Boating and Waterways
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFGC	California Fish and Game Code
cfs	cubic feet per second
CNDDB	CDFW California Natural Diversity Database
CO	carbon monoxide
CO_2	carbon dioxide
CRHR	California Register of Historical Resources
CVFPB	Central Valley Flood Protection Board
CVP	Central Valley Project
CWA	Clean Water Act
cy	Cubic yards
D-1641	Revised Water Rights Decision 1641

dBA	weighted decibles
DCC	Delta Cross Channel
DDD	dichlorodiphenyldichloroethane
DDT	dichlorodiphenyltrichloroethane
Delta RMP	Delta Regional Monitoring Program
DHI	Dead Horse Island
DOT	U.S. Department of Transportation
DPS	distinct population segment
DPM	Diesel Particulate Matter
DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources
EC	electrical conductivity
EBMUD	East Bay Municipal Utility District
EIR	Environmental Impact Report
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
ET	evapotranspiration
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FTA	Federal Transportation Administration
ft	feet
GGERP	Greenhouse Gas Emissions Reduction Plan
GHG	greenhouse gases
Guidelines	Transportation Analysis Guidelines
GWP	global warming potential
H	horizontal
HAS	Hazardous Substances Assessment Summary Report
HEC-RAS	Hydrologic Engineering Center River Analysis System
High GWP	High Global Warming Potential
I-5	Interstate-5
IPCC	Intergovernmental Panel on Climate Change
Leq	level of decibels

MHHW	mean higher high water
MLLW	mean lower low water
MMRP	Mitigation Monitoring and Reporting Program
MRZ	mineral resource zone
MT CO_{2e}	metric tons of CO_2 equivalents
MWT	McCormack-Williamson Tract
NAAQS	national ambient air quality standards
NAHC	Native American Heritage Commission
NAVD	North American Vertical Datum 1988
NCIC	North Central Information Center
NHPA	National Historic Preservation Act
North Delta	North Delta Flood Control and Ecosystem Restoration Project
NMFS	National Marine Fisheries Service
NRHP	National Register of Historic Places
OHP	State Office of Historic Preservation
PG&E	Pacific Gas and Electric Company
PM	particulate matter
PRC	Public Resource Code
project or proposed project	McCormack-Williamson Tract Levee Modification and Habitat Restoration Project
RD	Reclamation District
RSP	rock slope protection
RWQCB	Regional Water Quality Control Board
SAFE	Safer Affordable Fuel Efficient
Scoping Plan	AB 32 Climate Change Scoping Plan
SLC	California State Lands Commission
SMAQMD	Sacramento Metropolitan Air Quality Management District
SSHCP	South Sacramento Habitat Conservation Plan
SRA	shaded riverine aquatic
SSSG	South Sacramento Streams Group
SJVAPCD	San Joaquin Valley Air Pollution Control District
SMAQMD	Sacramento Metropolitan Air Quality Management District

SMUD	Sacramento Municipal Utility District
SVAB	Sacramento Valley Air Basin
SWP	State Water Project
SWPPP	Storm Water Pollution Prevention Program
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
TCR	Tribal Cultural Resource
UAIC	United Auburn Indian Community
UBC	Uniform Building Code
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
V	Vertical
VMT	vehicle miles travelled
VOCs	volatile organic compounds
Wilton Rancheria	Plains Miwok as *Waka-ce/Waka-Ly*
WSE	water surface elevation

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Executive Summary

ES.1. Introduction

The California Department of Water Resources (DWR) is pursuing the McCormack-Williamson Tract (MWT) Levee Modification and Habitat Restoration Project (project or proposed project). The project purpose is to implement flood control improvements in a manner that benefits aquatic and terrestrial habitats, species, and ecological processes, and incorporates landscape scale restoration of Delta habitat. Through support and funding from DWR's Division of Multibenefits, Delta Levees Program, the project would be implemented by Reclamation District (RD) 2110. The project was originally evaluated as part of the North Delta Flood Control and Ecosystem Restoration Project (North Delta) Environmental Impact Report (EIR). The North Delta Draft EIR was prepared in 2007 (DWR 2007), the Final EIR prepared and certified by DWR in 2010 (DWR 2010), and an addendum to the EIR prepared in 2018 (DWR 2018). This Supplemental EIR provides supplemental information and analyzes project specific impacts not presented in these previous documents, as discussed below.

The 2010 North Delta EIR analyzed Alternative 1-A, which included two project elements, the MWT Project and the Grizzly Slough Project. The Grizzly Slough Project is not a subject of this Supplemental EIR. Since certifying the North Delta EIR in 2010, DWR has separated the MWT Project into Phases A and B. DWR prepared an addendum to the North Delta EIR and constructed Phase A components in 2018 and 2019. The Phase A project consisted of work on the MWT interior, including constructing the Tower Levee to protect a communications tower in the northwest corner of MWT; demolishing farm residences and infrastructure; removing mobile tanks with potentially hazardous materials; enhancing the landside slope of levees to provide a bench for wind wave attenuation and planting vegetation; and using borrow material from the northwest corner area for construction.

The Phase B project consists of implementing the remaining project components of the larger MWT project, as discussed below. The focus of this Supplemental EIR is to evaluate impacts that have changed since the North Delta EIR was certified in 2010 considering recent changes, refinements, and additions to the Phase B project; changes to the physical environment at MWT from flooding in 2017 and subsequent abandonment of agricultural production; and construction of the Phase A project components in 2018 and 2019. Extensive hydraulic modeling was performed using an updated regional model and new flood information from 2017, resulting in changes to the project design. The project changes are proposed to optimize the project to best meet project objectives under the changed conditions and minimize environmental impacts.

The MWT is a North Delta island located immediately downstream of the confluence of the Cosumnes and Mokelumne Rivers, just northeast of the Delta Cross Channel. The MWT interior consists primarily of lands previously managed for agricultural uses until 2017 and a network of associated ditches and berms. The MWT Phase B project site boundary contains approximately 1,635 acres and is wholly owned by DWR. During the onset of flooding in 2017 and in

coordination with RD 2110, a group of downstream landowners and RDs intentionally degraded a portion of the MWT West Levee to reduce the risk of a catastrophic levee failure at the downstream/southwest end of MWT. This action avoided catastrophic levee failures like those that occurred on MWT during the 1986 and 1997 flood events, which sent a destructive "surge effect" or flood pulse downstream. A small levee breach still occurred naturally on the MWT Southwest Levee after the intentional notching of the MWT West Levee. After the 2017 flood event, the failed sections of the Mokelumne River Levee, MWT West Levee, and MWT Southwest Levee were repaired by RD 2110 to a lower crest height than existed before the flood event. After the 2017 flood event, agricultural production on MWT ceased due to concerns of recurring flooding, including planting of crops and other activities to maintain the site for agricultural uses (this expected conversion of agricultural lands on MWT was fully addressed in the North Delta EIR). As a result, the land cover/habitats on MWT have started to change in some areas. DWR has prepared this Supplemental EIR to provide decision makers, the public, and responsible and trustee agencies with supplemental information about the environmental effects of changes to the Phase B project and existing physical conditions at MWT. This Draft Supplemental EIR was prepared in compliance with the California Environmental Quality Act (CEQA) of 1970 (as amended) and the State CEQA Guidelines (California Code of Regulations [CCR] title 14, section (§) 15000 et seq.).

ES.2. Scope of Supplemental EIR

Changes to existing conditions at MWT since the North Delta EIR, including from the 2017 flood event and implementation of Phase A in 2018 and 2019, are now part of existing conditions for this Supplemental EIR. This Supplemental EIR does not address Phase B project activities that were fully addressed in the North Delta EIR and have not changed since the North Delta EIR, except where needed to update the analysis related to changes in Phase B and/or changed existing conditions at MWT. Several new project activities are proposed for Phase B and some activities identified in the North Delta EIR have been removed from the project description. A reasonable range of feasible alternatives was already fully evaluated in the North Delta EIR and therefore no further alternatives analysis is needed in this Supplemental EIR. Phase B activities covered in the North Delta EIR and this Supplemental EIR are summarized as follows:

- **North Delta EIR Alternative 1-A activities planned for Phased B with no changes and covered in the North Delta EIR:**
    - Modify Pump and Siphon Operations
    - Allow Boating on Southeastern MWT (Optional)
- **North Delta EIR Alternative 1-A activities planned for Phased B but now removed from Phase B and no longer under consideration:**
    - Modify Downstream Levees to Accommodate Potentially Increased Flows
    - Implement Local Marina and Recreation Outreach Program
    - Excavate Dixon and New Hope Borrow Sites
    - Reinforce Dead Horse Island East Levee

- **North Delta EIR Alternative 1-A activities planned for Phased B with changes and/or refinements covered in the Supplemental EIR:**

    - Degrade MWT East Levee to Function as a Weir
    - Breach Mokelumne River Levee
    - Completely Degrade MWT Southwest Levee to Match Elevation of Island Floor
    - Enhance Landside Levee Slope and Habitat (Implemented in Phase A and planned for Phase B at new locations)
    - Modify Landform and Restore Agricultural Land to Habitat

- **New Phase B activities covered in the Supplemental EIR:**

    - Repair MWT West Levee
    - Relocate and Decommission Utilities
    - Incorporate Vehicular Turnaround Area
    - Import Borrow Material from Other Sources (Optional for Phase B)
    - Manage Water in the Northeast Corner of MWT (Optional for Phase B)

ES.3. Project Changes, Refinements, and Additions

ES.3.1 Phase B Project Components

There are two groups of project components evaluated in this Supplemental EIR: (1) levee modifications and habitat restoration components and (2) utility relocations and decommissioning components. Proposed Phase B project components are shown in **Figure ES-1** along with already constructed Phase A components for reference.

Levee Modifications and Habitat Restoration

Levee modifications are proposed at MWT to reduce flood risk by eliminating the surge effect downstream during large storm events, to open the tract to regular inundation and tidal exchange, and to aid in habitat restoration. Levee modifications have been optimized and changed compared to the description in the North Delta EIR, partially as a result of the knowledge gleaned from the revised modeling that followed the 2017 flooding event, as follows:

- the lengths of the MWT East and Southwest Levee degrades were reduced and the design has been refined;

- the Mokelumne River Levee breach location was adjusted eastward to where this levee breached during the 2017 flood event and the design has changed; and

- an additional repair was added to the MWT West Levee where this levee breached during the 2017 storm event and was partially repaired.

Phase B now includes landside slope and habitat enhancement on the MWT East and Southwest Levee segments – areas that were not reconfigured during Phase A construction. Additionally, the Phase B project now proposes extensive interior grading to construct a network of tidal channels, marsh plains, riparian berms, and riparian floodplains and excavating borrow material from a large area to construct these features. The more extensive interior grading will prevent the site from being permanently inundated, as well as increase acreage of riparian habitats to offset the expected inundation and conversion of existing woody riparian habitats that will be at tidal and subtidal elevations after MWT interior grading is complete. Incorporating the tidal channel network increases tidal-marsh edge length and habitat quality, while providing foodweb benefits for fish and other aquatic organisms. A turnaround area has also been added on the MWT East Levee to facilitate vehicle use on the site. A summary of the proposed Phase B project components is provided in **Table ES-1**. Project component names from the North Delta EIR have been maintained in this Supplemental EIR for consistency.

Table ES-1. Summary of Proposed Phase B Levee Modification and Habitat Restoration Project Components

Project Component Name	Phase B Project Design and Characteristics
Degrade MWT East Levee to Function as a Weir (Updated)	▪ Engineered levee design to lower an approximately 900-ft segment of the MWT East Levee to an elevation of 11.1 ft.. ▪ Restores fluvial hydrology, sediment deposition processes, and regular riverine floodplain inundation to the interior of MWT. ▪ Includes RSP to prevent scouring and provide a maintenance access road to northern MWT.
Breach Mokelumne River Levee (Updated)	▪ Engineered levee design to lower an approximately 300-ft segment of the Mokelumne River Levee. ▪ Restores fluvial hydrology, sediment deposition processes, and regular riverine floodplain inundation to the interior of MWT. ▪ Includes RSP to prevent scouring and provide a maintenance access road to southern MWT.
Completely Degrade MWT Southwest Levee to Match Elevation of Island Floor (Updated)	▪ Engineered levee design to lower an approximately 1,500-ft or 1,000-ft segment of the MWT Southwest Levee. ▪ Allow flood flows to pass out of MWT without causing a surge effect. ▪ Reintroduce tidal exchange to MWT. ▪ Includes RSP around levee cut banks to prevent scouring.
Repair MWT West Levee (New)	▪ Engineered repair of a failed levee segment from the 2017 flood event at MWT.
Enhance Landside Levee Slope and Habitat (Updated)	▪ Re-sloping the land side of the MWT East and Southwest Levees to the north and south of segments degraded during Phase B (these are new segments that were not re-sloped in Phase A).
Modify Landform and Restore Agricultural Land to Habitat (Updated)	▪ Additional interior grading to support restoration of high-quality habitat: excavating a tidal channel network, excavating borrow material from a large subtidal area, and using excavated material to construct marsh plains, riparian berms, and riparian floodplains.
Incorporate Turnaround Area (New)	▪ A small new turnaround area at one location to facilitate use of the site and levee crest road for maintenance.

Notes: “Updated” refers to project components identified in the North Delta EIR where the design and characteristics have been updated in Phase B; and “New” refers to project components added in Phase B.

Figure ES-1. Phase A and Updated Phase B Project Components

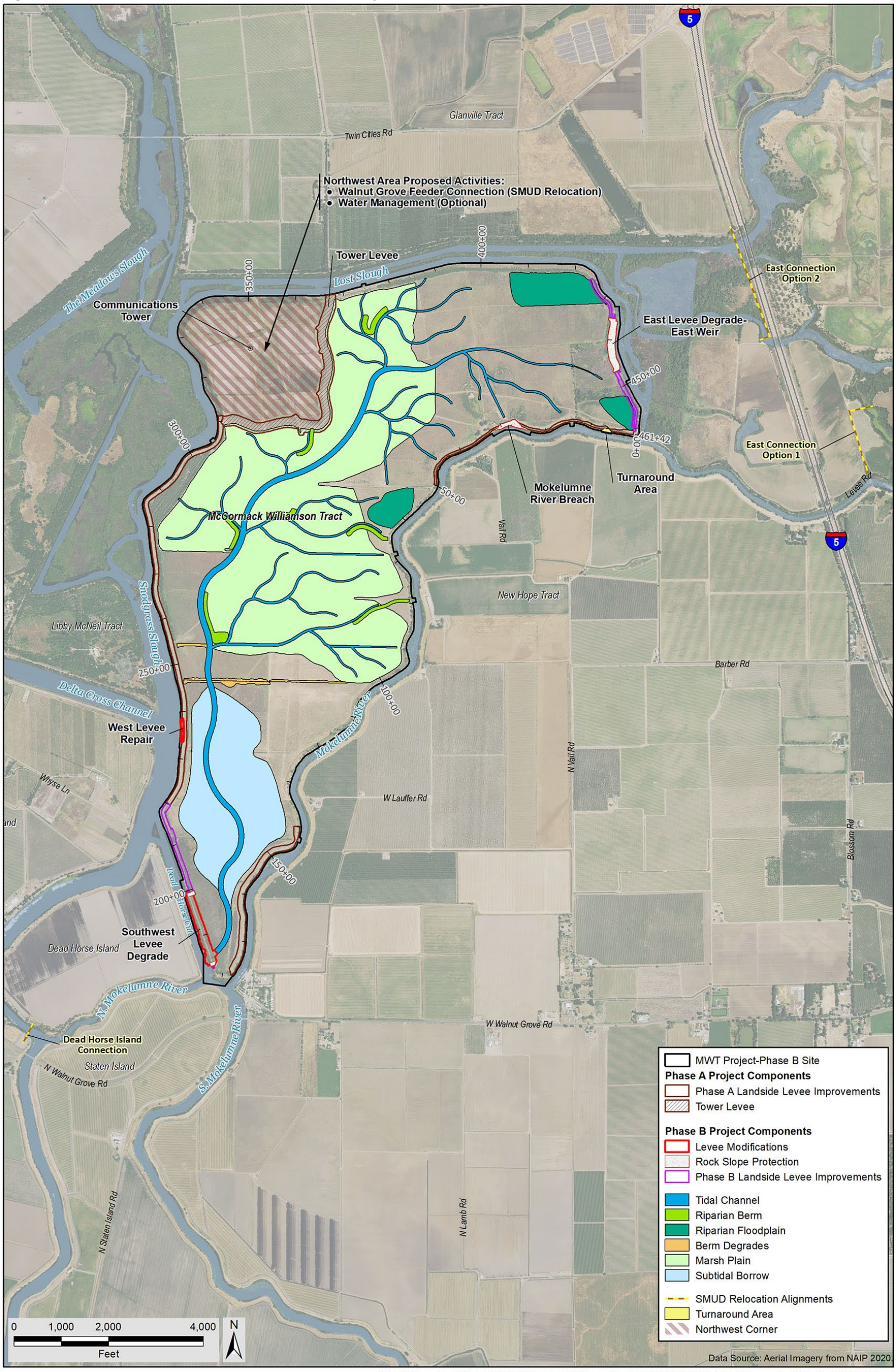

Figure Source: GEI Consultants, Inc. 2021.

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Utility Relocations and Decommissioning

Inactive gas wells, inactive gas pipelines, and groundwater monitoring wells located on MWT need to be decommissioned. In addition, existing Sacramento Municipal Utility District (SMUD) electrical distribution lines on MWT need to be removed and connections made at new locations on MWT and offsite to maintain existing power service. This Supplemental EIR provides additional information regarding decommissioning of utilities on MWT and alignments for the new offsite SMUD distribution line connections.

Phase B would require removing most or all SMUD poles and electrical conductor associated with distribution lines on the MWT interior and constructing new distribution line segments to maintain existing service at the following three locations: 1) west of MWT on Dean Horse Island (DHI) and Tyler Island (referred to as DHI Connection), 2) in the northwest corner of MWT from the Walnut Grove Feeder Distribution Line, and 3) east of MWT on private properties where two offsite options (East Connection Options 1 and 2) are being considered. New distribution lines would consist of wood or tubular steel poles and electrical conductor. Vegetation removal along the new distribution lines would be required to comply with applicable regulations, and SMUD requires all-weather access to facilities.

ES.3.2 Phase B Project Construction

This Supplemental EIR describes and evaluates construction of project components that have changed, been refined, or added to the project for Phase B. The construction area of many Phase B project components has changed from the area identified in the North Delta EIR. Additional areas would now be disturbed during construction activities and are evaluated with changes in existing site conditions since the North Delta EIR.

Phase B project construction is anticipated to require up to 3 years. Construction would be conducted in the dry season each year, which is typically April or May through October. Construction would occur within the footprint of Phase B project components and adjacent areas for hauling, vehicle access, and decommissioning and reconnecting utilities. Staging of equipment would occur along the MWT levee crest road and on the tract interior.

Material excavated for tidal channels would be spread locally for landform modifications, while subtidal borrow would be transported from the southern extent to fill other areas on the MWT interior. Earthen material excavated from degrading the MWT East and Southwest Levees would be used for re-sloping the landside of the non-degraded segments of the same levees. In-water work would use silt curtains or other similar controls to preserve water quality. Additional sources of existing borrow material (i.e., not excavated for the project) may be sourced from other local sources, such as the Grizzly Slough Project.

Construction activities to relocate electrical distribution lines would include removing poles and electrical conductor from distribution lines on MWT that are being taken out of service; removing woody vegetation from the new easement, if necessary; identifying pole sites and pull and tension sites; and installing new poles and electrical conductor.

ES.3.3 Phase B Project Operations and Maintenance

The project has long been intended as a process-based restoration project that would reestablish natural hydrology to promote natural recruitment of native intertidal and riparian vegetation, rather than a project that would rely on intensive site planting and irrigation to establish native vegetation. The Adaptive Management Plan provided with the North Delta EIR was supplemented with an Adaptive Management Framework prepared in 2018 (Environmental Science Associates 2018). Using the Adaptive Management Framework and updated design for Phase B, DWR is preparing an updated Adaptive Management Plan, which would be finalized after CEQA compliance and permits are obtained for the project.

MWT is within a current aquatic weed management area managed by the California Department of Boating and Waterways (CDBW), and CDBW would conduct aquatic vegetation management within MWT when it is tidally inundated.

Although minor details of the design of access roads along levee degrades/breaches have been revised, periodic maintenance including refreshing of base rock would be the same as described in the North Delta EIR.

Inundation of MWT after construction of the current Phase B project would differ to some extent from discussions in the North Delta EIR, due to changes in design of levee and landform modifications, hydrologic conditions at MWT, and updated hydraulic modeling. The natural evolution of habitat at MWT now expected after construction of the Phase B project is shown in **Figure ES-2.** The anticipated habitat types, acreages on MWT, and characteristics from implementation of the Phase B project are as follows:

- **Subtidal Open Water/Shallow Subtidal (Approximately 400 to 600 acres).** Land elevations below the projected mean lower-level water (MLLW) elevation (3.5 ft) on MWT would become subtidal permanent open-water habitat. Very shallow subtidal areas (land elevations less than 3 ft below MLLW) may become partially vegetated with tules from adjacent intertidal marsh areas.

- **Tidal Marsh (Approximately 600 to 900 acres).** Tidal marsh dominated by tules with some cattails and other emergent wetland plants is anticipated to establish in the intertidal zone between the projected MLLW and mean higher-high level (MHHW) elevations (between 3.5 and 5.6 ft).

- **Riparian Scrub/Mixed Riparian Woodland/Valley Oak Woodland (Approximately 175 to 250 acres).** It is anticipated that most acreage within MWT occurring above the projected MHHW elevation (5.6 ft) would become vegetated with woody riparian species and some seasonal herbaceous riparian wetlands. Riparian habitats would occur in a patchy mosaic including riparian scrub, dominated by short stature willows in wet areas or scrub/shrub species in upland areas and mixed riparian woodland, dominated by cottonwood and black willow. Herbaceous riparian wetlands may be more prevalent in the initial years post-inundation, but are expected to become vegetated with woody riparian habitats via processes of natural recruitment and vegetation succession in subsequent years.

Figure ES-2. Updated Project Anticipated Habitat Evolution

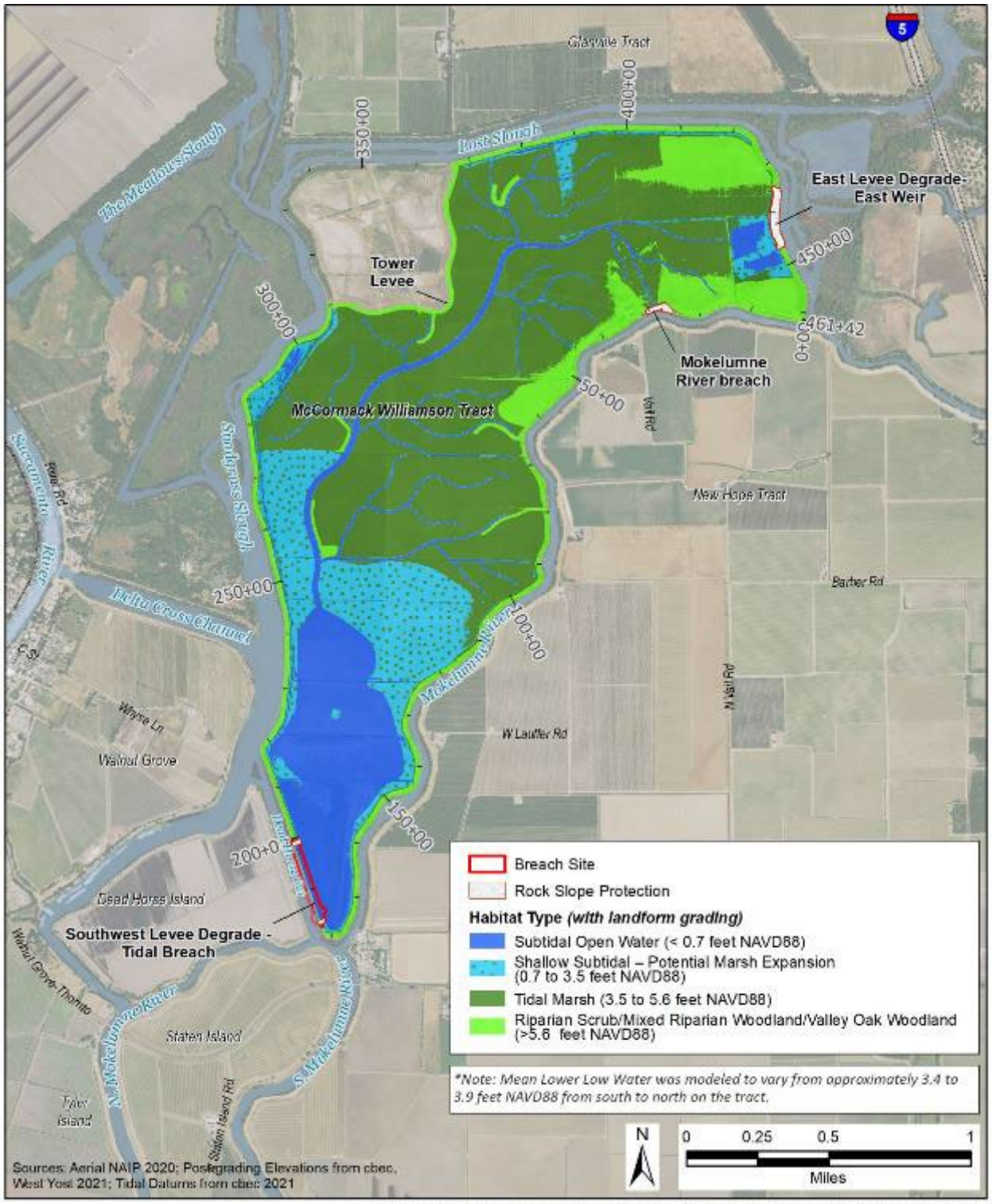

Figure Source: GEI Consultants, Inc. 2021.

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ES.4. Agency Roles and Responsibilities

DWR is both the lead agency under the California Environmental Quality Act (CEQA) and the project proponent. DWR is responsible for providing documentation and implementing steps necessary to satisfy CEQA requirements for the proposed project and would be responsible for implementing all mitigation measures in this Supplemental EIR. RD 2110 would implement the Phase B project and would be responsible for monitoring and/or reporting of mitigation measures related to their role on the project to the extent funding is provided by DWR. In addition, CDFW and SMUD were consulted during preparation of this Draft Supplemental EIR. The following responsible and trustee agencies are anticipated to have jurisdiction over some aspects of the proposed project:

- California Department of Fish and Wildlife (CDFW)
- California Regional Water Quality Control Board (RWQCB)
- Central Valley Flood Protection Board (CVFPB)
- State Office of Historic Preservation (OHP)
- California State Lands Commissions (SLC)

The following regional and local agencies are also potential responsible agencies under CEQA:

- RD 2110
- Sacramento Area Flood Control Agency
- Sacramento County
- Sacramento Metropolitan Air Quality Management District (SMAQMD)
- SMUD

ES.5. Areas of Controversy and Issues to be Resolved

Areas of focus for the changes to the Phase B project and associated impacts are related to potential seepage and groundwater increases, potential Delta salinity increases, potential impacts to valley elderberry longhorn beetle, and increased flood impacts during a 10-year event. Inundation of MWT may raise groundwater levels at MWT and potentially increase seepage on immediately adjacent tracts. Although the Phase B project would reduce the flood risk for a 100-year flood, it has the potential to increase flood stage for a more frequent 10-year flood event at some locations downstream. These effects include those discussed in this Supplemental EIR under the topics of hydrology described in Chapter 3. Inundation of MWT would enable tidal exchange and potentially increase salinity levels in the Delta to some extent. These effects include those discussed in this Supplemental EIR under the topics of water quality, vegetation and wetlands, and fisheries and aquatics described in Chapter 3. The project would have impacts from construction and inundation on many elderberry shrubs, the host plant for valley elderberry longhorn beetle, a species protected by the Federal Endangered Species Act. These effects include those discussed in this Supplemental EIR under the topics of wildlife described in Chapter 3.

An issue to be resolved is DWR's selection of either the East Connection Option 1 or 2 for constructing new distribution line segments. This selection will be made in close coordination with SMUD.

ES.6. Public Comment Process for the Draft Supplemental EIR

This Draft Supplemental EIR is being made available to responsible and trustee agencies and other potentially interested agencies, organizations, and individuals for a 45-day review period from **February 11, 2022 to 5 p.m. on March 28, 2022**. DWR will not conduct a public meeting on the Draft Supplemental EIR. Extensive outreach with key interested parties has occurred since the North Delta EIR was certified in 2010.

DWR is only accepting comments on this Draft Supplemental EIR and not on the 2010 North Delta EIR (or addendum), which has been certified; all changes, additions, and deletions to the 2010 North Delta EIR are included within this Supplemental EIR.

This Draft Supplemental EIR is being distributed to responsible and trustee agencies and other potentially interested agencies, stakeholder organizations, and individuals. This distribution ensures that interested parties have an opportunity to express their views regarding the contents of the Draft EIR and that information pertinent to permits and approvals is provided to decision makers and CEQA responsible and trustee agencies by the lead agency.

The Draft Supplemental EIR is available at https://ceqanet.opr.ca.gov/ by searching for State Clearinghouse No. 2003012112 or may also be viewed at https://water.ca.gov/News/Public-Notices.

The Draft Supplemental EIR appendices and the North Delta EIR are available at: https://geiconsultants.sharefile.com/d-sbd92bfb409994103aaa246cb7a8bc09c

A physical copy of the Draft Supplemental EIR, all references, and its appendices will also be made available upon request at the California Natural Resources Office, located in Sacramento, California. Please call 916-820-7572 to make arrangements for review.

Comments regarding the Draft Supplemental EIR should be submitted in writing via email or mail to DWR's North Delta Program Manager Anitra Pawley with the subject line "MWT Project Phase B Supplemental EIR":

California Department of Water Resources
Attn: Anitra Pawley
P.O. Box 942836
Sacramento, CA 94236-0001
E-mail: Anitra.pawley@water.ca.gov

Comments are due no later than 5 p.m. Pacific Daylight Time on Monday March 28, 2022.

ES.7. Final Supplemental EIR

Upon completion of the public review period on the Draft Supplemental EIR, DWR will review the comments received, prepare written responses to significant environmental points raised in the review process (State CEQA Guidelines, Section 15132), and, if necessary, revise the Draft Supplemental EIR. Comments received, responses to significant environment points, and any necessary text revisions to the Draft Supplemental EIR will be compiled in the Final Supplemental EIR for consideration of the Phase B project. DWR will provide a written response to any public agency comments made by that public agency at least 10 days prior to certifying the Final Supplemental EIR.

DWR will consider the whole of the administrative record, including all public comments and staff recommendations, prior to certifying the Final Supplemental EIR consistent with State CEQA Guidelines Section 15090. DWR will adopt findings describing how each of the significant impacts identified in the Final Supplemental EIR will be mitigated consistent with State CEQA Guidelines Section 15091. DWR will also adopt a revised Mitigation Monitoring and Reporting Program, consistent with State CEQA Guidelines Section 15097, that describes how DWR will ensure the required mitigation measures are implemented. DWR will then decide whether or not to approve the Phase B project as described in the Final Supplemental EIR and consistent with State CEQA Guidelines Section 15092. Finally, DWR will prepare and file a Notice of Determination within 5 days of certification of the Supplemental EIR and dispose of the Final Supplemental EIR as required in State CEQA Guidelines 15094 and 15095, respectively.

ES.7.1 Summary of Potential Impacts and Mitigation

CEQA requires that the environmental analysis contained in the Draft Supplemental EIR also include a summary of the proposed project and its consequences, including an identification of each potentially significant effect of the proposed project, the level of effect the proposed project may have, as well as any proposed mitigation measures. A full description of each of the proposed impacts and mitigation measures is found in Chapter 3, “Environmental Setting and Impact Analysis,” with a summary provided below in **Table ES-2.**

Table ES-2. Summary of Supplemental EIR Impacts and Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
3.1 Hydrology and Water Quality			
FC-1 (North Delta EIR): Raise Flood Elevations and Increase the Frequency of Flooding.	LTS	No mitigation required.	LTS
FC-2 (North Delta EIR): Increase the Degree or Quantity of Seepage.	PS	Mitigation Measure FC-1 (Updated): Develop a Seepage-Monitoring Program and Control Seepage.	LTS
FC-5 (North Delta EIR): Increase the Degree or Quantity of Scour.	PS	Mitigation Measure FC-2 (New): Provide Payment to Protect Dead Horse Island East Levee.	LTS
GEOMORPH-2 (North Delta EIR): Increase in Sediment Accumulation in Channels as a Result of Levee Modifications.	LTS	No mitigation required.	LTS
GEOMORPH-3 (North Delta EIR): Increase in Sediment Accumulation on Land as a Result of Levee Modifications.	B	No mitigation required.	B
GEOMORPH-4 (North Delta EIR): Increase in Scouring on Levees and in Channels as a Result of Levee Modifications.	PS	Mitigation Measure FC-2 (New): Provide Payment to Protect Dead Horse Island East Levee.	LTS
GEOMORPH-5a (North Delta EIR): Increase in Scouring on Land as a Result of Levee Modifications (McCormack-Williamson Tract East Levee).	LTS	No mitigation required.	LTS
GEOMORPH-5b (North Delta EIR): Increase in Scouring on Land as a Result of Levee Modifications (Mokelumne River Levee).	LTS	No mitigation required.	LTS
GEOMORPH-5c (North Delta EIR): Increase in Scouring on Land as a Result of Levee Modifications (Dead Horse Island).	PS	Mitigation Measure FC-2 (New): Provide Payment to Protect Dead Horse Island East Levee.	LTS
WQ-1 (North Delta EIR): Release of a Pollutants during Construction and Dredging.	PS	Mitigation Measure WQ-2 (New): Inspect Sediment and Turbidity Control Barriers Daily during Construction for Proper Function and Replace Immediately if Not Functioning Effectively.	LTS
WQ-3 (North Delta EIR): Release of Methylmercury.	LTS	No mitigation required.	LTS
WQ-4 (New): Release of Pesticides.	PS	Mitigation Measure PH-1 (Updated): Properly Dispose of Contaminated Material.	LTS
WQ-5 (New): Change in Salinity.	LTS	No mitigation required.	LTS

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
WSM-1 (North Delta EIR): Change in Water Uses as Result of the Project.	LTS	No mitigation required.	LTS
GW-2 (North Delta EIR): Potential Groundwater Seepage to Adjacent Islands/Tracts as a Result of Frequent Inundation of McCormack-Williamson Tract.	PS	Mitigation Measure FC-1 (Updated): Develop a Seepage Monitoring Program and Control Seepage.	LTS
3.2 Geology, Seismicity, Soils, and Mineral Resources			
GEO-3 (North Delta EIR): Increase the Potential for Structural Damage and Injury as a Result of Development on Materials Subject to Liquefication.	LTS	No mitigation required.	LTS
GEO-4 (North Delta EIR): Increase the Potential for Accelerated Runoff, Erosion, and Sedimentation as a Result of Grading, Excavation, and Levee Construction Activities.	LTS	No mitigation required.	LTS
GEO-5 (North Delta EIR): Increase the Potential for Structural Damage and Injury as a Result of Development on Expansive Soils.	LTS	No mitigation required.	LTS
GEO-9 (New): Destruction of a Unique Paleontological Resource or Site.	LTS	No mitigation required.	LTS
3.3 Transportation and Navigation			
TN-6 (New): Temporary Increase in Vehicle Miles Traveled During Construction.	LTS	No mitigation required.	LTS
3.4 Air Quality			
AIR-1 (North Delta EIR): Generation of Pollutant Emissions in Excess of SMAQMD and SJVAPCD Threshold Levels (Construction Emissions Only).	PS	Mitigation Measure AIR-2 (Updated): Implement SMAQMD Required to Reduce NO_x Emissions from Off-Road Powered Equipment. Mitigation Measure AIR-4 (Updated): Implement SMAQMD Requirements to Pay an Offsite Mitigation Fee. Mitigation Measure AIR-7 (New): Implement the SMAQMD Basic Construction Emission Control Practice.	LTS
AIR-2 (North Delta EIR): Exposure of Sensitive Receptors to Elevated Levels of Diesel Exhaust and an Increased Health Risk.	LTS	No mitigation required.	LTS

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
AIR-4 (New): Result in Other Emissions (Such as Those Leading to Odors) Adversely Affecting a Substantial Number of People.	LTS	No mitigation required.	LTS
3.5 Noise			
NZ-1 (North Delta EIR): Exposure of Noise-Sensitive Land Uses to Noise from General Construction Activities.	PS	Mitigation Measure NZ-1 (North Delta EIR): Limit Noise-Generating Construction Activity and Heavy Trucking to Daytime Hours.	LTS
NZ-2 (North Delta EIR): Exposure of Noise-Sensitive Land Uses to Noise from Material Hauling Operations.	PS	Mitigation Measure NZ-1 (North Delta EIR): Limit Noise-Generating Construction Activity and Heavy Trucking to Daytime Hours.	LTS
NZ-3 (North Delta EIR): Exposure of Noise-Sensitive Land Uses to Noise from Modified Pump Operations.	LTS	No mitigation required.	LTS
NZ-4 (North Delta EIR): Exposure of Noise-Sensitive Land to Ground borne Vibrations from Construction Activities.	LTS	No mitigation required.	LTS
3.6 Biological Resources			
VEG-1 (North Delta EIR): Loss or Disturbance of Valley/Foothill Riparian Land Cover Types.	PS	Mitigation Measure VEG-1 (Updated): Replace Valley/Foothill Riparian Cover Types. Mitigation Measure VEG-2 (Updated): Avoid and Minimize Impacts on Sensitive Biological Resources.	LTS
VEG-2 (North Delta EIR): Loss or Disturbance of Nontidal Freshwater Emergent Wetland Land Cover Types.	LTS	No mitigation required.	LTS
VEG-3 (North Delta EIR): Loss or Disturbance of Tidal Perennial Aquatic Land Cover Types.	B	No mitigation required.	B
VEG-4 (North Delta EIR): Loss or Disturbance of Tidal Freshwater Emergent Wetland Land Cover Type.	LTS	No mitigation required.	LTS
VEG-5 (North Delta EIR): Establishment of Invasive Nonnative Plants.	PS	Mitigation Measure VEG-6 (Update): Avoid Introduction and Spread of New Noxious Weeds during Project Construction.	LTS
VEG-6 (North Delta EIR): Loss or Disturbance of Special-status Species.	PS	VEG-2 (Updated): Avoid and Minimize Impacts on Sensitive Biological Resources. VEG-7 (Update): Conduct Preconstruction Surveys for Special-status Plants VEG-8 (Updated): Avoid and Minimize Impacts on Special-status Species and Compensate for Special-status Species Loss.	LTS

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
VEG-7 (North Delta EIR): Loss of Disturbance of Perennial Grassland.	LTS	No mitigation required.	LTS
Fish-4 (North Delta EIR): Loss of Shaded Riverine Aquatic Cover as a Result of Construction.	PS	Mitigation Measure Fish-2 (Updated): Replace Shaded Riverine Aquatic Habitat.	LTS
Fish-7 (North Delta EIR): Fish Entrapment or Delayed Migration from Project Operation.	PS	Mitigation Measure Fish-3 (Updated): Monitor for Fish Stranding and Fill any Substantial Hydrologically Disconnected Scour Pools that Form Following Large Flood Events.	LTS
Fish-8 (North Delta EIR): Potential for Loss of Native Fish from Predation as a Result of Project Operation.	LTS	No mitigation required.	LTS
Fish-10 (New): Violate Salinity Standards to Protect Fish during Project Operation.	LTS	No mitigation required.	LTS
WILD-1 (North Delta EIR): Loss of Riparian-associated Wildlife Habitat.	PS	Mitigation Measures WILD-1 (Updated): Implement Mitigation Measure VEG-1, Replace Valley/Foothill Riparian Cover Types. Mitigation Measure WILD-2 (Update): Avoid and Minimize Effects on Nesting Birds during Construction and Maintenance. Mitigation Measure WILD-3 (Update): Implement Mitigation Measure VEG-2, Avoid and Minimize Impacts on Sensitive Biological Resources.	LTS
WILD-2 (North Delta EIR): Loss of Tidal Freshwater Emergent Wetland-Associated Wildlife Habitat.	LTS	No mitigation required.	LTS
WILD-3 (North Delta EIR): Loss or Disturbance of Tidal Perennial Aquatic-associated Wildlife Habitat.	LTS	No mitigation required.	LTS
WILD-4 (North Delta EIR): Loss of Disturbance of Nontidal Freshwater Emergent Wetland-Associated Wildlife Habitat.	PS	Mitigation Measure WILD-2 (Updated): Avoid and Minimize Effects on Nesting Birds during Construction and Maintenance. Mitigation Measures WILD-3 (Updated): Implement Mitigation Measure VEG-2, Avoid and Minimize Impacts on Sensitive Biological Resources.	LTS
WILD-7 (North Delta EIR): Potential Effects on Greater Sandhill Crane as a Result of Loss of Agricultural Lands.	LTS	No mitigation required.	LTS
WILD-8 (North Delta EIR): Potential Effects on Valley Elderberry Longhorn Beetle.	PS	Mitigation Measure WILD-9 (Updated): Avoid and Minimize Impacts on Elderberry Shrubs. Mitigation Measure WILD-10 (Updated): Compensate for Unavoidable Impacts on Elderberry Shrubs.	LTS

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
WILD-9 (North Delta EIR): Potential Effects on Giant Garter Snake.	PS	Mitigation Measure WILD-11 (Updated): Conduct Preconstruction Surveys and Monitoring for Giant Garter Snake. Mitigation Measure WILD-12 (Updated): Minimize Construction-related Disturbance in Suitable Giant Garter Snake Habitat.	LTS
WILD-10 (North Delta EIR): Loss or Disturbance of Swainson's Hawk Nests or Foraging Habitat.	PS	Mitigation Measure WILD-1 (Updated): Implement Mitigation Measure VEG-1, Replace Valley/Foothill Riparian Cover Types Mitigation Measure WILD-3 (Updated): Implement Mitigation Measure VEG-2, Avoid and Minimize Impacts on Sensitive Biological Resources Mitigation Measure WILD-13 (Updated): Conduct Preconstruction Surveys for Nesting Swainson's Hawks before Construction and Maintenance. Mitigation Measure WILD-14 (Updated): Avoid and Minimize Construction-related Disturbances within 0.5 Mile of Active Swainson's Hawk Nest Sites. Mitigation Measure WILD-15 (Updated): Replace or Compensate for the Loss of Swainson's Hawk Foraging Habitat.	LTS
WILD-11 (North Delta EIR): Loss or Disturbance of Nesting or Wintering Western Burrowing Owls.	PS	Mitigation Measure WILD-2 (Updated): Avoid and Minimize Effects on Nesting Birds during Construction and Maintenance. Mitigation Measure WILD-3 (Updated): Implement Mitigation Measure VEG-2, Avoid and Minimize Impacts on Sensitive Biological Resources. Mitigation Measure WILD-17 (Updated): Conduct Habitat Assessment and Preconstruction Surveys for Burrowing Owls. Mitigation Measure WILD-18 (Updated): Avoid or Minimize Disturbance of Occupied Burrows. Mitigation Measure WILD-20 (Updated): Create New or Enhance Existing Suitable Burrows and Replace Lost Burrowing Owl Foraging Habitat.	LTS

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
WILD-12 (North Delta EIR): Loss or Disturbance of Raptor Nest Sites.	PS	Mitigation Measure WILD-1 (Updated) Implement Mitigation Measure VEG-1, Replace Valley/Foothill Cover Types. Mitigation Measure WILD-2 (Updated): Avoid and Minimize Effects on Nesting Birds during Construction Maintenance. Mitigation Measure WILD-3 (Updated): Implement Mitigation Measure VEG-2, Avoid and Minimize Impacts on Sensitive Biological Resources.	LTS
WILD-13 (North Delta EIR): Loss of Western Pond Turtle or Suitable Habitat.	PS	Mitigation Measure WILD-22 (Updated): Avoid and Minimize Construction-related Disturbances in the Vicinity of Occupied Habitat.	LTS
WILD-14 (North Delta EIR): Loss of Tricolored Blackbird Nesting Habitat.	PS	Mitigation Measure WILD-1 (Updated): Implement Mitigation Measure VEG-1, Replace Valley/Foothill Riparian Cover Types. Mitigation Measure WILD-2 (Updated): Avoid and Minimize Effects on Nesting Birds during Construction and Maintenance. Mitigation Measure WILD-3 (Updated): Implement Mitigation Measure VEG-2, Avoid and Minimize Impacts on Sensitive Biological Resources. Mitigation Measure WILD-23 (Updated): Conduct Preconstruction Surveys for Tricolored Blackbird. Mitigation Measure WILD-24 (Updated): Minimize Construction-related Disturbances in the Vicinity of Active Tricolored Blackbird Colonies.	LTS
WILD-15 (North Delta EIR): Loss or Disturbance of California Black Rail or Suitable Nesting Habitat.	PS	Mitigation Measure WILD-2 (Updated): Avoid and Minimize Effects on Nesting Birds during Construction and Maintenance. Mitigation Measure WILD-3 (Updated): Implement Mitigation Measure VEG-2, Avoid and Minimize Impacts on Sensitive Biological Resources. Mitigation Measure WILD-25 (Updated): Conduct Preconstruction Surveys for California Black Rail. Mitigation Measure WILD-26 (Updated): Minimize Construction-related Disturbances in the Vicinity of Active California Black Rail Nest Sites.	LTS

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
WILD-16 (North Delta EIR): Loss or Disturbances of Colonial Waterbird Rookeries.	PS	Mitigation Measure WILD-1 (Updated): Implement Mitigation Measure VEG-1, Replace Valley/Foothill Riparian Cover Types. Mitigation Measure WILD-2 (Updated): Avoid and Minimize Effects on Nesting Birds during Construction and Maintenance. Mitigation Measure WILD-3 (Updated): Implement Mitigation Measure VEG-2, Avoid and Minimize Impacts on Sensitive Biological Resources. Mitigation Measures WILD-27 (Updated): Conduct Preconstruction Surveys to Locate Rookeries. Mitigation Measures WILD-28 (Updated): Minimize Construction-related Disturbances within 0.25 Mile of Active Rookeries.	LTS
WILD-19 (North Delta EIR): Loss or Disturbance of Migratory Birds.	PS	Mitigation Measure WILD-2 (Updated): Avoid and Minimize Effects on Nesting Birds during Construction and Maintenance. Mitigation Measure WILD-3 (Updated): Implement Mitigation Measure VEG-2, Avoid and Minimize Impacts on Sensitive Biological Resources.	LTS
WILD-20 (North Delta EIR): Loss or Disturbance of Bats and Bat Habitat as a Result of Construction Activities.	PS	Mitigation Measure WILD-2 (Updated): Avoid and Minimize Effects on Nesting Birds during Construction and Maintenance. Mitigation Measure WILD-3 (Updated): Implement Mitigation Measure VEG-2, Avoid and Minimize Impacts on Sensitive Biological Resources. Mitigation Measure WILD-31 (Updated): Conduct Preconstruction Surveys for Bats.	LTS
Impact WILD-21 (New): Loss or Disturbance of Monarch Butterfly.	LTS	No mitigation required.	LTS
WILD-22 (New): Loss or Disturbance of Western Yellow-billed Cuckoo.	LTS	No mitigation required.	LTS
3.7 Land Use, Agriculture, Recreation, and Economics			
LU-1 (North Delta EIR): Loss of Farmland.	PS	Mitigation Measure LU-3 (New): Consultation with Landowners and Pole Placement to Minimize Agricultural Impacts.	LTS
LU-3 (North Delta EIR): Inconsistency with Agricultural Objectives of Local, Regional, and State Plans.	PS	Mitigation Measure LU-3 (New): Consultation with Landowners and Pole Placement to Minimize Agricultural Impacts.	LTS

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
REC-6 (New): Disruption of Boating Activities from Utility Relocations.	LTS	No mitigation required.	LTS
3.8 Energy			
EN-1 (New): Cause Wasteful, Inefficient, or Unnecessary Consumption of Energy Usage.	LTS	No mitigation required.	LTS
PUB-1 (North Delta EIR): Increase in Use of Energy.	LTS	No mitigation required.	LTS
3.9 Visual Resources			
VIS-2 (North Delta EIR): Permanent Changes in Viewshed.	LTS	No mitigation required.	LTS
3.10 Public Health and Hazards			
PH-2 (North Delta EIR): Potential Exposure to Currently Unidentified Contaminated Waters or Soils during Construction.	PS	Mitigation Measure PH-1 (Updated): Properly Dispose of Contaminated Materials.	LTS
PH-5 (New): Potential Exposure to Known Hazardous Materials.	LTS	No mitigation required.	LTS
3.11 Cultural and Tribal Cultural Resources			
CR-15 (New): Impacts on Previously Unidentified Human Remains.	PS	Mitigation Measure CR-1 (New): Implement Measures to Treat and/or Protect Previously Unidentified Human Remains, if Discovered.	LTS
CR-16 (New): Impacts on Previously Unidentified Cultural Resources within the New SMUD Distribution Line Locations.	PS	Mitigation Measure CR-2 (New): Conduct Cultural Resource Survey and Implement Measures to Preserve, Replace, and/or Recover Any Significant Cultural Resources Prior to Project Implementation.	LTS
CR-17 (New): Impacts on Previously Unidentified Archaeological Resources.	PS	Mitigation Measure CR-3 (New): Implement Measures to Preserve, Replace, and/or Recover Any Significant Archaeological, if Discovered.	LTS
TCR-1 (New): Impacts on Tribal Cultural Landscape Site P-34-005225.	LTS	No mitigation required.	LTS
TCR-2 (New): Impacts on Previously Unidentified Tribal Cultural Resources.	PS	Mitigation Measure TCR-1 (New): Implement Measures to Avoid, Preserve, Treat, and/or Protect and Previously Unidentified Tribal Cultural Resources, if Discovered.	LTS

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
3.12 Greenhouse Gas Emissions			
GHG-1 (New): Generate Greenhouse Gas Emissions, Either Directly or Indirectly, That May Have a Significant Impact on the Environment.	LTS	No mitigation required.	LTS
GHG-2 (New): Conflict with an Applicable Plan, Policy, or Regulation Adopted for the Purposes of Reducing Greenhouse Gas Emissions.	LTS	No mitigation required.	LTS

Notes: LTS=Less-than-significant, PS=potentially significant, SU=significant and unavoidable, B=beneficial.

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Chapter 1. Introduction

DWR is pursuing the project to implement flood control improvements in a manner that benefits aquatic and terrestrial habitats, species, and ecological processes, and incorporates landscape scale restoration of Delta habitat. The project was evaluated as part of the North Delta EIR. The North Delta Draft EIR was prepared in 2007 (DWR 2007), the Final EIR prepared and certified by DWR in 2010 (DWR 2010), and an addendum to the EIR prepared in 2018 (DWR 2018). The North Delta EIR evaluated three alternatives that provided different levels of flood protection and habitat restoration. Alternative 1-A in the North Delta EIR was chosen as the preferred alternative/proposed project.

Alternative 1-A included two project elements, the MWT project and the Grizzly Slough project. The Grizzly Slough Project is not a subject of this Supplemental EIR. Since certifying the North Delta EIR in 2010, DWR has separated the MWT Project into Phases A and B. DWR prepared an addendum to the North Delta EIR and constructed Phase A components in 2018 and 2019. Phase B consists of implementing the remaining project components, which are discussed below in this section. This Supplemental EIR evaluates the environmental impacts resulting from changes, refinements, and additions to the project described in the North Delta EIR for Phase B, as well as evaluating these Phase B environmental impacts in light of changes to the physical environment at MWT from flooding in 2017 and construction of Phase A components in 2018 and 2019. DWR has prepared this Supplemental EIR to provide decision makers, the public, and responsible and trustee agencies with this supplemental information about the environmental effects from changes to the Phase B project and existing physical conditions at MWT. This Draft Supplemental EIR was prepared in compliance with the CEQA of 1970 (as amended) and the State CEQA Guidelines (California Code of Regulations (CCR) title 14, section (§) 15000 et seq.).

1.1 Project Background

At the request of The Nature Conservancy, DWR purchased MWT from The Nature Conservancy in 2019 with the intent of implementing a project that provides flood control improvements in a manner that benefits aquatic and terrestrial habitats, species, and ecological processes. The project would be implemented by RD 2110 and the financially responsible party will be DWR. The plan is to modify levees on MWT to provide flood protection benefits and restore tidal wetland, riparian, and floodplain habitats by reintroducing fluvial and tidal flows to the site and establishing native vegetation. Restoration of the MWT to tidal marsh, shallow subtidal, riparian, and floodplain habitat would provide a critical conservation link in the North Delta region by significantly improving landscape and ecological connectivity between surrounding protected natural areas. The North Delta Draft EIR (DWR 2007) and Final EIR (DWR 2010) provide additional background information on the project and the project objectives.

1.1.1 Changes in Conditions at MWT Since the North Delta EIR

MWT is located at the convergence of Dry Creek, the Cosumnes River, and the Mokelumne River and is prone to flooding. Since the North Delta EIR was prepared, MWT experienced flooding in 2017. The 2017 flood event had a peak flow of nearly 50,000 cubic feet per second (cfs) on the Cosumnes River at Michigan Bar and caused a natural levee breach of MWT along the Mokelumne River. In coordination with RD 2110 and to reduce a catastrophic levee failure at the downstream/southwest end of MWT, a group of downstream landowners and RDs intentionally degraded a portion of the MWT West Levee before flood waters built up to a significant level. This action avoided catastrophic levee failures like those that occurred on MWT during the 1986 and 1997 flood events, which sent a destructive "surge effect" or flood pulse downstream. The increased forces from the surge effect can lead to additional levee failure or overtopping, both of which were observed during the 1986 and 1997 events. The intentional breaching during the 2017 flood event reduced this effect by allowing flood waters to escape MWT before building up and overtopping and breaching the MWT levees, though a small levee breach still occurred naturally on the MWT Southwest Levee after the intentional notching of the MWT West Levee. After the 2017 flood event, the breach areas on the Mokelumne River Levee and MWT West Levee and MWT Southwest Levee were repaired by RD 2110 to a lower crest height than existed before the flood event.

After the 2017 flood event, agricultural production on MWT ceased due to concerns of recurring flooding, including planting of crops and other activities to maintain the site for agricultural uses (the expected conversion of agricultural lands on MWT was fully addressed in the North Delta EIR). As a result, the land cover/habitats on MWT have started to change in some areas.

1.1.2 Phase A Project

DWR prepared an addendum in 2018 that covered minor project changes to Phase A project elements analyzed in the North Delta EIR (DWR 2018).The Phase A project was completed in 2019 and consisted of work on the MWT interior, including: constructing the Tower Levee to protect a communications tower in the northwest corner of MWT; demolishing farm residences and infrastructure; removing mobile tanks with potentially hazardous materials; enhancing the landside slope of levees to provide a bench for wind wave attenuation and planting vegetation; and using borrow material from the northwest corner area for construction.

1.1.3 Phase B Project

No components of the Phase B project have been constructed. The focus of this Supplemental EIR is to evaluate the impacts from Phase B that have changed since the North Delta EIR was certified in 2010, in light of the recent changes, refinements, and additions to the Phase B project, changes to the physical environment at MWT from flooding in 2017, and construction of the Phase A project components in 2018 and 2019. Extensive hydraulic modeling was performed using an updated regional model and new flood information from 2017, resulting in changes to the Phase B project design. The project changes are proposed to optimize the project to best meet project objectives under the changed conditions and minimize environmental impacts.

1.2 Intended Uses of the Supplemental EIR

This Supplemental EIR provides project-level CEQA evaluation of the environmental consequences of proposed changes to the Phase B project and addresses changes to the physical environment of MWT since the North Delta EIR was prepared. The proposed changes are presented in Chapter 2, "Description of Project Changes, Refinements, and Additions." The Supplemental EIR fully discloses the changed or new environmental consequences resulting from the Phase B project changes in Chapter 3, "Environmental Setting and Impact Analysis" and Chapter 4, "Other Statutory Considerations."

This Supplemental EIR uses the same format as the North Delta EIR, to the extent feasible, to maintain continuity and facilitate the usefulness of both documents during the public review and decision-making process for the proposed project changes. The Supplemental EIR, in conjunction with the North Delta EIR and 2018 addendum, will also be used by responsible agencies that may implement Phase B project components or with discretionary approval over the project changes specified herein. While addressing environmental consequences solely resulting from project changes and changed environmental conditions since certification of the North Delta EIR, this Supplemental EIR has done so at a level of detail such that responsible agencies and the public can clearly ascertain the project changes and key project-level environmental impacts from the Phase B project as a whole in this Supplemental EIR.

State CEQA Guidelines Section 15163 states that a lead agency may choose to prepare a Supplemental EIR when only minor additions or changes would be necessary to make the previous EIR adequately apply to the project in the changed situation, and the Supplemental EIR "need contain only the information necessary to make the previous EIR adequate for the project as revised." In this case, DWR is preparing a Supplemental EIR to the approved project's EIR (i.e., the North Delta EIR which was certified November 8, 2010, and as updated with the 2018 addendum).

This Supplemental EIR revisits each resource topic from the North Delta EIR, including cumulative effects, where additional analysis is needed to determine if the proposed project would result in new or substantially more severe significant effects that were not analyzed in the North Delta EIR. As necessary, this document updates or expands upon impact discussions in the North Delta EIR and analyzes new or changed impacts attributable to the proposed project. When DWR decides whether to certify the Supplemental EIR and approve the revised project, DWR will consider the North Delta EIR, the 2018 addendum and this Supplemental EIR.

1.3 Scope of the Supplemental EIR

A summary of project coverage in the Supplemental EIR, including activities identified for Alternative 1-A in the North Delta EIR and those added to Phase B, is provided in **Table 1-1** and discussed below. Other changes to the North Delta EIR considered in this Supplemental EIR are also discussed below in this section.

Changes to existing conditions at MWT since the North Delta EIR, including from the 2017 flood event and implementation of Phase A in 2018 and 2019, are now part of existing conditions for the Supplemental EIR. The Supplemental EIR does not address Phase B project activities that have not changed since the North Delta EIR, except where needed to update the analysis related to changes in Phase B and/or changed existing conditions at MWT. Several new project activities are proposed for Phase B and some activities identified in the North Delta EIR have been removed from the project description, as described in Table 1-1.

A reasonable range of feasible alternatives was fully evaluated in the North Delta EIR and therefore is not further analyzed in this Supplemental EIR. This Supplemental EIR focuses solely on supplementing the North Delta EIR due to changes to the Phase B project and the physical environment on MWT since recent flooding and implementation of Phase A project components. Furthermore, public scoping was conducted, and public scoping meetings were held for the North Delta EIR to meet CEQA requirements related to scoping activities and therefore no further scoping activities were needed or conducted for this Supplemental EIR. Informal meetings with interested parties have been held since 2010 to best design and implement Phase B components given changes to the existing physical conditions at MWT.

1.3.1 Project Components

Two groups of project components are evaluated in this Supplemental EIR: 1) levee modifications and habitat restoration and 2) utility relocations and decommissioning.

Levee Modifications and Habitat Restoration

Levee modifications are proposed at MWT to reduce flood risk by eliminating the surge effect downstream during large storm events, to open the tract to regular inundation and tidal exchange, and to aid in habitat restoration. Levee modifications have changed compared to the description in the North Delta EIR, as follows:

- the lengths of the MWT East and Southwest MWT levee degrades were reduced and the design has been refined;
- the Mokelumne River Levee degrade/breach location was adjusted eastward to where this levee breached during the 2017 flood event and the design has changed; and
- an additional repair was added to the MWT West Levee where this levee breached during the 2017 storm event and was partially repaired.

While landside levee slopes were enhanced with a berm and shallower levee slopes and vegetation was planted in Phase A, Phase B now includes landside re-sloping for habitat enhancement on the MWT East and Southwest Levee segments. These levee segments were proposed to be degraded in the North Delta EIR, but now with smaller segments of these levees being degraded (as mentioned above) the levee's remaining non-degraded segments would be re-sloped on the land side.

Table 1-1. Summary of Project Coverage in the Supplemental EIR

Project Activities	Status	Phase B Changes, Refinements, Additions	Supplemental EIR Coverage
North Delta Flood Control and Ecosystem Restoration Project EIR Alternative 1-A Activities			
Construct Transmission Tower Protective Levee and Access Road	Implemented in Phase A	N/A	Part of existing conditions
Demolish Farm Residence and Infrastructure	Implemented in Phase A	N/A	Part of existing conditions
Modify Downstream Levees to Accommodate Potentially Increased Flows	Removed from project	Not proposed by DWR	Related impacts updated due to removal
Excavate Dixon and New Hope Borrow Sites	Removed from project	Not proposed by DWR	Not addressed in Supplemental EIR
Reinforce Dead Horse Island East Levee	Removed from project	Not proposed by DWR	Updated impact analysis related to this activity, due to removal from the project
Dredge South Fork Mokelumne River (Optional)	Not currently part of the project	N/A	Not addressed in Supplemental EIR
Enhance Delta Meadows Property (Optional)	Not currently part of the project	N/A	Not addressed in Supplemental EIR
Implement Local Marina and Recreation Outreach Program	Not currently part of the project	N/A	Not addressed in Supplemental EIR
Modify Pump and Siphon Operations	Planned for Phase B	None	Construction impacts re-evaluated at project-level based on changes in existing conditions
Degrade MWT East Levee to Function as a Weir	Planned for Phase B	Area and design revised	Description updated; re-evaluated at project-level
Breach Mokelumne River Levee	Planned for Phase B	Area and design revised	Description updated; re-evaluated at project-level
Completely Degrade MWT Southwest Levee to Match Elevation of Island Floor	Planned for Phase B	Area and design revised	Description updated; re-evaluated at project-level
Enhance Landside Levee Slope and Habitat	Implemented in Phase A and planned for Phase B	New areas proposed; design revised	New areas described; evaluated at project-level
Modify Landform and Restore Agricultural Land to Habitat	Planned for Phase B	Area and design revised	Description updated; re-evaluated at project-level
Allow Boating on Southeastern MWT (Optional)	Optional for Phase B	None	Not addressed in Supplemental EIR
Enhance Delta Meadows Property (Optional)	Optional for Phase B	None	Not addressed in Supplemental EIR
Excavate and Restore Grizzly Slough Property	Implemented as separate project	N/A	Hauling included in re-evaluation of project-level construction impacts

Project Activities	Status	Phase B Changes, Refinements, Additions	Supplemental EIR Coverage
New Phase B Activities			
Repair MWT West Levee	Added to Phase B	New area and activities	Described and evaluated at project-level
Utility Relocations and Decommissioning	Added to Phase B	New areas and activities	Described and evaluated at project-level
Incorporate Turnaround Area	Added to Phase B	New areas and activities	Described and evaluated at project-level
Import Borrow Material from Other Sources (Optional)	Optional for Phase B	New hauling	Hauling included in re-evaluation of project-level construction impacts
Water Management in the Northeast Corner of MWT (Optional)	Optional for Phase B	New activities	Described and evaluated at project-level

Notes: EIR=Environmental Impact Report, MWT = McCormack-Williamson Tract, N/A=not applicable, SMUD=Sacramento Municipal Utility District, cy = cubic yards

While the North Delta EIR described a concept involving minor grading and starter channels to modify the landform for habitat restoration, the Phase B project now proposes more extensive interior grading to construct a network of tidal channels, marsh plains, riparian berms, and riparian floodplains and excavating borrow material from a large subtidal area onsite to construct these features. Recent restoration planning efforts for the project revealed that without interior grading most of MWT would become permanently inundated subtidal open-water habitat following site breaching, resulting in significantly less intertidal marsh acreage than previously anticipated. Additionally, the proposed grading aims to increase acreage of riparian habitats to offset the expected inundation and conversion of existing woody riparian habitats that will be at tidal and subtidal elevations after MWT interior grading is complete. Incorporating the tidal channel network increases tidal-marsh edge length and habitat quality, while providing foodweb benefits for fish and other aquatic organisms. A turnaround area has also been added to Phase B to facilitate vehicle use.

Reinforcing the DHI East Levee is no longer proposed as part of the project; however, Mitigation Measure FC-2: "Provide Payment for Protection of the Dead Horse Island East Levee," in this Supplemental EIR includes requirements to fund similar activities to reinforce the DHI East Levee.

Utility Relocations and Decommissioning

Some utility relocations were covered in the North Delta EIR, such as decommissioning existing pumps and siphons. The Supplemental EIR contains additional activities for decommissioning all utilities on MWT. Inactive gas wells, inactive gas pipelines, and groundwater monitoring wells on MWT need to be decommissioned. In addition, existing SMUD distribution lines on MWT need to be removed and connections made at new locations on MWT and offsite to maintain existing power service. Approximate alignments and options for new offsite connections have been identified in this Supplemental EIR and have been identified in coordination with SMUD, the power provider. However, further coordination with SMUD and landowners is needed to finalize the specific alignments and construction areas. SMUD specifically requires advanced project designs to finalize alignments. Therefore, this Supplemental EIR provides what information is known to date on these alignments. Any substantial deviations from the routes analyzed in this Supplemental EIR and associated environmental impacts may require supplemental analysis and CEQA documentation by either DWR or SMUD.

1.3.2 Construction

The Supplemental EIR describes and evaluates construction of project components that have changed, been refined, or added to the project for Phase B. The construction area of many Phase B project components has changed from the area identified in the North Delta EIR. Some of these areas were previously only considered for impact from inundation of the MWT interior after project construction and would now be disturbed during construction activities. These changes are evaluated considering changes in existing site conditions since the North Delta EIR. The construction schedule and plan, including hauling of material and equipment use, have also been revised for Phase B and are described and re-evaluated.

1.3.3 Operations and Maintenance

Inundation of MWT after Phase B construction would differ from discussions in the North Delta EIR, due to changes in design of levee degrades and landform modifications, hydrologic conditions at MWT, and updated hydraulic modeling.

The Adaptive Management Plan provided with the North Delta EIR was supplemented with a framework for implementation in 2018 and will be finalized after obtaining CEQA compliance and permits for the Phase B project. Updates are proposed to invasive plant control and irrigation and optional operations have been added to pump water from the northwest corner of MWT protected by the Tower levee to prevent ponding of groundwater.

Although minor details of the design of access roads along levee degrades have been revised, periodic maintenance including refreshing of base rock would be the same as described in the North Delta EIR.

1.3.4 Other Changes Since the North Delta EIR

The following changes in programs and regulations have also occurred since the North Delta EIR.

- **CALFED Bay-Delta Program.** The North Delta EIR discusses that the project was being proposed as an element of the CALFED Bay-Delta Program described in the CALFED Programmatic Record of Decision, issued August 28, 2000. The CALFED Program Environmental Impact Statement/EIR provided a broad programmatic analysis of the general effects of implementing the multiple components of the Bay-Delta Program, including the proposed project. The North Delta EIR provided analysis of the proposed project independent from CALFED but incorporated CALFED programmatic mitigation measures. While CALFED and the California Bay-Delta Program no longer exist, the CALFED mitigation measures identified in the North Delta EIR are still applicable to the proposed project and would be implemented as part of the Phase B project as described in the North Delta EIR, except where updated. CALFED mitigation measures identified for Phase B, including any updates, are provided in **Appendix A**.

- **DWR Climate Action Plan (CAP).** Since the North Delta EIR, DWR has also completed a CAP. This Supplemental EIR is prepared following the CAP guidance for CEQA, including a climate mitigation, adaptation, and resilience analysis of the Phase B project, provided in **Appendix I**.

- **Changes to CEQA. S**ince the North Delta EIR was prepared, the State CEQA Guidelines have been amended and the following new resource topics have been added: Energy, Greenhouse Gas (GHG) Emissions, Tribal Cultural Resources, and Wildfire. This Supplemental EIR addresses potential impacts from all Phase B project components for these new resource topics.

- **Cutting the Green Tape Initiative.** Beginning in Fiscal Year 2020-2021, CDFW is implementing several initiatives to increase the pace and scale of large- and small-scale restoration through permitting and granting efficiencies under the Cutting the Green Tape program. With support from the California Natural Resources Agency, on November 30, 2020, the California Landscape Stewardship Network released, "Cutting the Green Tape: Regulator Efficiencies for a Resilient Environment," providing 14 important recommendations for improving regulatory processes for projects that benefit the environment. The California Natural Resource Agency is working to implement these recommendations including actions that could be applicable to the Phase B project.

1.4 Agency Roles and Responsibilities

According to the State CEQA Guidelines (Section 15064[f][1]), an EIR must be prepared whenever a project may result in a significant environmental impact. The State CEQA Guidelines (Section 15367) identify the lead agency as the public agency that is responsible for approving and implementing a project. DWR is both the lead agency and the project proponent. DWR is responsible for providing documentation and implementing steps necessary to satisfy CEQA requirements for the proposed project. As the lead agency, DWR has prepared this Draft Supplemental EIR, will be responsible for preparing the Final Supplemental EIR, and is responsible for ensuring that the Supplemental EIR is available for review by the public and interested agencies and parties consistent with State CEQA Guidelines. DWR also will be responsible for Supplemental EIR certification, project approval, and all other relevant CEQA-related activities. DWR also is the landowner of MWT and will provide the funding for the project. RD 2110 would implement the Phase B project and would be responsible for monitoring and/or reporting of mitigation measures related to their role on the project to the extent the funding is provided by DWR.

A CEQA responsible agency is a State agency, board, or commission or any local or regional agency other than the lead agency that has a legal responsibility for reviewing, carrying out, approving, or permitting aspects of a project. Responsible agencies must actively participate in the lead agency's CEQA process and review its CEQA document. This Supplemental EIR will be used by responsible agencies as a substantial basis in deciding whether to implement, approve, or permit project elements over which they have authority. A CEQA trustee agency is a State agency that has jurisdiction by law over natural resources that are held in trust for the people of the State of California. CDFW and SMUD were consulted during preparation of this Draft Supplemental EIR. The following responsible and trustee agencies are anticipated to have jurisdiction over some aspects of the proposed project:

- CDFW
- RWQCB
- CVFPB
- OHP
- SLC

The following regional and local agencies are also potential responsible agencies under CEQA:

- RD 2110
- Sacramento Area Flood Control Agency
- Sacramento County
- SMAQMD
- SMUD

1.5 EIR Public Review Process and Final Decision-making

1.5.1 Draft Supplemental EIR

This Draft Supplemental EIR is being made available to responsible and other potentially interested agencies, organizations, and individuals for a 45-day review period from **February 11, 2022 to March 28, 2022**. DWR will not conduct a public meeting on the Draft Supplemental EIR. Extensive outreach with key interested parties since the North Delta EIR was certified in 2010.

DWR is only accepting comments on the Draft Supplemental EIR and not on the 2010 North Delta EIR (or 2018 addendum), which has been certified; all changes, additions, and deletions to the 2010 North Delta EIR are included within this Supplemental EIR.

A Notice of Completion for this Draft Supplemental EIR has been filed with the State Clearinghouse, in accordance with the State CEQA Guidelines (Section 15085), and a Notice of Availability of this Draft Supplemental EIR has been posted in accordance with State CEQA Guidelines (Section 15087). A public notice was posted in the Sacramento Bee on February 11, 2022 and sent to all previous commenters that have requested information regarding the proposed project.

This Draft EIR is being distributed to responsible and other potentially interested agencies, stakeholder organizations, and individuals. This distribution ensures that interested parties have an opportunity to express their views regarding the contents of the Draft EIR and that information pertinent to permits and approvals is provided to decision makers and CEQA responsible and trustee agencies by the lead agency.

The Draft Supplemental EIR is available at https://ceqanet.opr.ca.gov/ by searching for State Clearinghouse No. 2003012112 or may also be viewed at https://water.ca.gov/News/Public-Notices.

The Draft Supplemental EIR appendices and the North Delta EIR are available at: https://geiconsultants.sharefile.com/d-sbd92bfb409994103aaa246cb7a8bc09c

A physical copy of the Draft Supplemental EIR, all references, and its appendices will also be made available upon request at the California Natural Resources Office, located in Sacramento, California. Please call 916-820-7572 to make arrangements for review.

Comments regarding the Draft Supplemental EIR should be submitted in writing via email or mail to DWR's North Delta Program Manager Anitra Pawley with the subject line "MWT Project Phase B Supplemental EIR":

California Department of Water Resources
Attn: Anitra Pawley
P.O. Box 942836
Sacramento, CA 94236-0001
E-mail: Anitra.pawley@water.ca.gov

Comments are due no later than 5 p.m. Pacific Daylight Time on Monday March 28, 2022.

1.5.2 Final Supplemental EIR

Comments regarding significant environmental points received in response to the Draft Supplemental EIR will be addressed in a response to comments document, which, together with the Draft Supplemental EIR and any changes to the Draft Supplemental EIR text made in response to comments, or initiated by staff, will constitute the Final Supplemental EIR. In deciding whether to certify the Supplemental EIR and approve or deny the proposed project, DWR will consider the whole of the administrative record, including the Draft Supplemental EIR, Final Supplemental EIR, Findings, a Statement of Overriding Considerations (if necessary because significant impacts remain after mitigation), a revised Mitigation Monitoring and Reporting Program (MMRP), and all public comments received. If the project is approved, DWR would also adopt the revised MMRP for the project and issue a Notice of Determination.

1.6 Organization of this Supplemental EIR

This Draft Supplemental EIR contains the following sections:

Executive Summary. A summary of the proposed project and environmental impacts, areas of controversy and issues to be resolved, and EIR public review process and final decision-making are provided in this section.

Chapter 1, Introduction. This chapter describes the project background, including components implemented in Phase A and changes in the existing physical conditions at MWT since the North Delta EIR, intended uses and purpose of the Supplemental EIR, scope of the Supplemental EIR, agency roles and responsibilities, EIR public review process and final decision-making, and organization of this Supplemental EIR.

Chapter 2, Description of Project Changes, Refinements, and Additions. This chapter summarizes the proposed project changes, refinements, and additions covered in the Supplemental EIR, including a brief description of the project site, components, construction activities, and operation and maintenance activities, and related permits and approvals.

Chapter 3, Environmental Setting and Impact Analysis. This chapter includes 12 subchapters that describe existing environmental conditions of new proposed project locations and for areas where conditions have changed since preparing the North Delta EIR and anticipated environmental impacts of Phase B that are new or have changed from those described in the North Delta EIR. The following resource topics are addressed in Chapter 3:

3.1. Hydrology and Water Quality[1]
3.2. Geology, Seismicity, Soils and Mineral Resources
3.3. Transportation and Navigation
3.4. Air Quality
3.5. Noise
3.6. Biological Resources[2]
3.7. Land Use, Agriculture, and Recreation
3.8. Energy
3.9. Visual Resources
3.10. Public Health and Environmental Hazards
3.11. Cultural and Tribal Cultural Resources
3.12. Greenhouse Gas Emissions

Chapter 4, Other Statutory Considerations. This chapter updates growth-inducing and cumulative impact analyses and significant, irreversible environmental changes included in the North Delta EIR and addresses impacts of mitigation measures.

Chapter 5, References. Lists the sources of information cited throughout this Draft Supplemental EIR.

Chapter 6, Report Preparation. Lists the individuals involved in preparing the Supplemental Draft EIR.

Appendix A. Phase B Environmental Commitments and CALFED Mitigation Measures

Appendix B. Air Pollutant and Greenhouse Gas Emissions Modelling

Appendix C. Hydraulic and Hydrologic Modeling Reports

1. Flood Model Design Options Screening
2. MWT Southwest Levee Degrade Sensitivity Testing
3. Flood Model Calibration and Validation Report

Appendix D. Sediment Transport Modeling Report

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[1] Section 3.1, "Hydrology and Water Quality" covers the following sections from the North Delta EIR: 3.1 "Hydrology and Hydraulics," 3.2 "Flood Control and Levee Stability," 3.3 "Geomorphology and Sediment Transport," 3.4 "Water Quality," 3.5 "Water Supply and Management," and 3.6 "Groundwater."

[2] Section 3.6, "Biological Resources" covers the following sections from the North Delta EIR: 4.1 "Vegetation and Wetlands," 4.2 "Fisheries and Aquatics," and 4.3 "Wildlife."

Appendix E. Salinity Modeling Report

Appendix F. Hazardous Substances Assessment Summary Report

Appendix G. Cultural Resource Inventory and Evaluation Report

Appendix H. Native American Consultation

Appendix I. Climate Change Mitigation, Adaptation, and Resilience Analysis

This Draft Supplemental EIR uses the following defined standard terms:

- project or proposed project. Refers generally to the MWT project.
- Phase B or Phase B project. Refers to revisions in the design, construction, operation, and maintenance of the Phase B project as described in Chapter 2," Description of Project Changes, Refinements, and Additions."
- project site. Refers to the area where project components are located and where construction, operations, or maintenance activities would occur.
- project area. Refers to areas immediately adjacent to the project site.
- breach. Used in two circumstances: 1) refers to the natural and intentional failure of MWT levee segments during the 2017 flood event on MWT; and 2) used in the project component named "Breach Mokelumne River Levee (Updated)" to refer to the proposed engineered levee design of a segment of the Mokelumne River Levee—"breach" is used to maintain consistency with the North Delta EIR nomenclature for this component.
- degrade. Refers to engineered levee design and lowering of segments of the MWT East and Southwest Levees.

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Chapter 2. Description of Project Changes, Refinements, and Additions

This chapter describes: the project location; changes, refinements, and additions to project components' construction activities, phasing, and other important factors; operations and maintenance activities; environmental commitments; and regulation requirements, permits, and approvals.

Refer to Section 1.3, "Scope of the Supplemental EIR," and especially Table 1-1 for a summary of coverage of the Phase B project components in the Supplemental EIR and this chapter.

The subheadings in this chapter indicate if the project component, construction activity, or operations and maintenance activity is 'new' for Phase B or was included in the North Delta EIR and has been 'updated' for Phase B.

2.1 Project Location

The MWT is a North Delta island located immediately downstream of the confluence of the Cosumnes and Mokelumne Rivers, just northeast of the Delta Cross Channel. The Phase B project is located approximately 0.5 mile west of Interstate 5 (I-5) in unincorporated Sacramento County, as shown in **Figure 2-1**. Phase B project components would primarily be implemented within the MWT interior and on MWT levees. The MWT interior consists primarily of lands previously managed for agricultural uses until 2017 and a network of associated ditches and berms. The MWT Phase B project site boundary contains approximately 1,635 acres. The Phase B project also includes offsite locations for new SMUD distribution line connections, to the east and west of MWT, as shown in Figure 2-1.

2.2 Phase B Project Components

Phase B consists of levee modifications and habitat restoration and utility relocations or decommissioning. Proposed Phase B project components are shown in **Figure 2-2** along with already constructed Phase A components for reference. A summary of proposed Phase B project components is provided in **Table 2-1**. Project component names from the North Delta EIR have been maintained in this Supplemental EIR for consistency.

Table 2-1. Summary of Proposed Phase B Levee Modification and Habitat Restoration Project Components

Project Component Name	Phase B Project Design and Characteristics
Degrade MWT East Levee to Function as a Weir (Updated)	▪ Engineered levee design to lower an approximately 900-ft segment of the MWT East Levee to an elevation of 11.1 ft ▪ Restores fluvial hydrology, sediment deposition processes, and regular riverine floodplain inundation to the interior of MWT. ▪ Includes RSP to prevent scouring and provide a maintenance access road to northern MWT.
Breach Mokelumne River Levee (Updated)	▪ Engineered levee design to lower an approximately 300-ft segment of the Mokelumne River Levee. ▪ Restores fluvial hydrology, sediment deposition processes, and regular riverine floodplain inundation to the interior of MWT. ▪ Includes RSP to prevent scouring and provide a maintenance access road to southern MWT.
Completely Degrade MWT Southwest Levee to Match Elevation of Island Floor (Updated)	▪ Engineered levee design to lower an approximately 1,500-ft or 1,000-ft segment of the MWT Southwest Levee. ▪ Allow flood flows to pass out of MWT without causing a surge effect. ▪ Reintroduce tidal exchange to MWT. ▪ Includes RSP around levee cut banks to prevent scouring.
Repair MWT West Levee (New)	▪ Engineered repair of a failed levee segment from the 2017 flood event at MWT.
Enhance Landside Levee Slope and Habitat (Updated)	▪ Re-sloping the land side of the MWT East and Southwest Levees to the north and south of segments degraded during Phase B (these are new segments that were not re-sloped in Phase A).
Modify Landform and Restore Agricultural Land to Habitat (Updated)	▪ Additional interior grading to support restoration of high-quality habitat: excavating a tidal channel network, excavating borrow material from a large subtidal area, and using excavated material to construct marsh plains, riparian berms, and riparian floodplains.
Incorporate Turnaround Area (New)	▪ A small new turnaround area at one location to facilitate use of the site and levee crest road for maintenance.

Notes: “Updated” refers to project components identified in the North Delta EIR where the design and characteristics have been updated in Phase B; and “New” refers to project components added in Phase B.

Figure 2-1. Regional Project Location

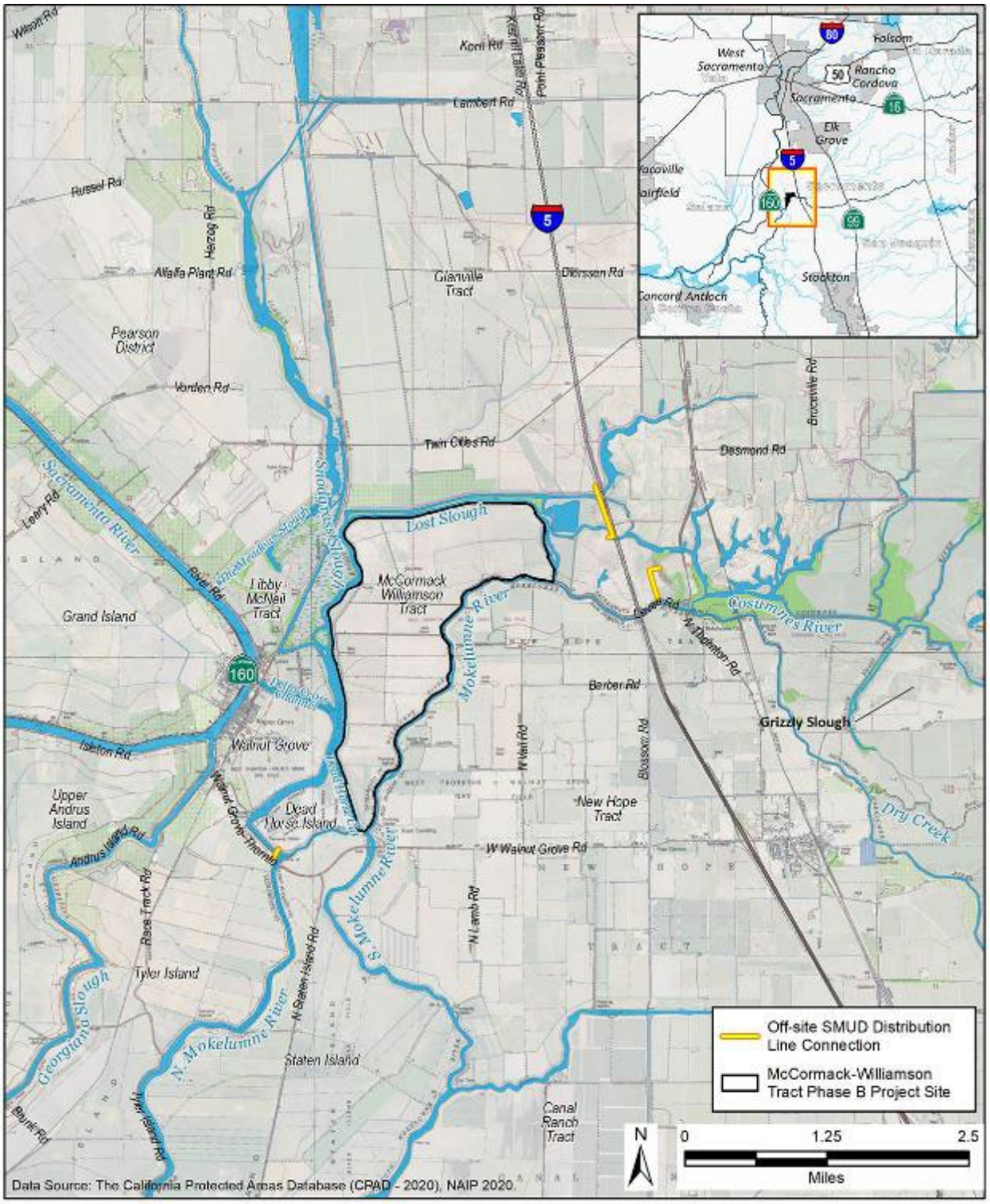

Figure Source: GEI Consultants, Inc. 2021.

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Figure 2-2. Phase A and Updated Phase B Project Components

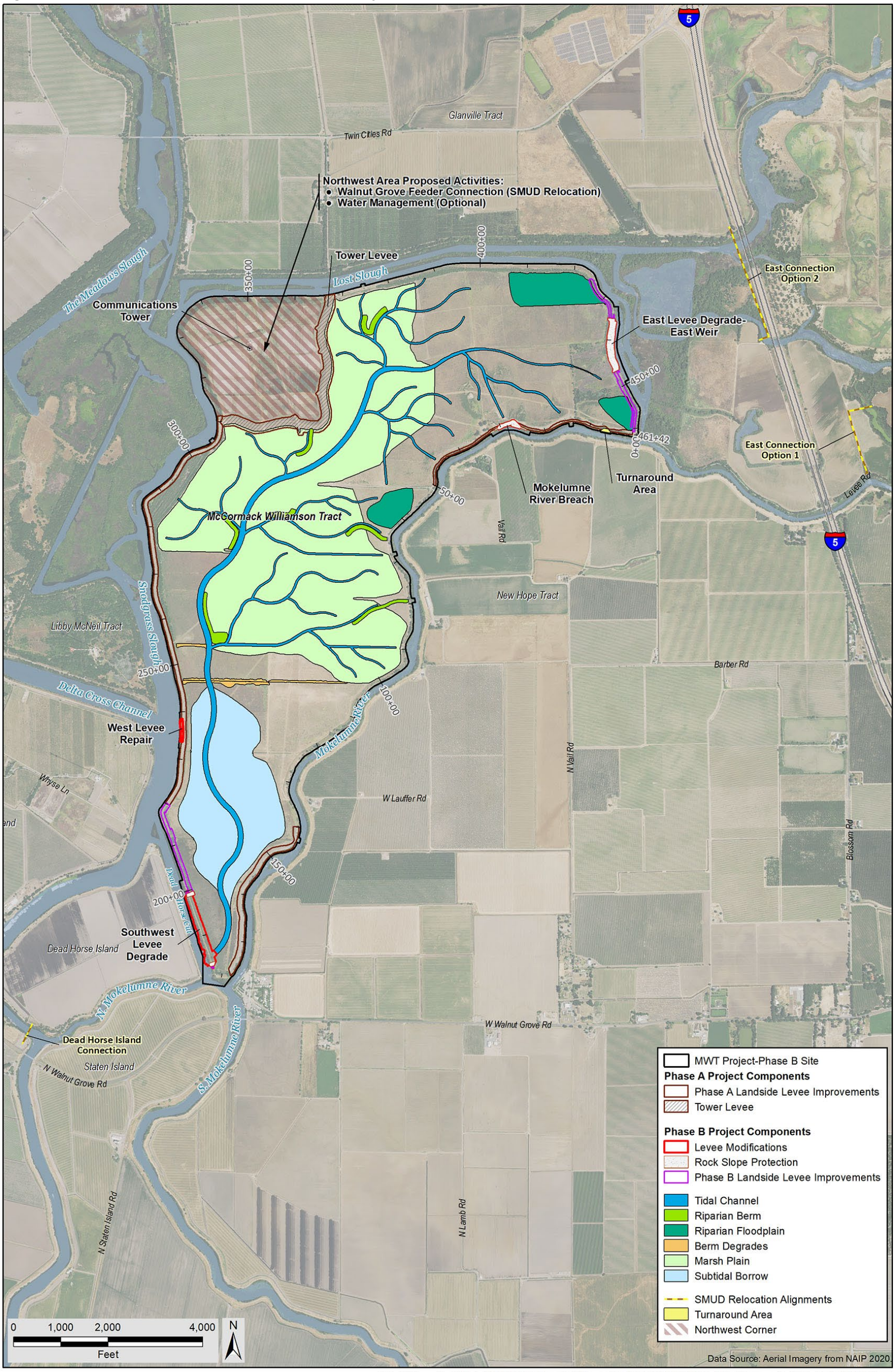

Figure Source: GEI Consultants, Inc. 2021.

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2.2.1 Levee Modifications and Habitat Restoration

Degrade MWT East Levee to Function as a Weir (Updated)

Lowering the elevation of MWT East Levee would restore fluvial hydrology, sediment deposition processes, and regular riverine floodplain inundation to the interior of the MWT. The design in the North Delta EIR was to lower the entire 3,700-foot (ft)-long MWT East Levee to an elevation of 11.0 ft[3]. The Phase B project now proposes to lower approximately 900 ft of the MWT East Levee at approximately Station 440+00 from existing elevations (between 18.0 and 20.0 ft) to 11.1 ft, as shown in **Figure 2-3**. The lower levee would have 12 horizonal (H):1 vertical (V) slopes up to the adjacent levee crest at the north and south ends.

Similar to the design described in the North Delta EIR, the current Phase B design proposes rock slope protection (RSP) along the entire degraded segment, including the waterside and landside of the levee, to protect against erosion/scour. While the North Delta EIR design included use of 24-inch angular rock based on U.S. Army Corps of Engineers (USACE) guidance, the current Phase B design evaluated modeled velocities at the levee degrade during post-project 10- and 100-year storm events and the California Bank and Shore Protection Design Methods (California Department of Transportation (Caltrans) 2000), to determine appropriate RSP. Most RSP proposed is 8- to 27-inch-diameter rock.

The current Phase B design incorporates RSP to prevent erosion and scour of the degraded levee, as shown in Figure 2-3. The degraded levee would be armored with a 2.5-ft layer of RSP extending along the waterside slope of the levee, over the top of the levee degrade, and down the MWT landside of the levee. RSP would also extend up the levee degrade slopes to the top of the existing levee crest at the north and south ends. RSP would prevent erosion and deepening of the levee degrade over time and would allow the degraded levee to be used as an access road when it isn't inundated. RSP would extend approximately 10 ft out from the waterside toe to protect against erosion/scour from the approaching flow and approximately 25 ft out from the landside levee toe to dissipate energy and potential erosion/scour from water overtopping the degraded levee. The current Phase B design includes an additional 3.3 ft of quarter-ton RSP for approximately 270 ft along the southern end and slope of the levee degrade to protect from erosion/scour where post-project velocities were modeled to be higher. One or more layers of filter fabric may be placed under all RSP areas to prevent scour of the underlying soil.

The North Delta EIR design included a paved access road with a 1-ft concrete retaining wall to prevent undercutting. The current Phase B design proposes a rocked (not paved) road and does not include a retaining wall, which was not identified as being needed to prevent undercutting. The North Delta EIR design also included grading and excavating exit channels from the landside of the degraded levee and extent of RSP, to ensure that fish would not be entrapped in the toe sill as floodwaters recede from MWT. However, more detailed modeling of the project

[3] All elevations referenced in the current Phase B design and Supplemental EIR are in North American Vertical Datum (NAVD) 1988. The North Delta EIR presented design elevations in National Geodetic Vertical Datum 1929, resulting in elevations approximately 2.54 ft less than the current design. Accordingly, for purposes of comparison, 2.54 ft have been added to elevations referenced from the North Delta EIR and these elevations are rounded to the nearest tenth. For example, the east weir elevation stated in the North Delta EIR as elevation 8.5 ft was converted to elevation 11.0 ft for the Supplemental EIR.

design indicates this area will experience tidal inundation and potential stranding of fish is not an issue. Consequently, grading and excavating exit channels is no longer part of Phase B.

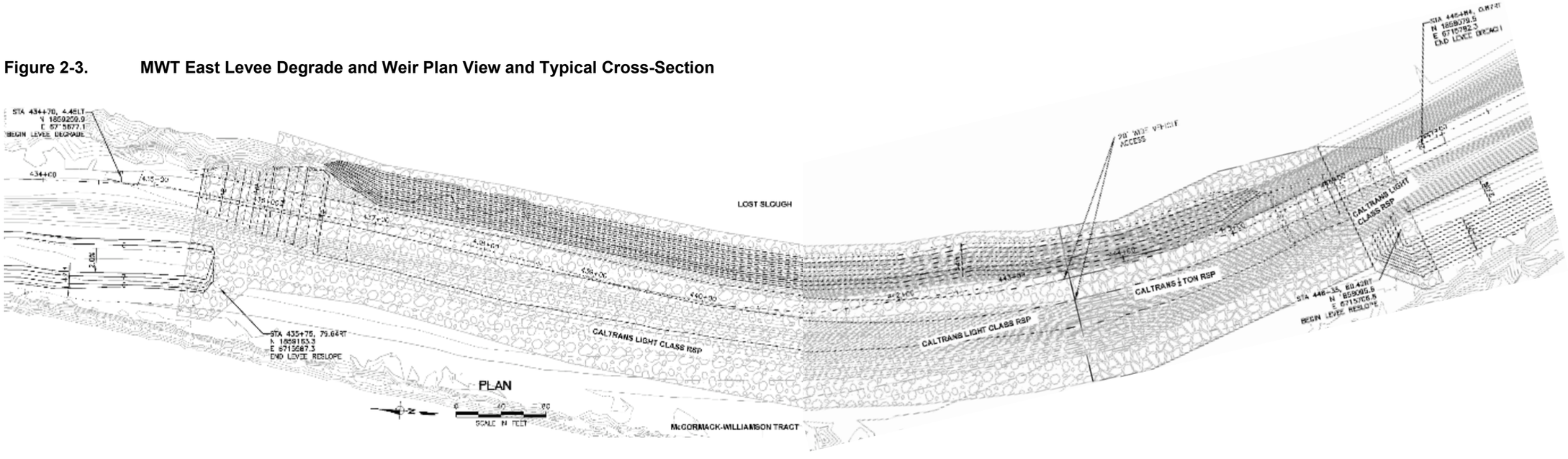
Breach Mokelumne River Levee (Updated)

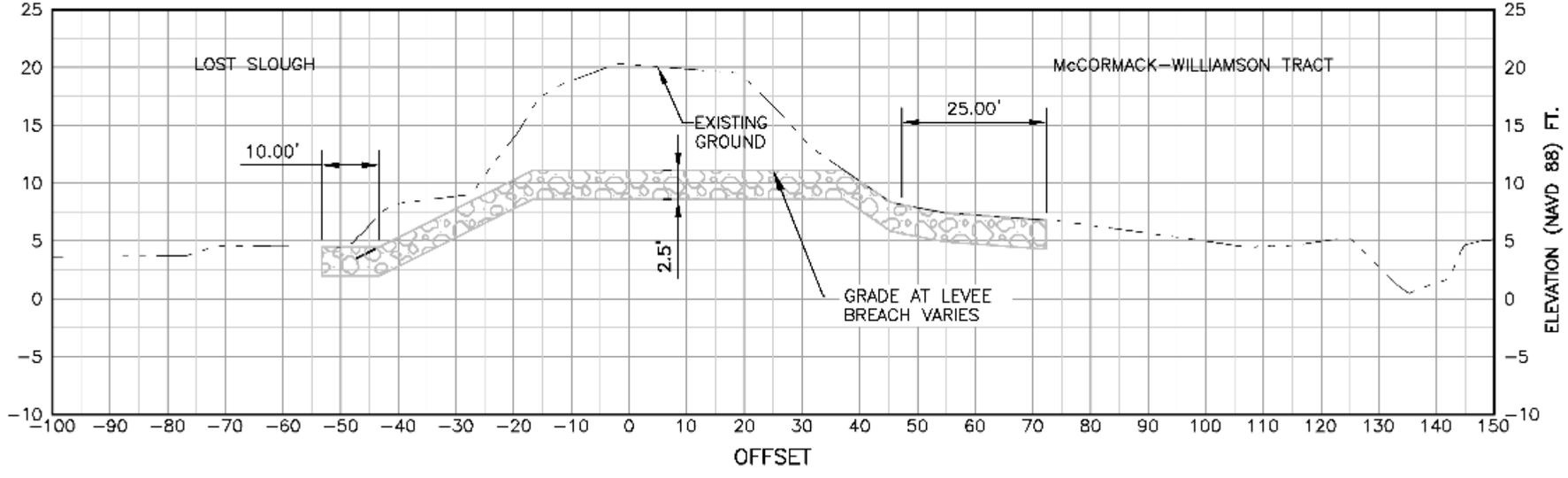
Lowering of the Mokelumne River Levee would restore fluvial hydrology, sediment deposition processes, and regular riverine floodplain inundation to the interior of the MWT. The design in the North Delta EIR was to lower a 300-ft segment of the Mokelumne River levee in two tiers to elevations 2.5 and 6.0 ft. The location of the lowered levee has been relocated to where the Mokelumne River Levee breached during the 2017 flood event at approximately Station 27+00, west of the location identified in the North Delta EIR at approximately Station 15+00. Following the 2017 breach, the levee at this location was partially restored with rock to an elevation of approximately 12.0 to 13.0 ft. The Phase B project still proposes to lower an approximately 300-ft-long segment of levee, but now to a bottom elevation of 7.0 ft, as shown in **Figure 2-4**. The west side of the lowered levee would have a 28H:1V slope and the east side a 14H:1V slope.

The RSP design was developed using the same approach discussed above for degrading the MWT East Levee. A 2.5-ft layer of RSP would be placed along the bottom and up the east and west slopes to the top of the adjacent existing levee. RSP would prevent erosion and deepening of the levee degrade over time and would allow the degraded levee to be used as a maintenance access road. Rock excavated from the partially repaired levee in 2017 that would be removed during construction would be salvaged and re-used as the top 1 ft of RSP. One or more filter layers may be placed under all RSP to prevent scour of the underlying soil.

The design described in the North Delta EIR would have been excavated to lower elevations and would have included a 3,000-ft-long starter channel excavated into the MWT interior to convey tidal and flood flows between the Mokelumne and the MWT, to provide habitat connectivity for fish and aquatic organisms through MWT. The current Phase B design for the Mokelumne River degrade has an elevation above the interior tract ground surface to function as a very low weir, allowing very frequent overtopping and regularly connecting tidal flows on MWT with the Mokelumne River. The starter channel is no longer included; however, the current Phase B design includes excavating an extensive interior tidal channel network, as discussed below in this section, to provide borrow material and to create higher-quality habitat. The new weir elevation and design also allows for the road along the levee crest to be maintained for access to the southern MWT for maintenance activities, the only route available to the southern MWT.

Figure 2-3. MWT East Levee Degrade and Weir Plan View and Typical Cross-Section

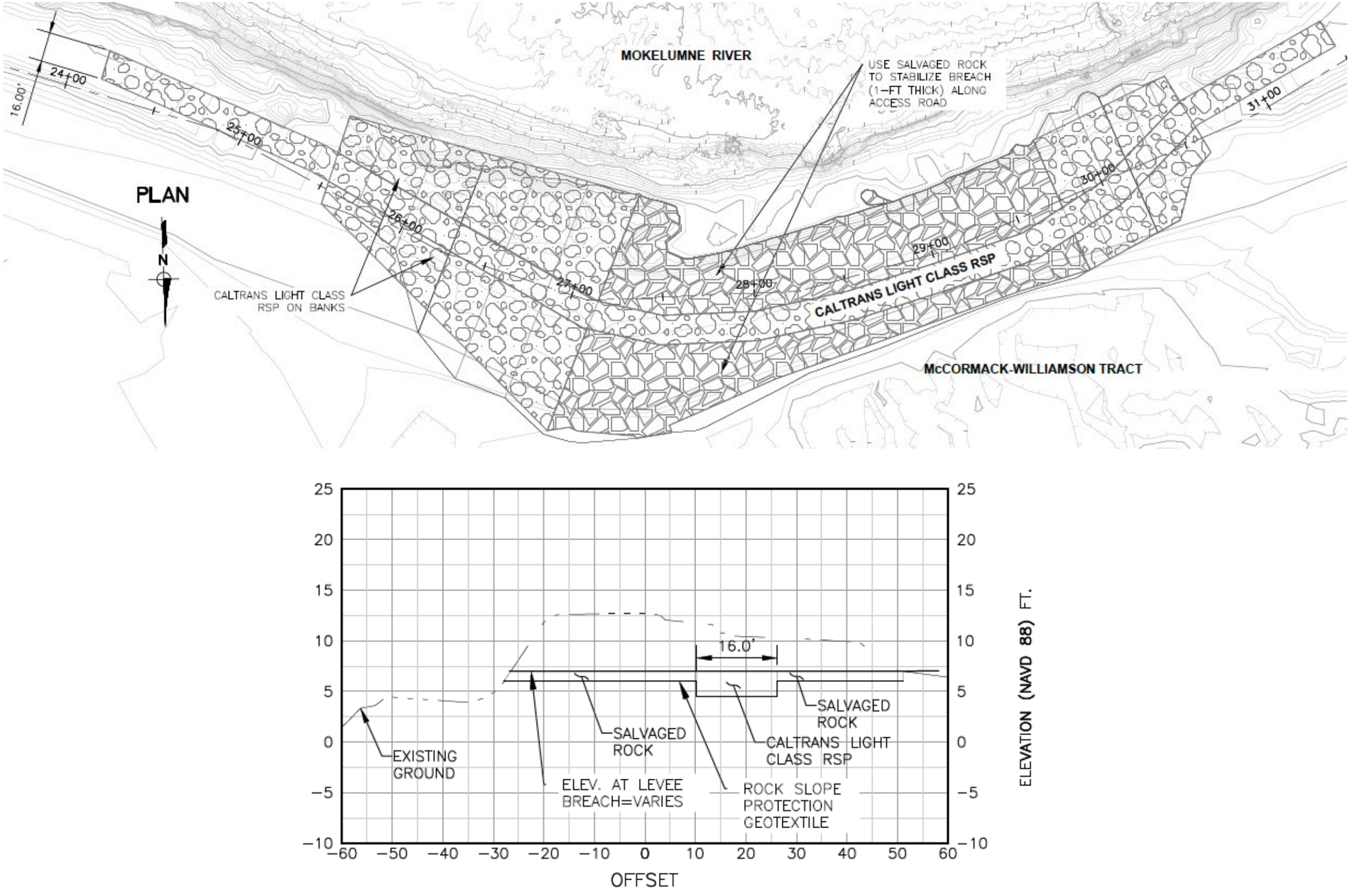




TYPICAL CROSS-SECTION

Source: West Yost 2020

Figure 2-4. Mokelumne River Levee Plan View and Typical Cross-Section



TYPICAL CROSS-SECTION

Source: West Yost 2020

Completely Degrade MWT Southwest Levee to Match Elevation of Island Floor (Updated)

Lowering the MWT Southwest Levee would allow flood flows to pass out of MWT without causing a surge effect and would reintroduce tidal exchange to MWT. The design in the North Delta EIR was to degrade the entire 3,500-ft-long MWT Southwest Levee to match the MWT ground surface (between elevation 0.0 and 1.5 ft). The Phase B project now proposes to lower an approximately 1,500-ft-long or 1,000-ft-long section of the MWT Southwest Levee at approximately Station 191+00 from existing elevations (between 11.0 and 17.0 ft) to elevation 0.0 ft, as shown in **Figure 2-5**. The levee degrade would have 7H:1V slopes up to the adjacent levee crest at the north and south ends.

Lowering of a 1,000-ft-long section is now being considered for the final Phase B design. This smaller section length would have the same design and characteristics as the 1,500-ft-long section but would be shorter and require less ground disturbance and construction activities. Lowering of a 1,500-ft-long section is shown in Figure 2-5 and was used to prepare the Supplemental EIR analysis; however, the analysis in the Supplemental EIR also covers the option of lowering a 1,000-ft-long section of this levee. Chapter 3, "Environmental Setting and Impact Analysis," notes where the lowered section length results in differences in the analysis.

Post-project modeling now shows very low velocities, and sediment may accumulate on the degraded area over time. However, to prevent scour along the re-sloped sections of the degraded levee slope, RSP would be installed around the toe of the levee cut banks to an elevation of approximately 8 ft.

The North Delta EIR also mentions that this levee degrade would allow formation of dendritic channels. However, the current Phase B design includes excavating a starter tidal channel network, as discussed below in this section, to generate borrow material, speed up the process of dendritic tidal channel formation, and develop higher-quality habitat by increasing the area of suitable elevations for tidal marsh formation.

Repair MWT West Levee (New)

An approximately 500-ft-long segment of the MWT West Levee was breached during the 2017 flood event on MWT. The current breach slopes inward from both directions and extends down to an elevation of approximately 10.0 ft (at the lowest point) and would be repaired to an elevation of approximately 16.0 ft. The sides of the repair would have 2H:1V slopes. The road along the levee crest at the repair site would be restored with aggregate base. The repair would then be seeded as needed for erosion control. Hydraulic modeling results indicate that this breach would no longer be needed to relieve pressure on the downstream levee after the southwest degrade is constructed.

Enhance Landside Levee Slope and Habitat (Updated)

The land side of most MWT levees were re-sloped in Phase A. The MWT East and Southwest Levees were not re-sloped in Phase A and sections of these levees that are not degraded in Phase B would now be re-sloped in Phase B, using material excavated when degrading these levees. The land side of the MWT East and Southwest Levees would be re-sloped to the north and south

of the degraded segments. Re-sloping consists of grading a bench below the levee crest on the land side of the levee. The bench would be approximately 30 ft wide and sloped at approximately 2H:1V on the landside, towards the tract interior. A 7H:1V slope would be graded from the hinge point of the bench to the ground surface where the new landside levee toe would be formed. The current Phase B design proposes re-sloping approximately 2,650 ft of the MWT East Levee with widths (including the bench and slopes) ranging from 35 to 85 ft and re-sloping approximately 2,230 ft of the MWT Southwest Levee with widths ranging from 80 to 115 ft. An updated typical cross-section of the MWT interior with re-sloping of the landside of levees following inundation of the tract is shown in **Figure 2-6**.

Modify Landform and Restore Agricultural Land to Habitat (Updated)

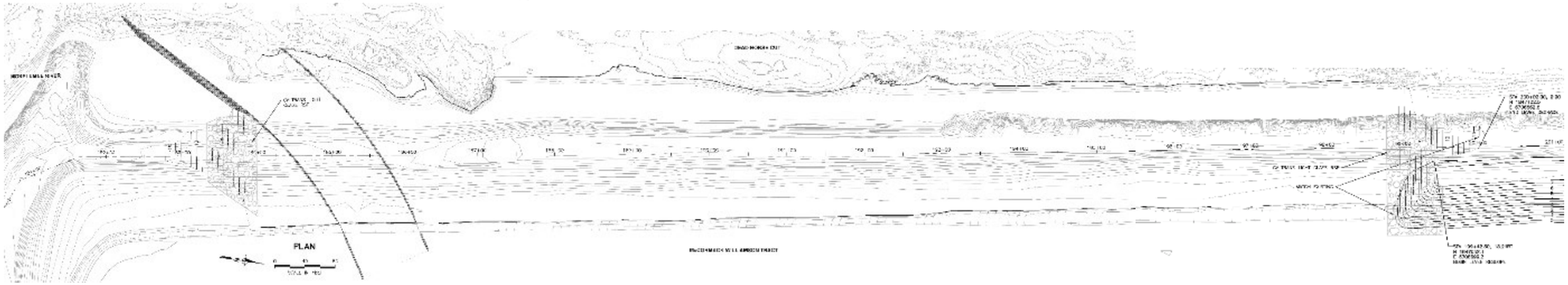
Interior Grading and Tidal Channel Network

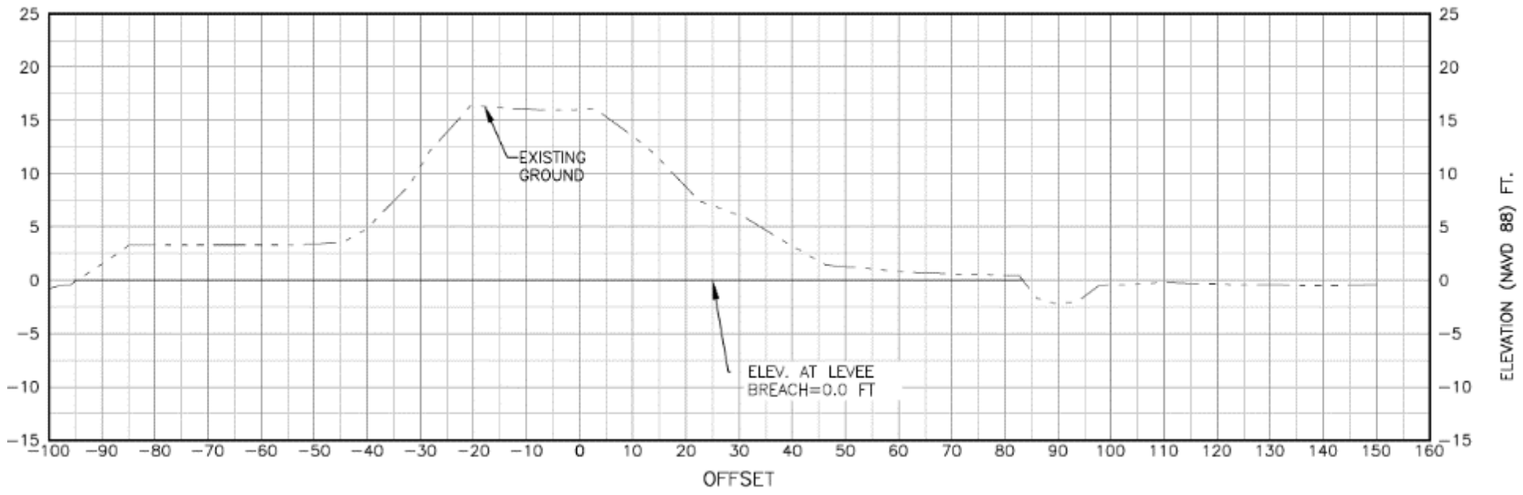
Compared to the North Delta EIR design, which included minor grading and passive development of habitat, the current Phase B design incorporates additional interior grading. Interior grading on MWT for the current Phase B design involves excavating a tidal channel network, excavating borrow material from a large subtidal area, and using excavated material to construct marsh plains, riparian berms, and riparian floodplains. **Figure 2-7** shows typical cross-sections of these excavated and constructed features for interior grading.

Up to a 13.3-mile-long network of tidal channels would be excavated in the MWT interior, as shown in Figure 2-2. A single main channel would run roughly north to south down the middle of the tract. The main channel would have a 15-ft minimum bottom width and a channel invert of elevation -1 ft at the north end, connecting a scour pond adjacent to the MWT East Levee, and would gradually widen to a 90-ft bottom width and a channel invert of elevation -2 ft. Side channel networks would connect to the main channel with channel bottom widths varying from approximately 15 ft to 40 ft. All channels would have approximately 2H:1V side slopes.

Subtidal borrow excavation would generate additional fill material. The subtidal borrow area is located on the southern third of the tract, is already below tidal elevation, and would be excavated to an elevation of approximately -1 ft. Marsh plain construction would be completed to raise the elevation of the tract interior to equal approximately the MLLW elevation of 3.5 ft at the tidal channel top of bank, gradually sloping up to the 4-ft contour. The marsh plain would also include high ground in the form of riparian berms adjacent to the tidal channels. Riparian berms would be at least 1 acre in size above MHHW to provide ample patch size for nesting birds and riparian recruitment. Riparian berms would be constructed to a top elevation of 7 ft and varying top widths. Constructing slightly higher than MHHW provides resiliency to rising sea levels in coming decades. Most berms would be between 40 and 80 ft wide, although one would be up to 195 ft wide at the widest point. The riparian berms would be set back from the tidal channel 2 ft with channel side slopes of 3H:1V and all remaining side slopes of 7H:1V. Riparian floodplain areas would be constructed adjacent to the restricted height levee, as shown in Figure 2-2, and built to a minimum elevation of 5.6 ft (i.e., MHHW) gradually sloping up to a maximum elevation of 7.5 ft with patch sizes ranging from 7.7 to 30.7 acres.

Figure 2-5. MWT Southwest Levee Degrade Plan View and Typical Cross-Section

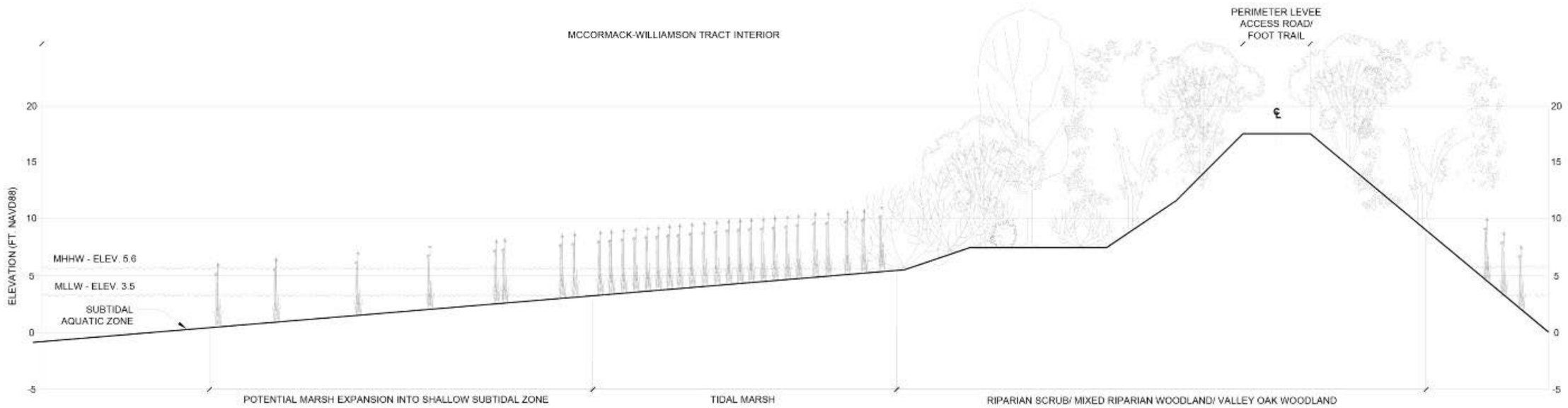




TYPICAL CROSS-SECTION

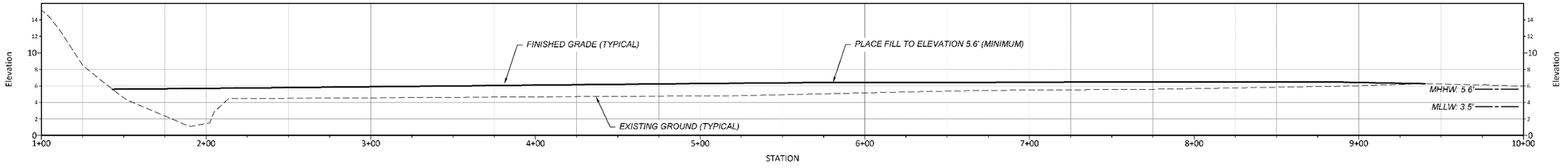
Note: Lowering of a 1,500-ft-long segment of the MWT Southwest Levee is shown.
Source: West Yost 2020

Figure 2-6. Enhanced Interior Levee Slope and Habitat Typical Cross-Section

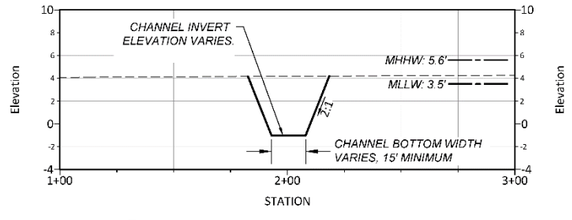


Source: GEI Consultants 2020

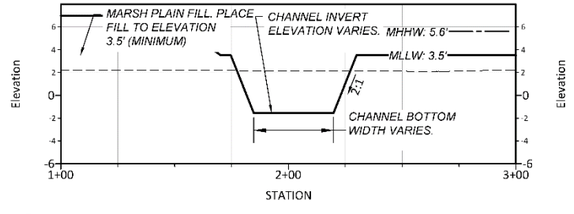
Figure 2-7. Interior Grading and Tidal Channel Network Typical Cross-Sections



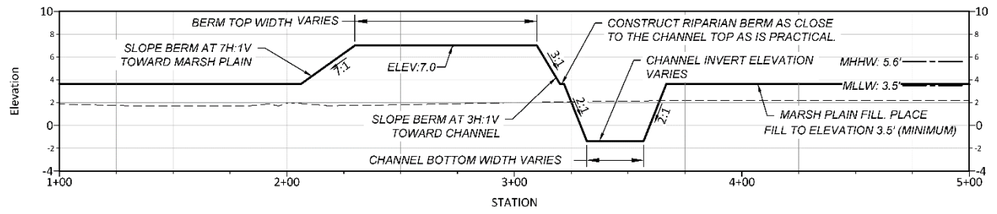
A RIPARIAN FLOODPLAIN FILL - TYPICAL SECTION
SCALE: H1" = 30'; V1" = 6'



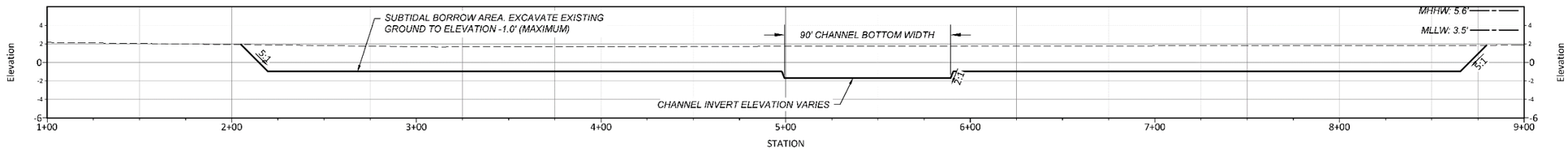
B TIDAL CHANNEL - TYPICAL SECTION
SCALE: H1" = 30'; V1" = 6'



D TIDAL CHANNEL WITH MARSH PLAIN FILL - TYPICAL SECTION
SCALE: H1" = 30'; V1" = 6'



E RIPARIAN BERM - TYPICAL SECTION
SCALE: H1" = 30'; V1" = 6'



F TIDAL CHANNEL WITH SUBTIDAL BORROW - TYPICAL SECTION
SCALE: H1" = 30'; V1" = 6'

Source: Cbec 2020

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Revegetation

The North Delta EIR identified planting of 70 acres for revegetation of MWT. Levee benches in areas re-sloped in Phase A were seeded with native grasses for erosion control and approximately 25 acres were planted with native riparian scrub-shrub and riparian woodland plants in fall/winter of 2020-2021. Substantial native revegetation is anticipated to occur naturally onsite after implementation of Phase B, and the current habitat restoration design was developed with the goal of maximizing natural vegetation recruitment. Levees re-sloped for the Phase B project would also be seeded with native grasses following completion of grading for erosion control, and subsequently restored to riparian vegetation via natural recruitment following levee modifications and reestablishment of tidal/fluvial hydrology on the tract. In addition, selected areas of re-sloped levees may receive transplanted elderberries from impact sites.

Incorporate Turnaround Area (New)

The project incorporates a turnaround area to facilitate use of the site and levee crest road, including for maintenance, as shown in Figure 2-2. The turnaround area would be located immediately west of the access point to MWT in the northeast corner of the site. The turnaround area would be constructed adjacent to the levee crest road on the MWT interior. The surface would be covered with aggregate base rock.

2.2.2 Utility Relocation and Decommissioning

Figure 2-8 shows the location of known existing gas lines, abandoned gas wells, SMUD distribution lines, groundwater monitoring wells, and pumps/siphons on MWT. Additional wells and buried utilities that are not shown on Figure 2-8 may be located on MWT. All utilities on MWT would be located prior to beginning of construction. MWT contains several existing utilities and infrastructure that would be decommissioned with the project and a SMUD distribution line that would be removed and requires connections at new locations to maintain existing services. MWT also has agricultural water management infrastructure in place, including a network of supply and drainage ditches across the tract interior and pumps and siphons. Drainage ditches are no longer used since agricultural operations ended in 2017. Pumps and siphons would be decommissioned consistent with the description in the North Delta EIR. This Supplemental EIR considers the construction area for decommissioning these facilities on MWT levees, including the water side.

Remove Abandoned Gas Lines in Excavation Areas, Avoid and Decommission Abandoned Gas Wells, and Decommission Groundwater Monitoring Wells (New)

Pacific Gas and Electric Company (PG&E) has approximately 4.4 miles of known inactive gas lines and easements on MWT. PG&E has communicated to the project team that the gas lines are abandoned. Before conducting grading activities, abandoned gas lines that could be affected by grading (including those that have not been previously identified) would be surveyed and located. If any abandoned gas lines could not be avoided during grading operations, the abandoned gas lines would be removed within the excavation area and cut and capped outside of the excavated area.

Additionally, there are approximately 20 abandoned gas wells known on MWT. These well locations have been mapped for avoidance by all proposed grading excavation activities. A minimum 100-ft setback would be maintained around inactive gas wells for excavation activities; however, approximately 2 ft of fill would cover some wells after grading. Further investigation of abandoned gas lines and gas wells is currently ongoing.

DWR groundwater monitoring wells within construction areas and/or areas inundated by the project would be abandoned, capped, and decommissioned as required by applicable regulations. Wells outside construction and inundation areas, would either continued monitoring or abandoned, capped, and decommissioned. Some old monitoring wells on MWT may already be decommissioned. Fill may be installed over some decommissioned wells.

Relocate SMUD Distribution Lines (New)

Approximately 6.6 miles of existing SMUD distribution lines are known to be located on MWT, including approximately 121 poles, as shown in Figure 2-8. The project would require removing most or all SMUD poles and electrical conductor associated with distribution lines through the interior of MWT and constructing new distribution line segments to maintain existing service at the following three locations: 1) west of MWT on DHI and Tyler Island (referred to as DHI Connection), 2) in the northwest corner of MWT from the Walnut Grove Feeder Distribution Line, and 3) east of MWT for private properties. Figure 2-2 shows the approximate locations of the offsite alignment for the DHI Connection and two offsite options for connection east of MWT–referred to as East Connection Options 1 and 2. While the Walnut Grove Feeder Line connection alignment has not yet been identified, the area in the northwest corner of MWT (within the Phase B project site) where the alignment would be located is shown on Figure 2-2.

New distribution lines would consist of wood or tubular steel poles and electrical conductor. Wood poles would be spaced approximately 300 ft apart and steel poles could be used to provide longer and/or taller spans between poles. Vegetation removal along the new distribution lines would be required to comply with California Public Resource Code (PRC) Sections 4292 and 4293, North American Electric Reliability Corporation standard FAC-003-1, and California Public Utilities Commission General Order 95, Rule 35. These regulations identify by voltage specific clearance distances that must be maintained between vegetation and conductor. Additional clearing of vegetation around poles is not required because MWT is not located in a California Department of Forestry and Fire Protection (Caltrans) State Responsibility Area. SMUD also requires all-weather access roads to its facilities; access roads are typically 15 ft wide.

SMUD requires advanced project design and coordination with landowners to finalize the scope of distribution line decommissioning on MWT and design, vegetation removal, and access requirements for new distribution line connections. The distribution line on the MWT levee crest would likely remain and all or most poles and electrical conductor on the MWT interior would likely be removed. Details that are known and considerations for each new connection/option are discussed below.

Figure 2-8. Existing Utilities on MWT

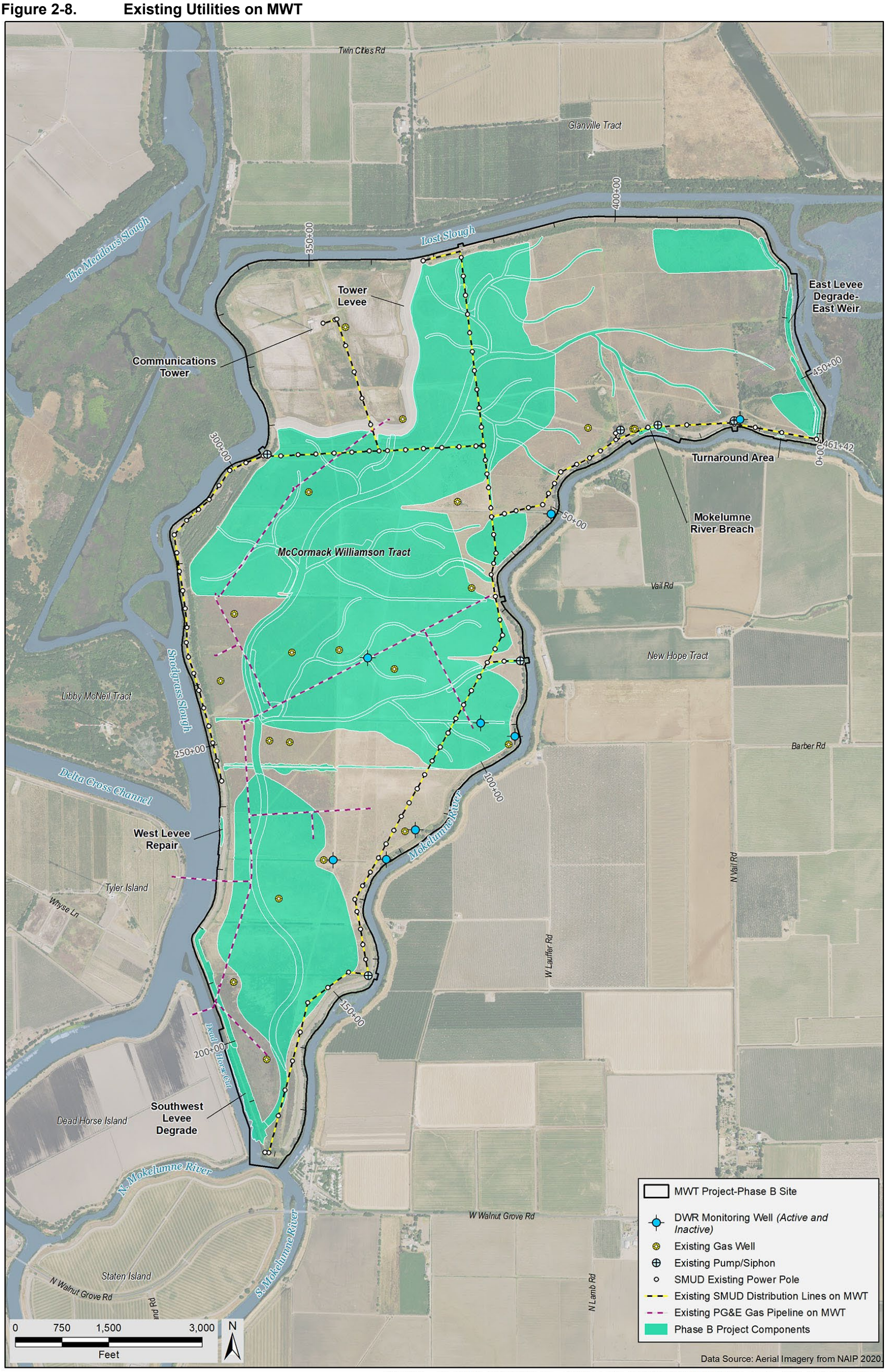

Figure Source: GEI Consultants, Inc. 2022.

Note: Additional gas wells and utility lines may be located on MWT that are not shown on the figure.

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- **DHI Connection.** Requires two poles–one pole on DHI and another on the opposite/east bank on Tyler Island. Two 100- to 115-ft-tall tubular steel poles would be used to span the waterway at a height that allows vessels to pass underneath the electrical conductor. Trimming or removing riparian vegetation may be required. Access would be provided via existing roads from the west on DHI and from the east on Tyler Island.

- **Walnut Grove Feeder Connection.** This route is anticipated to require installing approximately 11 new poles, and guy wires if wood poles are used, on MWT. New vegetation growing within the alignment may need to be maintained. Access would be provided via the existing levee crest road.

- **East Connection Option 1.** This option requires approximately six poles and guy wires if wood poles are used. One end of the alignment starts on the north bank of the Mokelumne River and the alignment then crosses a small water feature extending north from the river. Riparian vegetation along the north bank of the Mokelumne River and both banks of the water feature may require removal. Access would be provided from Levee Road to the south and Franklin Boulevard to the east. Access overland from Franklin Road would also need to be maintained.

- **East Connection Option 2.** This option also requires approximately six poles and guy wires if wood poles are used. Steel poles are likely needed to create a longer/taller span across Lost Slough. The height of these poles is currently unknown. Riparian vegetation may need to be removed along Lost Slough and a tributary slough/drainage at the southern part of this segment. The pole north of Lost Slough would be accessed by Twin Cities Road and existing roads within agricultural areas. The segment south of Lost Slough would be accessed by Levee Road to the south and possibly I-5 to the east. Access overland from these existing roads would also need to be maintained and improvements may be needed.

2.3 Phase B Project Construction

Phase B project construction is anticipated to require up to 3 years. Construction would be conducted in the dry season each year, which is typically April or May through October or whenever conditions are too wet to continue working. Construction equipment would be mobilized and demobilized each year of construction. Construction would begin with work on the MWT interior before the levees are modified and MWT is inundated in the following year(s). New SMUD distribution line segments would likely need to be constructed first to maintain existing power service. Once the new connections are in place and fully functional, decommissioning of the existing distribution lines on MWT would occur. Interior grading would then be performed to modify the landform for habitat restoration. Decommissioning of other utilities on MWT, including abandoned gas lines and gas wells, would occur when relocating SMUD lines or during interior grading. The levee modifications would be constructed after interior grading. When levee modifications are complete, the interior would be opened for inundation. However, there could be a year or so delay after interior grading to help promote habitat restoration on the interior before levee modifications and inundation of the tract interior. Construction would be conducted 5 days per week during daylight hours and typically 8 hours per day.

Ground disturbance would primarily occur within the footprint of Phase B components, including excavation, placement of fill and rock, grading, and other activities involving heavy equipment use. However, some construction would occur outside of this area for hauling and vehicle access, staging equipment, cutting and capping gas lines, removing existing SMUD distribution lines, and potentially to deactivate gas wells. Specific construction activities are described below.

The approximate construction phasing and sequence is shown below. Construction equipment that would be used includes pickup trucks, line trucks, backhoes, cranes, truck-mounted augers, cement trucks, dump trucks, flatbed trucks, vegetation mower, scrapers, excavators, water trucks, bulldozers, tractors, brush chippers, loaders, sheepsfoot rollers, motor graders, hydro mulchers, vibratory hammers, and haul trucks. See **Appendix B** for a full list of construction equipment that would be used during each construction phase.

Phase 1 – Relocate SMUD Distribution Lines and Decommission Utilities on MWT

- Install Dead Horse Island Distribution Line Connection
- Install Walnut Grove Feeder and East (Option 1 or 2) Connection Distribution Lines
- Remove MWT Distribution Line on MWT
- Decommission Inactive Gas Wells, Gas Lines, Groundwater Monitoring Wells, and other Utilities on MWT (begins either in Phase 1 or 2)

Phase 2 – Modify Landform and Restore Habitat

- Begin/Continue Decommissioning Inactive Gas Wells, Gas Lines, Groundwater Monitoring Wells, and other Utilities on MWT during Landform Modifications (if not completed in Phase 1)
- Excavate Tidal Channels
- Excavate Subtidal Borrow Area
- Construct Marsh Plain
- Construct Riparian Berms
- Construct Riparian Floodplains

Phase 3 – Levee Modifications and Landside Levee Re-Sloping

- Degrade MWT East Levee and Enhance Landside Slope
- Degrade MWT Southwest Levee and Enhance Landside Slope
- Breach Mokelumne River Levee
- Repair MWT West Levee
- Place Levee Roadway Aggregate Base

Phase 4 – Other Activities

- Construct Turnaround Area
- Construct Dewatering Station for Northwest Corner (Optional - See Section 2.4.3)

Levee Modification and Habitat Restoration Construction (Updated)

Equipment staging would occur along the MWT levee crest road and within the tract interior. Material generated from excavation and to be used for constructing project components would be used immediately at adjacent areas onsite or temporarily stockpiled onsite before being transported to the final location elsewhere onsite.

Interior Grading and Tidal Channel Network

The subtidal borrow area and tidal channel excavations are anticipated to extend up to approximately 7 ft below the existing ground surface. Excavators would be used for excavations that encounter groundwater. No groundwater would be pumped or discharged. Excavated material would be used as fill to construct marsh plains, riparian berms, and riparian floodplains. Material excavated for tidal channels would be spread locally, while subtidal borrow would be transported from the southern extent to fill areas elsewhere on the MWT interior. If required, additional sources of borrow material (i.e., not excavated for the project) would be sourced from the Grizzly Slough project.

Levee Modifications and Landside Levee Re-sloping

Levees would be excavated and areas receiving RSP would be over-excavated to install RSP. Soil excavated from degrading the MWT East and Southwest Levees would be used for re-sloping the landside of the non-degraded segments of the same levees and other construction activities, to the extent possible. Wet soil excavated underwater for levee modifications would be placed on the re-sloped benches (on the landside of levees) and enclosed with sediment fencing and fiber rolls. Soil would then be leveled after it dries. Equipment would not be operated in water. In-water excavations would be timed, to the extent possible, with low tide. Silt curtains or similar controls would be deployed around in water excavation to reduce turbidity and total suspended solids; and if necessary, would be moved as the working area shifts to different locations.

Degrade MWT East Levee to Function as a Weir

Degrading would begin by excavating and installing RSP above the MHHW elevation in dry conditions. A small amount of excavation and installation of RSP would then occur below the MHHW elevation. Along the length of the degraded levee, the slope of the Lost Slough side of the levee would be excavated down to the existing Lost Slough bed and RSP would be installed. Work below the MHHW elevation and on the slope of the Lost Slough side of the levee may occur in water. The timing of the excavation below MHHW, down to elevation 5.1 ft, would be coordinated with the timing of the other levee modifications that result in inundation of the MWT.

Degrade MWT Southwest Levee to Match Elevation of Island Floor

Degrading would begin by excavating the upper levee, extending down to approximately elevation 7.0 ft, in dry conditions. Next, a sediment bench located just west of the levee, extending about 50 ft into Dead Horse Cut, would be excavated below the MHHW elevation in water. Excavation would occur by either barge mounted excavator or a land-based excavator. Then, the lowered landside levee would be excavated in dry conditions.

Lastly, the remaining lowered waterside levee would be excavated, partially in water. The first excavation would begin with a small degrade at the downstream end of the levee degrade from approximately elevation 7.0 ft to elevation 3.5 ft or lower, below the MHHW elevation, to allow for controlled inundation of MWT. The short first segment of this excavation would be timed with a low tide which would allow the island to flood. After the water elevation in Dead Horse Cut and the MWT have equalized, the excavation would progressively deepen to the finish grade at the island floor, while allowing for the controlled inundation of MWT without causing significant scour to the interior or uncontrolled breach at the levee degrade location.

Soil excavated during the last phase would be placed on re-sloped banks in areas above elevation 6.0 ft, above the MHHW elevation. If needed, some soil would be placed underwater by extending the width of the re-sloped bench beyond 30 ft. Soil placed underwater would be enclosed with a silt curtain or similar controls.

Breach Mokelumne River Levee

Work would begin by excavating and installing RSP above the MHHW elevation in dry conditions. A small amount of excavation and installation of RSP would then occur below the MHHW elevation. Work below the MHHW elevation may occur in water. The timing of the excavation down to elevation 4.5 ft would be coordinated with the timing of the other levee modifications that result in inundation of the MWT.

Relocate SMUD Distribution Lines (New)

Construction activities to relocate distribution lines includes removing poles and electrical conductor from distribution lines on MWT that are being taken out of service; surveying and staking new easements for the three new distribution line connections; removing woody vegetation from the new easement, if necessary; identifying pole sites and pull and tension sites; and installing new poles and electrical conductor. The requirements for construction areas are discussed below, but further design of the distribution lines is needed to identify specific areas where ground disturbance would occur.

For removal of existing distribution lines on MWT, the old electrical conductor would be removed from the poles and hauled offsite for recycling or disposal. Up to approximately 121 old poles would be removed from the ground using a pole jack (a 10-inch by 18-inch hydraulic jack mounted on a line truck) and may be cut into segments to facilitate disposal. The holes would be backfilled with soil using hand tools.

New wood or steel poles (except 100- to 115-ft-tall poles, which are discussed in the section below) would be framed and any anchors and guy wires installed before the pole is set. SMUD would excavate pole holes and any necessary anchor holes using a machine auger and line truck. An auger drill, slightly larger in diameter than the pole, would be used to excavate the hole; very little additional ground disturbance would be needed. Typically, the hole's diameter is approximately 24 inches and setting depths range from 5 to 14 ft. However, these depths may vary depending on the type of pole and engineering and design constraints. The excavated soil would be used to backfill the pole hole and the excess soil would be spread out onsite or hauled offsite and disposed of appropriately.

SMUD workers would string new electrical conductor after all the poles in the new line are set, using travelers that are attached on the cross arms on each pole. Conductor would be pulled through the travelers using rope and either a reel trailer or a payout reel from a pull site (travelers would be installed on the pole when framed). The temporary pull sites would be approximately 100 ft square (0.23 acre) in size and locations would be determined based on the final alignments. After the conductor is strung through the travelers, the insulators would be installed, the conductor would be permanently attached to the insulators, and the travelers would be removed. Installing 1,000 ft of new distribution line would take approximately 2 to 3 days.

To install a 100- to 115-ft-tall tubular steel pole, up to a 9-ft-diameter hole would be augured up to 30 ft deep using a truck-mounted machine auger. The excavated soil would be stored onsite adjacent to the hole. An 18-inch-diameter steel reinforcing cage would be lowered into the hole by a crane. Approximately 1,900 cubic ft of concrete would be poured from a cement truck to form the new reinforced concrete foundation. New electrical components (cross arms, pins, insulators, etc.) would be attached to the tubular steel pole, which would then be lifted to an upright position by a crane and bolted to the concrete foundation by workers using handheld power tools.

Soil excavated from the tubular steel pole hole would be spread out onsite in an area 50 ft by 30 ft or hauled offsite for disposal. For installing a tubular steel pole, a temporary work area approximately 150 ft square (0.52 acre) would be used for operating the crane, staging equipment, and stockpiling soil. The permanent foundation would occupy an estimated 64 square ft. Installing a typical 100- to 115-ft-tall tubular steel pole would take approximately 4 weeks.

Construction Quantities, Equipment, and Personnel (Updated)

The approximate quantities of excavation/borrow at MWT, imported borrow, earthen fill, and imported rock, including RSP and aggregate base rock, are identified in **Table 2-2**. The project would require approximately 942,425 cubic yards (cy) of earthen fill that would primarily be sourced from onsite excavations. Up to 33,000 cy of fill from the Grizzly Slough project[4] may be imported, requiring up to an estimated 2,357 truck hauling trips. Approximately 20,500 cy of rock would be imported to the project site during construction of levee modifications and the turnaround area, resulting in an additional 1,465 truck hauling trips to the project site.

[4] Import of fill from the Grizzly Slough Project was covered in the North Delta EIR and only hauling is covered in the Supplemental EIR.

Table 2-2. Phase B Project Construction Borrow and Fill Material (cubic yards)

Construction Activity	Onsite Excavation/Borrow	Imported Borrow	Earthen Fill	Imported Rock[1]
Degrade MWT East Levee and Enhance Landside Slope	36,800	–	9,750	21,600
Breach Mokelumne River Levee	8,300	–	–	2,700
Degrade MWT Southwest Levee and Enhance Landside Slope	69,650	–	23,200	1,650
Repair MWT West Levee	–	–	2,300	65
Excavate Tidal Channel Network	405,310	–	–	–
Excavate Subtidal Borrow Area	438,400	–	–	–
Construct Marsh Plain, Riparian Floodplains, and Riparian Berms	–	–	903,525	–
Import Borrow Material from Other Sources (Optional)	–	33,000	–	–
Construct Turnaround Area	–	–	–	50
Place Levee Roadway Aggregate Base	–	–	–	10,240
Total	*958,460*	*33,000*	*938,775*	*36,305*

Notes: All units shown are approximate cubic yards; MWT=McCormack-Williamson Tract.
Quantities are based on lowering a 1,500-ft-long section of the MWT Southwest Levee.
[1] Imported rock includes rock slope protection and aggregate base.

2.4 Phase B Project Operations and Maintenance

MWT is within the Cosumnes River Preserve. The Cosumnes River Preserve is cooperatively managed by a partnership of the Bureau of Land Management, DWR, CDFW, SLC, Sacramento County, The Nature Conservancy, and Ducks Unlimited. Current management of the MWT is subject to the Cosumnes River Preserve Long Term Management Plan, which is in the process of being updated; however, land management practices applicable to MWT, such as weed control, will remain the same.

The project has long been intended as a process-based restoration project that would reestablish natural hydrology to promote natural recruitment of native intertidal and riparian vegetation, rather than a project that would rely on intensive site planting and irrigation to establish native vegetation. Most tule and cattail recruitment is anticipated to occur naturally with establishing wetland hydrology, whether it occurs during an optional pre-breach managed marsh establishment phase, or after reestablishing tidal hydrology on the tract via levee breaches. In either case, supplemental planting and/or seeding may occur on an adaptive management basis, if deemed necessary to speed up the process of native vegetation establishment. Following levee breaching, the phases of vegetation establishment, maintenance and monitoring are defined as follows: Years 1 to 5: Short-term Establishment Period, Years 5 to 10: Mid-term Establishment Period, and After Year 10: Long-term Management Phase. During the Mid- and Long-term Establishment Phases, long-term management activities will be funded through DWR's Delta Levees Long-term Management Program or other DWR funded activities and levee work, if necessary, through a combination of funding from DWR's Delta Levees Maintenance Subventions and Delta Levees Long-term Management programs. RD 2110 will continue to operate and maintain the levees with funding provided by DWR.

The Adaptive Management Plan provided with the North Delta EIR was supplemented with an Adaptive Management Framework prepared in 2018 (Environmental Science Associates 2018). The framework document provides performance measures, management triggers, monitoring measures and metrics, a monitoring schedule, adaptive management triggers and responses (including land management and maintenance actions), and reporting. Using the Adaptive Management Framework and updated design for Phase B, DWR is preparing an updated Adaptive Management Plan, which would be finalized after CEQA compliance and permits are obtained for the project─allowing for applicable conditions of mitigation measures and permit terms to be incorporated into the plan.

The remainder of this section discusses updates to invasive plant control, irrigation, and pumping of water from the northwest corner of MWT to manage ponding of groundwater and enhance habitats. Lastly, the anticipated habitat revegetation and evolution based on the current Phase B design is presented.

2.4.1 Invasive Plant Control (Updated)

Targeted control of terrestrial and aquatic invasive plants would be an essential element of site management and maintenance for riparian habitat establishment after construction. Selective weed control and site management methods that may be employed to facilitate native species growth and recruitment while reducing target invasive cover include use of selective herbicides, spot spraying, manual weed removal, timed mowing/string trimming, and prescribed grazing where appropriate.

In tidal marshes and shallow subtidal aquatic areas, growth of invasive aquatic plant species (i.e., submerged aquatic vegetation and floating aquatic vegetation) may compete with emergent marsh vegetation during the early establishment phase. MWT is within a current aquatic weed management area managed by CDBW, and CDBW would conduct aquatic vegetation management within MWT when it is tidally inundated. DWR contributes funds to CDBW to manage invasive aquatic weeds. Tidal channels excavated for the project on MWT would be designed to accommodate boat access by CDBW for this purpose.

2.4.2 Irrigation (Updated)

No irrigation is needed for naturally recruited native vegetation. Woody riparian plants, including cottonwoods, willows, and mulefat, would readily establish and persist without any irrigation if they establish via natural recruitment after flood events, when seed is deposited on bare mineral soil. Plantings are not proposed for Phase B but could be identified during adaptive management. As discussed in the North Delta EIR, plantings, if determined for Phase B during adaptive management, may be irrigated for an establishment period of approximately 3 years. The North Delta EIR considers irrigation using existing pumps and siphons. Alternatively, temporary mobile pumps with screens meeting CDFW and National Marine Fisheries Service (NMFS) fish screen criteria may be used to extract irrigation water from adjacent waterways, and have been added to the project for Phase B.

2.4.3 Water Management in the Northwest Corner of MWT (New and Optional)

The area in the northwest corner of MWT contains a communications tower and is currently protected from tidal and fluvial inundation by the Tower Levee constructed as part of the Phase A project. As a result of being used as a borrow site for Phase A construction, the northwest corner of MWT has relatively low site elevations and is graded to drain to a drainage culvert with headwall and screw gate through the southwest corner of the Tower Levee. When the MWT becomes tidally inundated, this culvert would no longer passively drain the northwest corner because elevations are lower than projected MLLW elevation (3.5 ft), and the northwest corner would likely become significantly wetter.

Under the Phase B project, to retain access to the tower within the northwest corner, a drainage pump may be installed and operated for active water management and drainage for at least the duration of the communications tower lease (until 2032). An existing onsite pump may be re-used, if determined to be appropriate for this purpose. This drainage pump would extract excess accumulated water from the toe ditch on the inside of the Tower Levee and discharge to the tidal portion of the MWT.

2.4.4 Anticipated Habitat Evolution (Updated)

Inundation of MWT after construction of the current Phase B project would differ from discussions in the North Delta EIR, due to changes in design of levee degrades/breaches and landform modifications, hydrologic conditions at MWT, and updated hydraulic modeling. The natural evolution of habitat at MWT now expected after construction of the Phase B project is shown in **Figure 2-9.** The anticipated habitat types, acreages on MWT, and characteristics are summarized below.

- **Subtidal Open Water/Shallow Subtidal (Approximately 400 to 600 acres).** Land elevations below the projected MLLW elevation (3.5 ft) on MWT would become subtidal permanent open-water habitat. Very shallow subtidal areas (land elevations less than 3 ft below MLLW) may gradually vegetate partially with tules from adjacent intertidal marsh areas. Some small patches of subtidal aquatic habitat would occur within the scour pond and cottonwood forest borrow site depressional areas and within the excavated tidal channel network intersecting the enhanced tidal marshplains, while the remainder would occur within the southern portion of MWT, which has the lowest existing land elevations.

- **Tidal Marsh (Approximately 600 to 900 acres).** Tidal marsh dominated by tules with some cattails and other emergent wetland plants is anticipated to establish in the intertidal zone between the projected MLLW and MHHW elevations (between 3.5 and 5.6 ft). Graded subtidal channels would bisect tidal marsh plains to increase marsh-water edge habitat for improved fish habitat quality and increased aquatic food web benefits, and additional dendritic tidal channels are expected to form spontaneously over time.

Figure 2-9. Updated Project Anticipated Habitat Evolution

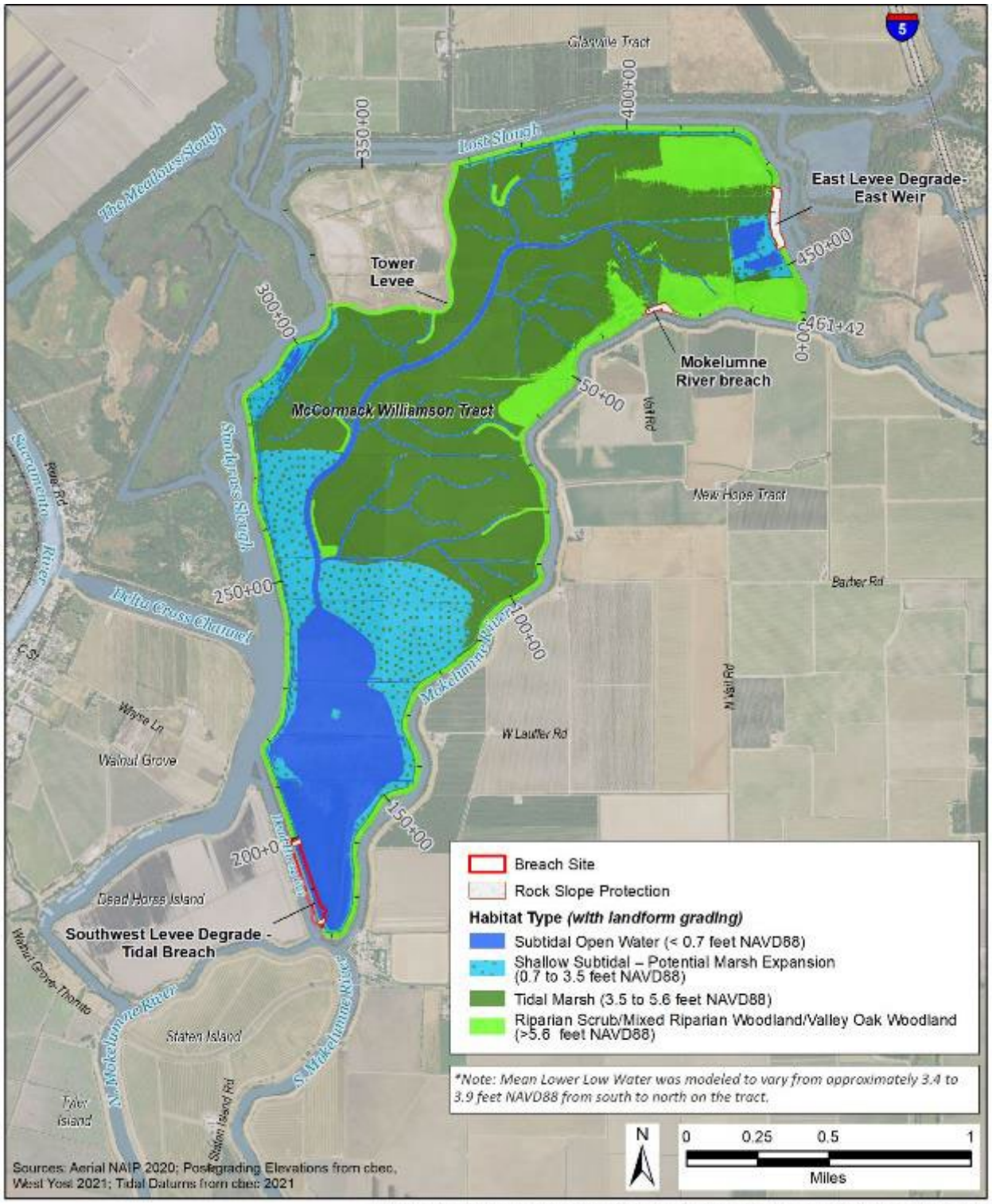

Figure Source: GEI Consultants, Inc. 2021.

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- **Riparian Scrub/Mixed Riparian Woodland/Valley Oak Woodland (Approximately 175 to 250 acres).** It is anticipated that most acreage within the site that occurs above the projected MHHW (5.6 ft) would become vegetated with woody riparian species and some seasonal herbaceous riparian wetlands. Riparian habitats would occur in a patchy mosaic including riparian scrub, dominated by short stature willows in wet areas or scrub/shrub species in upland areas and mixed riparian woodland, dominated by cottonwood and black willow. Herbaceous riparian wetlands may be more prevalent in the initial years post-inundation, but are expected to become vegetated with woody riparian habitats via processes of natural recruitment and vegetation succession in subsequent years. Riparian scrub, mixed riparian woodlands, and valley oak woodlands currently co-occur in diverse mosaics on the tract with no clear elevational zonation. Because most riparian vegetation that would occur on the MWT post-project would be either preserved/enhanced in place or restored via fluvial hydrology restoration and subsequent natural recruitment (not designed and actively planted), specific acreages of subtypes of woody riparian habitats have not been projected.

2.5 Phase B Environmental Commitments and CALFED Programmatic Mitigation Measures

Environmental commitments related to the fish stranding management plan and dredging activities in rivers have been removed, since they are no longer relevant to the Phase B project. Cofferdams are no longer proposed for dewatering and have been removed from CALFED Programmatic Mitigation Measures. DWR also identified CALFED Programmatic Mitigation Measures applicable to vegetation and wetlands, fisheries and aquatics, and wildlife in the North Delta EIR. These measures have been either incorporated into the Phase B design or used to develop new or updated mitigation measures in Section 3.6, "Biological Resources."

The following lists environmental commitments and CALFED mitigation measures from the North Delta EIR that are relevant to the analysis of Phase B in this Supplemental EIR.

- **Environmental Commitments:**
    - Uniform Building Code (UBC) Requirements
    - Access Point/Staging Areas
    - Erosion and Sediment Control Plan
    - Stormwater Pollution Prevention Plan (SWPPP)
    - Dust Control Plan
    - Integrated Mosquito Management
    - Construction-Area Fish Management Program
- **CALFED Programmatic Mitigation Measures:**
    - Flood Control and Levee Stability
    - Sediment and Scour Mitigation – Water Quality
    - Geology and Soils

Some aspects of relevant environmental commitments and CALFED mitigation measures have been updated based on changes to the Phase B project, primarily to designate implementation by RD 2110 during construction activities but remain substantially the same. The full text with updates is provided in **Appendix A**.

2.6 Regulatory Requirements, Permits, and Approvals

As the CEQA lead agency, DWR has the principal responsibility for approving and carrying out the proposed project and for ensuring that CEQA requirements and all other applicable regulations are met. RD 2110 is anticipated to play a key role in project implementation and be the applicant for the project permits. Permitting agencies that may have permitting approval or review authority over portions of the proposed project and the relevant potential approvals and processes anticipated to be required are listed below:

- **USACE, Clean Water Act (CWA) Section 404 Permit**. This permit is required for discharge of dredge and fill material into waters of the United States.
- **Endangered Species Act (ESA) Section 7 Consultation.** Consultation with NMFS and U.S. Fish and Wildlife Service (USFWS) is required for possible effects on Federally listed species pursuant to Section 7 of the ESA.
- **National Historic Preservation Act (NHPA) Section 106 Consultation**. Consultation and Programmatic agreement or Memorandum of Agreement is required for effects on cultural resources pursuant to Section 106 of the NHPA.
- **Central Valley RWQCB, CWA Section 401 Water Quality Certification.** This certification is required for issuance of Federal permits including the CWA Section 404 permit and discharge of dredge and fill material to waters of the State.
- **CFDW, Lake and Streambed Alteration Agreement.** This agreement is required for compliance with California Fish and Game Code (CFGC) Section 1602.
- **CVFPB, Encroachment Permit.** For work required to retain or maintain the intended functions of flood control facilities and of existing encroachments within and adjacent to Federal and State authorized flood control projects.
- **State Water Resources Control Board (SWRCB), CWA Section 402 - Construction General Permit.** This permit is required for projects that disturb 1 acre or more of soil. Construction activity subject to this permit includes clearing, grading, and disturbances to the ground such as stockpiling or excavation. A Storm Water Pollution Prevention Plan (SWPPP) must be prepared and implemented.
- **Sacramento County, Grading Permit.** The project may require a grading permit from Sacramento County.

- **Delta Stewardship Council, Consistency Determination.** The MWT project was certified as a covered action under the Delta Protection Plan on November 26, 2018. A new consistency determination is anticipated to be required for the current Phase B project.

- **State Lands Commission Lease.** This approval is issued for the lease of State-owned lands including tidally submerged lands.

Chapter 3. Environmental Setting and Impact Analysis

This chapter describes the approach to the environmental analysis (including format, terminology, and topic areas not further discussed) and provides relevant supplemental environmental setting and regulatory information, supplemental environmental impact analyses, and mitigation measures (including updated and new measures) for the proposed Phase B project.

The reader is referred to the individual technical sections regarding specific assumptions, methodology, and significance criteria (thresholds of significance) used in the analysis and determination of impact significance. Sections 3.1 through 3.12 also identify residual significant impacts (i.e., impacts that would be significant and unavoidable despite the inclusion of all feasible mitigation measures).

Approach to the Supplemental Environmental Analysis

The State CEQA Guidelines (CCR Section 15126.2) state that an EIR must identify and focus on direct and indirect significant effects of a project on the physical environment, giving due consideration to both the short- and long-term effects. In addition, Section 15163(b) states that a supplement to an EIR need contain only the information necessary to make the previous EIR adequate for the project as modified.

Consistent with these State CEQA Guidelines, this Supplemental EIR identifies and focuses on the Phase B project and modifications that could result in new or substantially more severe significant direct and indirect effects on the physical environment, including short- and long-term effects, that were not analyzed in the 2010 North Delta EIR. Updates to the environmental setting, impact discussions, and mitigation measures in this chapter are provided only where information or project components have been modified and where discussion of these changes is necessary to provide sufficient analysis of impacts. For the purposes of this analysis, short-term effects are generally temporary and associated with construction activities, and long-term effects are permanent effects that would result from Phase B project operations and maintenance.

The North Delta EIR included and evaluated a reasonable range of alternatives in compliance with State CEQA Guidelines, and the project's purpose and objectives have not changed. No further alternatives analysis is needed, nor was conducted, for this Supplemental EIR. Consequently, this environmental analysis focuses solely on changes to the Phase B project and the physical environment on MWT since recent flooding and implementation of Phase A project components.

This Supplemental EIR revisits each resource topic from the North Delta EIR, including cumulative effects, where additional analysis is needed to determine if the Phase B project would result in new or substantially more severe significant effects that were not analyzed in the North Delta EIR. As necessary, this document updates or expands upon impact discussions in the North Delta EIR and describes any new impacts attributable to the proposed project. Since the North Delta EIR was prepared, the State CEQA Guidelines have been amended and the following new resource topics have been added: Energy, GHG Emissions, Tribal Cultural Resources, and Wildfire. This Supplemental EIR addresses impacts in these four new topic areas from all Phase B project components.

The environmental analyses from the previous 2010 North Delta EIR and addendum are incorporated by reference into the environmental analyses in this Supplemental EIR as needed. Where material from documents incorporated by reference is used in this Supplemental EIR, the relationship of the referenced material to the analyses in this Supplemental EIR is explained.

Format of the Environmental Analysis

Each environmental issue analysis in **Chapter 3.0** contains the following components but includes only the necessary information to supplement the North Delta EIR (and Addendum) and meet State CEQA Guidelines:

- ***Environmental Setting*** presents the existing environmental conditions within the footprint of Phase B components and the surrounding project area, as necessary to supplement the North Delta EIR in accordance with State CEQA Guidelines Section 15125. The extent of the environmental setting area evaluated (the project study area) differs among resources, depending on the locations where impacts would be expected. For example, water quality impacts are assessed for the basin (macro-scale), as well as the site vicinity (micro-scale), whereas aesthetic impacts are assessed for the project vicinity only.

- ***Regulatory Setting*** presents the Federal, State, and local laws, regulations, plans, and policies potentially relevant to each issue area that require updating since the North Delta EIR was prepared.

- ***Environmental Impacts and Mitigation Measures*** presents the significance criteria, analysis methodology, issues not discussed further in this Supplemental EIR, and impact analysis, as follows:

    - ***Significance Criteria*** describes the basis for determining the significance of the environmental impacts in accordance with State CEQA Guidelines Sections 15126, 15126.2, and 15143. The significance criteria used in this Draft Supplemental EIR were developed using criteria from the North Delta EIR for consistency, where still applicable, as well as criteria in Appendix G (Environmental Checklist) of the State CEQA Guidelines, as amended in 2019.

    - ***Analysis Methodology*** describes the methods, process, procedures, and/or assumptions used to formulate and conduct the impact analysis.

- ***Issues Not Discussed Further in this EIR*** identifies environmental issues related to the significance criteria where it is determined Phase B changes are applicable to an impact analysis in the North Delta EIR but would not change the evaluation. These issues and the relationship to the project are briefly described and not addressed further in this Supplemental EIR.

- ***Impacts Analysis*** describes relevant environmental impacts associated with the issue and identifies the level of each environmental impact by comparing the effects of the proposed project to the environmental setting. Project impacts are organized numerically in each subsection. A bold-font environmental impact title precedes the discussion of each impact and its level of significance follows the discussion of each impact. The impact discussion includes the substantial evidence supporting the impact significance conclusion.

- ***Mitigation Measures*** includes specific details of the identified mitigation and identifies timing and responsible parties.

Impact Terminology

This Draft Supplemental EIR uses the following terminology to describe environmental effects of the Phase B project.

- A finding of no impact is made when the analysis concludes that the project would not affect the particular environmental resource or issue.

- An impact is considered less than significant if the analysis concludes that there would be no substantial adverse change in the environment and that no mitigation is needed.

- An impact is considered less-than-significant with mitigation if the analysis concludes that there would be no substantial adverse change in the environment with the inclusion of mitigation measures described.

- An impact is considered potentially significant if the analysis concludes that there could be a substantial adverse effect on the environment.

- An impact is considered significant and unavoidable if the analysis concludes that there could be a substantial adverse effect on the environment and no feasible mitigation measures are available to reduce the impact to a less-than-significant level.

- Mitigation refers to specific measures or activities adopted to avoid or compensate for an impact, or reduce its severity.

- A cumulative impact can result from the incremental impact of a project when added to other related past, present, or reasonably foreseeable future projects. Significant cumulative impacts may result from individually minor but collectively significant projects.

Resource Topics Not Discussed Further

The following resource topics were found to have no changes in impacts or new impacts related to the current Phase B project as analyzed in the North Delta EIR. Therefore, they are not discussed further in this Supplemental EIR.

Population and Housing (North Delta EIR Section 5.2)

The current Phase B project includes changes to levee modifications and habitat restoration proposed at MWT in the North Delta EIR and new project locations for utility relocation and decommissioning. All Phase B project activities would occur outside of established communities. The SMUD distribution lines currently located on the MWT would be relocated to the following three locations: 1) west of MWT on DHI and Tyler Island, 2) in the northwest corner of MWT from the Walnut Grove Feeder Distribution Line, and 3) east of MWT for private properties; however, relocation of SMUD distribution lines at these locations would not impact existing housing or displace people. None of the changed/new Phase B activities would result in impacts not already addressed in the North Delta EIR related to displacement of housing, displacement of people, or disproportionate impacts on low-income or minority populations.

Utilities and Public Services (North Delta EIR Section 5.3)

The current Phase B project would not change the existing analysis detailed in the North Delta EIR because activities to decommission and relocate utilities have been incorporated as part of the project, and electric service would not be interrupted because the relocated SMUD distribution lines would be in place before removing the existing distribution lines on MWT. Additionally, the gas wells and gas pipelines on MWT are not currently in use. There would be off haul of materials from the decommissioning of SMUD power poles and from levee modification; however, the North Delta EIR covers the small amount that would require disposal at a landfill. The small amount of off haul associated with project activities would not decrease the existing lifespan of landfills in the project vicinity. Additionally, excavation and fill onsite is intended to be balanced and would require minimal disposal. Impact PUB-1, "Increase in Energy Use," is discussed in Section 3.5, "Noise" of this Supplemental EIR.

Wildfire (New CEQA Resource Topic)

The State CEQA Guidelines were amended in 2019, after the preparation of the North Delta EIR, to include a separate category for Wildfire. The Wildfire analysis is based on whether a project is located in or near State responsibility areas or lands classified as very high fire hazard severity zones. If a project is proposed in one of these areas, then specific criteria in State CEQA Guidelines Appendix G would be used to evaluate the significance of the potential impacts. However, the proposed project is not located in or near State responsibility areas or lands classified as very high fire hazard severity zones. Therefore, the project would have no impact on Wildfire and issues related to Wildfire are not be discussed further in this Supplemental EIR.

North Delta EIR Impact and Mitigation Measure Relevance and New Impacts and Mitigation Measures

The environmental analysis of the Phase B project contained in Chapters 3 and 4 of this Supplemental EIR addresses many of the impacts and mitigation measures from the North Delta EIR; however, there are also impacts and mitigation measures from the North Delta that are not related to the Phase B project and new impacts and mitigation measures added to the Supplemental EIR.

Table 3.0-1 identifies impacts in the North Delta EIR and their relevance to the Supplemental EIR and new impacts added to the Supplemental EIR. The cumulative impact analysis is updated for Phase B in Chapter 4 and is not shown in this table. The resources sections not discussed further in the Supplemental EIR, as identified above–population and housing, utilities and services, and power production and energy[5]–would have no change in the level of impact on these resources are not addressed in Table 3.0-1.

Table 3.0-2 identifies mitigation measures in the North Delta EIR and their relevance to the Supplemental EIR and new mitigation measures added to the Supplemental EIR.

[5] Power production is not a resource topic identified in CEQA, however, this is a section of the North Delta EIR.

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Table 3.0-1 North Delta EIR Impact Relevance and New Impacts

Impact	New Phase B Impact Added to SEIR	Relevant to Phase B and Updated in SEIR	Relevant to Phase B but Does Not Change in SEIR	Not Relevant to Phase B and Not Addressed In SEIR
Hydrology and Water Quality				
FC-1: Raise Flood Elevations and Increase the Frequency of Flooding.		●		
FC-2: Increase the Degree of Quantity of Seepage.		●		
FC-3: Increase the Degree or Quantity of Levee Settlement.			●	
FC-4: Increase the Degree or Quantity of Wind Erosion.			●	
FC-5: Increase the Degree or Quantity of Scour.		●		
FC-6: Increase the Degree of Quantity of Subsidence Adjacent to Levees.			●	
FC-7: Decrease Levee Inspection and Maintenance.			●	
FC-8: Decrease in Levee Stability from Proposed Construction Activities.		●		
FC-9: Decrease in Levee Stability from Non-Motorized Boating Activities.				●
GEOMORPH-1: Temporary Increase in Sediment Accumulation and Scouring during Levee Modifications.			●	
GEOMORPH-2: Increase in Sediment Accumulation in Channels as a Result of Levee Modifications.		●		
GEOMORPH-3: Increase in Sediment Accumulation on Land as a Result of Levee Modifications.		●		
GEOMORPH-4: Increase in Scouring on Levees and in Channels as a Result of Levee Modifications.		●		
GEOMORPH-5a: Increase in Scouring on Land as a Result of Levee Modifications (McCormack-Williamson Tract East Levee).		●		
GEOMORPH-5b: Increase in Scouring on Land as a Result of Levee Modifications (Mokelumne River Levee).		●		
GEOMORPH-5c: Increase in Scouring on Land as a Result of Levee Modifications (Dead Horse Island).		●		
GEOMORPH-6: Increase in Debris Accumulation Resulting in an Increase in Sediment Accumulation and Scouring.				●
GEOMORPH-7: Scour and Deposition Associated with Excavation and Restoration of the Grizzly Slough Property.				●
GEOMORPH-8: Increase in Scouring on South Fork Mokelumne River and Associated Increase in Deposition Downstream.				●

Impact	New Phase B Impact Added to SEIR	Relevant to Phase B and Updated in SEIR	Relevant to Phase B but Does Not Change in SEIR	Not Relevant to Phase B and Not Addressed In SEIR
WQ-1: Release of Pollutants during Construction and Dredging.		●		
WQ-2: Release of Organic Carbon.				●
WQ-3: Release of Methylmercury.		●		
WQ-4: Release of Pesticides.	●			
WQ-5: Change in Salinity.	●			
WSM-1: Changes in Water Uses as a Result of the Project.		●		
GW-1: Potential Increase in Groundwater Levels as a Result of Conversion of Farmland to Ecosystem Restoration.				●
GW-2: Potential Groundwater Seepage to Adjacent Islands/Tracts as a Result of Frequent Inundation of McCormack-Williamson Tract.		●		
Geology, Seismicity, Soils, and Mineral Resources				
GEO-1: Increase the Potential for Structural Damage and Injury Caused by Fault Rupture.			●	
GEO-2: Increase the Potential for Structural Damage and Injury Caused by Ground Shaking.			●	
GEO-3: Increase the Potential for Structural Damage and Injury as a Result of Development on Materials Subject to Liquefaction.		●		
GEO-4: Increase the Potential for Accelerated Runoff, Erosion, and Sedimentation as a Result of Grading, Excavation, and Levee Construction Activities.		●		
GEO-5: Increase the Potential for Structural Damage and Injury as a Result of Development on Expansive Soils.		●		
GEO-6: Increase Potential for Land Subsidence as a Result of Placement of Degraded Levee Materials or Additional Soil for Levee Construction on Peat Soils.			●	
GEO-7: Decrease Rate of Land Subsidence as a Result of Abandonment of Farming Activities.				●
GEO-8: Loss of Availability of a Known Mineral Resource or of a Locally Important Mineral Resource.			●	
GEO-9: Destruction of a Unique Paleontological Resource or Site.	●			
Transportation and Navigation				
TN-1: Temporary Increase in Traffic Delays, Increase in Road Hazards, and Changes in Circulation Patterns.				●

Impact	New Phase B Impact Added to SEIR	Relevant to Phase B and Updated in SEIR	Relevant to Phase B but Does Not Change in SEIR	Not Relevant to Phase B and Not Addressed In SEIR
TN-2: Deterioration of the Roadway Surface.			●	
TN-3: Construction of New or Improvement of Existing Roads.				●
TN-4: Changes in Circulation and Access.				●
TN-5: Changes in Navigation.				●
TN-6: Temporary Increase in Vehicle Miles Traveled During Construction.	●			●
Air Quality				
AIR-1: Generation of Pollutant Emissions in Excess of SMAQMD and SJVAPCD Threshold Levels.		●		
AIR-2: Exposure of Sensitive Receptors to Elevated Levels of Diesel Exhaust and an Increased Health Risk.		●		
AIR-3: Generation of Pollutant Emissions in Excess of *de Minimis* Threshold Levels.				●
AIR-4: Result in Other Emissions (Such as Those Leading to Odors) Adversely Affecting a Substantial Number of People.	●			
Noise				
NZ-1: Exposure of Noise-Sensitive Land Uses to Noise from General Construction Activities.		●		
NZ-2: Exposure of Noise-Sensitive Land Uses to Noise from Material Hauling Operations.		●		
NZ-3: Exposure of Noise-Sensitive Land Uses to Noise from Modified Pump Operations.		●		
NZ-4: Exposure of Sensitive Land Uses to Groundborne Vibration from Construction Activity.		●		
Biological Resources				
VEG-1: Loss or Disturbance of Valley/Fthill Riparian Land Cover Types.		●		
VEG-2: Loss or Disturbance of Nontidal Freshwater Emergent Wetland Land Cover Types.		●		
VEG-3: Loss or Disturbance of Tidal Perennial Aquatic Land Cover Types.		●		
VEG-4: Loss or Disturbance of Tidal Freshwater Emergent Wetland Land Cover Type.		●		
VEG-5: Establishment of Invasive Nonnative Plants.		●		
VEG-6: Loss of Disturbance of Special-status Species.		●		

Impact	New Phase B Impact Added to SEIR	Relevant to Phase B and Updated in SEIR	Relevant to Phase B but Does Not Change in SEIR	Not Relevant to Phase B and Not Addressed In SEIR
VEG-7: Loss of Disturbance of Perennial Grassland.		●		
Fish-1: Temporary Disturbance and Possible Mortality of Fish, including Special-status Species, as a Result of Construction Activities.			●	
Fish-2: Temporary Disturbance, Direct Injury, and Possible Mortality of Fish, including Special-status Species, as a Result of Accidental Spills of Construction Materials.			●	
Fish-3: Loss of Fish, including Special-status Species, from Direct Injury as a Result of Construction.			●	
Fish-4: Loss of Shaded Riverine Aquatic Cover as a Result of Construction.		●		
Fish-5: Increased Availability and Quality of Spawning Habitat for Splittail, Delta Smelt, and Other Floodplain-Spawning Species, as a Result of Project Operation.			●	
Fish-6: Increased Availability and Quality of Rearing Habitat for Juvenile Chinook Salmon, Splittail, and Delta Smelt, as a Result of Project Operation.			●	
Fish-7: Fish Entrapment or Delayed Migration from Project Operation.		●		
Fish-8: Potential for Loss of Native Fish from Predation as a Result of Project Operation.		●		
Fish-9: Forgone Water Diversion and Agricultural Discharges.			●	
Fish-10: Violate Salinity Standards to Protect Fish during Project Operations.	●			
WILD-1: Loss of Riparian-associated Wildlife Habitat.		●		
WILD-2: Loss of Tidal Freshwater Emergent Wetland – Associated Wildlife Habitat.		●		
WILD-3: Loss or Disturbance of Tidal Perennial Aquatics – Associated Wildlife Habitat.		●		
WILD-4: Loss or Disturbance of Nontidal Freshwater Emergent Wetland – Associated Wildlife Habitat.		●		
WILD-5: Loss of Agricultural Land and Ruderal-Associated Wildlife Habitat.			●	
WILD-6: Temporary Disturbance and Possible Mortality of Common Wildlife Species as a Result of Construction Activities.				●
WILD-7: Potential Effects on Greater Sandhill Crane as a Result of Loss of Agricultural Lands.		●		
WILD-8: Potential Effects on Valley Elderberry Longhorn Beetle.		●		
WILD-9: Potential Effects on Giant Garter Snake.		●		
WILD-10: Loss or Disturbance of Swainson's Hawk Nest or Foraging Habitat.		●		

Impact	New Phase B Impact Added to SEIR	Relevant to Phase B and Updated in SEIR	Relevant to Phase B but Does Not Change in SEIR	Not Relevant to Phase B and Not Addressed In SEIR
WILD-11: Loss or Disturbance of Nesting or Wintering Western Burrowing Owls.		●		
WILD-12: Loss or Disturbance of Raptor Nest Sites.		●		
WILD-13: Loss of Western Pond Turtle or Suitable Habitat.		●		
WILD-14: Loss of Tricolored Blackbird Nesting Habitat.		●		
WILD-15: Loss or Disturbance of California Black Rail or Suitable Nesting Habitat.		●		
WILD-16: Loss or Disturbance of Colonial Waterbird Rookeries.		●		
WILD-17: Loss or Disturbance of Aleutian Canada Goose.			●	
WILD-18: Loss or Disturbance of Wintering Bird.			●	
WILD-19: Loss or Disturbance of Migratory Birds.		●		
WILD-20: Loss or Disturbance of Bats and Bat Habitat as a Result of Construction Activities.		●		
WILD-21: Loss or Disturbance of Monarch Butterfly.	●			
WILD-22: Loss or Disturbance of Western Yellow-billed Cuckoo.	●			
Land Use, Agriculture, and Recreation				
LU-1: Loss of Farmland.		●		
LU-2: Operations-Related Impacts to Adjacent Farmland.				●
LU-3: Inconsistency with Agricultural Objectives of Local, Regional, and the State Plans.		●		
LU-4: Conflicts with General Plan Designations or Zoning.			●	
REC-1: Temporary Disruption of Recreational Boating Activities During Construction.				●
REC-2: Temporary Disruption of Recreational Boating Activities During Dredging Operations.				●
REC-3: Long-Term Increase in Recreational Boating Opportunities.				●
REC-4: Upgrade of Recreational Facilities at the Delta Meadows Property.				●
REC-5: Increased Public Awareness of Recreational Facilities and Public Access Points.				●
REC-6: Disruption of Boating Activities.	●			
Energy				
EN-1: Cause Wasteful, Inefficient, or Unnecessary Consumption of Energy Usage.	●			

Impact	New Phase B Impact Added to SEIR	Relevant to Phase B and Updated in SEIR	Relevant to Phase B but Does Not Change in SEIR	Not Relevant to Phase B and Not Addressed In SEIR
PUB-1: Increase in Use of Energy.	●			
Visual Resources				
VIS-1: Temporary Visual Change as a Result of Construction Activities.			●	
VIS-2: Permanent Changes in Viewshed.		●		
Public Health and Hazards				
PH-1: Releases of Hazardous Materials during Construction.			●	
PH-2: Potential Exposure to Currently Unidentified Contaminated Waters or Soils during Construction.		●		
PH-3: Increased Occurrence of Wildland Fires and Increased Emergency Response/Evacuation Times.				●
PH-4: Exposure of People to Mosquitoes.				●
PH-5: Potential Exposure to Known Hazardous Materials.	●			
Cultural and Tribal Cultural Resources				
CR-1: Destruction of Archaeological Sites P-39-324, P-39-4419, as a Result of Ground Disturbance.				●
CR-2: Destruction of Unevaluated Isolated Finds.				●
CR-3: Destruction of Cultural Resources along Unexamined Portions of the Downstream Levees.				●
CR-4: Damage to or Destruction of Site P-34-39 as a Result of Soil Removal.				●
CR-5: Damage to or Destruction of Cultural Resources in the Dixon Borrow Site.				●
CR-6: Damage to or Destruction of Architectural Resources in the New Hope Borrow Site.				●
CR-7: Damage to or Destruction of Archaeological Site P-34-36 as a Result of Soil Removal and Other Ground-Disturbing Activities.				●
CR-8: Damage to or Destruction of Archaeological Site P-34-37 as a Result of Grading.				●
CR-9: Destruction of Architectural Resources along Unexamined Portions of the Grizzly and Bear Slough Levees.				●
CR-10: Destruction of Submerged Cultural Resources as a Result of Channel Dredging.				●

Impact	New Phase B Impact Added to SEIR	Relevant to Phase B and Updated in SEIR	Relevant to Phase B but Does Not Change in SEIR	Not Relevant to Phase B and Not Addressed In SEIR
CR-11: Destruction of Cultural Resources as a Result of Dredge Spoil Disposals.				●
CR-12: Damage to or Destruction of Archaeological Site CA-Sac-76/H at the Delta Meadows Property.				●
CR-13: Damage to or Destruction of Archaeological Sites CA-Sac-47 and P-34-102.				●
CR-14: Damage to or Destruction of Architectural Resources in the Delta Meadows Property Area.				●
CR-15: Impacts on Previously Unidentified Human Remains.	●			
CR-16: Impacts on Previously Unidentified Cultural Resources within the New SMUD Distribution Line Locations.	●			
CR-17: Impacts on Previously Unidentified Archaeological Resources.	●			
TCR-1: Impacts on Tribal Cultural Landscape Site P-34-005225.	●			
TCR-2: Impacts on Previously Unidentified Tribal Cultural Resources.	●			
Greenhouse Gas Emissions				
GHG-1: Generate Greenhouse Gas Emissions, Either Directly or Indirectly, That May Have a Significant Impact on the Environment.	●			
GHG-2: Conflict with an Applicable Plan, Policy, or Regulation Adopted for the Purposes of Reducing Greenhouse Gas Emissions.	●			

Notes: SEIR=Supplemental EIR.

Table 3.0-2. North Delta EIR Mitigation Measure Relevance and New Mitigation Measures

Mitigation Measure	New Phase B Mitigation Measure Added to SEIR	Used for Phase B and Updated in SEIR	Used for Phase B but Does Not Change in SEIR	Not Used for Phase B and SEIR
Hydrology and Water Quality				
FC-1: Develop a Seepage-Monitoring Program and Control Seepage.		●		
FC-2: Provide Payment to Protect Dead Horse Island East Levee.	●			
WQ-2: Inspect Sediment and Turbidity Control Barriers Daily during Construction for Proper Function and Replace Immediately if Not Functioning Effectively.	●			
Geology, Seismicity, Soils, and Mineral Resources				
GEO-1: Conduct Geotechnical Evaluation for Sediments Susceptible to Liquefaction, and Design Project to Accommodate Effects of Liquefaction				●
GEO-2: Conduct Geotechnical Evaluation for Expansive Soils, and Design Project to Accommodate Effects of Expansive Soils.				●
Air Quality				
AIR-1: Implement all Mitigation Measures from the CALFED Bay-Delta Program Final Programmatic EIS/EIR.				●
AIR-2: Implement SMAQMD Requirement to Reduce NOx Emissions from Off-Road Diesel-Powered Equipment.		●		
AIR-3: Implement SMAQMD Requirement to Control Visible Emissions from Off-Road Diesel-Powered Equipment.				●
AIR-4: Implement SMAQMD Requirement to Pay an Offsite NOx Mitigation Fee.		●		
AIR-5: Consult with SMAQMD and SJVAPCD and Implement Approved Emissions Reduction Programs or Offsets to Reduce Operational Emissions.				●
AIR-6: Require Construction and Dredging Contractors to Use Equipment with Valid Statewide Portable Equipment Registrations or to Obtain an Operating Permit from the SMAQMD and SJVAPCD.				●
AIR-7: Consult with the SMAQMD and SJVAPCD to Conduct a Conformity Determination.				●
AIR-8: Implement the SMAQMD Basic Construction Emission Control Practices.	●			

Mitigation Measure	New Phase B Mitigation Measure Added to SEIR	Used for Phase B and Updated in SEIR	Used for Phase B but Does Not Change in SEIR	Not Used for Phase B and SEIR
Noise				
NZ-1: Limit Noise-Generating Construction Activity and Heavy Trucking to Daytime Hours.			●	
Biological Resources				
VEG-1: Replace Valley/Foothill Riparian Cover Types.		●		
VEG-2: Avoid and Minimize Impacts on Sensitive Biological Resources.		●		
VEG-3: Replace Emergent Wetland Cover.				●
VEG-4: Replace Tidal Perennial Aquatic Land Cover Types.				●
VEG-5: Replace Tidal Freshwater Emergent Wetland Cover Types.				●
VEG-6: Avoid Introduction and Spread of New Noxious Weeds during Project Construction and Dredging.		●		
VEG-7: Conduct Preconstruction Surveys for Special-status Plants.		●		
VEG-8: Avoid and Minimize Impacts on Special-status Species and Compensate for Special-status Species Loss.		●		
VEG-9: Replace Perennial Grassland.				●
Fish-1: Incorporate Instream Woody Material into Rock Slope Protection at Degraded Levee Sites.				●
Fish-2: Quantify and Replace Affected Shaded Riverine Aquatic Cover.		●		
Fish-3: Monitor for Fish Stranding and Fill Any Substantial Scour Pools Formed Following Large Flood Events.		●		
Fish-4: Development and Implement a Floodplain and Shallow-Water Tidal Marsh Habitat Restoration and Monitoring Plan.				●
WILD-1: Implement Mitigation Measure VEG-1, Replace Valley/Foothill Riparian Cover.		●		
WILD-2: Avoid and Minimize Effects on Nesting Birds during Construction and Maintenance.		●		
WILD-3: Minimize Impacts on Sensitive Biological Resources.		●		
WILD-4: Implement Mitigation Measure VEG-3, Replace Nontidal Freshwater Emergent Wetland Cover.				●
WILD-5: Compensate for Loss of Tidal Perennial Aquatic Habitat.				●

Mitigation Measure	New Phase B Mitigation Measure Added to SEIR	Used for Phase B and Updated in SEIR	Used for Phase B but Does Not Change in SEIR	Not Used for Phase B and SEIR
WILD-6: Replace Nontidal Wetland Land Cover Types.				●
WILD-7: Compensate for the Loss of Greater Sandhill Crane Foraging Habitat.				●
WILD-8: Perform Preconstruction and Postconstruction Surveys for Elderberry.				●
WILD-9: Avoid and Minimize Impacts on Elderberry Shrubs.		●		
WILD-10: Compensate for Unavoidable Impacts.		●		
WILD-11: Conduct Preconstruction Surveys for Giant Garter Snake.		●		
WILD-12: Minimize Construction-related Disturbances in the Vicinity of Occupied Habitat.		●		
WILD-13: Perform Preconstruction Surveys for Nesting Swainson's Hawks before Construction and Maintenance.		●		
WILD-14: Avoid and Minimize Construction-related Disturbances within ½ Mile of Active Swainson's Hawk Nesting Sites.		●		
WILD-15: Replace or Compensate for the Loss of Swainson's Hawk Foraging Habitat.		●		
WILD-16: Avoid Removal of Occupied Nest Sites.				●
WILD-17: Conduct Preconstruction Surveys for Burrowing Owls.		●		
WILD-18: Minimize Construction-related Disturbances near Occupied Nest Sites.		●		
WILD-19: Avoid or Minimize Disturbance to Active Nest and Roost Sites.				●
WILD-20: Create New or Enhanced Existing Suitable Burrows.		●		
WILD-21: Replace Lost Burrowing Owl Foraging Habitat.				●
WILD-22: Avoid and Minimize Construction-related Disturbances in the Vicinity of Occupied Habitat.		●		
WILD-23: Conduct Preconstruction Surveys for Tricolored Blackbird.		●		
WILD-24: Minimize Construction-related Disturbances in the Vicinity of Active Tricolored Blackbird Colonies.		●		
WILD-25: Conduct Preconstruction Surveys for California Black Rail.		●		
WILD-26: Minimize Construction-related Disturbances in the Vicinity of Active California Black Rail Nest Sites.		●		

Mitigation Measure	New Phase B Mitigation Measure Added to SEIR	Used for Phase B and Updated in SEIR	Used for Phase B but Does Not Change in SEIR	Not Used for Phase B and SEIR
WILD-27: Conduct Preconstruction Surveys to Locate Rookeries.		●		
WILD-28: Minimize Construction-related Disturbances within ¼ Mile of Active Rookeries.		●		
WILD-29: Avoid Removal of Occupied Rookeries.				●
WILD-30: Replace Lost Breeding Habitat.				●
WILD-31: Conduct Preconstruction Surveys for Bats.		●		
Land Use, Agriculture, and Recreation				
LU-1 and LU-2: Project Features for Farmland; Conservation Easement Agreement on Staten Island to Ensure Protection of Agricultural Land Within the Project Area and Continue Agricultural Practices on McCormack-Williamson Tract and the Grizzly Slough Property.				●
LU-3: Consultation with Landowners and Pole Placement to Minimize Agricultural Impacts.	●			
Public Health and Hazards				
PH-1: Properly Dispose of Contaminated Materials.		●		
Cultural and Tribal Cultural Resources				
CR-1: Implement Measures to Treat and/or Protect Previously Unidentified Human Remains, if Discovered.	●			
CR-2: Conduct Cultural Resource Survey and Implement Measures to Preserve, Replace, and/or Recover Any Significant Cultural Resources Prior to Project Implementation.	●			
CR-3: Implement Measures to Preserve, Replace, and/or Recover Any Significant Archaeological, if Discovered.	●			
TCR-1: Implement Measures to Avoid, Preserve, Treat, and/or protect any Previously Unidentified Tribal Cultural Resources, if Discovered.	●			

Notes: Mitigaiton strategies for cultural resources in the North Delta EIR are not shown on the table and are not used for Phase B.
SEIR=Supplemental EIR.

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3.1 Hydrology and Water Quality

This section provides updates to North Delta EIR Sections 3.1 "Hydrology and Hydraulics," 3.2 "Flood Control and Levee Stability," 3.3 "Geomorphology and Sediment Transport," 3.4 "Water Quality," 3.5 "Water Supply and Management," and 3.6 "Groundwater."

3.1.1 Environmental Setting

Hydrology and Hydraulics

The North Delta EIR describes the climate of the Mokelumne River, Cosumnes River, Dry Creek, and Morrison Creek watersheds; the characteristics of those drainages; climate change predictions; and hydraulics in the North Delta area (i.e., flow, stage, tidal effects, and effects from water control structures such as the Delta Cross Channel (DCC) and Lambert Road structure). Flood hydraulics for the North Delta area are also described—the potential for the surge effect at MWT is discussed, as well as the potential flow reversals during floods, overflow areas, and local infrastructure flooding. These discussions remain applicable to the environmental setting for Phase B.

2017 Flood Event

The North Delta EIR describes the 1986 and 1997 flood events, but the more recent 2017 flood event is not included because it occurred after the EIR was prepared. The 2017 flood had a peak flow of nearly 50,000 cfs on the Cosumnes River at Michigan Bar and caused a natural levee breach of MWT along the Mokelumne River. To reduce a catastrophic levee failure at the downstream end of MWT, a group of downstream landowners and reclamation districts, in coordination with RD 2110, intentionally degraded a portion of the downstream levee on MWT across from the DCC before flood waters built up to a significant level. Although a second smaller overtopping and levee breach still occurred on the MWT Southwest Levee following the intentional levee breach, the intentional breach avoided the catastrophic levee failures which occurred during the 1986 and 1997 flood events, which sent a destructive "surge effect" or flood pulse downstream. The surge effect is created as water backs up along the northeast levee of MWT, causing levee overtopping and breaching until the tract fills with water and results in a sudden levee failure along the MWT Southwest Levee and a large amount of water that cascades downstream. The increased flow from the surge effect can lead to additional levee failure or overtopping, both of which were observed during the 1986 and 1997 events. The intentional breaching during the 2017 flood event eliminated this effect by allowing flood waters to escape MWT before building up and overtopping and breaching the MWT levees. After this event, all three breach sites (on the Mokelumne River, MWT West Levee, and MWT Southwest Levee), were repaired to a lower crest elevation to facilitate overtopping during future events, under the concept that Phase B of the Project would move forward (cbec, 2021a).

Flood Control and Levee Stability

The North Delta EIR provides an overview of the history of Delta reclamation, local historical flooding, levee seepage and failure, issues associated with land subsidence of peat soils, and how the DCC and Mokelumne River reservoirs can be used to reduce flood flows. Levee stability issues are described such as levee overtopping, under seepage and boils, and foundation

materials and internal strength. Typical levee maintenance activities are also discussed. These discussions remain applicable to the environmental setting for Phase B.

Updated flood modeling was conducted for Phase B. A discussion of the modeling is included in the impact analysis section below and additional details are provided in **Appendix,** which includes the Flood Model Calibration and Validation and Flood Model Design Options Screening.

Geomorphology and Sediment Transport

The North Delta EIR describes the effects of geomorphological alterations in the Delta and upstream tributaries, such as changes in flood flow conveyance, channel incisions and net sediment loss, reductions in total Delta outflow, altered flow patterns, and changes in sediment loads over time. Project area waterways are described as well as general sediment transport and sediment characteristics in the Delta. An estimated annual sediment budget is provided based on sediment transport and scour assessments for the 1995 and 1997 floods. These discussions remain applicable to the environmental setting for Phase B.

Updated sediment transport modeling was conducted for Phase B and is provided in **Appendix D**. This sediment transport modeling evaluated long-term changes in channel bed conditions for the Mokelumne River, Snodgrass Slough, and North and South Mokelumne Rivers for pre-project (2010) and project conditions. Model results indicate that the Mokelumne River is currently erosional in the reach between the Cosumnes River and the southwest corner of MWT, Snodgrass Slough is erosional between the DCC and the North Mokelumne River confluence (but at lower levels), and the North and South Mokelumne Rivers are depositional.

Water Quality

The North Delta EIR provides an overview of water quality in the Delta and identifies organic carbon and methylmercury as key water quality constituents for the project. Synthetic chemicals (such as pesticides and herbicides), heavy metals, and high salinity water are also identified as being significant water quality issues for the Delta. This EIR provides supplemental information related to salinity changes in the North Delta based on modeling as discussed below.

Salinity

Salinity is a general water quality parameter that is of concern in the Delta because salinity intrusion can reduce the value of agricultural and drinking water supplies and impair beneficial uses for fish and wildlife. The North Delta EIR discusses salinity effects in terms of the reduced irrigation needs in MWT and the corresponding reduction in irrigation drainage that is exported to adjacent channels. This analysis is updated in the impact analysis section below based on the Delta salinity modeling in conducted for Phase B actions. A detailed discussion of this modeling can be found in **Appendix E**.

Water Supply and Management

The North Delta EIR provides a general discussion of how water is diverted from the Mokelumne River and other waterways for agricultural use at Delta farms and how following irrigation use, drainage water is returned to Delta waterways. It also describes that in addition to

these actions, large quantities of water are diverted from the Delta primarily for municipal and agricultural uses in the State Water Project (SWP) and Central Valley Project (CVP), respectively. These discussions remain applicable to the environmental setting for Phase B.

After the 2017 flood event, agricultural production on MWT ceased, including planting of crops and other activities to maintain the site for agricultural uses. As a result, water used for irrigation was substantially reduced and the land cover/habitats on MWT have started to change in some areas.

Groundwater

The North Delta EIR describes the regional groundwater basins and local groundwater subbasins, soils and geologic materials in the project vicinity, and groundwater levels at MWT. It also describes the seepage monitoring network developed during the interim North Delta Program, and the shallow and deep observation wells that were placed along levees and adjacent to channels to monitor groundwater levels. These discussions remain applicable to the environmental setting for Phase B.

The *North and South Delta Seepage Well Monitoring Network Update* (DWR, 2015) summarizes the monitoring that has occurred at the shallow and deep observation wells in the North Delta. The typical sampling program for groundwater wells at and near MWT included periodic measurements of groundwater levels during program implementation. Although these data show seasonal variation, there were few long-term trends. **Figure 3.1-1** provides an example of the data collected under this program. These wells show seasonal variation in groundwater levels and the relatively shallow depth to groundwater that occurs at MWT and nearby tracts.

Observations were generally discontinued in 2015, however, two local wells continue to be sampled by Sacramento County on a semiannual basis—one located at MWT along the Mokelumne River near the MWT East Levee and the other located at Walnut Grove. The more recent data at these locations appear to be within the historical norms.

3.1.2 Regulatory Setting

Federal, State, regional, and local regulatory conditions identified in the North Delta EIR are generally applicable to the Phase B project except for the following updates and additions.

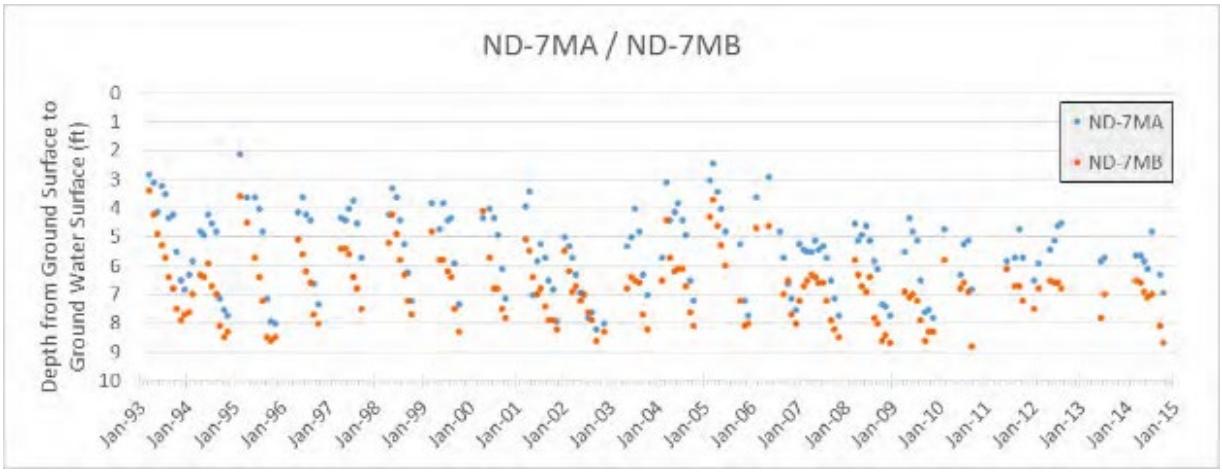
State Plans, Policies, Regulations and Laws

Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary

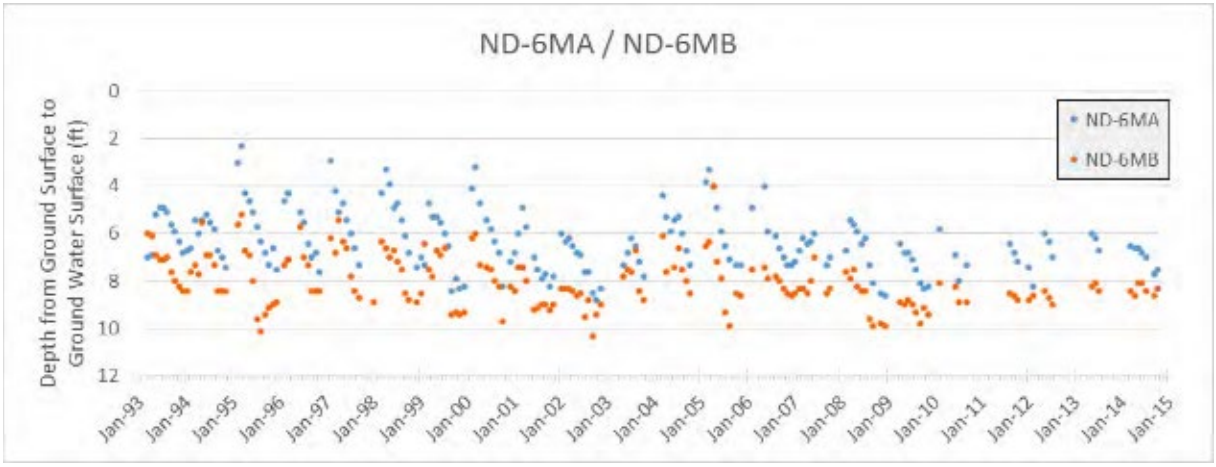
The *Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary* (Bay-Delta Plan) (SWRCB, 2018) establishes beneficial uses, water quality objectives, and an implementation program for Delta waterways. The plan includes water quality objectives for salinity, temperature, and dissolved oxygen that are protective of fish and wildlife, agricultural, municipal, and industrial beneficial uses. Salinity water quality objectives are expressed as either chloride concentration or electrical conductivity (EC).

Figure 3.1-1. Depth to Groundwater at MWT and Nearby Tracts

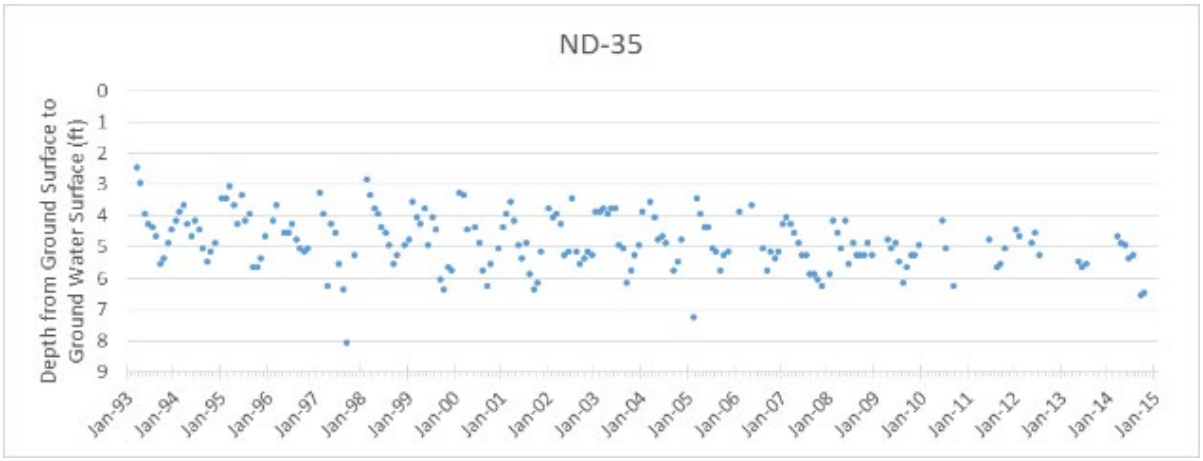
(A) McCormack-Williamson Tract – 500 ft inland from the Mokelumne River Levee



(B) New Hope Tract – 1,000 ft inland from the Mokelumne River Levee



(C) Staten Island – 750 feet from the levee



Note: Datapoints shown in blue (including well names ending in 'MA') are from shallow wells and datapoints shown in orange (well names ending in 'MB') are from deeper wells.

Source: DWR 2015.

In the *Revised Water Rights Decision 1641* (D-1641) (SWRCB, 2000), SWRCB amended the water right license and permits for the SWP and CVP to require those projects to meet certain objectives in the Bay-Delta Plan. Specifically, D-1641 places responsibility on DWR and the U.S. Bureau of Reclamation (Reclamation) for measures to ensure that specified water quality objectives are met.

Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act (California Water Code Sections 10720–10737.8), enacted in 2014, requires groundwater sustainability plans to address the undesirable results from groundwater pumping. Governments and water agencies of high and medium priority basins are required to halt overdraft and bring groundwater basins into balanced levels of pumping and recharge within 20 years of implementing their sustainability plans. The Northern Delta Groundwater Sustainability Agency is responsible for groundwater sustainability in the northern portions of the Sacramento-San Joaquin River Delta[6].

Regional and Local Plans, Policies, Regulations, and Ordinances

Sacramento and San Joaquin River Basin Plan

The Sacramento and San Joaquin River Basin Plan (RWQCB, 2018) is the RWQCB's master water quality control planning document. It designates beneficial uses for waters, establishes water quality objectives, and contains implementation programs and policies for impaired waters. It includes numeric or narrative water quality objectives for surface waters for a variety of water quality parameters including methylmercury and other metals, dissolved oxygen, oil and grease, pH, pesticides, salinity, sediment, suspended material, turbidity, temperature, and toxicity. In a few cases, the Basin Plan lists site-specific objectives for Delta waterways – including those for arsenic, Cryptosporidium and Giardia, dissolved oxygen, methylmercury, chlorpyrifos, salinity, and temperature. Groundwater quality objectives are also provided.

Sacramento-San Joaquin Delta Methylmercury Total Maximum Daily Load

The Delta Methylmercury Total Maximum Daily Load and Basin Plan amendment, adopted in 2010, includes a control program to reduce methylmercury and inorganic mercury in the Delta. The first phase of the Delta Mercury Control Program emphasizes studies and pilot projects to develop and evaluate management projects to control methylmercury in the Delta; manage mercury point sources in the Delta; and implement mercury control programs for upstream tributaries. This phase culminates in a Delta Mercury Control Program Review, which is currently underway. The second phase of the mercury control program will begin in 2022, when dischargers will implement mercury and methylmercury control programs based on the findings of the methylmercury characterization and control studies.

[6] https://www.ndgsa.org/

Delta Regional Monitoring Program

The Delta Regional Monitoring Program (Delta RMP) was formed to develop water quality data necessary for improving the understanding of Delta water quality issues. DWR participates in, and contributes to, the Delta RMP, which evaluates the long-term impacts of multiple projects in the Delta and Yolo Bypass on constituents such as mercury, nutrients, pesticides, and toxicity. DWR's participation includes financial contributions to support ongoing and future Delta RMP monitoring activities and/or in-kind services to support the Delta RMP monitoring, analysis, and reporting efforts.

3.1.3 Environmental Impacts and Mitigation Measures

Significance Criteria

State CEQA Guidelines have been updated since the North Delta EIR was certified. The criteria used for determining the significance of an impact on hydrology and water quality for Phase B actions are based on the updated State CEQA Guidelines, listed below, and professional standards and practices.

Impacts on hydrology and water quality are considered significant if implementation of the project would:

- Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.
- Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
    - Result in substantial erosion or siltation on- or offsite;
    - Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;
    - Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or
    - Impede or redirect flood flows.
- In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.
- Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

Consistent with thresholds of significance presented in the North Delta EIR, the following project-specific criteria have also been developed. The project would result in a significant impact on hydrology and water quality if it would:

- Result in a substantial increase in flood stage elevations.
- Result in a substantial increase in levee settlement which affects the performance of the levee.
- Result in a substantial increase in groundwater seepage that causes increased flooding in adjacent islands/tracts.
- Result in a substantial increase in conflicts between water users and environmental needs or reduce access to economically efficient water supplies for other water users.

Analysis Methodology

Evaluation of the impacts is based on application of quantitative modeling results and qualitative assessments. The relevant technical reports prepared for the project include the following appendices:

- Appendix C – Hydraulic and Hydrologic Modeling Reports (all three attachments)
- Appendix D – Sediment Transport Modeling Report
- Appendix E – Salinity Modeling Report

DWR identified Environmental Commitments in the North Delta EIR, which are incorporated as part of the Phase B project, to avoid or minimize potential impacts. These Environmental Commitments include measures that address erosion and sediment control, water quality management, disposal plans, and chemical controls. Since these commitments are part of the Phase B project, they are not used as mitigation measures.

- Access Point/Staging Areas
- Erosion and Sediment Control Plan
- Stormwater Pollution Prevention Plan
- Integrated Mosquito Management
- Construction Site Best Management Practices for Fish
- CALFED Programmatic Mitigation Measures incorporated into the Project, including:
    - Flood Control and Levee Stability Mitigation (discussed on page 3.2-9 of the North Delta EIR)

- Sediment and Scour Mitigation – Water Quality (discussed on page 3.3-17 of the North Delta EIR)

Relevant Issues Not Discussed Further in the Supplemental EIR

Increase the Degree or Quantity of Levee Settlement or Subsidence Adjacent to Levees (North Delta EIR Impacts FC-3 and FC-6)

Impacts FC-3 and FC-6 in the North Delta EIR discuss that peat soils are known to underlie MWT and some subsidence from the placement of additional levee material is possible. The North Delta EIR determined that since the project design and construction measures considered land subsidence and subsurface conditions prior to any disposal activities, impacts from the project related to settlement and subsidence were found to be less than significant. Phase B includes levee modifications that were not evaluated in the North Delta EIR—repair of the west levee breach and enhancements to the landside slopes of the MWT East and Southwest Levees in the area adjacent to the degraded segments. However, these components involve the same activities that were considered in the North Delta EIR analysis and there are no changes to these impact evaluations or conclusions. Therefore, these issues are not discussed further in this Supplemental EIR.

Increase the Degree or Quantity of Wind Erosion (North Delta EIR Impact FC-4)

Impact FC-4 in the North Delta EIR discusses that opening MWT to increased inundation would increase exposure of interior levees to wind-related wave erosion. The project originally included modification of interior levee slopes to address wind-related erosion, such as providing shallow levee slopes and planting appropriate vegetation to aid erosion protection on the levee slopes; and this work was completed in Phase A. Phase B includes enhancements to the landside slopes and habitats of the MWT East and Southwest Levees in the area adjacent to the degraded segments additional areas that were not considered in the North Delta EIR. However, these components involve the same activities that were considered in the North Delta EIR analysis and there are no changes to these impact evaluations or conclusions. Therefore, these issues are not discussed further in this Supplemental EIR.

Decrease Levee Inspection and Maintenance (North Delta EIR Impact FC-7)

Impact FC-7 in the North Delta EIR discusses that enhancing interior levee slopes would include planting vegetation, which has the potential to decrease inspection capabilities. However, because the enhanced levee slopes include additional cross-section material and would provide better erosion protection through more gradual slopes and erosion resistant plantings, the overall effect of the project was determined to have a net benefit to levee maintenance. Phase B includes levee modifications that were not evaluated in the North Delta EIR—repair of the west levee breach and enhancements to the landside slopes of the MWT East and Southwest levees in the area adjacent to the degraded segments. However, these components involve the same activities that were considered in the North Delta EIR analysis and there are no changes to these impact evaluations or conclusions. The Phase B project also includes repairing the MWT West Levee and redesigning the Mokelumne River breach with a higher bottom elevation to facilitate levee access. These actions would further facilitate levee inspections and reduce levee maintenance. Therefore, these issues are not discussed further in this Supplemental EIR.

Decrease Levee Stability from Construction Activities (North Delta EIR Impact FC-8)

Impact FC-8 in the North Delta EIR discusses the need for the protection of adjacent levees near areas with proposed degradation, reinforcement, modification, or levee construction and at breach locations. Since the project design incorporates RSP on existing levees where needed and provides appropriate design specifications for new levee sections, impacts from the project related to decreased levee stability were found to be less than significant. Phase B includes levee modifications that were not evaluated in the North Delta EIR—repair of the west levee breach and enhancements to the landside slopes of the MWT East and Southwest levees in the area adjacent to the degraded segments. However, these components involve the same activities that were considered in the North Delta EIR analysis and there are no changes to these impact evaluations or conclusions. Therefore, these issues are not discussed further in this Supplemental EIR.

Temporary Increase in Sediment Accumulation and Scouring during Levee Modifications (North Delta EIR Impact GEOMORPH-1)

Impact GEOMORPH-1 in the North Delta EIR discusses how construction, degradation, reinforcement, and/or modification of levees would result in local accumulation of sediments during certain construction phases that require in-water work. The analysis also considers the potential for flood inundation of work areas within the interior of the tract. (Note that this analysis does not relate to landside levee re-sloping on the tract interior, when conducted in the dry prior to breaching the levees). Since silt curtains and turbidity monitoring, and/or other methods to reduce sediment transport would be used during construction, impacts related to temporary sediment accumulation and scour were found to be less than significant. Phase B includes levee modifications that were not evaluated in the North Delta EIR; however, the repair of the west levee breach and enhancements to the landside slopes of the MWT East and Southwest Levees involve the same activities that were considered in the North Delta EIR analysis and the levee breaches are smaller than what was previously proposed in the North Delta EIR. As such, there are no changes to these impact evaluations or conclusions. Therefore, these issues are not discussed further in this Supplemental EIR.

Impact Analysis

Hydrology and Hydraulics

This section presents baseline and potential project changes in hydraulic parameters, such as flood stage and velocity, and the expected changes to erosion and scour, as well as salinity, due to changed hydraulics. Similar to the North Delta EIR, the significance and environmental implications of these changes are not discussed in this section, but instead are addressed in the impact statements below in the context of the resources impacted by the changes. Note that Figure 2-1 shows the project area and vicinity including the adjacent waterways such as the Mokelumne River, Snodgrass Slough, Dead Horse Cut, and the North and South Mokelumne Rivers.

Flood Modeling

Quantitative assessment of the existing conditions and the Phase B project was performed using the USACE's Hydrologic Engineering Center River Analysis System (HEC-RAS) hydraulic modeling tool. Key index points were identified in the model for areas both upstream and downstream of MWT, as shown in **Figure 3.1-2**. The flood modeling evaluated 2020 existing conditions and the proposed project design option[7] using the 10- and 100-year recurrence interval floods or 0.10 and 0.01 annual exceedance probability floods. These recurrence intervals were chosen to represent relatively frequent floods (10-year) and larger less frequent floods (100-year), to consider the more frequent impacts of smaller floods on the leveed system in addition to the impacts of catastrophic floods.

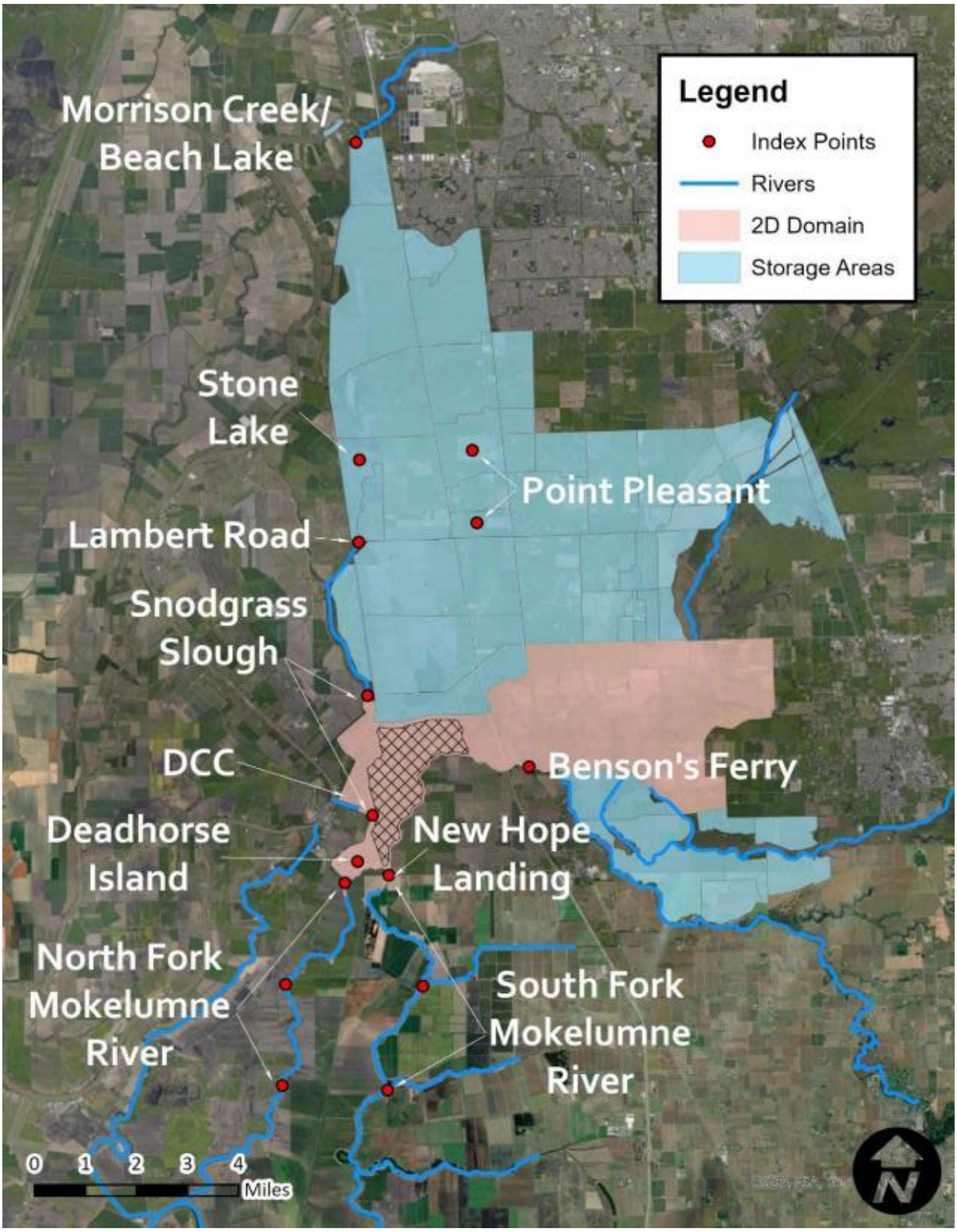
During the 100-year design flood, compared to 2020 conditions, maximum water surface elevations (WSEs) with the project decrease upstream of MWT within the range of 0.3 to 1.4 ft and downstream of MWT within the range of 0.1 to 0.4 ft at key index points within the model, as shown in **Table 3.1-1**. With the exception of the key index point at Bensons Ferry, compared to 2020 conditions, maximum velocities generally decrease with project conditions during the 100-year event; an approximate 0.1 to 0.2 ft per second decrease is observed in reaches downstream of MWT (**Table 3.1-2**).

During the 10-year design flood, maximum WSEs decrease upstream of MWT with the proposed project, generally within the range of 0.1 to 1.2 ft as compared to 2020 conditions. However, maximum WSEs increase downstream of MWT by approximately 0.1 to 0.5 ft (**Table 3.1-3**). Maximum velocities also tend to increase downstream of MWT by about 0.1 to 0.2 ft per second (**Table 3.1-4**).

Figures 3.1-3 to **3.1-7** provide WSE and velocity profiles for the 10- and 100-year design floods for the Mokelumne River, Lower Snodgrass Slough, Dead Horse Cut, North Mokelumne River, and South Mokelumne River, respectively. These WSE profiles show levee heights, the relative difference in WSEs between the 10- and 100-year floods, the flood benefits that occur during the 100-year event (compared to 2020 conditions) both upstream and downstream of MWT, and the increased WSEs that occurs in areas downstream of MWT during the 10-year event. The velocity profiles show the relative differences in velocities within these reaches (pre- and post-project) for both the 10- and 100-year events.

[7] Identified as the "intermediate" option in the figures below. See Appendix C, Attachment 1, *Flood Model Design Options Screening*, for additional details on design iterations and sensitivity testing.

Figure 3.1-2. Key Flood Modeling Index Points



Note: MWT is shown above with black hatching. Upstream areas are located north and east of MWT and downstream areas are southwest of MWT.

Source: cbec 2021a.

Table 3.1-1. Maximum Water Surface Elevations for the 100-year Design Storm

Location	2020 Condition Maximum WSE (ft, NAVD88)	Project Condition Maximum WSE (ft, NAVD88)	WSE Difference (Project minus 2020 conditions, ft)
Bensons Ferry	20.75	19.40	-1.35
Beach Lake	16.63	16.36	-0.27
Point Pleasant North	16.44	16.13	-0.31
Point Pleasant South	16.41	16.10	-0.31
Lambert Road Upstream (Stone Lake)	16.45	16.14	-0.31
Snodgrass Slough at Lambert Road	16.47	16.16	-0.31
Snodgrass Slough at Twin Cities Rd	17.59	16.99	-0.60
Snodgrass Slough at DCC	17.52	16.94	-0.58
Dead Horse Island	15.40	1.48	-13.92
South Fork Mokelumne at New Hope Bridge	17.07	16.75	-0.32
South Fork Mokelumne at Beaver Slough	12.58	12.38	-0.20
South Fork Mokelumne at Hog Slough	10.33	10.23	-0.10
North Fork Mokelumne at New Hope Road	16.23	15.85	-0.38
North Fork Mokelumne at latitude of Beaver Slough	13.51	13.23	-0.28
North Fork Mokelumne at latitude of Hog Slough	11.61	11.43	-0.18

Notes: Delta Cross Channel (DCC), Water surface elevation (WSE), North American Vertical Datum 1988 (NAVD88), feet (ft)

Blue values = flood reduction under the proposed project condition equal to or less than -0.05

Red values = flood increase under the proposed project condition equal to or greater than +0.05

Estimates are based on lowering a 1,500-ft-long section of the MWT Southwest Levee. Results are similar for lowering a 1,000-ft-long section (see Appendix C, Attachment 2, *MWT Southwest Levee Degrade Sensitivity Testing*).

Source: cbec 2021a,b.

Table 3.1-2. Maximum Velocities for the 100-year Design Storm

Location	2020 Condition Maximum Velocity (ft/sec, NAVD88)	Project Condition Maximum Velocity (ft/sec, NAVD88)	Velocity Difference (Project minus 2020 conditions, ft/sec)
Bensons Ferry	4.21	5.17	0.96
Snodgrass Slough at Lambert Road	1.11	1.06	-0.05
Snodgrass Slough at Twin Cities Rd	0.54	0.51	-0.03
Snodgrass Slough at DCC	2.48	1.57	-0.91
South Fork Mokelumne at New Hope Bridge	5.82	5.69	-0.13
South Fork Mokelumne at Beaver Slough	3.53	3.45	-0.08
South Fork Mokelumne at Hog Slough	1.97	1.90	-0.07
North Fork Mokelumne at New Hope Road	7.21	6.97	-0.24
North Fork Mokelumne at latitude of Beaver Slough	4.99	4.84	-0.15
North Fork Mokelumne at latitude of Hog Slough	4.79	4.63	-0.16

Notes: Delta Cross Channel (DCC), Water surface elevation (WSE), North American Vertical Datum 1988 (NAVD88), feet per second (ft/sec)

Blue values = reduction under the proposed project condition equal to or less than -0.05

Red values = increase under the proposed project condition equal to or greater than +0.05

Estimates are based on lowering a 1,500-ft-long section of the MWT Southwest Levee. Results are similar for lowering a 1,000-ft-long section (see Appendix C, Attachment 2, *MWT Southwest Levee Degrade Sensitivity Testing* Technical Memorandum).

Source: cbec 2021a,b.

Table 3.1-3. Maximum Water Surface Elevations for the 10-yr Design Storm

Location	2020 Condition Maximum WSE (ft, NAVD88)	Project Condition Maximum WSE (ft, NAVD88)	WSE Difference (Project minus 2020 conditions, ft)
Bensons Ferry	17.82	16.62	-1.20
Beach Lake	12.81	12.81	0.00
Point Pleasant North	12.38	12.31	-0.07
Point Pleasant South	13.92	13.92	0.00
Lambert Road Upstream (Stone Lake)	12.38	12.31	-0.07
Snodgrass Slough at Lambert Road	14.03	13.74	-0.29
Snodgrass Slough at Twin Cities Rd	14.03	13.74	-0.29
Snodgrass Slough at DCC	13.31	13.49	0.18
Dead Horse Island	-	-	-
South Fork Moke at New Hope Bridge	12.74	13.22	0.48
South Fork Moke at Beaver Slough	10.27	10.48	0.21
South Fork Moke at Hog Slough	9.39	9.46	0.07
North Fork Moke at New Hope Road	12.34	12.66	0.32
North Fork Moke at latitude of Beaver Slough	10.87	11.08	0.21
North Fork Moke at latitude of Hog Slough	9.99	10.11	0.12

Notes: Delta Cross Channel (DCC), Water surface elevation (WSE), North American Vertical Datum 1988 (NAVD88), feet (ft)

Blue values = flood reduction under the proposed project condition equal to or less than -0.05

Red values = flood increase under the proposed project condition equal to or greater than +0.05

Estimates are based on lowering a 1,500-ft-long section of the MWT Southwest Levee. Results are similar for lowering a 1,000-ft-long section (see Appendix C, Attachment 2, *MWT Southwest Levee Degrade Sensitivity Testing* Technical Memorandum).

Source: cbec 2021a,b.

Table 3.1-4. Maximum Velocities for the 10-yr Design Storm

Location	2020 Condition Maximum Velocity (ft/sec, NAVD88)	Project Condition Maximum Velocity (ft/sec, NAVD88)	Velocity Difference (Project minus 2020 conditions, ft/sec)
Bensons Ferry	4.25	4.73	0.48
Snodgrass Slough at Lambert Road	0.83	0.83	0.00
Snodgrass Slough at Twin Cities Rd	0.28	0.26	-0.02
Snodgrass Slough at DCC	2.25	1.31	-0.94
South Fork Moke at New Hope Bridge	4.28	4.48	0.02
South Fork Moke at Beaver Slough	2.19	2.36	0.17
South Fork Moke at Hog Slough	1.10	1.19	0.09
North Fork Moke at New Hope Road	4.86	5.07	0.21
North Fork Moke at latitude of Beaver Slough	3.28	3.45	0.17
North Fork Moke at latitude of Hog Slough	3.05	3.22	0.17

Notes: Delta Cross Channel (DCC), Water surface elevation (WSE), North American Vertical Datum 1988 (NAVD88), feet per second (ft/sec)

Blue values = reduction under the proposed project condition equal to or less than -0.05

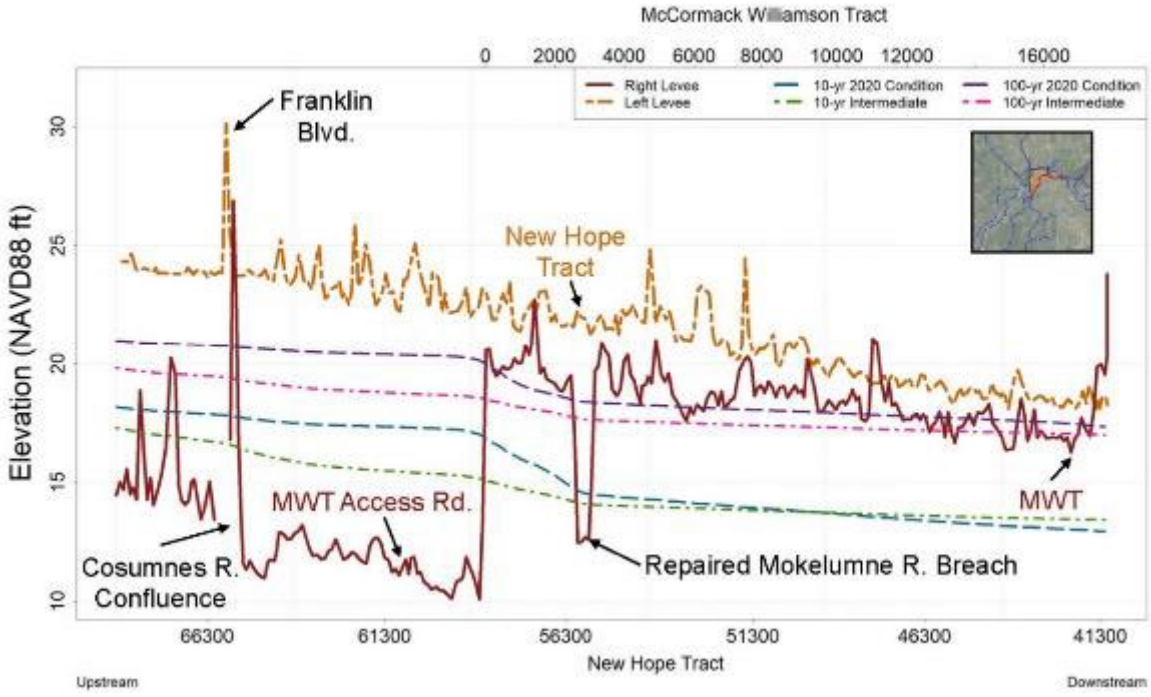
Red values = increase under the proposed project condition equal to or greater than +0.05

Estimates are based on lowering a 1,500-ft-long section of the MWT Southwest Levee. Results are similar for lowering a 1,000-ft-long section (see Appendix C, Attachment 2, *MWT Southwest Levee Degrade Sensitivity Testing* Technical Memorandum).

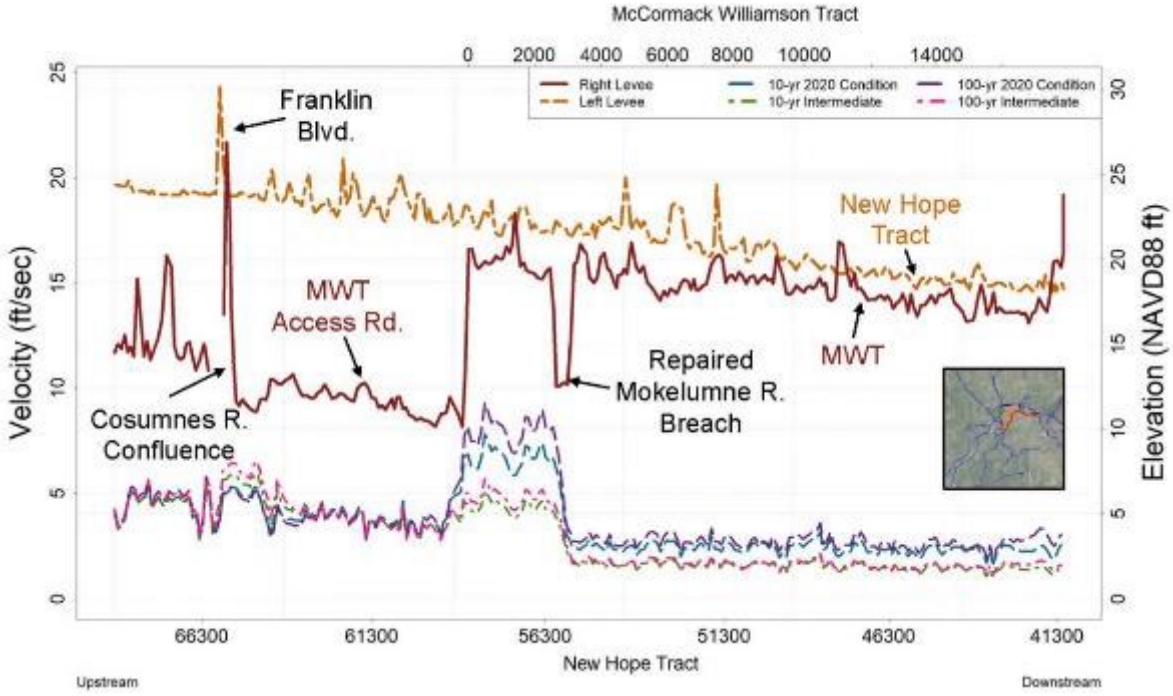
Source: cbec 2021a,b.

Figure 3.1-3. Mokelumne River Water Surface Elevation and Velocity

(A) Water Surface Elevation Profiles for the 10- and 100-year Design Storms



(B) Velocity Profiles for the 10- and 100-year Design Storms

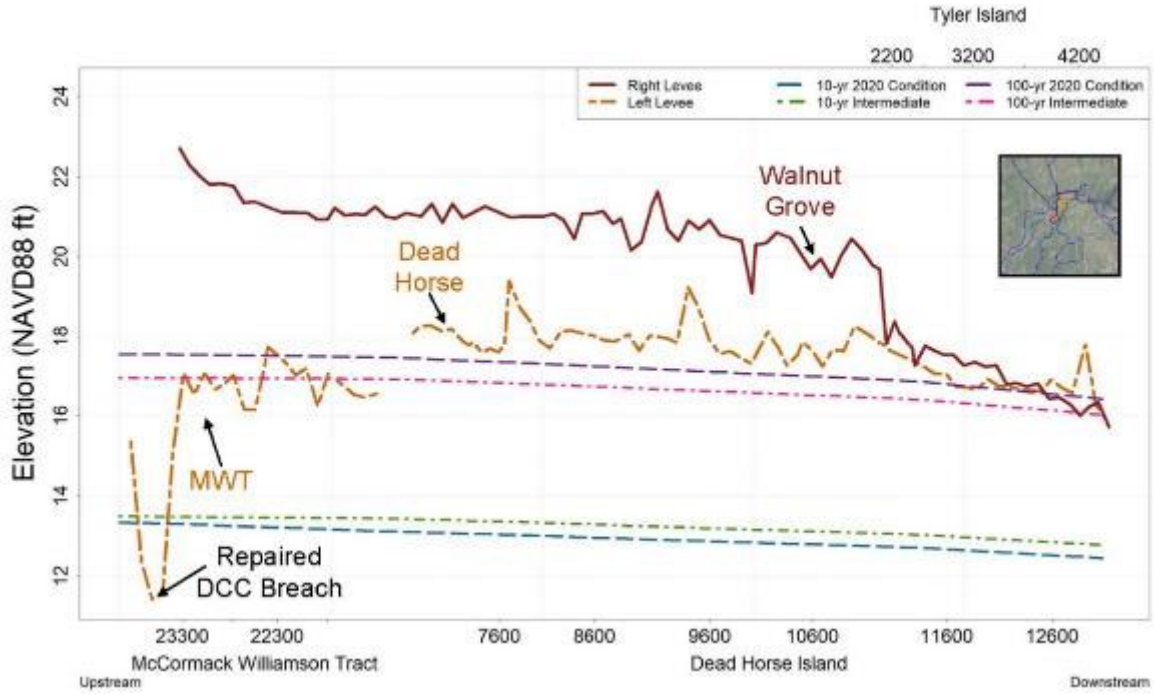


Notes: This reach shows areas both upstream and downstream of the Mokelumne River breach. Panel A indicates that WSEs are expected to decrease during the 100-year event and also decrease during the 10-year event, except near the southwest corner of MWT. Panel B shows that velocities are expected to decrease throughout this reach except near the confluence with the Cosumnes River. Also note that the Mokelumne River breach would be excavated during Phase B to elevation 7 ft.

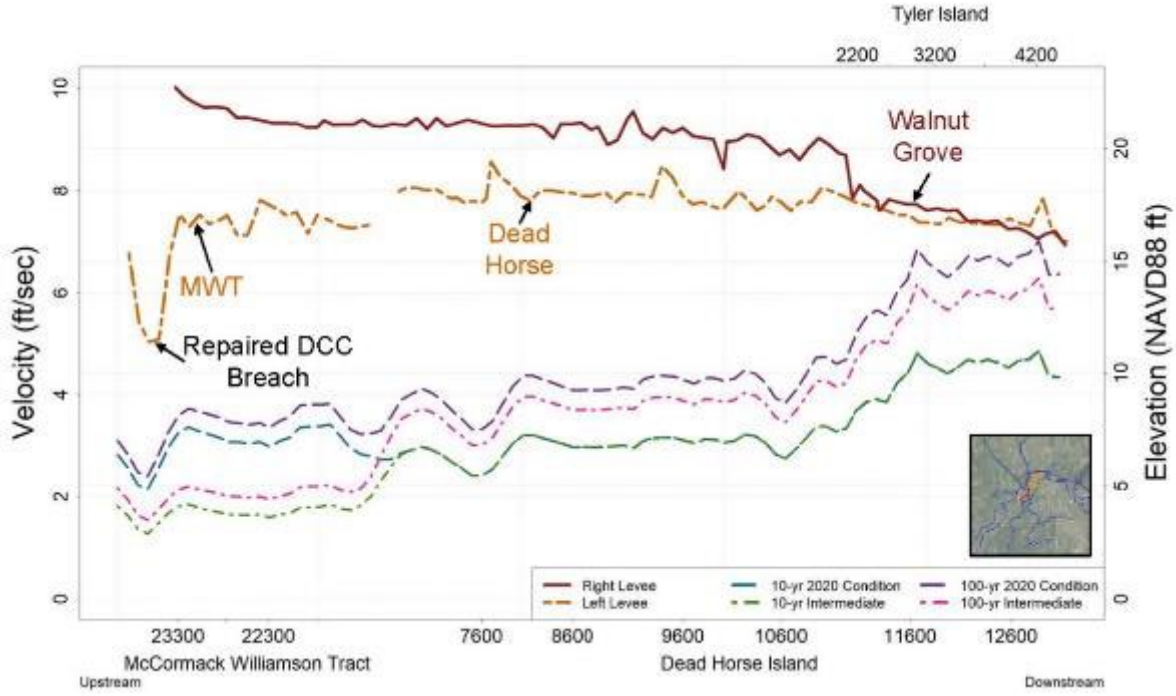
Source: cbec 2021a.

Figure 3.1-4. Lower Snodgrass Slough Water Surface Elevation and Velocity

(A) Water Surface Elevation Profiles for the 10- and 100-year Design Storms



(B) Velocity Profiles for the 10- and 100-year Design Storms

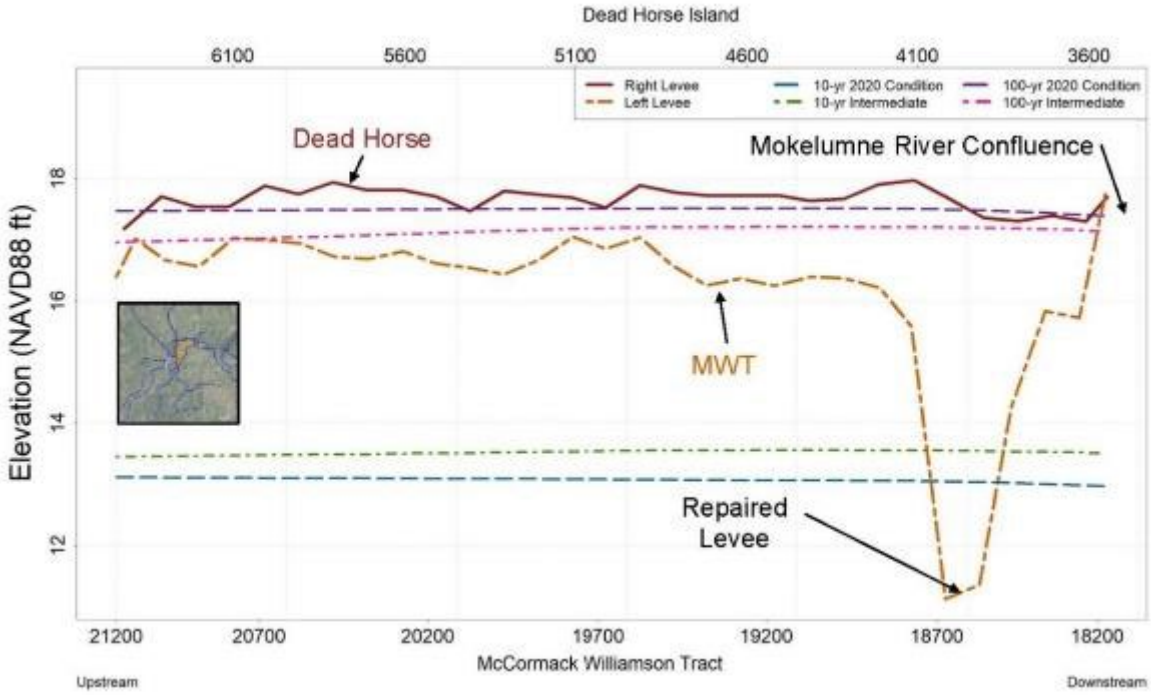


Notes: This reach includes areas at and below the west levee breach. Panel A indicates that WSEs are expected to decrease during the 100-year event and increase during the 10-year event as compared to baseline conditions. Panel B indicates that velocities are expected to decrease during the 100-year event and decrease or be similar to baseline conditions during the 10-year event. Also note that the west levee breach would be repaired during Phase B to elevation 16 ft.

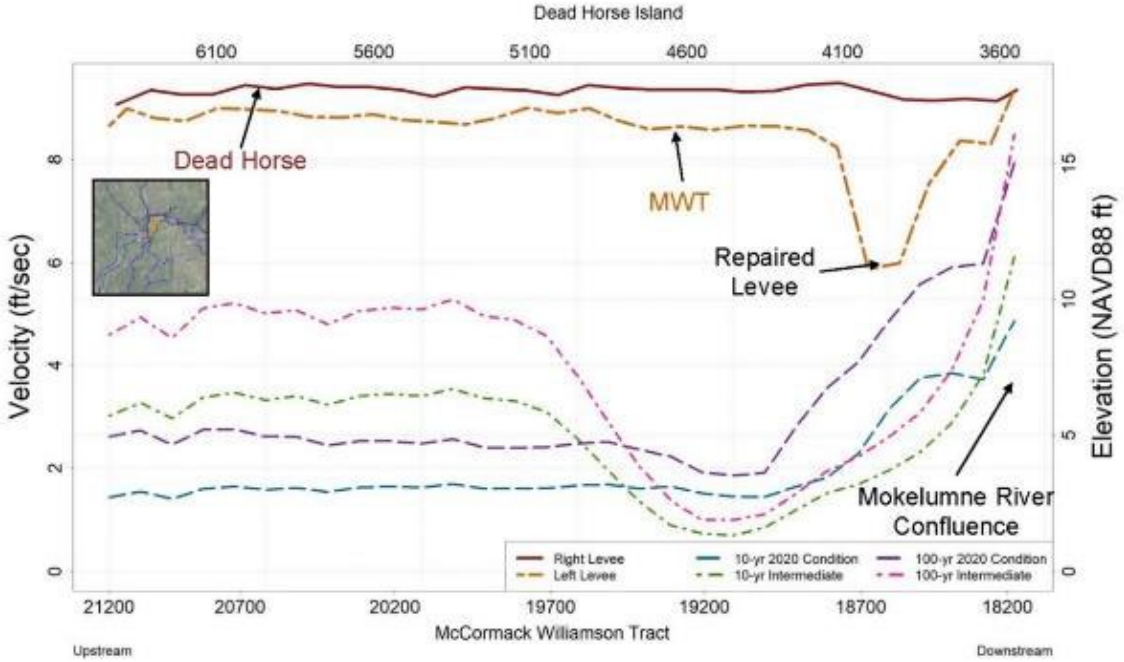
Source: cbec 2021.

Figure 3.1-5. Dead Horse Cut Water Surface Elevation and Velocity

(A) Water Surface Elevation Profiles for the 10- and 100-year Design Storms



(B) Velocity Profiles for the 10-s and 100-year Design Storms

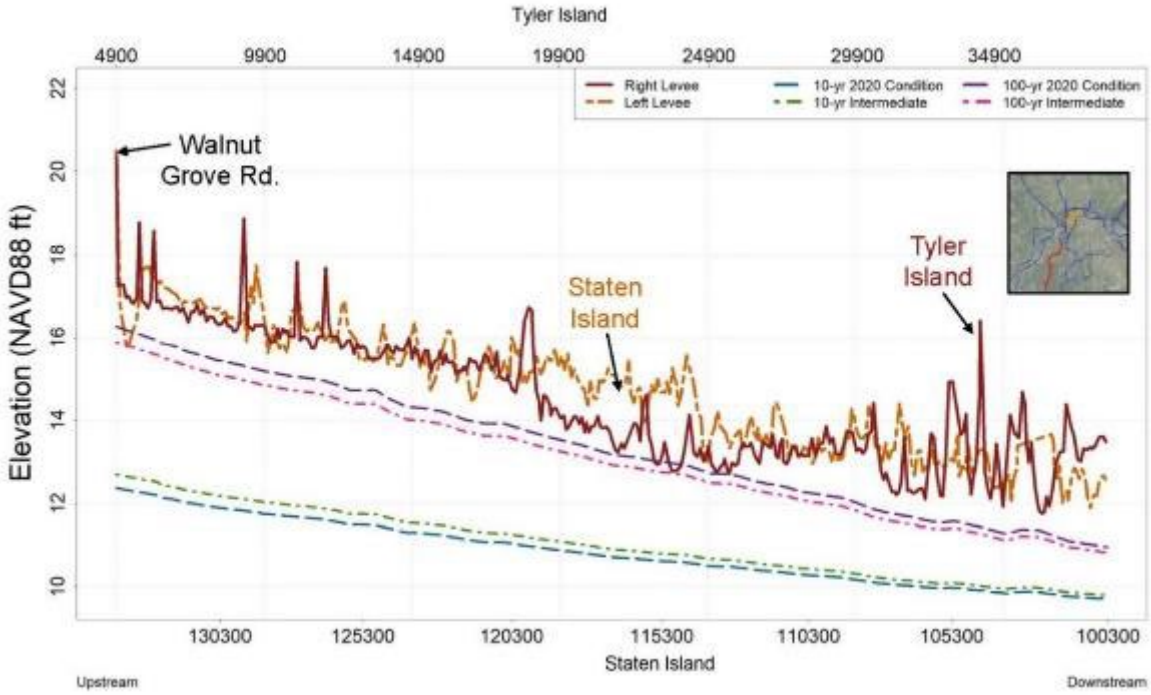


Note: This reach includes areas at and above the MWT Southwest Levee breach. Panel A indicates that WSEs are expected to decrease during the 100-year event and increase during the 10-year event as compared to baseline conditions. Panel B indicates that velocities are expected to increase in both the 10- and 100-year event in the area upstream (north) of the MWT Southwest Levee breach and decrease in the immediate vicinity of the breach, Also note that estimates are based on lowering a 1,500-ft-long section of the MWT Southwest Levee to elevation 0 ft. Results are similar in the vicinity of a lowered 1,000-ft-long section (see Appendix C, Attachment 2, *MWT Southwest Levee Degrade Sensitivity Testing* Technical Memorandum).

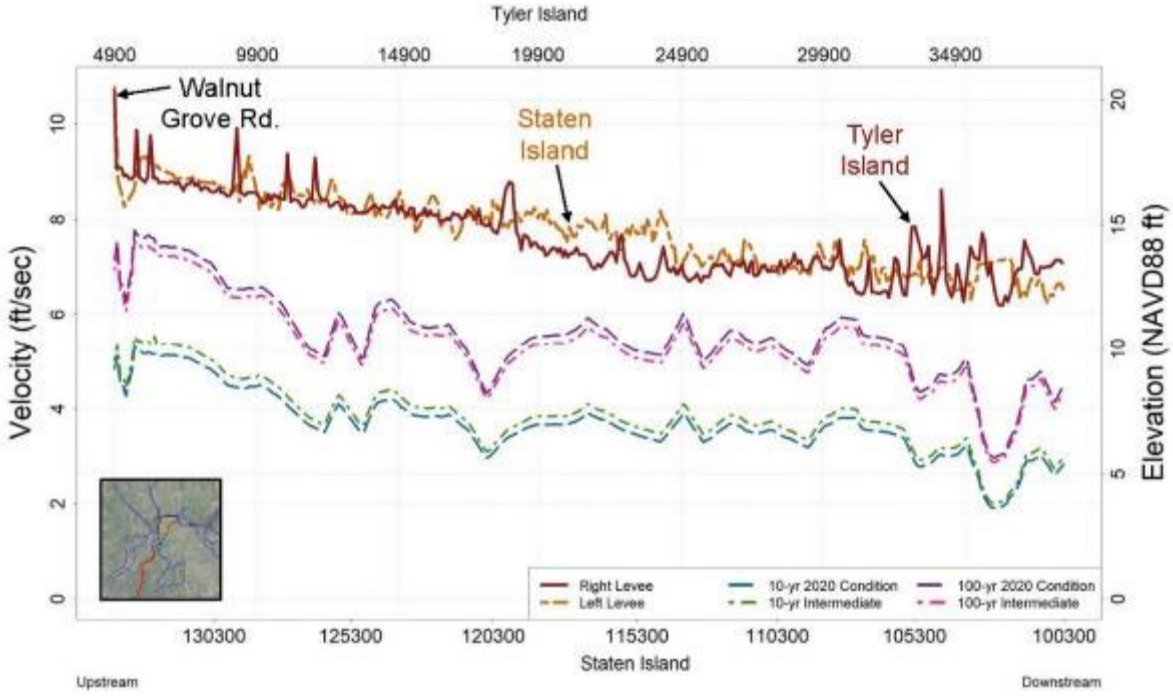
Source: cbec 2021.

Figure 3.1-6. North Mokelumne River Water Surface Elevation and Velocity

(A) Water Surface Elevation Profiles for the 10- and 100-year Design Storms



(B) Velocity Profiles for the 10- and 100-year Design Storms

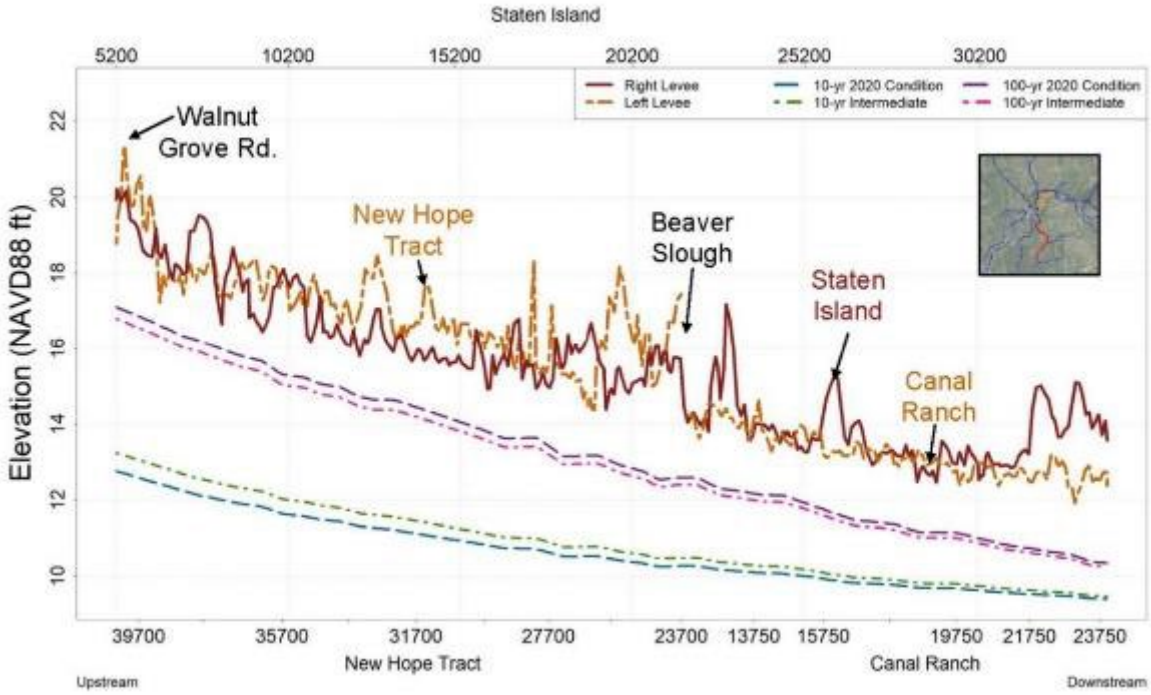


Notes: This reach includes areas downstream of MWT. Panel A indicates that WSEs are expected to decrease during the 100-year event and increase during the 10-year event as compared to baseline conditions. Panel B indicates that velocities are expected to decrease during the 100-year event and increase during the 10-year event.

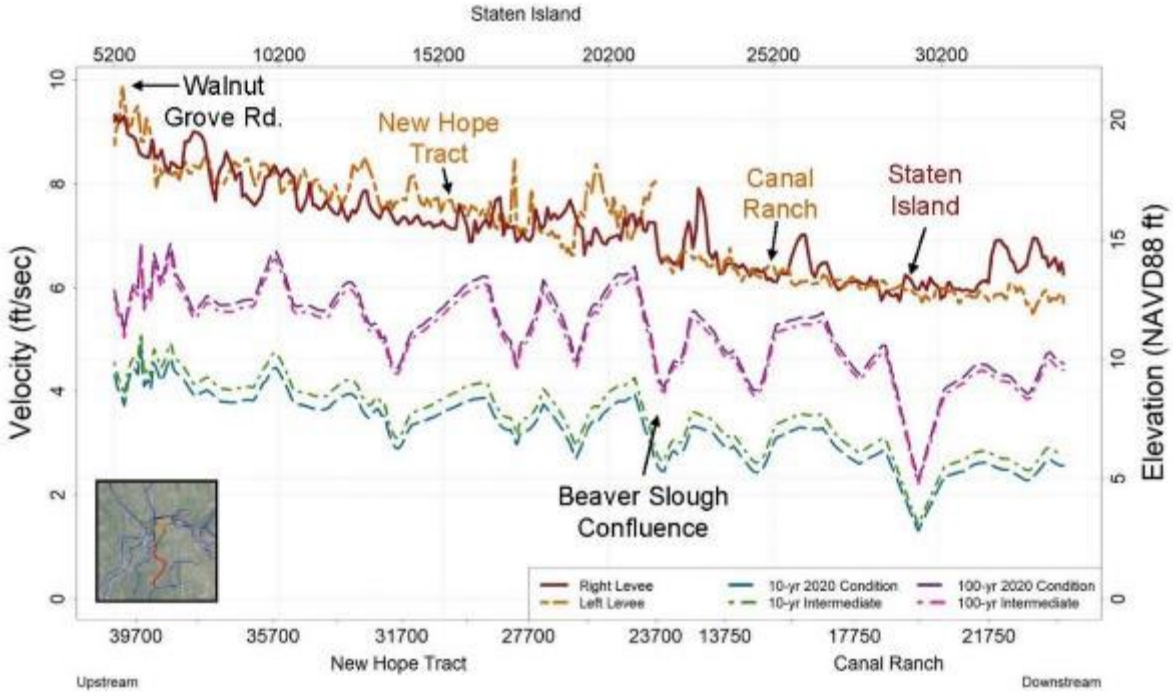
Source: cbec 2021a.

Figure 3.1-7. South Mokelumne River Water Surface Elevation and Velocity

(A) Water Surface Elevation Profiles for the 10- and 100-year Design Storms



(B) Velocity Profiles for the 10- and 100-year Design Storms



Notes: This reach includes areas downstream of MWT. Panel A indicates that WSEs are expected to decrease during the 100-year event and increase during the 10-year event as compared to baseline conditions. Panel B indicates that velocities are expected to decrease during the 100-year event and increase during the 10-year event.

Source: cbec 2021.

With the proposed project intentionally degrading portions of the restricted height levees on MWT, the available floodplain area in the region would increase, restoring transient floodplain storage as well as ecosystem functions for tidal marsh, transitional upland, and riparian habitats. The proposed project also eliminates the surge effect by increasing flood conveyance through MWT and does not allow MWT to rapidly fill and subsequently overtop and catastrophically breach in an uncontrolled manner as has occurred historically. Flood flows moving through the wider floodplain within MWT become re-constricted in the downstream waterways (e.g., within the North and South Mokelumne Rivers). This can increase WSEs during the peak of relatively frequent floods (i.e., the 10-year event) along downstream levees (cbec, 2020).

Sediment Transport Modeling

The sediment transport modeling conducted for Phase B evaluated long-term changes in channel bed conditions for the Mokelumne River, Snodgrass Slough, and the North and South Mokelumne Rivers under both pre-project (2010) and project conditions[8]. Model results indicate that the Mokelumne River is currently erosional in its reach between the Cosumnes River and the southwest corner of MWT, Snodgrass Slough has lower erosion levels between the DCC and the North Mokelumne River confluence, and the North and South Mokelumne Rivers are depositional. The expected long-term geomorphic change for these reaches under pre-project (2010) conditions is shown in the first panel of **Figure 3.1-8**.

Degrading the MWT levee along the Mokelumne River reduces the flow and sediment transport capacity of the Mokelumne River downstream of the levee degrade. This causes sediment to deposit within the channel bed downstream of the levee breach. Because of the sediment deposits in the Mokelumne River downstream of the levee degrade and the sediment deposited within MWT, the total export of sediment to the North and South Mokelumne Rivers is reduced. This causes the North and South Mokelumne Rivers to either aggrade less or switch to net bed erosion relative to existing conditions. Flow routing through MWT and through the MWT Southwest Levee degrade also causes increased channel bed erosion within Dead Horse Cut. Changes to the erosional or depositional characteristics of these reaches resulting from the Phase B actions are shown in the second panel of Figure 3.1-8.

Within MWT, the modeling found that an estimated 0.14 inch per year of fine sediment may initially deposit during tidal conditions. This sediment is likely stratified with coarser silts depositing closer to the MWT Southwest Levee degrade and finer silts and clays depositing in areas farther north within the interior of MWT.

Salinity Modeling

The salinity modeling conducted for Phase B evaluated the percentage change between pre-project and project conditions and examined if the project would result in non-compliance with the D-1641 water quality objectives for select locations (RMA, 2020). Electrical conductivity (µmhos/cm or µSiemens/cm), or EC, was modeled as a surrogate for salinity. The model evaluation period spanned the time period of February 1, 2009 to December 31, 2010, covering

[8] Project scenarios shown in **Appendix D** include wide, intermediate, and narrow configurations. The final project design is similar to the intermediate configuration.

both a dry year (2009) and a near normal year (2010) hydrology. These years are representative of when salinity levels would be relatively high (compared to lower salinities in wetter years). Project conditions were modeled for two scenarios— 'wide' (3,500-ft) and 'intermediate' (1,000-ft) degrading of the MWT Southwest Levee, which controls tidal interconnection under project conditions. Lowering of a 1,500-ft-long section of the MWT Southwest Levee for the Phase B project falls in between the wide and intermediate scenarios but is much closer to intermediate. Lowering of a 1,000-ft-long section of the MWT Southwest Levee, which is being considered for the final Phase B project design, would be the same as the intermediate scenario.

Monthly averaged EC was computed and compared for ten D-1641 compliance locations and three additional water export locations, shown in **Figure 3.1-9**. At all locations, changes in salinity concentrations, both positive and negative, are greatest for project scenarios[9] compared to baseline conditions and greater during 2009 (drier conditions) than during 2010. Among project conditions, changes in salinity conditions are greater for the wide scenario compared to the intermediate scenario. The largest salinity increases occurred in the central and south Delta, with peak monthly average increases in 2009 ranging from 3 to 8 percent, and peak increases in 2010 ranging from 2 to 6 percent.[10] The largest salinity increases occur at Prisoners Point (Station D29). Salinity in the northern and western Delta decreased with the project, with peak monthly averages decreasing by less than 1 percent in the north to 6 percent at Emmaton (Station D22) in 2009. The project decreased salinity in the DCC and nearby in Snodgrass Slough by 1 to 7 percent during January through April and increased salinity by 1 to 2 percent during May through July and December of 2010. Overall, the Project increases tidal mixing downstream of MWT, but slightly decreases tidal mixing upstream in Snodgrass Slough due to a slightly reduced tidal range.

The salinity model also evaluated the potential for the project to result in non-compliance with the D-1641 water quality objectives. The compliance analysis considered seasonal agriculture and fish and wildlife EC standards for the Sacramento River at Emmaton and Collinsville, and the San Joaquin River at Jersey Point and Prisoners Point. None of the project scenarios cause any of the modeled locations to approach exceedance of D-1641 salinity standards during compliance periods or increase the number of days of non-compliance. The salinity model also evaluated X2 for delta smelt, which is discussed in Section 3.6, "Biological Resources."

Appendix E includes figures and tables that show average monthly EC and change in EC at compliance and water export locations. Figures in **Appendix E** also show the 14-day running average EC at the Sacramento River at Emmaton and Collinsville and the San Joaquin River at Jersey Point and Prisoners Point, reproduced here as **Figures 3.1-10** and **3.1-11**. It should be noted that a comparison with observed data shows that the model generally overpredicts EC at Jersey Point during the D-1641 compliance period due to the limitations of the depth averaged model. If the incremental increase in EC is considered, there would be no violation of compliance standards relative to observed values.

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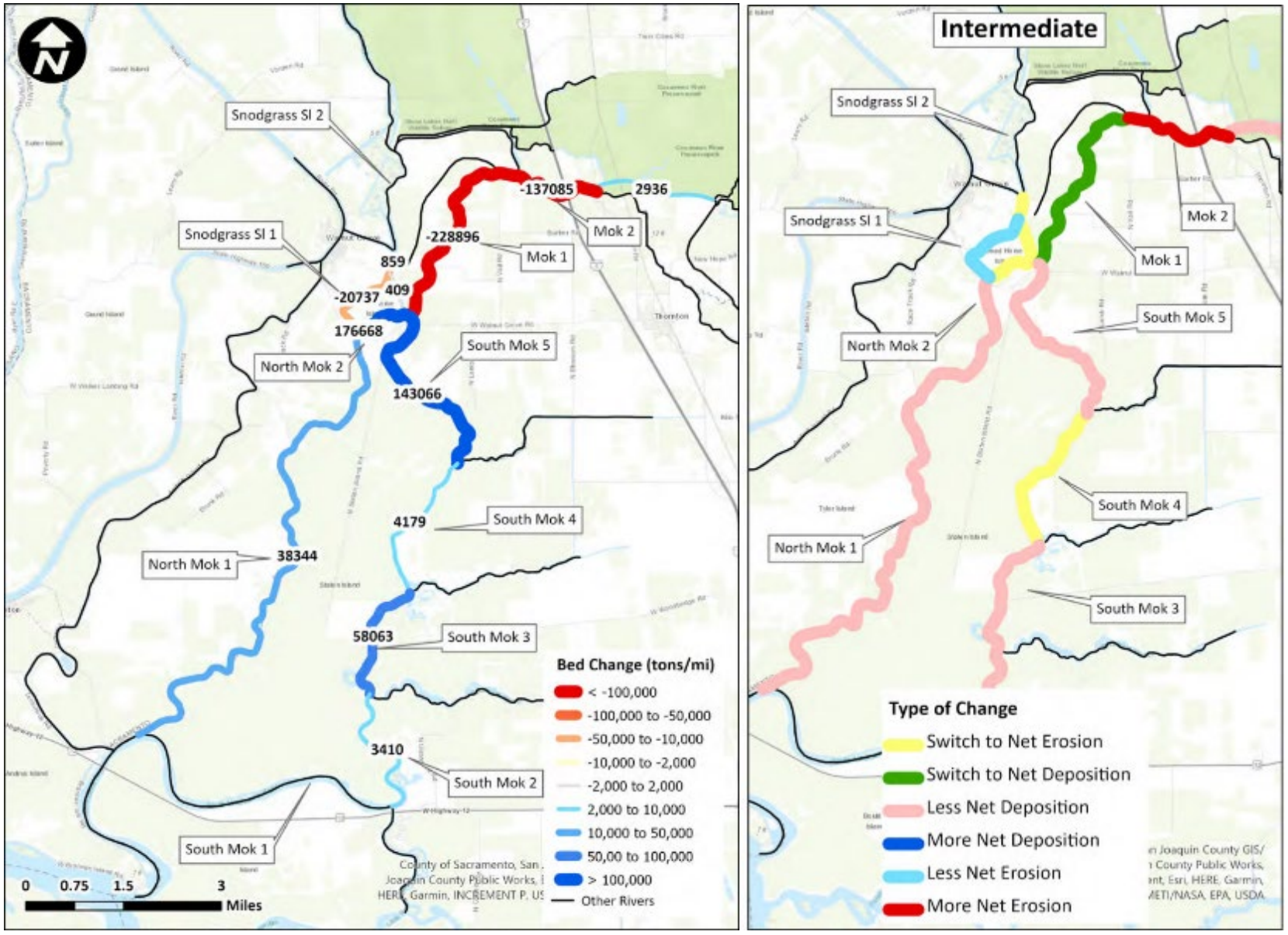
[9] Project scenarios shown in **Appendix E** included both wide (~Alt 1A) and intermediate configurations. The final project design is similar to the intermediate configuration.

[10] Percent change is equal to $(X_{final}- X_{intial})/X_{inital}$ *100, which is also equal to $(X_{final}/X_{initial} – 1)$ *100, where "X" is the parameter under consideration.

Figure 3.1-8. Baseline Erosion/Deposition and Project Changes



Source: cbec 2021c.

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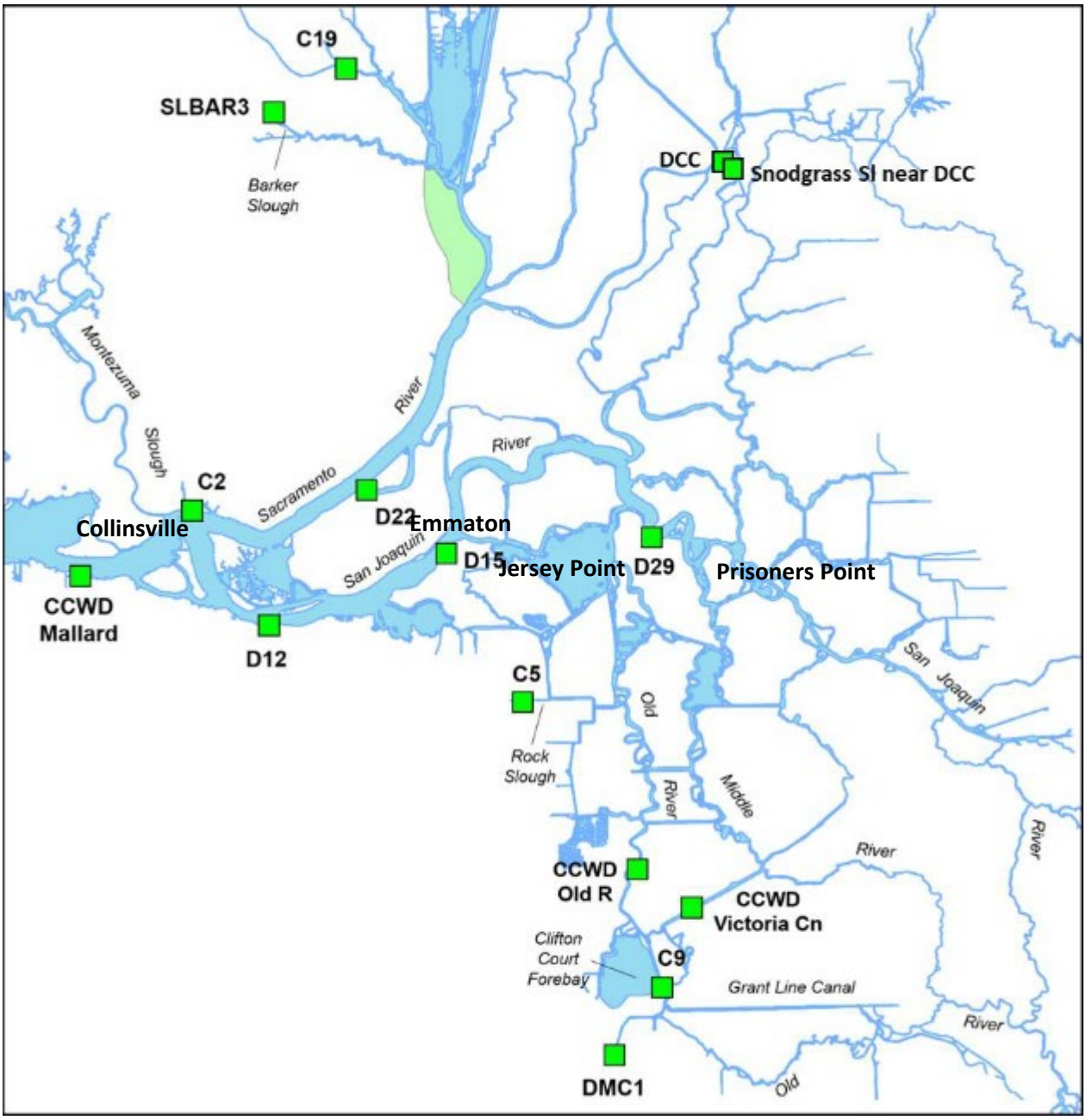
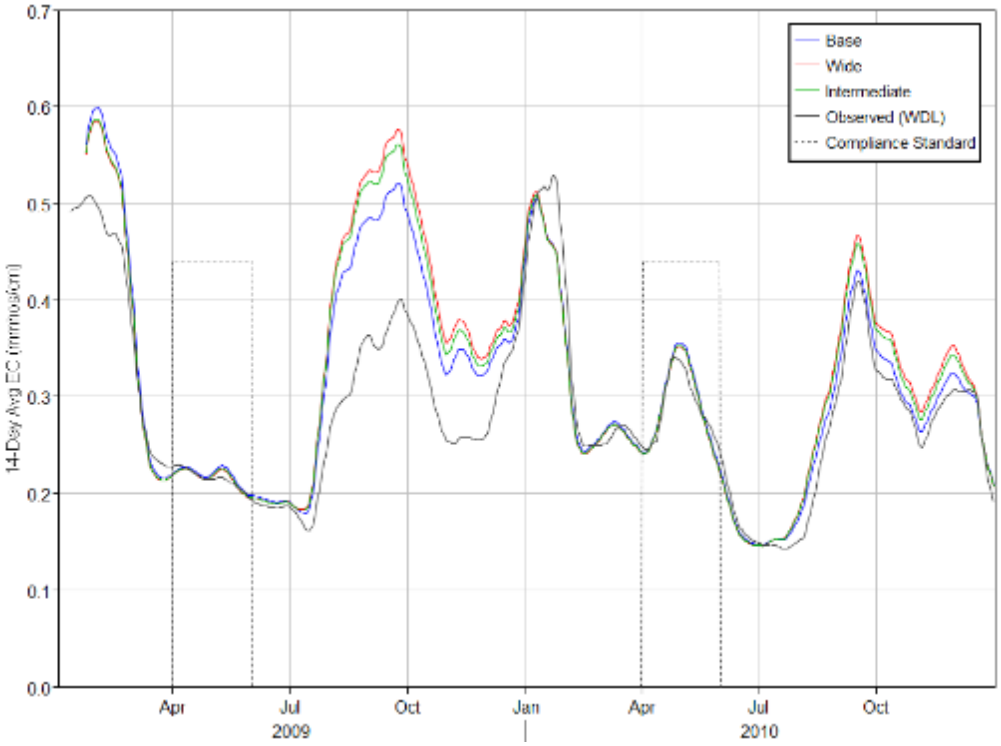
Figure 3.1-9. Model Index Points for Salinity Modeling



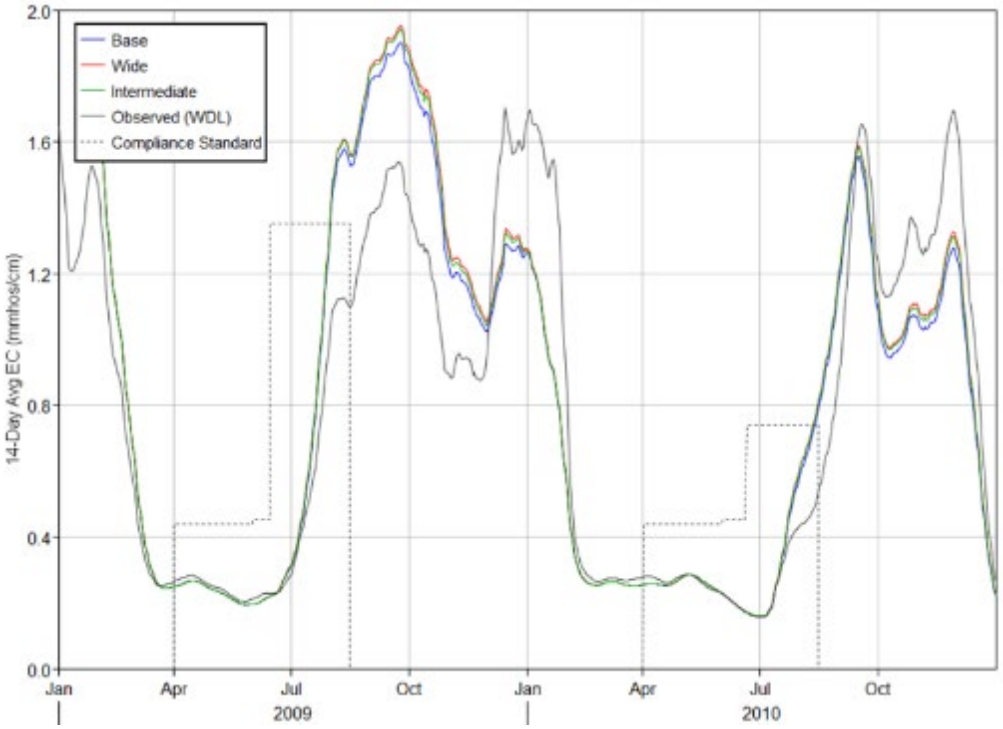
Source: RMA 2020.

Figure 3.1-10. D-1641 Compliance at San Joaquin River Stations

(A) San Joaquin River at Prisoners Point (Station D29)



(B) San Joaquin River at Jersey Point (Station D15)

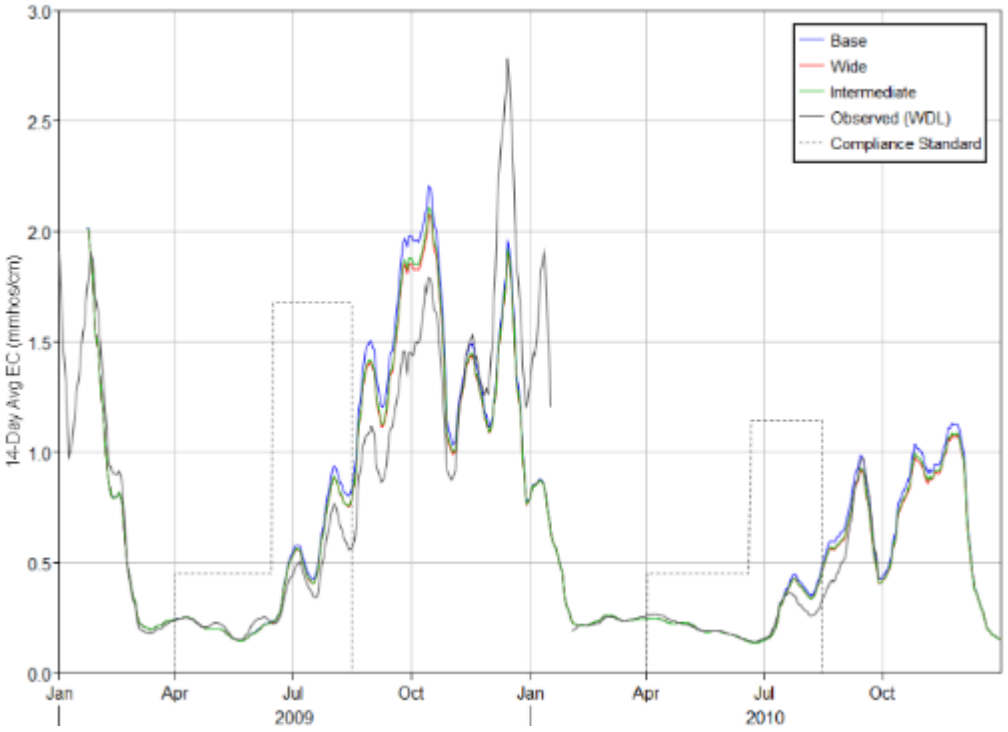


Notes: Wide, intermediate and baseline conditions are plotted with the D-1641 standard (i.e., the dotted line, shown where applicable) and observed EC. The final project design is similar to the intermediate configuration.

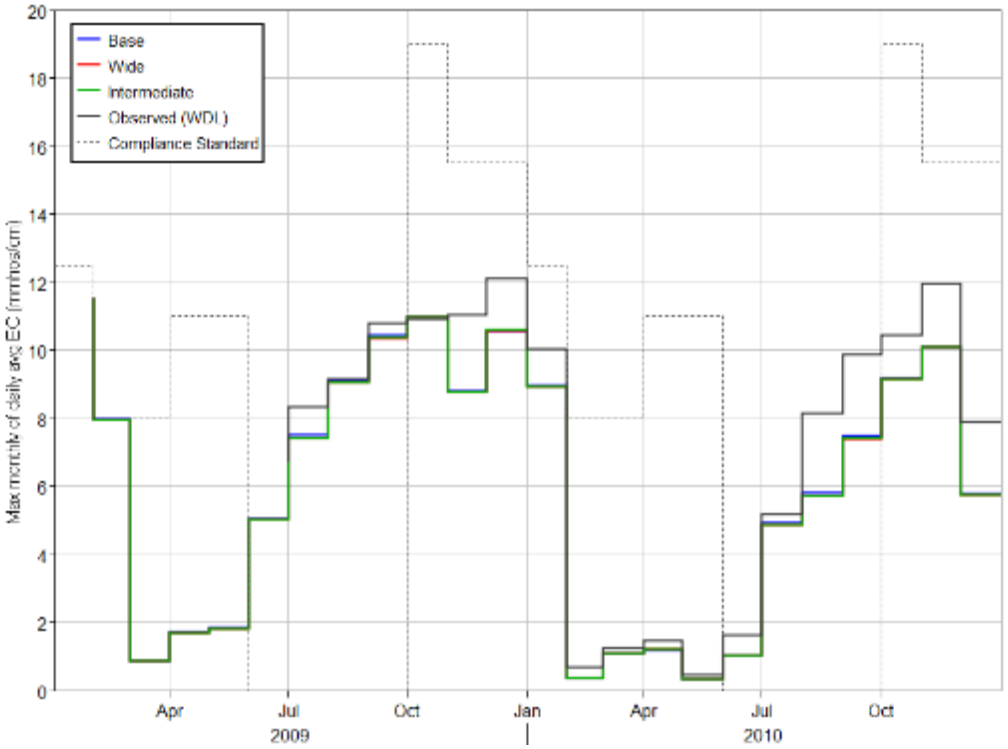
Source: RMA 2020.

Figure 3.1-11. D-1641 Compliance at Sacramento River Stations

(A) Sacramento River at Emmaton (Station D22)



(B) Sacramento River at Collinsville (Station C2)



Notes: Wide, intermediate and baseline conditions are plotted with the D-1641 standard (i.e., the dotted line, shown where applicable) and observed EC. The final project design is similar to the intermediate configuration.

Source: RMA 2020.

Flood Control and Levee Stability

Impact FC-1 (North Delta EIR): Raise Flood Elevations and Increase the Frequency of Flooding.

Alternative 1-A North Delta EIR Conclusions

As discussed in the North Delta EIR, since the project included downstream levee modification to accommodate increased flood stages (during the 100-year design flood) and features such as habitat-friendly levees and armoring of DHI's existing levees in the design, impacts from increased flood stage and frequency were considered less than significant.

Phase B Updated Evaluation

Phase B includes changes to levee modifications and habitat restoration at MWT. Degrading the MWT East Levee and widening and deepening the Mokelumne River Levee breach would restore fluvial hydrology, sediment deposition processes, and regular riverine floodplain inundation to the interior of the MWT. Degrading the MWT Southwest Levee would reintroduce tidal exchange to MWT and would allow flood flows to pass through MWT without causing a surge effect. Note that the current Phase B design does not include downstream levee modifications, since there is now no increased WSEs for the 100-year design flood; nor does it include armoring of DHI's existing levees as originally envisioned in the North Delta EIR.

100-year Design Flood

Updated hydrodynamic modeling was used to evaluate the effects of changes on flood elevations and frequency both upstream and downstream of MWT. Maximum WSE (or stage) was used as the main comparative analysis tool for the hydraulics and peak stage was analyzed at key index points in the model. As discussed in the "Flood Modeling" section above, during the 100-year design flood, the potential surge effect in areas downstream of MWT was eliminated and peak WSEs decreased both upstream and downstream of MWT, indicating that the project would decrease the severity of impacts from catastrophic floods.

10-year Design Flood

As discussed in the "Flood Modeling" section above, during the 10-year design flood, peak WSEs were decreased upstream of MWT; however, there was a 0.1- to 0.5-ft increase in peak WSEs and a 0.1 to 0.2 ft per second increase in peak velocities downstream of MWT, primarily in the North and South Mokelumne Rivers, indicating a potential for relatively more adverse conditions during more frequent smaller floods.

The results of the 10-year design flood show that the increased peak WSEs found downstream of MWT are expected to occur at elevations 2 to 3 ft or more below the top of the levees at DHI, Walnut Grove, Staten Island, Tyler Island, New Hope Tract, and Canal Ranch (see **Figures 3.1-2** to **3.1-4**), indicating that an increased chance of levee failure due to overtopping is minor to negligible. Increased velocities in these areas during the 10-year design flood are minor (0.1 to 0.2 ft per second), with total velocities generally occurring at or below 5 ft per second. As discussed in the North Delta EIR, the minimum velocities at which potential scour could occur in various channels, depending on construction type, is often in the range of 2 to 6 ft per second, based on general Federal channel design standards (USACE 2000). In the specific case of the

North and South Mokelumne Rivers, the minor increases in velocities occur in areas that were previously depositional (see the discussion under "Flood Modeling" and "Sediment Transport Modeling," above). Since increases in velocity would be minor and in some cases are in areas that were previously depositional, increased erosion and subsequent flooding due to an increase in scour during smaller, more frequent floods is unlikely.

As discussed in the North Delta EIR, maintenance, monitoring, and improvement are frequently required, particularly during floods, to maximize the protection provided by the levee system. These activities would continue after implementation of Phase B. In addition to the hydraulics, there are other factors that can damage levees and eventually contribute to levee failure including seismic movements, burrowing from small animals, wind and wave action, and dead or decaying roots from levee vegetation. These other factors remain unchanged at levees surrounding adjacent tracts.

Impact Conclusion

In summary, the project reduces the severity of impacts from catastrophic 100-year floods both upstream and downstream of MWT and eliminates the potential surge effect from MWT, which benefits downstream areas, but it can cause a 0.1 to 0.5-ft increase in peak WSEs during smaller, more frequent 10-year floods. On whole, the project provides a net benefit to both upstream and downstream waterways due to the elimination of the potential surge effect from MWT and decreases the WSE elevation during the 100-year flood event. Although there is an increase in flood stage elevations near downstream tracts during smaller, more frequent floods, the increased WSE would not cause overtopping nor is it likely to increase scour in a manner that would result in more frequent flooding. Therefore, the Phase B project would not result in a substantial increase in flood stage elevations and this impact would be **less than significant**.

Mitigation Measure: No mitigation is required.

Impact FC-2 (North Delta EIR): Increase the Degree or Quantity of Seepage.

Alternative 1-A North Delta EIR Conclusions

As discussed in the North Delta EIR, opening up MWT to more frequent flooding could potentially cause more seepage in adjacent levees. Frequent inundation would raise the groundwater level beneath MWT, which could create a flow gradient toward the adjacent islands/tracts, causing more seepage there. Because the quantity of seepage is uncertain, this impact was considered potentially significant. Mitigation Measure FC-1 was identified to develop a seepage monitoring program and install relief wells to mitigate impacts of seepage attributable to the MWT project. This impact was considered less-than-significant with mitigation.

Phase B Updated Evaluation

DWR established a Seepage Well Monitoring Network and monitored shallow and deep groundwater wells in the North Delta from 1993 to 2015. Data collected from this program are summarized in the *North and South Delta Seepage Well Monitoring Network Update* (DWR, 2015).

A major flood occurred in the North Delta during the period of record of this monitoring, when Glanville Tract, MWT, and DHI were flooded in January 1997 by an approximate 200-year flood event. Although data show seasonal peaks both before and after the flood, no long-term changes in groundwater elevations were apparent at MWT. Monitoring records for January and February 1997 were available for several wells in nearby tracts, including wells at New Hope Tract, Walnut Grove, and Staten Island. These monitoring data did not show a conclusive "flood inundation response" at the adjacent tracts after the 1997 flood. Instead, the higher-than-average WSEs found during January and February 1997 were within historical norms and comparable to the seasonal peaks associated with wet weather conditions (DWR, 2015). In addition, there was no evidence of unexpected conditions/short-circuiting affecting long-term conditions. Long-term trends occurred in some areas during other years, but they were likely due to conditions other than changes in seepage from flooded islands due to the timing of the changes. For example, one of the monitoring wells at New Hope Tract located in an area with improved levees showed a marked reduction in groundwater levels between 2004 and 2007 (DWR, 2015).

Although the primary variation in groundwater levels detected by the seepage well monitoring network appear to be seasonal and lacking clear evidence of seepage impacts from inundated tracts after the 1997 flood, the full extent of potential seepage impacts from inundation of adjacent island is unknown. Therefore, the impact from the project would be **potentially significant**.

Mitigation Measure: The following mitigation measure has been adapted from the mitigation included in the North Delta EIR to address Impacts FC-2 and GW-2. This mitigation measure updates North Delta EIR Mitigation Measure FC-1 and replaces North Delta EIR Mitigation Measure GW-1.

> **Mitigation Measure FC-1 (Updated): Develop a Seepage-Monitoring Program and Control Seepage.**
>
> A seepage-monitoring program will be implemented to supplement existing baseline data, provide early detection of seepage problems caused by potential inundation of MWT from the project, and quantify and document seepage impacts as the basis for appropriate mitigation and compensation measures. To the extent that the seepage monitoring indicates impacts attributable to the project, relief wells or other means of seepage control measures (described below) will be installed to mitigate such impacts.
>
> Baseline data would be needed to implement the seepage-monitoring program in an adaptive manner. The seepage monitoring network adjacent to MWT would be reinstated to create a seepage monitoring program to verify if seepage rates increase significantly on adjacent tracts. Monitoring wells will be equipped with data loggers capable of frequent monitoring of groundwater levels. With an upgraded monitoring capability, an increase in seepage rates (defined as a substantial increase beyond what has been observed in historical trends from 1993 to 2015 and other data sources before inundation of MWT by the project) will be adaptively managed and additional measures will be taken to protect lands adjacent to MWT if project implementation has larger impacts than anticipated.

DWR's participation could include financial contributions to support ongoing and future seepage control efforts if it is identified to be due to the project (such as those implemented by the Delta Levees Maintenance Subventions Program), assistance due to reduced crop production, land acquisition, and/or direct implementation of seepage control measures such as enhanced internal drainage, seepage berms, cutoff walls, passive relief wells, and active pumping wells. Seepage control measures are typically constructed on the landside of the levee, minimizing potential interactions with adjacent waterways. Financial contributions, land acquisition, and/or direct implementation of seepage control measures will be used adaptively to protect the lands adjacent to MWT if there is a substantial increase in seepage due to project inundation.

Timing: Monitoring will occur prior to (for 2 years, if possible, or at least 1 year), during, and for a minimum of 2 years after first inundation of MWT from the project.

Responsibility: DWR.

Significance after Mitigation: Implementation of Mitigation Measure FC-1 (Updated) would require a seepage-monitoring program to establish a baseline, provide early detection of seepage problems caused by the MWT project, and quantify and document seepage impacts. Seepage control measures will then be implemented to the extent that the seepage monitoring indicates impacts attributable to the MWT project. Therefore, this impact would be a **less-than-significant with mitigation**.

Impact FC-5 (North Delta EIR): Increase the Degree or Quantity of Scour.

Alternative 1-A North Delta EIR Conclusions

As discussed in the North Delta EIR, other than minor scouring of the degraded MWT East Levee and the breached Mokelumne River Levee during higher flows, scouring in the channel of the Mokelumne River and elsewhere in the study area was expected to be similar to existing conditions. Therefore, this impact was considered less than significant.

Phase B Updated Evaluation

Modifications to MWT levees would change hydrodynamics within MWT and nearby waterways and affect existing patterns of erosion and deposition in these areas. The nature and extent of these changes are discussed below.

Similar to the North Delta EIR, the Phase B project includes degrading the MWT East Levee and widening and deepening the Mokelumne River Levee breach to restore fluvial hydrology and allow regular riverine floodplain inundation within MWT, and degrading the MWT Southwest Levee to reintroduce tidal exchange and flow conveyance; however, the design of these features has changed. In addition, the tidal channel network in the MWT interior is now proposed to be excavated. These changes are expected to cause long-term sediment deposition within MWT.

Rock Slope Protection Use in Phase B Design

Some scouring could occur where the MWT levees are degraded/breached; however, RSP has been incorporated into the project design for the MWT East Levee degrade, Mokelumne River breach, and the bank cuts on the MWT Southwest Levee degrade to protect against erosion/scour. The MWT East Levee degrade and the Mokelumne River breach will both function as a weir. RSP would be provided along the entire degraded segment, including the waterside and landside of the levee, to prevent erosion and deepening of the levee degrade over time. RSP would also be provided at the MWT Southwest Levee degrade bank cuts to protect against erosion/scour from the approaching flow.

Changes in Sediment Transport

As discussed in the "Sediment Transport Modeling" section above, the Phase B project is expected to cause long-term changes in channel bed conditions in the Mokelumne River, Snodgrass Slough, and the North and South Mokelumne Rivers. Model results for pre-project (2010) conditions indicate that the Mokelumne River is erosional in its reach between the Cosumnes River and the southwest corner of MWT, Snodgrass Slough has lower levels of erosion between the DCC and the North Mokelumne River confluence, and the North and South Mokelumne Rivers are depositional. Degrading the MWT levee along the Mokelumne River reduces the flow and sediment transport capacity of the Mokelumne River downstream of the levee degrade. This causes sediment to deposit within the channel bed downstream of the levee breach. Because of the sediment deposits in the Mokelumne River downstream of the levee degrade and the sediment deposited within MWT, the total export of sediment to the North and South Mokelumne Rivers are reduced. This causes the North and South Mokelumne Rivers to either aggrade less or switch to net bed erosion relative to existing conditions. Flow routing through MWT and through the MWT Southwest Levee degrade also causes increased channel bed erosion within Dead Horse Cut.

Changes in Velocity

Changes to erosion and scour can also be inferred by the total velocities and changes in velocities that are expected to occur during design storm events. As discussed in the "Flood Modeling" section above, the Phase B project is expected to decrease maximum velocities in most waterways upstream and downstream of MWT during the 100-year design flood and an approximate 0.1 to 0.4 ft per second decrease is observed in reaches downstream of MWT (as shown in Table 3.1-2). However, maximum velocities were found to increase downstream of MWT by about 0.1 to 0.2 ft per second during the 10-year design flood (as shown in Table 3.1-4). These relatively small changes in velocities are expected to occur infrequently (less than once per year) during small flood events.

Figures 3.1-1 to 3.1-5 provide velocity profiles for the 10- and 100-year design flood for the Mokelumne River, Lower Snodgrass Slough, Dead Horse Cut, North Mokelumne River, and South Mokelumne River, respectively. Two locations that show an increase in maximum velocities during both the 10- and 100-year events are the Mokelumne River at Franklin Boulevard/Benson's Ferry (Figure 3.1-1) and at Dead Horse Cut upstream of the MWT Southwest Levee breach (Figure 3.1-3). Levees have been improved/enlarged at Bensons Ferry to address previously identified issues; however, similar improvements have not occurred at

Dead Horse Cut. Note that the Phase B project does not include armoring of DHI's levees as previously envisioned in the North Delta EIR.

Impact Conclusions

Although the Phase B project changes area not projected to drastically change the sediment characteristics of the project area to the point that management activities beyond those already implemented in the region would require significant modification, site-specific bank erosion control activities may be required in the future in response to continuing bank and bed scour. In the specific case of Dead Horse Cut, prior efforts anticipated a need for additional RSP in this area. As discussed in the North Delta EIR, the minimum velocities at which potential scour could occur in various channels, depending on construction type, is often in the range of 2 to 6 ft per second, based on general Federal channel design standards (USACE 2000). However, the existing hydrodynamic model predicts relatively low velocities (less than 5 ft per second) in the area upstream of the MWT Southwest Levee degrade where velocities would increase with Phase B project implementation. The DHI levees, including along Dead Horse Cut, are currently protected from scour by existing rock and broken concrete riprap. The existing riprap appears to cover much of the levee, but not all of the levee. Because of uncertainty in the degree of consistent scour protection in this area, this impact is considered **potentially significant**.

Mitigation Measure: The following new mitigation measure has been identified to address this impact:

> **Mitigation Measure FC-2 (New): Provide Payment to Protect Dead Horse Island East Levee.**
>
> The hydraulic model and a payment will be made by DWR to the owner of the DHI. The model and payment are to be used by the DHI owner to evaluate where additional rock scour protection should be placed, size the rock for the appropriate flow velocities, and purchase/install the rock scour protection system to fully mitigate the potential scour impacts from the MWT project on the DHI levees. The entire length of the Dead Horse Cut levee will be evaluated for rock (about 3,200 ft) from the channel bed elevation up to the 100-year WSE (elevation 17.2 ft). Because there is existing rock and broken concrete riprap, the placement of the new rock will be installed as a maintenance activity (versus a new installation of rock scour protection) and will be integrated with the existing rock to achieve at least a rock layer 2.5 ft thick and at about 1 to 2 tons of rock (existing and new) per linear ft of the levee.
>
> **Timing:** The hydraulic model and a payment to the owner of the DHI prior to completion of project construction. The DHI Owner will implement the rock scour protection system within 2 years after the completion of project construction.
>
> **Responsibility:** RD 2110 will provide the hydraulic model; and DWR will provide all funding and oversight of implementation by the owner of DHI.

Significance after Mitigation: Mitigation Measure FC-2 provides for funding similar improvements to the DHI east levee as what was originally envisioned in the North Delta EIR to address potential erosion scour. Therefore, this impact would be a **less-than-significant with mitigation**.

Geomorphology and Sediment Transport

Impact GEOMORPH-2 (North Delta EIR): Increase in Sediment Accumulation in Channels as a Result of Levee Modifications.

Alternative 1-A North Delta EIR Conclusions

The North Delta EIR discussed that Alternative 1-A was not projected to drastically change the sediment characteristics of the project area to the point that management activities beyond those already implemented in the region would require significant modification. Limited dredging activity had been reported on some of the reaches in the project area, and such activity would likely continue in response to continued sediment deposition in the area. Therefore, this impact was considered less than significant**.**

Phase B Updated Evaluation

As discussed above in Impact FC-5 above, the Phase B project is expected to cause long-term changes in channel bed conditions in the Mokelumne River, Snodgrass Slough, and the North and South Mokelumne Rivers. Degrading the MWT levee along the Mokelumne River reduces the flow and sediment transport capacity of the Mokelumne River downstream of the levee degrade. This causes sediment to deposit within the channel bed downstream of the breach and reduces total export of sediment to the North and South Mokelumne Rivers. Similar to what was anticipated in the North Delta EIR, the change to net deposition along the Mokelumne River downstream of the breach is not projected to drastically change the sediment characteristics of the project area to the point that management activities beyond those already implemented in the region would require significant modification. Therefore, this impact would be **less than significant**.

Mitigation Measure: No mitigation is required.

Impact GEOMORPH-3 (North Delta EIR): Increase in Sediment Accumulation on Land as a Result of Levee Modifications.

Alternative 1-A North Delta EIR Conclusions

As discussed in the North Delta EIR, the proposed degradation and breaching of levees would allow high flows carrying suspended sediment to enter the MWT. Depending on the amount of water that is carried over the degraded levee and the breached levee, the entire MWT has the potential to be temporarily inundated and act as a sediment trap. Once floodwaters recede, suspended sediment would settle out of the water column and be deposited on the MWT. Bioaccretion and sedimentation through flooding, riverine, and tidal processes on the MWT, which rarely experiences these processes, would be beneficial for establishing new vegetation and creating floodplain habitat complexity and diversity. Therefore, the impact from the project was considered beneficial**.**

Phase B Updated Evaluation

As discussed in Impact FC-5, levee degrades and breaches would restore fluvial hydrology and allow regular riverine floodplain inundation within MWT, reintroduce tidal exchange and flow conveyance, and facilitate long-term sediment deposition within MWT. Sediment transport modeling found that an estimated 0.14 inch per year of fine sediment may initially deposit within MWT during tidal conditions. This sediment is likely stratified with coarser silts depositing closer to the MWT Southwest Levee degrade and finer silts and clays depositing in areas farther north within the interior of MWT. Sediment accretion within MWT would help to establish new vegetation and increase floodplain habitat complexity and diversity. Therefore, this impact would be **beneficial**.

Mitigation Measure: No mitigation is required.

Impact GEOMORPH-4 (North Delta EIR): Increase in Scouring on Levees and in Channels as a Result of Levee Modifications.

Alternative 1-A North Delta EIR Conclusions

As discussed in the North Delta EIR, Alternative 1-A was not projected to drastically change the sediment characteristics of the project area to the point that management activities beyond those already implemented in the region would require significant modification. Site-specific bank erosion control activities likely would be required in the future in response to continuing bank and bed scour. Therefore, this impact was considered less than significant.

Phase B Updated Evaluation

As discussed above in Impact FC-5, the Phase B project is expected to cause long-term changes in channel bed conditions in the Mokelumne River, Snodgrass Slough, and the North and South Mokelumne Rivers. Degrading the MWT levee along the Mokelumne River may reduce the flow and sediment transport capacity of the Mokelumne River immediately downstream of the levee degrade. This causes sediment to deposit within the channel bed downstream of the breach and reduces total export of sediment to the North and South Mokelumne Rivers. Areas with an increase in net erosion or a switch from net deposition to net erosion include the Mokelumne River reach upstream of the Mokelumne River breach, Dead Horse Cut upstream of the MWT Southwest Levee breach, the segment of the Mokelumne River between the southwest corner of MWT and the North Mokelumne River, and the segment of the South Mokelumne River between Beaver Slough and Hog Slough.

An indication of the potential magnitude and severity of the change in scour in these areas can be inferred by the total velocities and changes in velocities that are expected to occur during design storm events. As discussed in the "Flood Modeling" section above, the Phase B project changes are expected to decrease maximum velocities in most waterways both upstream and downstream of MWT during the 100-year design flood with an approximate 0.1 to 0.4 ft per second decrease occurring in downstream reaches (Table 3.1-2). However, maximum velocities were found to increase downstream of MWT by about 0.1 to 0.2 ft per second during the 10-year design flood (Table 3.1-4), indicating that relatively small changes in velocities are expected to occur during small flood events.

Although the Phase B project changes are not projected to substantially change the sediment characteristics of the project area to the point that management activities beyond those already implemented in the region would require significant modification, site-specific bank erosion control activities may be required in the future in response to continuing bank and bed scour. In the specific case of Dead Horse Cut, prior efforts anticipated a need for additional RSP in this area. However, the existing hydrodynamic model predicts relatively low velocities (less than 5 ft per second) in the area upstream of the MWT Southwest Levee degrade where velocities would increase with project implementation. The DHI levees, including along Dead Horse Cut, are currently protected from scour by existing rock and broken concrete riprap. The existing riprap appears to cover much of the levee, but not all of the levee. Because of uncertainty in the degree of consistent scour protection in this area, this impact is considered **potentially significant**.

Mitigation Measure: The following new mitigation measure has been identified to address this impact:

> **Mitigation Measure FC-2 (New): Provide Payment to Protect the Dead Horse Island East Levee.**
>
> Please refer to Mitigation Measure FC-2 in Impact FC-5 above for the full text of this mitigation measure.

Significance after Mitigation: Mitigation Measure FC-2 provides for funding similar improvements to the DHI east levee there were originally envisioned in the North Delta EIR to address potential erosion and scour. Therefore, this impact would be a **less-than-significant with mitigation**.

Impact GEOMORPH-5a (North Delta EIR): Increase in Scouring on Land as a Result of Levee Modifications (MWT East Levee).

Alternative 1-A North Delta EIR Conclusions

As discussed in the North Delta EIR, Alternative 1-A proposed RSP on the landside toe of the degraded MWT East Levee and on the slope of the levee to match the existing grade to provide necessary erosion protection. Therefore, significant scouring was not anticipated on the landside of the degraded MWT East Levee, and this impact was considered less than significant.

Phase B Updated Evaluation

As described in Impact FC-5 above, the Phase B project changes continue to propose RSP at the MWT East Levee degrade to protect against erosion and scour. The specific type and placement of the RSP differs from what was envisioned in the North Delta EIR, but the function of the RSP and the overall protection provided remains the same. The MWT East Levee degrade would function as a weir and RSP would be provided along the entire degraded segment, including the waterside and landside of the levee, to prevent erosion and deepening of the levee degrade over time. Therefore, significant scouring is not anticipated on the landside of the degraded MWT levees, and this impact would be **less than significant**.

Mitigation Measure: No mitigation is required.

Impact GEOMORPH-5b (North Delta EIR): Increase in Scouring on Land as a Result of Levee Modifications (Mokelumne River Levee).

Alternative 1-A North Delta EIR Conclusions

As discussed in the North Delta EIR, another area of scouring concern on land is where the breached Mokelumne River Levee interacts with the land surface of the MWT. The breach in the Mokelumne River Levee was designed so that it could scour and eventually form into a natural channel inlet. This natural channel inlet would be a stable geomorphic feature, and this impact was considered beneficial.

Phase B Updated Evaluation

As described in Impact FC-5 above, the Phase B project changes propose RSP at the Mokelumne River Levee breach to protect against erosion and scour. Instead of eventually forming into a natural channel, the MWT East Levee degrade would now function as a weir and RSP would be provided along the entire degraded segment and bank cuts, including the waterside and landside of the levee, to prevent erosion and deepening of the levee degrade over time. This would also allow the breach to continue being used as an access road for maintenance. Therefore, significant scouring is not anticipated on the landside of the degraded MWT levees, and this impact would be **less than significant**.

Mitigation Measure: No mitigation is required.

Impact GEOMORPH-5c (North Delta EIR): Increase in Scouring on Land as a Result of Levee Modifications (Dead Horse Island).

Alternative 1-A North Delta EIR Conclusions

As discussed in the North Delta EIR, scouring of DHI was not a concern because reinforcement of the DHI east levee was included as a component of Alternative 1-A and would alleviate any potential for scouring on the island. Therefore, this impact was considered less than significant.

Phase B Updated Evaluation

As discussed in Impact FC-5 above, the Phase B project changes no longer include armoring of DHI's levees, as previously envisioned in the North Delta EIR. Although current sediment transport modeling predicts switch to net erosion in this area, the current flood modeling predicted relatively low velocities (less than 5 ft per second) in the area upstream of the MWT Southwest Levee degrade where velocities would increase with project implementation. The DHI levees, including along Dead Horse Cut, are currently protected from scour by existing rock and broken concrete riprap. The existing riprap appears to cover much of the levee, but not all of the levee. Because of uncertainty in the degree of consistent scour protection in this area, this impact is considered **potentially significant**.

Mitigation Measure: The following new mitigation measure has been identified to address this impact:

Mitigation Measure FC-2 (New): Provide Payment to Protect the Dead Horse Island East Levee.

Please refer to Mitigation Measure FC-2 in Impact FC-5 above for the full text of this mitigation measure.

Significance after Mitigation: Mitigation Measure FC-2 provides for funding similar improvements to the DHI east levee that were originally envisioned in the North Delta EIR to address potential erosion and scour. Therefore, the project would have a **less-than-significant with mitigation**.

Water Quality

Impact WQ-1 (North Delta EIR): Release of Pollutants during Construction and Dredging.

Alternative 1-A North Delta EIR Conclusions

As discussed in the North Delta EIR, because the pre-dredging sampling and SWPPP will be part of the project activities, there are assumed to be no significant impacts from the release of pollutants during construction or dredging activities associated with Alternative 1-A. Therefore, this impact was considered less than significant.

Phase B Updated Evaluation

The Phase B project changes include levee modification, extensive interior grading, removal and relocation of SMUD distribution lines, decommissioning of inactive gas wells, and removing segments of abandoned gas pipelines. This includes additional work at MWT and new distribution line project locations offsite. Construction activities such as vegetation removal, grading, excavation, trenching, and backfilling could result in disturbed soils being temporarily exposed to the erosive forces of wind, rain, and stormwater runoff, causing the release of construction-generated sediment to Delta waterways. Stormwater runoff could be contaminated with chemicals typically used during construction (e.g., fuels, oils, and solvents) through the daily use, transportation, and storage of these materials, if they are not properly controlled. Construction activities such as grading, excavation, and trenching also have the potential to change existing drainage patterns, which could affect erosion and sedimentation in new areas if unconsolidated sediments are exposed to new flow paths or if the total amount of flow is greater than historical norms.

In addition to construction activities that would occur in the dry, in-water work may be needed for excavation and installation of RSP on waterside of the MWT East Levee, the MWT Southwest Levee, and Mokelumne River breach. In addition, soil excavated during the last phase of the MWT Southwest Levee degrade could be placed underwater along the re-sloped bank and spread with a long reach excavator.

Excavation below the waterline would occur using either a barge-mounted excavator or a land-based excavator. No equipment would be staged or operated within water. In-water excavations would be timed, to the extent possible, with low tide. Silt curtains or similar controls would be deployed around in water excavation to reduce turbidity and total suspended solids; and if necessary, would be moved as the working area shifts to different locations. Water quality

monitoring would be performed during in-water excavation. Note that the optional dredging of the South Fork Mokelumne River envisioned in the North Delta EIR is not currently part of the project.

Although surface water quality could be affected by these construction activities, construction plans and specifications would require the contractor to develop and implement a SWPPP consistent with the Construction General Permit (Order No. 2009-0009-DWQ, National Pollution Discharge Elimination System No. CAS000002, as amended) to control stormwater and non-stormwater discharges and implement the CALFED programmatic mitigation measures/environmental commitments[11] during construction of the Phase B project. BMPs would be implemented by the construction contractor during project construction and incorporated into the SWPPP where appropriate.

Additionally, RD 2110 would obtain all necessary permits and approvals for project implementation, including a Clean Water Act Section 401 Water Quality Certification from the SWRCB or RWQCB. This certification is issued by the water board to address water quality impacts and it identifies turbidity limits and other water quality conditions that must be followed during in-water work.

Control measures and BMPs would be used to minimize wind- and water-related soil and sediment discharges at the project site, minimize potential contamination of stormwater and non-stormwater discharges, and prevent hazardous material spills. Potential contamination and sediment transport by runoff from active construction areas would be minimized and substantially avoided. In addition, project-specific turbidity control measures are also proposed in Mitigation Measure WQ-2 (new) to further reduce potential turbidity related impacts to surface water quality during in-water work.

Mitigation Measure: The following new mitigation measure has been identified to reduce potential turbidity during in-water construction:

> **Mitigation Measure WQ-2 (New): Inspect Sediment and Turbidity Control Barriers Daily during Construction for Proper Function and Replace Immediately if Not Functioning Effectively.**
>
> RD 2110 will inspect performance of sediment and turbidity control barriers at least once each day during construction to ensure they are functioning properly. Should a control barrier not function effectively, it will be immediately repaired or replaced. Additional controls will be installed as necessary.
>
> **Timing:** During project construction.
>
> **Responsibility:** RD 2110 and/or its construction contractor(s).

[11] The environmental commitment applicable to water quality are described above under the "Analysis Methodology" section.

Significance after Mitigation: Mitigation Measure WQ-2 (New) provides for regular inspection and maintenance of sediment and turbidity control barriers (silt curtains) during in-water work. This measure would further reduce potential turbidity related impacts to surface water quality during in-water work. The impact from the project would be **less-than-significant with mitigation**.

Impact WQ-3 (North Delta EIR): Release of Methylmercury.

Alternative 1-A North Delta EIR Conclusions

The North Delta EIR discussed that little methylmercury production information is available for Delta wetlands; however, estimates from small experimental marshes on Twitchell Island suggest that increasing wetland acreage may increase methylmercury concentrations in water and biota. There is scientific uncertainty regarding the relative production of methylmercury from wetlands versus agricultural lands. It is assumed, however, that Alternative 1-A would increase the release of methylmercury relative to the No Project Alternative. This impact was considered potentially significant. Mitigation Measure WQ-1 was identified for DWR to participate in an offset program to ensure no net increase in methylmercury loading. Therefore, this impact was less-than-significant with mitigation.

Phase B Updated Evaluation

Methylmercury is a toxic contaminant that bioaccumulates in the aquatic food web. Sediment-bound mercury in the Delta may become methylated in agricultural lands, wetlands, and open-water habitats. RWQCB has identified methylmercury as a contaminate of concern and has adopted a basin plan amendment for methylmercury in the Delta. The Delta Mercury Control Program is now being implemented as a control strategy to reduce methylmercury and inorganic mercury in the Delta.

DWR participates in, and contributes to, the Delta RMP, which evaluates the long-term impacts of multiple projects in the Delta and Yolo Bypass on constituents such as mercury, nutrients, pesticides, and toxicity. In response to the Delta Mercury Control Program, DWR characterized four tidal wetlands to determine whether tidal wetlands were importing or exporting methylmercury and by what mechanisms. Based on the collected data and analyses, none of the four wetlands appear to be a significant source of methylmercury to their adjacent waterbodies, nor are concentrations of methylmercury significantly higher leaving the wetland than entering the wetland. Generally, the waters entering (or leaving) the wetlands are not meeting the RWQCB's Delta Mercury Control Program water quality criterion of 0.06 ng/L and there does not seem to be a measurable annual increase in methylmercury loads in receiving waters due to the tidal wetlands. While the four tidal wetlands do not appear to be a source of methylmercury annually, two of the four wetlands appear to be a source of total mercury and the other two wetlands appear to be sinks of total mercury, predominantly in the particulate form (DWR, 2020).

This recent study prepared for RWQCB under the Delta Mercury Control Program provides new information regarding the export of methylmercury where data were previously lacking. Although new tidal wetlands would be created at MWT, these more recent data suggest that there would be no substantial degradation in water quality from tidal wetlands with respect to

methylmercury. Therefore, this impact would be **less than significant** and Mitigation Measure WQ-1, identified for this impact in the North Delta EIR, is no longer necessary for the MWT project and will not be implemented.

Mitigation Measure: No mitigation is required.

Impact WQ-4 (New): Release of Pesticides.

New Phase B Impact Evaluation

Central and east Delta waterways are impaired by pesticides. Synthetic chemicals (such as pesticides and herbicides) can adversely affect Delta fish and other aquatic organisms and/or accumulate in sediments in Delta waterways. Restoration of wetlands and disturbance of contaminated sediments could release more of these constituents into the water column. The Phase B project also includes the use of pesticides and herbicides for invasive species management and mosquito management. These pesticides also have the potential to be released due to tidal inundation.

The potential for the release of pesticides and other contaminated materials due to project inundation is discussed in Impact PH-5 in Section 3.10, "Public Health and Hazards." Agricultural buildings, aboveground storage tanks, and other facilitates identified in the hazardous substances assessment summary report for the project (AECOM, 2015), including a pesticide mixing shed and a pesticide storage trailer, were removed from MWT and contaminated soils have been capped with approximately 3 ft of clean soil. However, since the full extent of contaminated soil, including from the pesticide storage shed, has never been defined, and it remains possible excavation associated with Phase B could encounter the contaminated soil.

Selective herbicides and spot spraying would be used to control invasive plants in both upland and tidal areas. In tidal marshes and shallow subtidal aquatic areas, growth of invasive aquatic plant species (i.e., submerged aquatic vegetation and floating aquatic vegetation) may compete with emergent marsh vegetation during the early establishment phase. MWT is within a current aquatic weed management area managed by CDBW, and CDBW would conduct aquatic vegetation management under its programmatic EIR within MWT when it is tidally inundated.

Mosquito populations would also be managed at MWT. As per the environmental commitments identified in the North Delta EIR for integrated mosquito management, provisions in project maintenance plans are to include chemical controls for mosquitos, such as the application of *Bacillus thuringiensis* var. *israelensis*, *Bacillus sphaericus*, methoprene, or other EPA-approved pesticides as needed. The Sacramento-Yolo Mosquito and Vector Control District provides mosquito and vector control services to Sacramento and Yolo Counties, including surveillance and treatment in this area.

Pesticides and herbicides would be applied in accordance with EPA-approved pesticide label instructions, including specifications for maximum quantities, methods, and BMPs needed to reduce potential impacts on aquatic and terrestrial species. Restricted use pesticides would only be applied by certified individuals.

The potential for release of pesticides to nearby waterways have been reduced due to clean-up actions at the site, and maintenance activities would be conducted consistent with approved pesticide application practices. However, since the full extent of soil contaminated with pesticides has not been defined, and it remains possible excavation associated with Phase B could encounter soil contaminated with pesticides, this impact would be **potentially significant**.

Mitigation Measure: The following new mitigation measure has been identified to address this impact:

> **Mitigation Measure PH-1 (Updated): Properly Dispose of Contaminated Material.**
>
> Please refer to Mitigation Measure PH-1 (Updated) in Impact PH-2 in Section 3.10, "Public Health and Hazards" for the full text of this mitigation measure.

Significance after Mitigation: Implementation of Mitigation Measure PH-2 would reduce this impact because soil (and groundwater, if applicable) that has been contaminated with pesticides during former agricultural operations would be remediated prior to the start of project-related construction activities. Therefore, this impact would be **less-than-significant with mitigation**.

Impact WQ-5 (New): Change in Salinity.

New Phase B Impact Evaluation

High salinity water from Suisun and San Francisco Bays intrudes into the Delta during periods of low Delta outflow, adversely affecting beneficial uses. High bromide in the saltwater can lead to the formation of brominated disinfection byproducts.

Salinity water quality objectives were established in the *Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary* (or Bay Delta Plan) to protect fish and wildlife, agricultural, and municipal and industrial beneficial uses, and those objectives and implementation measures were propagated into D-1641.

A salinity model was used to evaluate potential changes in salinity due to Phase B actions. The updated design of the MWT Southwest Levee degrade for Phase B considered salinity modeling and that the wide scenario resulted in greater salinity compared to the intermediate scenario. Therefore, a shorter degrade length of the MWT Southwest Levees was selected (either the 1,500- or 1,000-ft-long section options would be shorter), compared to Alternative 1-A in the North Delta EIR, in part because salinity levels would be reduced while maintaining project objectives for flood protection and habitat restoration.

The salinity modeling for Phase B evaluated the potential for the project to result in non-compliance with the D-1641 water quality objectives. The compliance analysis considered seasonal agriculture and fish and wildlife EC standards for the Sacramento River at Emmaton and Collinsville, and the San Joaquin River at Jersey Point and Prisoners Point. Project changes (for both the wide and intermediate scenarios) did not cause any of the modeled locations to approach exceedance of D-1641 salinity standards during compliance periods or increase the number of days of non-compliance. (It should be noted that a comparison with observed data shows that the model generally overpredicts EC at Jersey Point during the D-1641 compliance

period due to the limitations of the depth averaged model. If the incremental increase in EC is considered, there would be no violation of compliance standards relative to observed values.)

The Phase B salinity modeling indicates that the project would not violate water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality. This impact would be **less than significant**.

Mitigation Measure: No mitigation is required.

Water Supply and Management

The North Delta EIR discusses that changes in water uses are not considered to be a direct physical environmental impact. A water supply impact would result from any interference with an existing water right holder or the needs for environmental water (i.e., instream flows).

Impact WSM-1 (North Delta EIR): Changes in Water Uses as a Result of the Project.

Alternative 1-A North Delta EIR Conclusions

As discussed in the North Delta EIR, Alternative 1-A would change land practices on approximately one half of MWT. Water diversion pumps would generally continue to operate but overall use of water diversion pumps would decrease slightly and drainage pumps would be decommissioned. There would be no changes in SWP and CVP Delta operations, the East Bay Municipal Utility District (EBMUD) Mokelumne River operations, or the Woodbridge Irrigation District diversions. Therefore, this impact was considered less than significant.

Phase B Updated Evaluation

Changes in Water Use

After the 2017 flood event, agricultural production on MWT ceased, including planting of crops and other activities to maintain the site for agricultural uses. As a result, water use for agricultural purposes ceased and the need to discharge drainage was substantially reduced.

MWT currently has some agricultural water management infrastructure in place, including a network of supply and drainage ditches across the tract interior and pumps and siphons. Pumps and siphons would be decommissioned consistent with the description in the North Delta EIR. Aside from the removal of many of the pumps and siphons, a new or repurposed drainage pump may be installed and operated for active water management and drainage at the northwest corner of the Tower Levee for at least the duration of the communications tower lease (until 2032). This drainage pump would extract excess accumulated water from the toe ditch on the inside of the Tower Levee and discharge to the tidal portion of the MWT.

Inundation of MWT under the current Phase B project would be somewhat different than was discussed in the North Delta EIR, due to changes in design of levee degrades/breaches and landform modifications, hydrologic conditions at MWT, and updated hydraulic modeling. Anticipated habitat types throughout the tract include subtidal open water/shallow subtidal habitat, tidal marsh habitat, and riparian scrub/mixed riparian woodland/valley oak woodland habitat. Plantings are not proposed for Phase B but could be identified during adaptive management and may be irrigated for an establishment period of approximately 3 years using existing pumps and siphons and/or temporary mobile pumps with screens.

Changes in Evapotranspiration

The project may increase natural water consumption by riparian and wetland vegetation on the tract and evaporation off saturated soils or open water habitats, cumulatively referred to as evapotranspiration (ET) losses. Since active agricultural production ceased on MWT after the 2017 flood event, MWT has been experiencing a transitional state between cultivated agriculture and a naturally breached flooded island. The grassland/ruderal vegetation growing on the fallowed fields on the tract interior has been observed to stay green late into the summer or fall, while grassland vegetation growing nearby at slightly higher elevations is dry and dormant by late spring. Therefore, vegetation on the tract interior is likely somewhat groundwater dependent, actively growing and transpiring water for much of the year.

Table 3.1-5 shows categories of ET rates classified by a recent natural vegetation water use study for the Central Valley (Howes et al. 2015) and estimated local agricultural crop ET rates (ITRC 2003), that are applicable to past, current, and future vegetation conditions at MWT. Vegetation currently growing on most of the tract interior is most similar to the category of "perennial grassland", which is distinguished from "rainfed grassland" typical of the foothills because it is expected to tap into a shallow water table allowing for an extended growing season (Howes et al. 2015). Prior to the fallowing of the tract, MWT was cultivated to grow row crops, such as corn and tomatoes; however, the ET rate in Table 3.1-5 is an underestimate, in that it does not include the additional annual ET that occurs with inter-year crop rotations or cover cropping (ITRC 2003). Natural habitat classifications that may be restored on MWT are riparian forest, valley oak savannahs, seasonal wetlands, freshwater marshes, and shallow open water (Howes et al. 2015).

Table 3.1-5. Estimated Past, Current, and Post-project Per-acre Evapotranspiration Rates on MWT

Timeframe – MWT Vegetation Conditions	ET Classification	Per-acre ET Rate (acre-feet per year per acre)
Prior to 2017 – agricultural production	cultivated row crops (e.g., corn and tomatoes)	102-122[1]
2017 to Present – current vegetation conditions	perennial grassland	195.5[2]
Post-project – habitats restored by Phase B	riparian forest	200.7[2]
	valley oak savannahs	96.2[2]
	seasonal wetlands	192.5[2]
	freshwater marshes	211.2[2]
	shallow open water	190.5[2]

Notes: ET=evapotranspiration
Source: [1]ITRC 2003, [2]Howes et al. 2015.

Based on the ET rates presented in Table 3.1-5, it is expected that ET-associated water use by existing fields on MWT due to habitat restoration from Phase B could increase by 3 to 8 percent (Howes et al. 2015, ITRC 2003). The riparian and wetland habitats restored on the tract should additionally contribute to maintaining and improving regional water quality, by trapping and sequestering sediment, nutrients, and pollutants.

Conclusions

The Phase B project may require some irrigation water temporarily to establish new vegetation, some drainage infrastructure to manage accumulated water near the Tower Levee and would somewhat increase water consumption due to evapotranspiration by wetland, and riparian habitats restored. However, similar to what was anticipated in the North Delta EIR, no changes in SWP and CVP Delta operations, the EBMUD Mokelumne River operations, or the Woodbridge Irrigation District diversions are anticipated. The project would not result in a substantial increase in conflicts between water users and environmental needs or reduce access to economically efficient water supplies for other water users. This impact would be **less than significant**.

Mitigation Measure: No mitigation is required.

Groundwater

Impact GW-2 (North Delta EIR): Potential Groundwater Seepage to Adjacent Islands/Tracts as a Result of Frequent Inundation of MWT.

Alternative 1-A North Delta EIR Conclusions

As discussed in the North Delta EIR, studies and observations confirm that seepage from flooded areas can significantly affect adjacent properties. The southwest MWT is inundated frequently, this would potentially increase seepage to neighboring islands/tracts. Therefore, this impact was considered significant. Mitigation Measure GW-1 was identified to develop a seepage monitoring network and implement methods to control seepage based on monitoring data. This impact was less-than-significant with mitigation.

Phase B Updated Evaluation

As discussed in Impact FC-2, based on review of recently collected groundwater level data on and near MWT, the primary variation in groundwater levels detected by the seepage well monitoring network appears to be seasonal, but the full extent of potential seepage impacts from inundation of adjacent island is unknown. Therefore, the impact from the project would be **potentially significant**.

Mitigation Measure: The following mitigation measure has been adapted from the mitigation included in the North Delta EIR to address Impacts FC-2 and GW-2. This mitigation measure updates North Delta EIR Mitigation Measure FC-1 and replaces North Delta EIR Mitigation Measure GW-1.

> **Mitigation Measure FC-1 (Updated): Develop a Seepage-Monitoring Program and Control Seepage.**
>
> Please refer to Mitigation Measures FC-1 (Updated) in Impact FC-2 above for the full text of this mitigation measure.

Significance after Mitigation: Implementation of Mitigation Measure FC-1 (Updated) would require a seepage-monitoring program to establish a baseline, provide early detection of seepage problems caused by the MWT project, and quantify and document seepage impacts. Seepage control measures will then be implemented to the extent that the seepage monitoring indicates impacts attributable to the project. Therefore, the impact from the project would be **less-than-significant with mitigation**.

Residual Significant Impacts

There would be no residual significant impacts to hydrology and water quality associated with the Phase B project.

3.2 Geology, Seismicity, Soils, and Mineral Resources

3.2.1 Environmental Setting

Existing conditions related to geology, seismicity, soils, and mineral resources at MWT generally remain the same as described in the North Delta EIR. The remainder of this section addresses the potential new SMUD distribution line locations, which were not evaluated in the North Delta EIR.

Geology

The geologic conditions at the potential new SMUD distribution line locations are the same as discussed in the North Delta EIR; the DHI Connection would be located on intertidal deposits and the two offsite distribution line relocation options east of MWT would be located on alluvial basin deposits (Wagner et al. 1981).

Soils

Two additional soil types occur at the two connection options for distribution lines east of MWT, as shown in **Table 3.2-1**. Soil types at the DHI Connection site include those previously identified in the North Delta EIR. Because the soil types present at the distribution line relocation sites are the same or very similar in characteristics to those evaluated in the North Delta EIR, the description of potential for subsidence and liquefaction and considerations for construction on expansive and peat soils are unchanged from the North Delta EIR.

Table 3.2-1. Soil Characteristics at the Distribution Line East Connection Option 1 and 2 Sites

Soil Map Unit	Shrink-Swell Potential	Water Erosion Hazard	Runoff Rate
Dierssen sandy clay loam, drained, 0 to 2 percent slopes	High	Slight to none	Very Slow
Sallboat silt loam, partially drained, 0 to 2 percent slopes	Moderate	Slight	Slow

Source: Natural Resources Conservation Service 1993, 2021

Seismicity

Seismic risk was evaluated at a regional scale in the North Delta EIR. The potential new distribution line locations are in an area of moderate ground shaking potential (Sacramento County 2011), as described in the North Delta EIR.

Mineral Resources and Gas Fields

As described in the North Delta EIR, there are three major and several smaller areas of sand and gravel production in Sacramento County. One of the identified sand and gravel production areas is close to the project area but is not contiguous with the new distribution line project locations. No portion of the project site is located within a mineral resource zone (MRZ). Several gas fields are present in the north Delta. The DHI Connection and the East Connection Option 2 locations are underlain by natural gas fields (Sacramento County 2017).

3.2.2 Regulatory Setting

Federal, State, regional, and local regulatory conditions identified in the North Delta EIR are generally applicable to the Phase B project. DWR is not subject to local regulations unless expressly authorized by the Legislature. Local plans, policies, regulations, and ordinances potentially relevant to Phase B are addressed in this section for informational purposes because they may be relevant to certain responsible agencies.

Regional and Local Plans, Policies, Regulations, and Ordinances

Sacramento County General Plan – Safety Element (Sacramento County 2011)

GOAL: Minimize the loss of life, injury, and property damage due to seismic and geological hazards.

- **Implementation Measure A:** The County shall designate generalized areas subject to seismic and geological hazards. Development proposals falling within these areas shall include a geotechnical report with appropriate mitigation measures if a seismic or geological hazard is found to exist.

Sacramento County General Plan – Conservation Element (Sacramento County 2017)

GOAL: Mineral resource protected for economic extraction with minimal adverse impacts.

Other Standards and Guidance

Professional Paleontological Standards

The Society of Vertebrate Paleontology (2010), a national scientific organization of professional vertebrate paleontologists, has established guidelines that outline acceptable professional practices in the conduct of paleontological resource assessments and surveys, monitoring and mitigation, data and fossil recovery, sampling procedures, specimen preparation, analysis, and curation. Most practicing professional paleontologists in the nation adhere to the Society of Vertebrate Paleontology assessment, mitigation, and monitoring requirements.

3.2.3 Environmental Impacts and Mitigaiton Measures

Significance Criteria

The State CEQA Guidelines, as amended in 2019, were used to determine if the Phase B project would result in a significant impact on geology, seismicity, soils, and mineral resources. The Phase B project is considered to have a significant impact on geology, seismicity, soils, and mineral resources if it would:

- Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, strong seismic ground shaking, seismic-related ground failure (including liquefaction), or landslides;

- Result in substantial soil erosion or the loss of topsoil;

- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or offsite landslide, lateral spreading, subsidence, liquefaction or collapse;

- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

- Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state; or

- Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other lands use plan?

Analysis Methodology

The evaluation of potential impacts relied on a review of published geologic literature, maps, Natural Resource Conservation Service soil survey data for Sacramento County, and professional judgment. As described in the North Delta EIR, this impact analysis assumes that the project would conform to the latest UBC standards, California Building Standards Code (CBSC) standards, and National Pollution Discharge Elimination Standard requirements.

Relevant Issues Not Discussed Further in the Supplemental EIR

Increase the Potential for Structural Damage and Injury Caused by Fault Rupture or Ground Shaking (North Delta EIR Impacts GEO-1 and GEO-2)

The risk for structural damage and injury associated with Phase B project changes, including work at the potential new SMUD distribution line locations, would be low for fault rupture and low to moderate for ground shaking and the same as previously analyzed in Impact GEO-1 and GEO-2, respectively, in the North Delta EIR.

Increase Potential for Land Subsidence as a Result of Placement of Degraded Levee Material or Additional Soil for Levee Construction on Peat Soils (North Delta EIR Impact GEO-6)

Although this potential impact is related to hydrology and flood management, it is included in this section for consistency with where it was addressed in the North Delta EIR. Impact GEO-6 in the North Delta EIR found that placement of material (from levee degradation, breaching, or dredging) or imported soil in areas with peat soils could result in consolidation of peat soils and subsequent land subsidence. Additionally, a reduction in the land surface elevation in areas where degraded levee material or imported soil would be placed could result in increased seepage problems or decreased flood protection. However, the North Delta EIR noted that project design and construction measures would consider subsidence potential and a certain amount of overburden material would be incorporated into the design of any levee modifications, so that settlement would be negligible. With the inclusion of applicable environmental commitments (such as a suitability analysis of subsurface conditions); the requirement to meet levee standards included in Federal Flood Insurance Program Regulations – "Mapping of Areas Protected by Levee Systems" (44 CFR 65.10), which require use of design criteria for freeboard, embankment protection, embankment and foundation stability, settlement, and other design

features; and the requirement for DWR's maintenance plans for all levee modifications to be approved by Federal Emergency Management Agency (FEMA), this impact was considered to be less than significant. The Phase B project includes specific changes to levee degrades and breaches and levee modifications that were not evaluated in the North Delta EIR. These components involve the same activities for Phase B, but at a reduced scale than were considered in the North Delta EIR analysis. Additionally, after implementation, the project will contribute to reducing subsidence in the long-term, through tidal wetland creation, and subsequent long-term accretion in these areas. Therefore, there are no changes to the impact evaluations or conclusions as stated in the North Delta EIR and these issues are not discussed further in this Supplemental EIR.

Loss of Availability of a Known Mineral Resource or of a Locally Important Mineral or Natural Gas Resource (North Delta EIR Impact GEO-8)

There are no sand or aggregate resources contiguous with MWT or the potential new SMUD distribution line locations and these sites are not located within an MRZ (Sacramento County 2017). Although the DHI Connection and the East Connection Option 2 sites are underlain by natural gas fields, pole construction would not preclude any future gas well development in these areas. Therefore, these issues are not discussed further in the Supplemental EIR.

Impact Analysis

Impact GEO-3 (North Delta EIR): Increase the Potential for Structural Damage and Injury as a Result of Development on Materials Subject to Liquefaction.

Alternative 1-A North Delta EIR Conclusions

As discussed in the North Delta EIR, a large earthquake could cause low to moderate ground shaking in the project area, potentially resulting in liquefaction and associated ground failure, such as lateral spreading and differential settlement. Additionally, the North Delta EIR concluded Phase A components would increase the potential for liquefaction by detaining water onsite, resulting in saturated conditions. This impact was considered potentially significant. Mitigation Measure GEO-1 was identified to specifically address liquefaction potential for Phase A project components (not applicable to Phase B) and reduce the impact to less than significant.

Phase B Updated Evaluation

Constructing wood or non-tubular steel poles for the new SMUD distribution line connections, abandoning or removing gas lines on MWT, and avoiding or burying abandoned gas wells on MWT would not be affected by the potential for liquefaction in the project area. However, constructing tubular steel poles (up to 115 ft tall at the DHI Connection) could present a risk for structural damage and injury due to liquefaction, if a ground shaking event were to occur. The tubular steel poles would be anchored with a reinforced concrete foundation extending up to 9 ft wide and 30 ft deep, reducing the potential risk of failure from liquefaction.

The design of distribution line connections would occur in consultation with SMUD and would conform to SMUD's accepted design standards and standard best practices for electrical infrastructure under its authority. In addition, the project's environmental commitment to

incorporate standard UBC Seismic Zone 3 and CBSC requirements into the project design would apply to Phase B components and includes measures to minimize the potential liquefaction hazards on the associated project features. Therefore, this impact would be **less than significant**.

Mitigation Measure: No mitigation is required.

Impact GEO-4 (North Delta EIR): Increase the Potential for Accelerated Runoff, Erosion, and Sedimentation as a Result of Grading, Excavation, and Levee Construction Activities.

Alternative 1-A North Delta EIR Conclusions

The North Delta EIR found that the following activities could temporarily increase erosion and sedimentation in the construction areas: grading, excavation, removal of vegetation cover, and loading associated with levee degradation, reinforcement, modification, construction, or breaching; construction of an access road; demolition of the farm residence and infrastructure; excavation of the Dixon and New Hope Borrow Sites; and enhancement of the Delta Meadows Property. With the inclusion of applicable environmental commitments (such as implementing a SWPPP and following county grading ordinances) and CALFED Geology and Soils Mitigation Measures 1, 2, 3, 5, and 6, the North Delta EIR considered this impact to be less than significant.

Phase B Updated Evaluation

Current Phase B project components include removing sections of SMUD distribution lines and abandoned gas lines on MWT, relocating SMUD distribution lines at new project locations and potential access improvements for East Connection Option 2, and more extensive interior grading on MWT for habitat restoration. Although these activities could result in ground disturbance and surface runoff effects that could adversely affect soils and erosion potential, and potential accelerated erosion and sedimentation, RD 2110 would implement the North Delta EIR environmental commitments to implement a SWPPP if the area of disturbance is more than 1 acre. Furthermore, RD 2110 would follow the CALFED Geology and Soils Mitigation Measures 1, 2, 3, 5, and 6 detailed in the North Delta EIR to minimize erosion during and after construction. Therefore, this impact would be **less than significant**.

Mitigation Measure: No mitigation is required.

Impact GEO-5 (North Delta EIR): Increase the Potential for Structural Damage and Injury as a Result of Development on Expansive Soils.

Alternative 1-A North Delta EIR Conclusions

As discussed in the North Delta EIR, soils with moderate to high shrink-swell potential on the project site may have been disturbed by prior levee construction and farming activities. However, the North Delta EIR concluded that structural damage could occur if certain activities are coincident with expansive soils, including proposed levee degradation, reinforcement, modification, construction, or breaching activities; access road construction; and farm residence and infrastructure demolition. This impact was considered potentially significant. Mitigation Measure GEO-2 was incorporated to specifically address expansive soils issues associated with

Phase A project components (not applicable to Phase B components) and reduce the impact to less than significant.

Phase B Updated Evaluation

Under Phase B, removing segments of gas lines within excavation areas would render them unaffected by expansive soils. Additionally, abandoned gas wells on MWT would not be affected by the potential for expansive soils in the project area because the wells are no longer active and would be submerged by tidal habitat or covered with fill. The structure and function of the tidal and riparian habitat on the project site would not be affected by slight topographic change associated with any heaving or other minor movement of abandoned-in-place utility infrastructure on the project site, such as cut and capped gas lines, wells, or other abandoned features that may be affected by expansive soils.

The potential new SMUD distribution line locations are underlain by soils that have moderate to high shrink-swell potential. However, wood poles would be constructed with guy wires for stability, and steel poles would be constructed with concrete foundations. Additionally, the design of distribution lines would occur in consultation with SMUD and would conform to SMUD's accepted design standards and standard best practices for electrical infrastructure under its authority. In addition, the environmental commitment to incorporate standard UBC Seismic Zone 3 and CBSC requirements into the project design would include measures to minimize the potential for structural damage and injury associated with expansive soils on the associated project features. Therefore, this impact would be **less than significant**.

Mitigation Measure: No mitigation is required.

Impact GEO-9 (New): Destruction of a Unique Paleontological Resource or Site.

New Impact Evaluation for Phase B

The geology of the Phase B project area is characterized by recent, Holocene age (11,700 years before present and younger) intertidal deposits and alluvial basin deposits. A paleontologically sensitive rock unit is one that is rated high for potential paleontological productivity and is known to have produced unique, scientifically important fossils. The potential paleontological productivity rating of a rock unit exposed in a project area refers to the abundance and densities of fossil specimens, previously recorded fossil sites, or both in other exposures of the rock unit. To be considered a unique paleontological resource, a fossil must be more than 11,700 years old (i.e., the generally accepted end of the last glacial period of the Pleistocene Epoch) (SVP 2010). Holocene deposits contain only the remains of extant, modern taxa (if any resources are present), which are not considered "unique" paleontological resources. Therefore, these formations are considered to be of low paleontological sensitivity. Additionally, a search of the University of California Museum of Paleontology specimen library confirmed that no fossils have been recorded in the project area, further supporting the assessment of low paleontological sensitivity in the project area (UCMP 2021). Therefore, this impact is considered **less than significant**.

Mitigation Measure: No mitigation is required.

Residual Significant Impacts

There would be no residual significant impacts to geology, seismicity, soil, or mineral resources associated with the Phase B project.

3.3 Transportation and Navigation

3.3.1 Environmental Setting

Existing conditions related to transportation and navigation at MWT remain the same as described in the North Delta EIR. However, SMUD distribution line relocation was not addressed in the North Delta EIR. The new East Connection Option 1 and 2 distribution line sites are accessed by existing roads in the project vicinity, including Levee Road, Franklin Boulevard, or Twin Cities Road (also known as E13). The DHI Connection site is accessible from Walnut Grove–Thornton Road (also known as J11, identified in the North Delta EIR) and via Dead Horse Island Road.

3.3.2 Regulatory Setting

Federal, State, regional, and local regulatory conditions identified in the North Delta EIR are generally applicable with the exception of updates described below.

State CEQA Guidelines

Pursuant to Senate Bill 743, amendments to the State CEQA Guidelines were adopted on December 28, 2018, requiring lead agencies to use the vehicle miles travelled (VMT) approach beginning July 1, 2020. State CEQA Guidelines Section 15064.3(b)(3) states that for many projects, a qualitative analysis of construction traffic may be appropriate.

Regional and Local Plans, Policies, Regulations, and Ordinances

DWR is not subject to local regulations unless expressly authorized by the Legislature. Local plans, policies, regulations, and ordinances potentially relevant to Phase B are addressed in this section for informational purposes because they may be relevant to certain responsible agencies.

Sacramento County General Plan – Circulation Element Amendment

GOAL: Provide mobility for current and future residents of Sacramento County through complete streets and through a balanced and interconnected transportation system which includes all modes of travel - automobile, transit, pedestrian, and bicycling.

- **Policy CI-5:** Land use and transportation planning and development should be cohesive, mutually supportive, and complement the objective of reducing per capita VMT. The standards shown in Table CI-1 of the General Plan shall be used as thresholds of significance for all projects subject to CEQA. Where the VMT level standards of Table CI-1 are predicted to be exceeded, all feasible mitigation measures shall be included to reduce projected VMT levels.

County of Sacramento

The County of Sacramento adopted new Transportation Analysis Guidelines (Guidelines) in October 2020, which established a protocol for transportation analysis under CEQA using the VMT approach (Sacramento County 2020). This change to VMT in the Guidelines is consistent with amendments to the State CEQA Guidelines adopted in 2018. The County has adopted VMT standards requiring reductions in the quantity of new VMT compared to baseline levels for land

use development and transportation projects. The County has not adopted standards for non-permanent VMT generation or construction traffic.

3.3.3 Environmental Impact and Mitigation Measures

Significance Criteria

The State CEQA Guidelines, as amended in 2019, were used to determine if Phase B would result in a significant impact on transportation and navigation. The Phase B project is considered to have a significant impact on transportation and navigation if it would:

- conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities;
- conflict or be inconsistent with State CEQA Guidelines Section 15064.3, subdivision (b);
- substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); or
- result in inadequate emergency access.

In 2019, the State CEQA Guidelines were updated, and significance criteria related to traffic delays were removed from Appendix G. As a result, issues related to traffic delays and changes in circulation patterns are no longer required to be evaluated under CEQA and are not discussed further in the Supplemental EIR. Consideration of impacts associated with construction of new roads, changes in circulation and access, and changes in navigation are either no longer thresholds included in State CEQA Guidelines Appendix G or are not part of the Phase B project components. Therefore, these issues (i.e., North Delta EIR Impacts TN-1, TN-3, TN-4, and TN-5) are not discussed further in the Supplemental EIR.

Analysis Methodology

Estimates of VMT from Phase B construction activities were obtained from the California Emissions Estimator Model (CalEEMod) model used to estimate criteria air pollutant and GHG emissions (modeling data is provided in **Appendix B**).

Relevant Issues Not Discussed Further in the Supplemental EIR

Deterioration of Roadway Surfaces (North Delta EIR Impact TN-2)

Potential road damage was discussed generally in the North Delta EIR and was not specific to the project area. While there may be small differences in hauling of materials on and near the site for Phase B project activities, including for the new SMUD distribution line locations, these changes would not cause damage or deterioration to road surfaces that were not analyzed under the North Delta EIR. Furthermore, overall haul trips are reduced from what was discussed in the North Delta EIR because import and transport of fill material from the Grizzly Slough Project has been reduced and my not be necessary. Therefore, this issue is not discussed further in the Supplemental EIR.

Conflict with State CEQA Guidelines Section 15064.3(b) during Operations (New Issue)

Maintenance of the relocated SMUD distribution lines would replace existing inspections and maintenance trips conducted by SMUD staff related to maintenance of the existing lines on MWT. Levee inspections and maintenance activities would primarily be coordinated and combined with existing maintenance trips by DWR or RD 2110 staff. Overall, truck trips for operations and maintenance would be minimal and consistent with existing conditions. The project would not generate new vehicle trips and associated VMT and would not conflict with State CEQA Guidelines Section 15064.3(b) during project operations and maintenance. Therefore, this issue is not discussed further in the Supplemental EIR.

Impact Analysis

Impact TN-6 (New): Temporary Increase in Vehicle Miles Traveled During Construction.

New Impact Evaluated for Phase B

An evaluation of VMT was not included in the North Delta EIR because this threshold did not exist in the State CEQA Guidelines when the North Delta EIR was prepared. Implementing Phase B would generate 849,737 VMT from mobilization and demobilization of construction equipment; material and equipment deliveries; relocation of SMUD distribution lines; habitat modifications; and earthwork associated with levee modifications, levee re-sloping, turnaround area construction, marsh plain fill, dewatering facilities, and worker vehicle trips. The MWT East and Southwest Levee degrades, Mokelumne River Levee breach, and tidal channel excavation would generate the most trips. If the final design is to lower a 1,000-ft-long section of the MWT Southwest Levee, then a reduced number of trips would be generated compared to the estimate above for lowering a 1,500-ft-long section. No reduction in Phase B VMT is possible since trips would be generated during construction activities, including worker trips. VMT from hauling fill would be minimized by using material generated by onsite levee degrades and habitat creation, to the extent possible. Phase B VMT related to construction activities would be temporary during the construction period. Therefore, this impact would be **less than significant**.

Mitigation Measure: No mitigation is required.

Emissions associated with VMT are evaluated in Section 3.3, “Air Quality,” and Section 3.8, “Greenhouse Gas Emissions.”

Residual Significant Impacts

There would be no residual significant impacts to transportation and navigation associated with the Phase B project.

3.4 Air Quality

3.4.1 Environmental Setting

The air quality environmental setting provided in the North Delta EIR is generally still applicable to the Phase B project. The North Delta EIR included actions in both Sacramento and San Joaquin Counties. Phase B is entirely within Sacramento County and the Sacramento Valley Air Basin (SVAB), with the exception of fill material that may be sourced from Grizzly Slough within San Joaquin County and the San Joaquin Valley Air Basin.

Existing air quality conditions within the SVAB have generally improved over time as a result of more stringent regulatory standards and improved technologies to reduce emissions. Federal and State air quality standards established by the U.S. Environmental Protection Agency (EPA) and California Air Resources Board (CARB), respectively, are in place for six common air pollutants, known as criteria air pollutants. The criteria air pollutants include particulate matter (PM) (which is further subdivided into PM of diameter equal to or less than 10 micrometers [PM_{10}] and PM of diameter equal to or less than 2.5 micrometers [$PM_{2.5}$]), ground-level ozone, carbon monoxide (CO), sulfur dioxide, nitrogen dioxide, and lead. Federal standards are known as national ambient air quality standards (NAAQS) and State standards are known as California ambient air quality standards (CAAQS). These standards were established to protect the public with a margin of safety from adverse health impacts caused by exposure to air pollution. Both CARB and EPA use monitoring data to designate areas according to attainment status for criteria air pollutants published by the agencies. **Tables 3.4-1** and **3.4-2** provide the updated ambient air quality monitoring data for the monitoring station nearest the project site, and updated NAAQS and CAAQS, respectively.

Both EPA and CARB use this type of monitoring data to designate areas according to attainment status for NAAQS and CAAQS. The purpose of these designations is to identify areas with air quality problems and thereby initiate planning efforts for improvement. The four designations are defined as:

- Nonattainment – Assigned to areas where monitored pollutant concentrations violate the standard in question.
- Maintenance – Assigned to areas where monitored pollutant concentrations exceeded the standard in question in the past but are no longer in violation of that standard.
- Attainment – Assigned to areas where pollutant concentrations meet the standard in question over a designated period of time.
- Unclassified – Assigned to areas where data are insufficient to determine whether a pollutant is violating the standard in question.

The region's current attainment status for each of the criteria air pollutants is provided in **Table 3.4-3**.

Table 3.4-1. Ambient Air Quality Data (2017–2019)[1]

Air Pollutant	2017	2018	2019
Ozone			
Maximum concentration – State (1-hour/8-hour, ppm) [2]	0.104/0.086	0.096/0.082	0.103/0.078
Maximum concentration – National (8-hour, ppm) [2]	0.085	0.082	0.077
Number of days State standard exceeded (1-hour/8-hour)	1/3	1/2	2/6
Number of days national standard exceeded (8-hour, 2015/2008) [3]	3/2	2/1	4/2
Carbon Monoxide (CO) [4]			
Not Available			
Nitrogen Dioxide [5]			
Maximum concentration (1-hour, ppb) (national/California)	34/34	33/33	59/59
Number of days standard exceeded (national/California)	0/0	0/0	0/0
Annual average (ppm) (California)	3	4	–
Sulfur Dioxide [4]			
Not Available			
Fine Particulate Matter ($PM_{2.5}$) [8]			
Maximum concentration (µg/m^3) (national/California) [6]	44.5/44.9	149.9/229.7	32.3/34.9
Number of days national standard exceeded (measured/estimated) [7]	6.2/2	–/3	0.0/0
Annual average (µg/m^3) (national/California)	9.1/8.6	–/–	7.6/5.9
Respirable Particulate Matter (PM_{10}) [8]			
Maximum concentration (µg/m^3) (national/California) [6]	149.9/150.3	292.6/309.5	174.7/179.1
Number of days national standard exceeded (measured/estimated) [7]	0/0.0	6/6.0	1/1.0
Number of days State standard exceeded (measured/estimated) [7]	21/–	22/22.2	24/24.5
Annual average (µg/m^3) (California)	–	29.7	20.7

Notes: µg/m^3 = micrograms per cubic meter; ppm = parts per million, – = data not available or insufficient data to determine value, underline indicates exceedance of standard

1 Measurements were recorded at the Elk Grove-Bruceville Road monitoring station unless noted otherwise.

2 State and national statistics may differ for the following reasons: National 8-hour averages are truncated to three decimal places; State 8-hour averages are rounded to three decimal places. State criteria for ensuring that data are sufficiently complete for calculating 8-hour averages are more stringent than the national criteria.

3 The 8-hour national ozone standard was revised to 0.075 ppm in March 2008 and then again to 0.070 in October 2015.

4 Carbon monoxide and sulfur dioxide are not currently monitored at any station in the Sacramento Valley Air Basin.

5 Measurements were recorded at the Davis-UCD Campus monitoring station located on Campbell Road in Davis, which is approximately 6.75 miles south of the WRTP Specific Plan Area.

6 State and national statistics may differ for the following reasons: State statistics are based on California-approved samplers, whereas national statistics are based on samplers using Federal reference or equivalent methods. State and national statistics may therefore be based on different samplers. State statistics are based on local conditions while national statistics are based on standard conditions. State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

7 Measured days are those days that an actual measurement was greater than the level of the State daily standard or the national daily standard. Measurements are typically collected every 6 days. Estimated days are the estimated number of days that a measurement would have been greater than the level of the standard had measurements been collected every day. The number of days above the standard is not necessarily the number of violations of the standard for the year.

8 $PM_{2.5}$ national monitoring data and PM_{10} monitoring data based on measurements at the Sacramento-T Street monitoring location, the nearest station with this monitoring data available within the Sacramento Valley Air Basin.

Source: CARB 2021

Table 3.4-2. National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards Concentration	National Standards [b] Primary [c,d]	National Standards [b] Secondary [c,e]
Ozone [f]	1 hour	0.09 ppm (180 µg/m^3)	–	Same as primary standard
Ozone [f]	8 hours	0.070 ppm (137 µg/m^3)	0.070 ppm (147 µg/m^3)	Same as primary standard
Respirable particulate matter - 10 micrometers or less [g]	24 hours	50 µg/m^3	150 µg/m^3	Same as primary standard
Respirable particulate matter - 10 micrometers or less [g]	Annual arithmetic mean	20 µg/m^3	–	Same as primary standard
Fine particulate matter - 2.5 micrometers or less [g]	24 hours	–	35 µg/m^3	Same as primary standard
Fine particulate matter - 2.5 micrometers or less [g]	Annual arithmetic mean	12 µg/m^3	12 µg/m^3	15 µg/m
Carbon monoxide	8 hours	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	None
Carbon monoxide	1 hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	None
Carbon monoxide	8 hours (Lake Tahoe)	6 ppm (7 mg/m^3)	–	–
Nitrogen dioxide [h]	Annual arithmetic mean	0.030 ppm (57 µg/m^3)	0.053 ppm (100 µg/m^3)	Same as primary standard
Nitrogen dioxide [h]	1 hour	0.18 ppm (339 µg/m^3)	100 ppb (188 µg/m^3)	None
Sulfur dioxide [i]	Annual arithmetic Mean	–	0.030 ppm (for certain areas) [i]	–
Sulfur dioxide [i]	24 hours	0.04 ppm (105 µg/m^3)	0.14 ppm (for certain areas) [i]	–
Sulfur dioxide [i]	3 hours	–	–	0.5 ppm (1,300 µg/m^3)
Sulfur dioxide [i]	1 hour	0.25 ppm (655 µg/m^3)	75 ppb (196 µg/m^3)	–
Lead [j,k]	30-day average	1.5 µg/m^3	–	–
Lead [j,k]	Calendar quarter	–	1.5 µg/m^3 (for certain areas) [j]	Same as primary standard
Lead [j,k]	Rolling 3-month average	–	0.15 µg/m^3	Same as primary standard
Visibility-reducing particles [l]	8 hours	See footnote l	No national standards	No national standards
Sulfates	24 hours	25 µg/m^3	No national standards	No national standards
Hydrogen sulfide	1 hour	0.03 ppm (42 µg/m^3)	No national standards	No national standards
Vinyl chloride [j]	24 hours	0.01 ppm (26 µg/m^3)	No national standards	No national standards

Notes: µg/m^3 = micrograms per cubic meter, mg/m^3 = milligrams per cubic meter, ppb = parts per billion, ppm = parts per million

[a] California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1- and 24-hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility-reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

b National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM10, the 24-hour is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m3 is equal to or less than 1. For PM2.5, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standards.

c Concentration expressed first in the units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25 degrees Celsius (°C) and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and reference pressure of 760 torr; "ppm" in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
d National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.
e National Secondary Standards: Levels of air quality necessary to protect public welfare from any known or anticipated adverse effects of a pollutant.
f On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.
g On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 µg/m3 to 12.0 µg/m3. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 µg/m3, as was the annual secondary standard of 15 µg/m3. The existing 24-hour PM10 standards (primary and secondary) of 150 µg/m3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
h To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. California standards are in units of ppm. To directly compare the national 1-hour standard to the California standards, the units can be converted from 100 ppb to 0.100 ppm.
i On June 2, 2010, a new 1-hour sulfur dioxide standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 sulfur dioxide national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved. To directly compare the 1-hour national standard to the California standard, the units can be converted to ppm. In this case, the national standard of 75 ppb is identical of 0.075 ppm.
j The California Air Resources Board has identified lead and vinyl chloride as toxic air contaminants with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
k The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 µg/m3 as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standards are approved.
l In 1989, the California Air Resources Board converted both the general Statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and the "extinction of 0.07 per kilometer" for the Statewide and Lake Tahoe Air Basin standards, respectively.

Source: CARB 2016

Table 3.4-3. Sacramento Region Attainment Status for NAAQS and CAAQS

Pollutant	Federal Designation	State Designation
Carbon Monoxide	Maintenance	Attainment
Lead	Attainment	Attainment
Nitrogen Dioxide	Unclassifiable/Attainment	Attainment
Ozone	Nonattainment (Severe-15)	Nonattainment
Particulate Matter – 10 microns	Attainment	Nonattainment
Particulate Matter – 2.5 microns	Nonattainment (for 24-hr standard)	Attainment
Sulfur Dioxide	Unclassifiable/Attainment	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified/Attainment
Sulfates	No Federal Standard	Attainment
Visibility-Reducing Particles	No Federal Standard	Unclassified
Vinyl Chloride	No Federal Standard	Unclassified

Source: SMAQMD 2017b

Land uses proximate to the Phase B project locations that are considered sensitive for the purposes of air quality assessment include relatively isolated single-family residences along the eastern side of the Mokelumne River adjacent to the project site, an RV park on the eastern side of Mokelumne River at the southern point of MWT, and a restaurant and residence at the intersection of the South Mokelumne River and Snodgrass Slough that would be within a few hundred ft of the proposed DHI connection for SMUD distribution lines. In 2017, CARB approved and submitted to EPA the Sacramento Federal Ozone Nonattainment Area Redesignation Substitution Request for the 1-Hour Ozone Standard, which applies to all of Sacramento and Yolo Counties, and portions of Placer (including the Planning Area), El Dorado, Solano, and Sutter Counties (SMAQMD 2017a). EPA approval is outstanding.

3.4.2 Regulatory Setting

The Federal, State, regional, and local regulations presented in the North Delta EIR remain applicable to the Phase B project except for the following updates and additions.

Federal Plans, Policies, Regulations, and Laws

Federal Ambient Air Quality Standards

As described above, the Federal government has established standards for several pollutants. The current standards are provided above in Table 3.4-3, as updated since the analysis in the North Delta EIR. The pollutants of non-attainment for Federal standards are now ozone and $PM_{2.5}$, and the region is designated as maintenance for CO.

Corporate Average Fuel Economy Standards and the Safer Affordable Fuel-Efficient Vehicles Rule

EPA and the National Highway Traffic Safety Administration set Corporate Average Fuel Economy standards for passenger cars and for light trucks (collectively, light-duty vehicles), and separately sets fuel efficiency standards for passenger cars and light trucks (collectively, light-duty vehicles) for model years 2012 through 2025.

The Safer Affordable Fuel Efficient (SAFE) Vehicles Rule, proposed by the United States Department of Transportation and EPA in 2018, would amend the existing Corporate Average Fuel Economy standards and establish new standards for model years 2021 through 2026. The proposed rule would retain the model year 2020 standards through model year 2026.

On July 25, 2019, in response to the proposed SAFE Vehicles Rule, automobile manufactures Ford, Volkswagen, Honda, and BMW entered into a voluntary framework agreement with CARB to set fuel economy and carbon dioxide limits at levels between the existing Federal standards and the standards proposed by the SAFE Vehicles Rule. Under this framework, the auto companies' party to the voluntary agreement would only sell cars in the United States that meet these levels.

On September 27, 2019, EPA and the National Highway Traffic Safety Administration published the "SAFE Vehicles Rule Part One: One National Program" (84 Fed. Reg. 51310). The Part One Rule revokes California's authority to set its own GHG emissions standards and set zero-emission vehicle mandates in California. Part 2 of the regulations, which, if implemented, would address fuel efficiency standards for light-duty vehicles model years 2021 through 2026, has not been drafted as of the writing of this document.

Most recently, President Biden signed an Executive Order (EO) directing the heads of all agencies to immediately review and consider suspending, revising, or rescinding all existing regulations, orders, guidance documents, policies, and any other similar agency actions (agency actions) promulgated, issued, or adopted between January 20, 2017, and January 20, 2021, that are inconsistent with President's Biden policy to support public health, environmental justice, and economic development as set forth in Section 1 of this EO. This includes the SAFE Vehicles Rule Part One and the SAFE Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks.

State Plans, Policies, Regulations, and Laws

California Clean Air Act, H&S § 39600 et seq.

CARB is responsible for coordination and oversight of State and local air pollution control programs in California and for implementing the California Clean Air Act, adopted in 1988. Requirements under the California Clean Air Act include, but are not limited to, establishing CAAQS, maintaining air quality monitoring stations throughout California, classifying air basin attainment status with respect to each air pollutant and monitoring progress in attaining air quality standards, reviewing and approving air district or other agency air quality attainment plans or air quality management plans for California, and developing the SIP in California.

In 2017, CARB adopted the *Revised Proposed 2016 State Strategy for the State Implementation Plan*, describing the proposed commitment to achieve the reductions necessary from mobile sources, fuels, and consumer products to meet Federal ozone and $PM_{2.5}$ standards over the next 15 years (CARB 2017).

California Air Resources Board Emissions Reduction Programs

CARB implements several Statewide diesel-related programs and strategies designed to reduce diesel PM emissions and subsequent exposure. The following programs reduce and regulate criteria pollutant emissions, as well as diesel PM and toxic air contaminant (TAC) emissions, from exhaust:

- **In-Use Off-Road Equipment**. Used as a regulation to reduce diesel particulate matter and oxides of nitrogen emissions from in-use (existing) off-road heavy-duty diesel vehicles in California. Such vehicles are used in construction, mining, and industrial operations.

- **New Off-Road Engines and Equipment.** This category consists of regulations applicable to Off-Road Compression-Ignition Engines (a.k.a. diesel engines) and is primarily for the interest and needs of manufacturers and others that are required to obtain certification from CARB. These engines are found in a wide variety of off-road applications, such as farming, construction, and industrial. Some familiar examples include tractors, excavators, dozers, scrapers, and portable generators.

- **Heavy-Duty In-Use Vehicle Regulation.** This regulation requires diesel trucks and buses that operate in California to be upgraded to reduce emissions. Newer heavier trucks and buses must meet PM filter requirements beginning January 1, 2012. Lighter and older heavier trucks must be replaced starting January 1, 2015. By January 1, 2023, nearly all trucks and buses will need to have 2010 model year engines or equivalent. The regulation applies to nearly all privately and Federally owned diesel fueled trucks and buses and to privately and publicly owned school buses with a gross vehicle weight rating greater than 14,000 pounds.

- **Heavy-Duty Diesel Emission Control Label Inspection Program.** Enforcement program developed as a way to reduce emissions of air contaminants through the fair, consistent and comprehensive enforcement of air pollution laws, and by providing training and compliance assistance. Each vehicle operating in California - including those in transit from Mexico, Canada, or any other State - must be equipped with engines that meet California and/or EPA or equivalent emission standards as provided on specified Emission Control Labels. The

Emission Control Label must be legible, maintained at the location originally installed by the engine manufacturer and correspond to the engine serial number stamped on the engine.

- **In-Use Public and Utility Fleets (Heavy-Duty).** Regulation mandating public agency and utility vehicle owners reduce diesel PM emissions from their affected vehicles through the application of Best Available Control Technology on these vehicles by specified implementation dates. Implementation is phased-in by engine model year groups with the goal to reduce both criteria pollutant emissions and exposure to toxic air contaminants.

Regional and Local Plans, Policies, Regulations, and Ordinances

DWR is not subject to local regulations unless expressly authorized by the Legislature. Local plans, policies, regulations, and ordinances potentially relevant to Phase B are addressed in this section for informational purposes because they may be relevant to certain responsible agencies.

As noted in the North Delta EIR, CARB and local air districts have primary implementation responsibility for Federal standards, per delegation by EPA. In addition, CARB and local air districts are responsible for ensuring that State standards are met. At the local level, air quality is managed through land use and development planning practices and is implemented in the counties through the general planning process.

Sacramento Metropolitan Air Quality Management District

Within Sacramento County, Sacramento Metropolitan Air Quality Management District (SMAQMD) is responsible for establishing and enforcing local air quality rules and regulations that address the requirements of Federal and State air quality regulations, which it does through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. SMAQMD inspects stationary sources of air pollution, responds to citizen complaints, monitors ambient air quality and meteorological conditions, and implements programs and regulations required by the Federal Clean Air Act and its Amendments and the California Clean Air Act. The clean-air strategy of SMAQMD includes the preparation of plans and programs for the attainment of ambient air-quality standards, adoption and enforcement of rules and regulations concerning sources of air pollution, and issuance of permits for stationary sources of air pollution. The rules and regulations include procedures and requirements to control the emission of pollutants and to prevent adverse impacts.

- All projects within SMAQMD's jurisdictional area are subject to SMAQMD rules and regulations in effect at the time of construction. SMAQMD rules most applicable to the project were detailed in the North Delta EIR (pages 3.9-13 through 3.9-15).

In addition, SMAQMD recommends that all construction projects include Basic Construction Emission Control Practices, as outlined in the *SMAQMD CEQA Guide* (SMAQMD 2019), and that any projects with construction mitigation requirements must reduce emissions from off-road equipment. According to the *CEQA Guide*, if modeled construction-generated emissions for a project are not reduced to SMAQMD's threshold of significance by application of these standard construction mitigation measures, then payment of a mitigation fee may be assessed to achieve the remaining mitigation necessary.

San Joaquin Valley Air Pollution Control District

The only limited component that would occur within San Joaquin County, is the potential hauling of borrow material from the Grizzly Slough project area to the proposed project site. Within San Joaquin County, the San Joaquin Valley Air Pollution Control District (SJVAPCD) is responsible for establishing and enforcing local air quality rules and regulations that address the requirement of Federal and State air quality laws. The North Delta EIR identified SJVAPCD rules relevant to the overall program on pages 3.9-16 through 3.9-19.

Sacramento County General Plan

The General Plan's Air Quality Element, most recently updated in December 2020, contains the following air quality goals and policies relevant to the proposed project (Sacramento County 2011):

GOAL: Improve air quality to promote the public health, safety, welfare, and environmental quality of the community.

Multidisciplinary Coordination Objective: The integration of air quality planning with land use, transportation, and energy planning processes to provide a safe and healthy environment.

- **Policy AQ-3:** Buffers and/or other appropriate exposure reduction measures shall be established on a project-by-project basis and incorporated during review to provide for protection of sensitive receptors from sources of air pollution or odor. The California Air Resources Board's "Strategies to Reduce Air Pollution Exposure Near High Volume Roadways" Technical Advisory and the [SM]AQMD's "Mobile Sources Air Toxics Protocol" or applicable [SM]AQMD guidance shall be utilized when establishing these exposure reduction measures.

- **Policy AQ-4.** Developments which meet or exceed thresholds of significance for ozone precursor pollutants, and/or GHG as adopted by the SMAQMD, shall be deemed to have a significant environmental impact. An Air Quality Mitigation Plan and/or a Greenhouse Gas Reduction Plan shall be submitted to the County of Sacramento prior to project approval, subject to review and recommendation as to technical adequacy by the Sacramento Metropolitan Air Quality Management District.

Motor Vehicle Emissions Objective: A reduction in motor vehicle emissions through a decrease in the average daily trips and vehicle miles traveled and an increasing reliance on the use of low emissions vehicles.

- **Policy AQ-11.** Encourage contractors operating in the county to procure and to operate low-emission vehicles, and to seek low emission fleet status for their off-road equipment.

Reducing Air Pollutants Objective: Compliance with Federal and State air quality standards to reduce all air pollutants, including ozone-depleting compounds to ensure the protection of the stratospheric ozone layer.

- **Policy AQ-16.** Prohibit the idling of on-and off-road engines when the vehicle is not moving or when the off-road equipment is not performing work for a period of time greater than five minutes in any one-hour period.

- **Policy AQ-17.** Promote optimal air quality benefits through energy conservation measures in new development.

- **Policy AQ-19.** Require all feasible reductions in emissions for the operation of construction vehicles and equipment on major land development and roadway construction projects.

3.4.3 Environmental Impacts and Mitigation Measures

Significance Criteria

Based on Appendix G of the State CEQA Guidelines, as amended in 2019, and the significance criteria used in the North Delta EIR, an air quality impact is considered significant if the proposed project would:

- conflict with or obstruct implementation of the applicable air quality plan;

- result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable NAAQS or CAAQS (including releasing emissions that exceed quantitative thresholds for ozone precursors);

- expose sensitive receptors to substantial pollutant concentrations; or

- result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

Two of the Appendix G checklist questions address conflicts with an air quality plan and contribution to an air quality violation. The criteria air pollutant significance thresholds serve as a proxy for these impacts and, therefore, the evaluation of potential conflicts with air quality plans and air quality violations is consolidated.

As stated in Appendix G of the State CEQA Guidelines, the significance criteria established by the applicable air quality management district may be relied on to make the above determinations. Thus, for consistency with the North Delta EIR, construction impacts are assessed using SMAQMD's thresholds of significance. These thresholds have been updated since the analysis of air quality impacts under the North Delta EIR; the SMAQMD Board of Directors rescinded the 2002 concentration-based thresholds for PM_{10} and $PM_{2.5}$ and adopted new mass emissions PM_{10} and $PM_{2.5}$ thresholds on May 28, 2015, as identified below and applied to the analysis contained within this Supplemental EIR. Pursuant to the SMAQMD-recommended thresholds (SMAQMD 2020) for evaluating project-related air quality impacts, the project's impacts would be considered significant if the project would:

- generate construction-related criteria air pollutant or precursor emissions that exceed the SMAQMD-recommended daily thresholds of 85 pounds per day (lb/day) for NO_X, and 80 lbs/day of PM_{10} or 82 lbs/day of $PM_{2.5}$ (thresholds of PM_{10} and $PM_{2.5}$ require that all feasible best available control technology and best management practices [BMPs] are applied);

- generate long-term regional criteria air pollutant or precursor emissions that exceed the SMAQMD-recommended daily thresholds of 65 lb/day of ROG or NO_X, 80 lbs/day or 14.6 tons per year of PM_{10}, or 82 lbs/day or 15 tons per year of $PM_{2.5}$;

- contribute to localized concentrations of air pollutants at nearby receptors that would exceed applicable ambient air quality standards; or

- expose sensitive receptors to excessive nuisance odors, as defined under SMAQMD Rule 402.

Analysis Methodology

Construction emissions of criteria air pollutants were estimated for Alternative 1-A in the North Delta EIR for the purpose of analyzing air quality impacts. However, the construction plan has been re-set for Phase B, including reductions in import and transport of fill material from the Grizzly Slough Project and increases in use of construction equipment onsite for landform grading. Updated estimates of criteria air pollutant emissions were made for this Supplemental EIR using Phase B-specific information and the most current air pollutant emissions model and emissions factors. Updated emissions estimates consider the intensive scenario of completing Phase B construction in one year, as shown in **Table 3.4-4** for maximum daily emissions and **Table 3.4-5** for total annual emissions. If construction of Phase B is conducted over two or more years, then annual emissions are anticipated to be reduced in each year of construction. A summary of the data inputs, emissions factors, and calculation methodologies used is provided below. Detailed project inputs (construction phasing, equipment use, workers, etc.) assumptions, and emissions calculations are provided in Appendix B. If the final design is to lower a 1,000-ft-long section of the MWT Southwest Levee, then emissions would be reduced compared to the estimate in Tables 3.4-4 and 3.4-5 for lowering a 1,500-ft-long section of this levee.

Construction activities would generate emissions of criteria pollutants, precursors, and TACs (i.e., Diesel Particulate Matter [DPM]) from a variety of sources, including off-road construction equipment, on-road vehicles, and earthmoving activities. Construction emissions were primarily estimated using the *California Air Pollution Control Officers Association California Emissions Estimator Model* (CalEEMod) Version 2016.3.2. CalEEMod is the currently recommended model to evaluate impacts in place of the older URBEMIS model that was used in support of the North Delta EIR analysis. CalEEMod includes default assumptions for construction parameters and allows the user to input project-specific parameters. In this case, Phase B-specific construction inputs included items such as site acreage, construction schedule, construction equipment, number of workers to support each activity, and fill quantities for hauling materials on- and offsite. Emissions associated with on-road vehicle travel onsite were also estimated. These emissions were quantified using emissions factors from CARB's on-road emissions inventory model, Emissions Factor 2017, for pickup trucks and water trucks using emission factors from the 15 mile per hour speed bin.

This analysis evaluates the most intensive scenario of constructing the Phase B project in 1 year to provide a worst-case consideration of potential construction-related emissions. Construction would typically be conducted 5 days per week, 8 hours per day. Although all construction equipment and on-road vehicles may not be used for the entirety of each day, emissions conservatively assume full operation of equipment and vehicles for 8 hours each day of construction of each respective activity.

Table 3.4-4. Unmitigated Phase B Maximum Daily Construction Emissions of Criteria Air Pollutants

Emissions Category	ROG	NO_X	PM_{10}	$PM_{2.5}$
Phase B Project				
Dead Horse Island Connection	2.2	22.5	1.1	0.8
Walnut Grove Feeder and East (Either Option 1 or 2) Connections	1.0	10.2	0.6	0.4
Remove MWT Distribution Line	1.3	13.3	0.7	0.4
Tidal Channel Excavation	8.8	94.9	14.6	4.6
Subtidal Borrow Area Excavation	5.2	56.8	13.8	6.0
Marsh Plain Construction	8.3	90.7	18.9	7.6
Riparian Berm Construction	5.9	63.8	14.6	6.3
Riparian Floodplain Construction	5.9	63.8	14.6	6.3
Degrade MWT East Levee and Landside Re-sloping	4.7	52.4	11.1	5.6
Degrade MWT Southwest Levee and Landside Re-sloping	9.2	99.8	22.5	11.1
Breach Mokelumne River Levee	3.4	38.8	9.2	5.0
Repair MWT West Levee	4.1	42.7	10.2	5.2
Levee Roadway Aggregate Base	2.7	39.8	9.4	4.7
Turnaround Area	2.1	22.6	7.8	4.3
Construct Dewatering Station for Northwest Corner	0.5	4.1	0.2	0.2
Marsh Plain Fill Hauling	0.7	17.7	0.9	0.4
Mobilization and Demobilization of Equipment	0.1	3.3	0.2	0.1
Maximum Daily	**48**	**534**	**110**	**50**
Comparison to Thresholds				
SMAQMD Thresholds of Significance	–	85	0[2]	0[2]
Exceeds Threshold?	N/A	Yes	Yes	Yes

Notes: All units are pounds per day
Yellow-shaded field indicates exceedance of emissions threshold
ROG = reactive organic gases, NO_X = oxides of nitrogen, PM_{10} = respirable particulate matter, $PM_{2.5}$ = fine particulate matter, SMAQMD = Sacramento Metropolitan Air Quality Management District
Maximum daily emissions consider all overlapping construction activities. Totals do not add due to rounding.
Estimates are based on lowering a 1,500-ft-long section of the MWT Southwest Levee.
[2] In the absence of all feasible best available control technology and BMPs, significance thresholds for PM10¬ and PM2.5 are zero.
Source: AECOM 2021, see Appendix B

Table 3.4-5. Unmitigated Phase B Total Annual Construction Emissions of Criteria Air Pollutants

Emissions Category	PM_{10}	$PM_{2.5}$
Phase B Project		
Dead Horse Island Connection	0.0	0.0
Walnut Grove Feeder and East (Either Option 1 or 2) Connections	0.0	0.0
Remove MWT Distribution Line	0.0	0.0
Tidal Channel Excavation	1.0	0.3
Subtidal Borrow Area Excavation	0.8	0.3
Marsh Plain Construction	1.2	0.5
Riparian Berm Construction	0.1	0.1
Riparian Floodplain Construction	0.1	0.1
Degrade MWT East Levee and Landside Re-sloping	0.7	0.4
Degrade MWT Southwest Levee and Landside Re-sloping	1.5	0.7
Breach Mokelumne River Levee	0.2	0.1
Repair MWT West Levee	0.1	0.0
Levee Roadway Aggregate Base	0.0	0.1
Turnaround Area	0.0	0.0
Construct Dewatering Station for Northwest Corner	0.0	0.0
Marsh Plain Fill Hauling	0.0	0.0
Mobilization and Demobilization of Equipment	0.0	0.0
Total Annual Emissions	**5**	**2**
Comparison to Thresholds		
SMAQMD Thresholds of Significance	14.6	15
Exceeds Threshold?	No	No

Notes: All units are tons per year
PM_{10} = respirable particulate matter, $PM_{2.5}$ = fine particulate matter, SMAQMD = Sacramento Metropolitan Air Quality Management District.
Estimates are based on lowering a 1,500-ft-long section of the MWT Southwest Levee.
Source: AECOM 2021, see Appendix B

Relevant Issues Not Discussed Further in Supplemental EIR

Construction Emissions within the San Joaquin Valley Air Pollution Control District (North Delta EIR Impact AIR-1)

Should borrow material from Grizzly Slough be required for Phase B (an optional activity), hauling of material to MWT would include transport within the boundaries of SJVAPCD boundaries. This activity would be of short duration (approximately 2 weeks) during the construction phase. For the purposes of evaluation, and consistent with the North Delta EIR, emissions associated with this activity are compared to the SMAQMD thresholds of significance, as these would be more conservative. The SJVAPCD construction emissions thresholds are expressed in tons per year. This 2-week activity would not result in a level of emissions that would approach these annual thresholds, but the thresholds used in this Supplemental EIR based on maximum daily emissions are an appropriate metric and applicable to the remainder of the proposed project within the SMAQMD jurisdictional boundary. However, the SJVAPCD rules

and regulations are considered for purposes of analysis of this activity that would take place partially within San Joaquin County.

Generation of Operational Pollutant Emissions in Excess of SMAQMD and SJVAPCD Threshold Levels (North Delta EIR Impact AIR-1)

The North Delta EIR evaluated operational emissions, primarily associated with maintenance activities, including prescribed burning, mowing of vegetation, operation of pumps, application of soil and grading of levees, application of aggregate and grading of levee and access roads, street sweeping, application of architectural coatings, and maintenance dredging of the south fork of the Mokelumne River. The primary source of operational emissions was maintenance dredging in the North Delta EIR. While the details of this anticipated operational maintenance dredging could not be defined at the time of analysis, it was anticipated that such activities would exceed thresholds, and operational impacts were considered significant. Mitigation Measures AIR-2, AIR-5, and AIR-6 of the North Delta EIR were identified to implement BMPs, other control measures, permits, and emissions reduction credits. Although implementation of these mitigation measures would reduce emissions, emissions were assumed to still exceed thresholds of significance and this impact was considered significant and unavoidable. The only new operational emissions source for Phase B would be periodic, intermittent use of a new pump in the northwest corner of the project site. This pump would be used whenever needed to manage inundation to provide access to the communications tower at this location. Emissions from this activity would be additional to operational emissions evaluated in the North Delta EIR but would be minor and only occur intermittently. Therefore, the Phase B changes would not change the evaluation of operational emissions in the North Delta EIR.

Impact Analysis

Impact AIR-1 (North Delta EIR): Generation of Pollutant Emissions in Excess of SMAQMD and SJVAPCD Threshold Levels (Construction Emissions Only).

This evaluation focuses on construction emissions because the analysis of operational emissions for Alternative 1-A in the Delta EIR apply to Phase B operations and maintenance activities and additional analysis was dismissed from further discussion above.

Alternative 1-A North Delta EIR Conclusions

In the North Delta EIR construction emissions were determined to exceed the SMAQMD and SJVAPCD thresholds of significance adopted at the time the North Delta EIR was prepared, which included ROG, NO_X, CO and PM_{10} (PM_{10} emissions were only identified as being in exceedance of the SMAQMD threshold because SJVAPCD had not adopted a threshold for PM_{10} at the time of analysis). The Alternative 1-A construction scenario assumed all construction to be completed in a single year, as a most intensive construction scenario for the purposes of air quality impacts. The requirement to implement a Dust Control Plan in accordance with the SJVAPCD Regulation VIII was incorporated into the program as an environmental commitment. Although the Dust Control Plan would reduce PM emissions, since emissions would exceed thresholds, construction impacts were significant. Mitigation Measures AIR-1 through AIR-6 were incorporated to implement BMPs, other control measures, permits, and emissions reduction credits to reduce construction emissions in SMAQMD and SJVAPCD. Although implementation

of these mitigation measures would reduce emissions, emissions were still found to exceed thresholds and the impact was considered significant and unavoidable.

Phase B Updated Evaluation

Phase B emissions in the SJVAPCD are addressed above in the "Relevant Issues Not Discussed Further in Supplemental EIR" section. The Updated Phase B evaluation focuses on emissions in the SMAQMD.

The Phase B project would involve a portion of the types and amounts of construction, both on MWT and offsite, as those described in the North Delta EIR. However, the scope of activities for Phase B is relatively more limited. In addition, Phase B construction emissions would occur in separate years from other construction activities evaluated in Alternative 1-A in the North Delta EIR. Construction emissions for Phase B were estimated as described in the "Analysis Methodology" section above. Tables 3.4-4 (maximum daily emissions) and 3.4-5 (total annual emissions) summarizes construction-related emissions for the Phase B intensive construction scenario, including by project component, and compares maximum daily and total annual emissions to applicable SMAQMD construction significance thresholds. As shown in Table 3.4-4, construction emissions could exceed current SMAQMD thresholds of significance for maximum daily emissions of NO_X, PM_{10}, and $PM_{2.5}$. Therefore, this impact, as it relates to temporary construction activities, would be **significant**.

Mitigation Measures: A suite of new and updated mitigation measures has been provided for Phase B construction, primarily because of changes/updates in applicable air district regulations and requirements since the North Delta EIR.

> **Mitigation Measure AIR-8 (New): Implement the SMAQMD Basic Construction Emission Control Practices.**
>
> RD 2110 shall require that the construction contractor comply with Basic Construction Emission Control Practices identified by SMAQMD and listed below:
>
> - Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to, soil piles, graded areas, unpaved parking areas, staging areas, and access roads.
> - Cover or maintain at least 2 ft of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered.
> - Use wet power vacuum street sweepers to remove any visible track out mud or dirt onto adjacent public roads at least once a day. Use of dry powered sweeping is prohibited.
> - Limit vehicle speeds on unpaved roads to 15 miles per hour (mph).

- All roadways, driveways, sidewalks, and parking lots to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used.

- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [required by California Code of Regulations, Title 13, sections 2449(d) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site.

- Provide current certificate(s) of compliance for CARB's In-Use Off-Road Diesel-Fueled Fleets Regulation [California Code of Regulations, Title 13, sections 2449 and 2449.1]. For more information contact CARB at 877-593-6677, doors@arb.ca.gov, or www.arb.ca.gov/doors/compliance_cert1.html.

- Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determined to be running in proper condition before it is operated.

Timing: During construction.

Responsibility: RD 2110 and its construction contractor(s) with funding provided by DWR.

Mitigation Measure AIR-2 (Updated): Implement SMAQMD Requirement to Reduce NO_X Emissions from Off-Road Diesel-Powered Equipment.

In accordance with the SMAQMD Enhanced Onsite Exhaust Controls, RD 2110 shall consider the feasibility of implementing Enhanced Onsite Exhaust Control measures for off-road construction equipment. RD 2110 shall provide a plan, for approval by SMAQMD, demonstrating that the heavy-duty (equal to or greater than 50 horsepower) off-road vehicles used 8 hours or more in project construction, including owned, leased, and subcontractor vehicles, will achieve a Project-wide fleet average of 10 percent NO_X reduction compared to the most recent CARB fleet average at the time of construction. Acceptable options for reducing emissions may include use of cleaner engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available. (Note that the average fleet mix includes "cleaner" [lower emitting engines] compared to that when the prior SMAQMD guidance was written; therefore, revisions to this mitigation are as effective as originally proposed.)

The plan shall have two components: an initial report submitted before construction and a final report submitted at the completion, as follows:

- At least 4 business days prior to construction activity, RD 2110 shall submit to SMAQMD a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that will be used for an aggregate of 8 or more hours during any portion of construction. The inventory shall include the make and model of equipment, horsepower rating, engine model year, projected hours of use,

engine type or fuel use, and the CARB equipment identification number for each piece of equipment. RD 2110 shall provide SMAQMD with the anticipated construction timeline, including start date and name and phone number of the Project manager and onsite foreman.

- RD 2110 will submit a final report at the end of the job, phase, or calendar year, as pre-arranged with SMAQMD and documented in the approval letter, to demonstrate continued project compliance.

If Enhanced Onsite Exhaust Controls are later determined to be infeasible, offsite construction mitigation fees (Mitigation Measures AIR-4, below) can serve as substitute mitigation.

Timing: At least 4 business days prior to the use of subject heavy-duty off-road equipment and at the end of the job, phase, or calendar year.

Responsibility: RD 2110 and its construction contractor(s) with funding provided by DWR.

Mitigation Measure AIR-4 (Updated): Implement SMAQMD Requirement to Pay an Offsite NO_X Mitigation Fee.

SMAQMD requires that all projects with construction emissions in excess of the threshold of significances after application of the SMAQMD's basic and enhanced emissions control measures (Mitigation Measures AIR-8 and AIR-2 [above]) pay an offsite mitigation fee to reduce remaining construction-related emissions of NO_X to a less-than-significant level.

Mitigation Measures AIR-8 and AIR-2 are anticipated to reduce NOx emissions to levels shown in **Table 3.4-6**. As previously indicated, this analysis is based on a worst-case scenario in which construction activities would be undertaken and completed in a single year, thereby requiring more intensive use of construction equipment and a greater number of worker and haul truck daily trips, than if the construction is ultimately accomplished over a two- or three-year construction period. Because of this approach, project emissions could ultimately be substantially lower than as presented in Tables 3.4-6. Consequently, this analysis does not quantify the offsite mitigation fee payable to the SMAQMD. Rather, once the project-specific construction schedule is confirmed, prior to the issuance of grading permits, RD 2110 will review the project-specific construction-related emissions inputs and refine and re-calculate these emissions estimates, if appropriate, and determine the required mitigation fee and administrated fee to be paid to the SMAQMD to reduce project impacts from construction-related NO_X emissions to a less-than-significant level.

The offsite mitigation fee is calculated by calculating how many pounds per day of NO_X emissions in excess of the SMAQMD threshold of 85 pounds per day would be generated by the project after mitigation, converting this total to tons per day, and multiplying by the number of days of construction to estimate total tons. The number of tons is then

multiplied by the SMAQMD fee at the time of payment, currently $30,000 per ton of NO_X to be mitigated. Each July, the fee per ton is reviewed by SMAQMD and adjusted if needed. In addition, a 5 percent administrative fee is assessed in addition to the mitigation fee.

RD 2110 shall pay the mitigation and administrative fees in full prior to use of heavy-duty off-road equipment. An alternative payment plan may be negotiated by RD 2110 or its designee based on the timing of construction phases that are expected to exceed SMAQMD's threshold of significance. Any alternative payment plan must be acceptable to SMAQMD and agreed upon in writing prior use of heavy-duty off-road equipment.

Timing: Prior to the use of heavy-duty off-road equipment.

Responsibility: RD 2110 with funding provided by DWR.

Significance after Mitigation: Mitigation Measure AIR-8 would reduce this impact because implementation of SMAQMD-recommended Basic Construction Emission Control Practices reduces NOx and PM emissions from general construction activities. Mitigation Measure AIR-2 would further reduce emissions from onsite construction to the extent possible by requiring use of Tier 4 construction equipment or other enhanced onsite exhaust control measures. As shown in Table 3.4-6 for maximum daily emissions and **Table 3.4-7** for total annual emissions, implementation of Mitigation Measures AIR-8 and AIR-2 would reduce construction-related emissions, except for maximum daily emissions of NO_X, to less than the current SMAQMD thresholds of significance; however, mitigated NO_X emissions would be substantially reduced. If the final design is to lower a 1,000-ft-long section of the MWT Southwest Levee, then emissions would be reduced compared to the estimate in Tables 3.4-6 and 3.4-7 for lowering a 1,500-ft-long section of this levee.

As noted above these emissions represent the most intensive construction schedule and assume overlap of the most intensive days of construction for each project component that would occur in the same given month. As this overlap of the most intensive days is unlikely to occur, it may also be that maximum daily emissions of NO_X would be less than the SMAQMD thresholds of significance with implementation of Mitigation Measures AIR-1 and AIR-2. However, emissions estimates presented in Tables 3.4-6 and 3.4-7 represent a mitigated scenario in which all construction equipment greater than 50 horsepower procured for the proposed project would meet or exceed Tier 4 emissions standards. While Tier 4 equipment is becoming increasingly available and construction equipment fleets are comprised of increasingly newer and less emissive equipment overall, due to the uncertainty with regard to the availability of construction equipment that meet Tier 4 engine emissions standards, use of equipment that meet Tier 4 engine emissions standards as an enhanced onsite exhaust control may be determined to be infeasible. In accordance with Mitigation Measure AIR-2, other enhanced onsite exhaust control measures would also be considered and presented in a plan for SMAQMD approval to achieve a minimum of 10 percent reduction in NO_X emissions. However, such a reduction would not reduce maximum daily NO_X emissions to a level less than the SMAQMD threshold of significance.

Table 3.4-6. Mitigated[1] Phase B Maximum Daily Construction-related Emissions of Criteria Air Pollutants

Emissions Category	ROG	NO_X	PM_{10}	$PM_{2.5}$
Phase B Project				
Dead Horse Island Connection	0.8	4.9	0.3	0.2
Walnut Grove Feeder and East (Either Option 1 or 2) Connections	0.5	3.1	0.3	0.1
Remove MWT Distribution Line	0.8	4.4	0.4	0.2
Tidal Channel Excavation	2.2	10.5	5.4	0.9
Subtidal Borrow Area Excavation	1.2	6.3	5.5	2.0
Marsh Plain Construction	1.9	9.3	7.3	2.3
Riparian Berm Construction	1.4	6.9	5.8	2.0
Riparian Floodplain Construction	1.4	6.9	5.8	2.0
Degrade MWT East Levee and Landside Re-sloping	1.4	13.6	4.9	2.1
Degrade MWT Southwest Levee and Landside Re-sloping	2.4	16.4	9.3	3.8
Breach Mokelumne River Levee	1.2	13.1	4.4	2.0
Repair MWT West Levee	1.0	5.8	4.1	1.8
Levee Roadway Aggregate Base	1.1	21.7	5.0	2.2
Turnaround Area	0.6	4.5	3.4	1.7
Construct Dewatering Station for Northwest Corner	0.2	0.8	0.1	0.0
Marsh Plain Fill Hauling	0.3	7.5	0.4	0.1
Mobilization and Demobilization of Equipment	0.1	3.3	0.2	0.1
Maximum Daily[2]	**13**	**92**	**45**	**17**
Comparison to Thresholds				
SMAQMD Thresholds of Significance	–	85	80[3]	82[3]
Exceeds Threshold?	N/A	Yes	No	No

Notes: All units are pounds per day
Yellow-shaded field indicates exceedance of emissions threshold
ROG = reactive organic gases, NO_X = oxides of nitrogen, PM_{10} = respirable particulate matter, $PM_{2.5}$ = fine particulate matter, SMAQMD = Sacramento Metropolitan Air Quality Management District
Estimates are based on lowering a 1,500-ft-long section of the MWT Southwest Levee.
[1] Mitigation incorporates Tier 4 emissions standards for construction equipment greater than 50 horsepower, as a representative enhanced onsite exhaust control measure, and watering exposed areas twice daily to reduce fugitive dust emissions.
[2] Maximum daily emissions consider all overlapping construction activities. Totals do not add due to rounding.
[3] Daily maximum threshold allowed after implementation of Basic Construction Emissions Control Practices in Mitigation Measure AIR-8.
Source: AECOM 2021, see Appendix B

Table 3.4-7. Mitigated[1] Phase B Annual Construction-related Emissions of Criteria Air Pollutants

Emissions Category	PM_{10}	$PM_{2.5}$
Phase B Project		
Dead Horse Island Connection	0.0	0.0
Walnut Grove Feeder and East (Either Option 1 or 2) Connections	0.0	0.0
Remove MWT Distribution Line	0.0	0.0
Tidal Channel Excavation	0.4	0.1
Subtidal Borrow Area Excavation	0.3	0.1
Marsh Plain Construction	0.5	0.1
Riparian Berm Construction	0.0	0.0
Riparian Floodplain Construction	0.1	0.0
Degrade MWT East Levee and Landside Re-sloping	0.3	0.1
Degrade MWT Southwest Levee and Landside Re-sloping	0.6	0.3
Breach Mokelumne River Levee	0.1	0.0
Repair MWT West Levee	0.0	0.0
Levee Roadway Aggregate Base	0.1	0.0
Turnaround Area	0.0	0.0
Construct Dewatering Station for Northwest Corner	0.0	0.0
Marsh Plain Fill Hauling	0.0	0.0
Mobilization and Demobilization of Equipment	0.0	0.0
Total Annual Emissions	**2**	**1**
Comparison to Thresholds		
SMAQMD Thresholds of Significance	14.6	15
Exceeds Threshold?	No	No

Notes: All units are tons per year
PM_{10} = respirable particulate matter, $PM_{2.5}$ = fine particulate matter, SMAQMD = Sacramento Metropolitan Air Quality Management District
Estimates are based on lowering a 1,500-ft-long section of the MWT Southwest Levee.
[1] Mitigation incorporates Tier 4 emissions standards for construction equipment greater than 50 horsepower, as a representative enhanced onsite exhaust control measure, and watering exposed areas twice daily to reduce fugitive dust emissions.
Source: AECOM 2021, see Appendix B

In the instance that enhanced onsite exhaust control measures in Mitigation Measure AIR-2 are determined to be infeasible or do not reduce NO_X emissions to less than the SMAQMD significance threshold, Mitigation Measure AIR-4 would require purchase of offsite construction mitigation fees. Payment of an offsite mitigation fee to off-set any incremental construction-generated NO_X emissions in exceedance of the SMAQMD threshold of significance, if needed and as required by Mitigation Measure AIR-4 (Revised), would reduce emissions of NO_X associated with project construction to levels that do not exceed SMAQMD's threshold of significance. Implementation of these mitigation measures would also ensure incorporation of BMPs during construction activities to reduce emissions of criteria pollutants to levels that do not exceed the SMAQMD thresholds of significance. Therefore, the impact from the project would be **less-than-significant with mitigation**.

Impact AIR-2 (North Delta EIR): Exposure of Sensitive Receptors to Elevated Levels of Diesel Exhaust and an Increased Health Risk.

Alternative 1-A North Delta EIR Conclusions

Analysis in the North Delta EIR acknowledged the potential health risks associated with diesel particulate matter (DPM) from diesel-fueled engines as a TAC. The North Delta EIR found that exposure to diesel exhaust from construction activities would not result in increased health risks because construction activities would be temporary and not result in long-term exposure, and concentrations of DPM would attenuate to levels well below acceptable exposure limits because of the distance to sensitive receptors from most construction activities. This impact was found to be less than significant.

Phase B Updated Evaluation

As described in the North Delta EIR, the primary TAC of concern associated with construction activities for Phase B would be the generation of 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 2.5 micrometers in diameter. Therefore, $PM_{2.5}$ represents the upper limit for DPM emissions associated with construction of the proposed project. As shown in Tables 3.4-4 (maximum daily emissions) and 3.4-5 (total annual emissions), emissions of $PM_{2.5}$ during construction of the proposed project would not exceed SMAQMD's recommended thresholds of significance. In addition, $PM_{2.5}$ emissions for any given project component ranges from less than 1 pound per day, to a maximum of approximately 11 pounds per day for all $PM_{2.5}$ sources (on- and offsite emissions associated with exhaust [DPM] and fugitive dust).

Health risk is a function of the concentration of contaminants in the environment and the duration of exposure to those contaminants. Health effects from TACs are often described in terms of individual cancer risk, which is based on a 30-year lifetime exposure to TACs (OEHHA 2015). Construction activities were modeled based upon an approximately 8-month construction duration, which would be approximately 2 percent of the total exposure period used for typical health risk calculations. Should construction be conducted over a two- or three-year period of time, the intensity of construction equipment use activity, daily worker trips, and ground disturbance would similarly be reduced on a daily basis and extended over the longer duration; in addition, over the two- to three-year period, construction would still be limited to approximately 8 months per year, for a total duration that would be up to 24 months, or less than 7 percent of the total exposure period used for typical health risk calculations.

Concentrations of mobile-source DPM emissions are typically reduced by 70 percent at a distance of approximately 500 ft (CARB 2005). The nearest sensitive receptors are relatively isolated single-family residences along the eastern side of the Mokelumne River adjacent to the project site, and an RV park on the eastern side of Mokelumne River at the southern end of the project site. While there are residences adjacent to the project site perimeter, construction activities would be dispersed throughout the entire 1,635-acre project area, so the majority of construction activities would take place substantially farther than 500 ft from the nearest residences. The risks estimated for an exposed individual are higher if a fixed exposure occurs over a longer period of time. The use of construction equipment would vary in activity and equipment intensity over the construction duration, and would take place throughout the entirety

of the proposed project site, thereby limiting the amount of time that emitting equipment would be within a distance that would expose sensitive receptors to substantial concentrations.

Due to the temporary nature of construction activities for the Phase B changes and the dispersive properties of TACs, and the fact that $PM_{2.5}$ emissions would be far less than the SMAQMD emission threshold, short-term construction would not expose sensitive receptors to DPM emission levels that would result in a health risk. Therefore, this impact would be **less than significant**. In addition, implementation of mitigation measures required for Impact AIR-1 would further reduce DPM emissions.

Mitigation Measure: No mitigation is required.

Impact AIR-4 (New): Result in Other Emissions (Such as Those Leading to Odors) Adversely Affecting a Substantial Number of People.

New Phase B Impact Evaluation

The generation of other emissions, such as those leading to odors, that would adversely affect a substantial number of people is a new impact that was not identified in the North Delta EIR. The predominant source of power for construction equipment is diesel engines. Exhaust odors would be the predominant source of odors associated with proposed construction activities for the project. Exhaust odors from diesel engines may be considered offensive to some individuals. Depending on the wind direction, residents to the east and south may be exposed to odors from diesel exhaust associated with operating construction equipment and diesel-powered trucks. However, construction activities would be dispersed throughout MWT and the new distribution line project locations, often at a distance from surrounding residences. Any odors generated would be temporary and disperse rapidly with distance from the source. Therefore, construction-generated odors would not result in the frequent exposure of receptors to objectionable odor emissions. Furthermore, RD 2110 would comply with SMAQMD Rule 402 (Nuisance), which would ensure that odors generated by short-term construction would not affect a substantial number of people. Therefore, this impact would be **less than significant**.

Mitigation Measure: No mitigation is required.

Residual Significant Impacts

There would be no residual significant impacts to air quality associated with the Phase B project.

3.5 Noise

3.5.1 Environmental Setting

Noise-sensitive uses in the project area are the same as were defined in the North Delta EIR and include isolated single-family residences on tracts adjacent to the MWT. The closest residences to the potential offsite SMUD distribution line locations are approximately 0.15 mile south of East Connection Option 1, approximately 0.75 mile south of Option 2, and approximately 0.10 mile south of the DHI connection.

3.5.2 Regulatory Setting

Federal, State, regional, and local regulatory conditions identified in the North Delta EIR are generally applicable to the Phase B project. DWR is not subject to local regulations unless expressly authorized by the Legislature. Local plans, policies, regulations, and ordinances potentially relevant to Phase B are addressed in this section for informational purposes because they may be relevant to certain responsible agencies.

3.5.3 Environmental Impacts and Mitigation Measures

Significance Criteria

The State CEQA Guidelines, as amended in 2019, and county standards and standard professional practices were used to determine whether the Phase B project would result in a significant noise impact. The Phase B project is considered to have a significant impact from noise generation if it would:

- expose persons to or generate noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies;
- expose persons to or generate excessive ground borne vibration or ground borne noise levels;
- result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project; or
- result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

Based on local noise criteria (Sacramento County), the Governor's Office of Planning and Research standards, and Federal Transportation Administration criteria, the following significance criteria have been developed for this project. Noise resulting from a project is considered significant if:

- exterior noise would exceed 50 A-weighted decibels (dBA) (1-hour equivalent continuous sound level in decibels [Leq]) at the nearest noise-sensitive land use between 10:00 p.m. and 7:00 a.m. or 55 dBA (1-hour Leq) at the nearest noise-sensitive land uses between 7:00 a.m. and 10:00 p.m. However, construction activities between the hours of 6:00 a.m. to 8:00 p.m.,

Monday through Friday, and 7:00 a.m. to 8:00 p.m. on weekends are exempt from this ordinance; or

- operation of facilities would result in noise that exceeds the acceptable noise standards of the relevant jurisdictions.

Analysis Methodology

Noise impacts are evaluated by comparing expected construction noise from Phase B project activities and operation noise from new pumps to potentially applicable noise policies and ordinances.

Impact Analysis

Impact NZ-1 (North Delta EIR): Exposure of Noise-Sensitive Land Uses to Noise from General Construction Activities.

Alternative 1-A North Delta EIR Conclusions

The North Delta EIR indicated construction would result in noise that exceeds 50 dBA Leq within 1,600 ft and 45 dBA Leq within 2,500 ft of construction activities. Because construction activities were anticipated to occur within 2,500 ft of residences, this impact was considered to be significant. Mitigation Measure NZ-1 was identified to limit noise-generating construction activity within 2,500 ft of occupied residences and reduce the impact to less than significant.

Phase B Updated Evaluation

McCormack-Williamson Tract

The Phase B project construction would generate similar noise levels to those indicated in the North Delta EIR, and sensitive receptors are consistent with those identified in the North Delta EIR. Several pieces of additional equipment would be needed for levee modification and re-sloping activities, constructing the turnaround, and removing existing SMUD distribution lines. Additional equipment not included in the North Delta EIR analysis include a brush chipper, hydro mulcher, vibratory hammer, and auger. Additionally, a pile driver would be used for 1 day to construct a dewatering station inside the Tower Levee, in the northwest corner of the MWT. However, use of these few additional pieces of equipment, along with equipment analyzed in the North Delta EIR, would generate noise levels similar to those identified in the North Delta EIR.

Potential New SMUD Distribution Line Locations

The Phase B project also now includes equipment use for installing the new SMUD connections east and west of MWT, which were not analyzed in the North Delta EIR. However, installation of the new distribution lines would generally use the same types of equipment analyzed in the North Delta EIR, with the minor addition of an auger and line truck to excavate pole holes. Distance between the potential new distribution line locations and sensitive receptors would be consistent with what was analyzed in the North Delta EIR.

Conclusions

Consistent with conclusions in the North Delta EIR, Phase B construction activities would occur within 2,500 ft of residences. Therefore, this impact is considered **potentially significant**.

Mitigation Measure: Mitigation Measure NZ-1 from the North Delta EIR would address Impact NZ-1.

> **Mitigation Measure NZ-1 (North Delta EIR): Limit Noise-Generating Construction Activity and Heavy Trucking to Daytime Hours.**
>
> RD 2110/SMUD will limit noise-generating construction activity within 2,500 ft of occupied residences and heavy trucking within 400 ft of occupied residences to the hours between 6:00 a.m. and 8:00 p.m.
>
> **Timing:** During construction activities.
>
> **Responsibility:** RD 2110 and/or SMUD and their construction contractors.

Significance after Mitigation: Implementation of Mitigation Measures NZ-1 would reduce construction noise impacts on sensitive land uses by limiting the hours during which noise-generating activities can occur near occupied residences. Therefore, this impact would be **less-than-significant with mitigation**.

Impact NZ-2 (North Delta EIR): Exposure of Noise-Sensitive Land Uses to Noise from Material Hauling Operations.

Alternative 1-A North Delta EIR Conclusions

The North Delta EIR analyzed a reasonable worst-case assumption that up to 20 heavy trucks per hour could use any given roadway. Using the Federal Highway Administration Traffic Noise Model Version 2.5 and a nominal speed of 45 mph, 20 trucks per hour would produce the following hourly sound levels: 54 dBA at 100 ft, 50 dBA at 200 ft, and 45 dBA at 400 ft. Because trucking operations for Alternative 1-A would take place within 400 ft of residences, this impact was considered to be significant. Mitigation Measure NZ-1 was identified to limit heavy trucking within 400 ft of occupied residences to the hours between 6:00 a.m. and 8:00 p.m. and reduce the impact to less-than-significant with mitigation.

Phase B Updated Evaluation

Material hauling operations for import of materials from Grizzly Slough during Phase B construction were covered in the North Delta EIR. Import of rock for levee degrades/breaches was covered to an extent in the North Delta EIR, but is addressed in this Supplemental EIR to reflect revisions in the Phase B construction plans. The Phase B project would result in a similar amount or less hauling trips along construction access and haul routes, compared to what was analyzed in the North Delta EIR. An estimated 2,357 truck hauling trips to the project site are estimated for use of imported fill (an optional component for the Phase B project) and an additional 1,465 truck hauling trips are estimated for use of imported rock material. The updated Phase B design also requires less haul trips to transport material for levee modifications to the

project site, due to the reduced lengths of levee degrades and RSP. The Phase B project would generate less than the 20 truck trips per hour as defined in the North Delta EIR. Although unlikely, it is possible that project-related trucking operations would take place within 400 ft of residences; therefore, this impact is **potentially significant**.

Mitigation Measure: Mitigation Measure NZ-1 from the North Delta EIR would address Impact NZ-2.

> **Mitigation Measure NZ-1 (North Delta EIR): Limit Noise-Generating Construction Activity and Heavy Trucking to Daytime Hours.**
>
> Please refer to Mitigation Measure NZ-1 under Impact NZ-1 above for the full text of this mitigation measure.

Significance after Mitigation: Implementation of Mitigation Measures NZ-1 would reduce material hauling noise impacts on sensitive land uses by limiting the hours during which hauling can occur near occupied residences. Therefore, this impact would be **less-than-significant with mitigation**.

Impact NZ-3 (North Delta EIR): Exposure of Noise-Sensitive Land Uses to Noise from Modified Pump Operations.

Alternative 1-A North Delta EIR Conclusions

The North Delta EIR indicated that pump operations under would decrease under Alternative 1-A and noise generated by pump operations would therefore be less than under current conditions at the time. This impact was considered less than significant.

Phase B Updated Evaluation

Under the current Phase B project, a drainage pump may be installed and operated for active water management and drainage of the area inside the Tower Levee, for at least the duration of the communications tower lease (until 2023). This new drainage pump would be installed near an existing drainage pump that operates once per week throughout the year or continuously during high-water events for drainage. The existing pump would be decommissioned as proposed in the North Delta EIR. The new drainage pump may operate at a similar frequency, or for a longer daily frequency, to extract excess accumulated water from the toe ditch on the inside of the Tower Levee and discharge this water to the tidal portion of the MWT. However, operation of this one pump, even if at a higher frequency, would not generate excessive additional noise. Therefore, this impact is considered **less than significant**.

Mitigation Measure: No mitigation is required.

Impact NZ-4 (North Delta EIR): Exposure of Noise-Sensitive Land to Groundborne Vibrations from Construction Activities.

Alternative 1-A North Delta EIR Conclusions

The North Delta EIR assessed vibrations produced by grading activities using an analysis method recommended by the Federal Transportation Administration (FTA 1995). A reasonable worst-case assumption that a bulldozer would generate the highest vibration of any heavy equipment was used. The recommended reference vibration amplitude or reference peak particle velocity for a large bulldozer is 0.089 inches per second at 25 ft. The threshold of perception for groundborne vibration is approximately 0.02 inches per second (Caltrans 2004). Accordingly, perceptible vibration from the operation of heavy equipment is expected to be limited to an area within approximately 75 ft of the activity. Because residences were not anticipated to be located within 75 ft of heavy equipment operation, this impact was considered less than significant.

Phase B Updated Evaluation

As mentioned in Impact NZ-1, the Phase B project now includes use of a pole jack, auger drill, and pile driver (for 1 day); however, these additional pieces of equipment would not generate vibrations greater than a large bulldozer and would not significantly add to the vibrations analyzed in the North Delta EIR. Additionally, there are no sensitive receptors located within 75 ft of heavy equipment operations. Therefore, this impact is considered **less than significant**.

Mitigation Measure: No mitigation is required.

Residual Significant Impacts

There would be no residual significant impacts to noise associated with the Phase B project

.

3.6 Biological Resources

This section addresses updates to North Delta EIR Sections 4.1 "Vegetation and Wetlands," 4.2 "Fisheries and Aquatics," and 4.3 "Wildlife."

3.6.1 Environmental Setting

The North Delta EIR describes the physical and biological setting of the North Delta Region, including MWT and adjacent areas. Setting descriptions in Sections 4.1 through 4.3 of the North Delta EIR describe land cover types and terrestrial habitat conditions; invasive vegetation; aquatic habitats and fish resources; wildlife habitat and land cover type associations; special-status plants, fish, and wildlife; and regulated habitats, such as waters of the United States. These discussions generally remain applicable to the environmental setting for Phase B.

Relevant updates to the North Delta EIR affected environment descriptions for vegetation and wetlands, fisheries and aquatics, and wildlife are provided below to reflect the current environmental setting on the Phase B project site – MWT and the new SMUD distribution line locations – and adjacent areas. These updates focus on new information that could have a meaningful effect on the analyses presented in the North Delta EIR, including substantive changes to the impact quantifications or qualitative descriptions. Information on current habitat conditions is based on extensive surveys of MWT that have been conducted to support past Phase A implementation and Phase B planning. In 2015, DWR completed wetland delineations of MWT and portions of adjacent sloughs anticipated to be impacted by Phase B (DWR 2015a, 2015b). A GEI ecologist developed landcover maps in 2020, based on field observations, information from Stillwater Sciences, and aerial imagery interpretation. Stillwater Sciences biologists made numerous visits to MWT from 2016-2021 to complete pre-construction species surveys and habitat assessments and conduct monitoring during and after Phase A construction (Stillwater Sciences 2018, 2020, unpublished data). Stillwater Sciences' survey efforts have included:

- vegetation mapping;
- special-status plant habitat assessments and surveys;
- elderberry shrub mapping;
- giant garter snake (*Thamnophis gigas*) and western pond turtle (*Emys marmorata*) habitat assessment and surveys;
- California black rail (*Laterallus jamaicenis coturniculus*), Swainson's hawk (*Buteo swainsoni*), western burrowing owl (*Athene cunicularia*), and tricolored blackbird (*Agelaius tricolor*) habitat assessments;
- nesting bird surveys; and
- bat habitat assessments and roost surveys (visual and acoustic).

Relevant species status and occurrence updates are provided, based on results of surveys listed above and review of current special-status species information sources, including the USFWS Information for Planning and Conservation (IPaC) website, CDFW California Natural Diversity Database (CNDDB), California Native Plant Society inventory of rare and endangered plants, and available documents on species current distribution and habitat requirements. CNDDB occurrences in the project vicinity since the North Delta EIR was prepared were reviewed, and IPaC and the California Native Plant Society inventory were reviewed for additional species indicated to occur or have potential to occur in the project vicinity. Results of these reviews and information from data collected during MWT surveys are incorporated into the environmental setting information provided below.

Vegetation and Wetlands

Land Cover Types

Figure 3.6-1 shows the current distribution of land cover types on MWT, which has changed considerably since mapping for the North Delta EIR was completed in 2004. As indicated in Chapter 2, after the 2017 flood event, agricultural production on MWT ceased. As a result, former agricultural lands now support annual grassland/ruderal vegetation dominated by nonnative grasses and forbs, such as bristly ox-tongue (*Helminthotheca echiodes*), willowherb (*Epilobium brachycarpum*), bull thistle (*Cirsium vulgare*), curly dock (*Rumex crispus*), poison hemlock (*Conium maculatum*), black mustard (*Brassica nigra*), prickly lettuce (*Lactuca serriola*), rabbitsfoot grass (*Polypogon monspeliensis*), Canadian horseweed (*Erigeron canadensis*), cheeseweed (*Malva parviflora*), bermudagrass (*Cynodon dactylon*), milk thistle (*Sylibum marianum*), barley (Hordeum murinum), wild oats (*Avena barbata*), soft chess brome (*Bromus hordeaceus*), and Spanish clover (*Acmispon americanus*). Agricultural ditches remain on MWT but are no longer supplied with irrigation water. Portions of these ditches, primarily at the southern end of the tract, collect stormwater runoff and can temporarily retain standing water of approximately 1-2 ft deep after large storm events. Flooding of the MWT interior in 2017 did not result in substantive long-term changes in land cover types or associated wildlife habitat conditions. **Figure 3.6-2** shows land cover types in the SMUD distribution line relocation corridors. These cover types were mapped by a GEI ecologist based on aerial imagery and comparison to known cover types on MWT. Field verification was not possible, because the areas are on private land and access was not available.

Invasive Plants

The North Delta EIR highlighted several problematic aquatic and terrestrial plant species in the region including water hyacinth (*Eichhornia crassipes*), Brazilian waterweed (*Egeria densa*), perennial pepperweed (*Lepidium latifolium*), and Himalayan blackberry (*Rubus armeniacus*). These species are a concern on MWT, and poison hemlock (*Conium maculatum*) has also become prevalent in fallowed agricultural areas and on the levees and will be a target of invasive species management efforts. The North Delta EIR indicated that colonies of invasive aquatic plants were generally infrequent in the EIR study area, but acknowledged that mats of aquatic weeds, such as water hyacinth or Brazilian waterweed, can clog waterways, shade habitat for native aquatic vegetation, and smother low-growing intertidal vegetation. These and other invasive aquatic plants, such as water primrose (*Ludwigia peploides*) and alligator weed (*Alternanthera philoxeroides*), occur in the vicinity of the Phase B project site. Water primrose

has been observed in Lost Slough but does not appear to be extensive in the other sloughs that border MWT.

Special-status Plants

The North Delta EIR described special-status plants known or with potential to occur in the study area, including MWT. For purposes of this analysis, special-status plants include taxa (distinct taxonomic categories or groups) that are officially listed, candidates for listing, or proposed for listing by the Federal government or the State of California as endangered, threatened, or rare; meet the criteria for listing; or are considered by CDFW to be "rare, threatened, or endangered in California" (California Rare Plant Ranks 1 and 2).

Several recent occurrences of these species have been documented on or adjacent to MWT, primarily during surveys conducted by DWR to support the Bay Delta Conservation Plan (CDFW 2021). **Figure 3.6-3** shows CNDDB occurrences of special-status plants on and within 0.5 mile of the Phase B project site. The occurrence extents vary depending on specificity of the CNDDB location information and do not necessarily indicate that the species occurs within the entire extent shown in the figure. Many more occurrences than shown in the North Delta EIR have been documented in more recent years. However, no special-status plants were documented on MWT during botanical surveys performed in support of Phase A (Stillwater Sciences 2018).

The regulatory status of one special-status plant addressed in the North Delta EIR, woolly rose-mallow (*Hibiscus lasiocarpus* var. *occidentalis*), has changed from California Rare Plant Rank 2B (rare, threatened, or endangered in California but more common elsewhere) to 1B (rare, threatened, or endangered in California and elsewhere).

In addition to species addressed in the North Delta EIR, Bolander's water-hemlock (*Cicuta maculata* var. *bolanderi*) also has potential to occur in marsh habitat on the exterior portions of MWT. This aquatic species occurs in freshwater and brackish marshes and swamps and has a California Rare Plant Rank of 2B. Although the exact location is unknown, the species was reported from the vicinity of the nearby Delta Meadows River Park in 1993 (CDFW 2021).

Waters of the United States and Waters of the State

Information regarding waters of the United States presented in the North Delta EIR was based on surveys conducted in 2002 and 2003. In 2015, DWR conducted a delineation of waters of the United States in the interior portion of MWT (DWR 2015a) and a delineation of portions of adjacent sloughs anticipated to be impacted by Phase B (DWR 2015b). This most recent delineation identified approximately 53 acres of waters of the United States on MWT, including approximately 25 acres of wetlands, all of which also qualify as waters of the State. All aquatic features along the exterior boundary of MWT (i.e., waterside of levees around MWT) are waters of the United States and waters of the State. No areas on or surrounding MWT are expected to qualify as waters of the State but not waters of the United States. The potential SMUD distribution line relocation corridors also support aquatic habitat likely to qualify as waters of the State and waters of the United States, but these areas have not been formally delineated and quantified; a delineation will be completed when the locations are finalized.

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Figure 3.6-1. Distribution of Current Land Cover Types on the McCormack-Williamson Tract

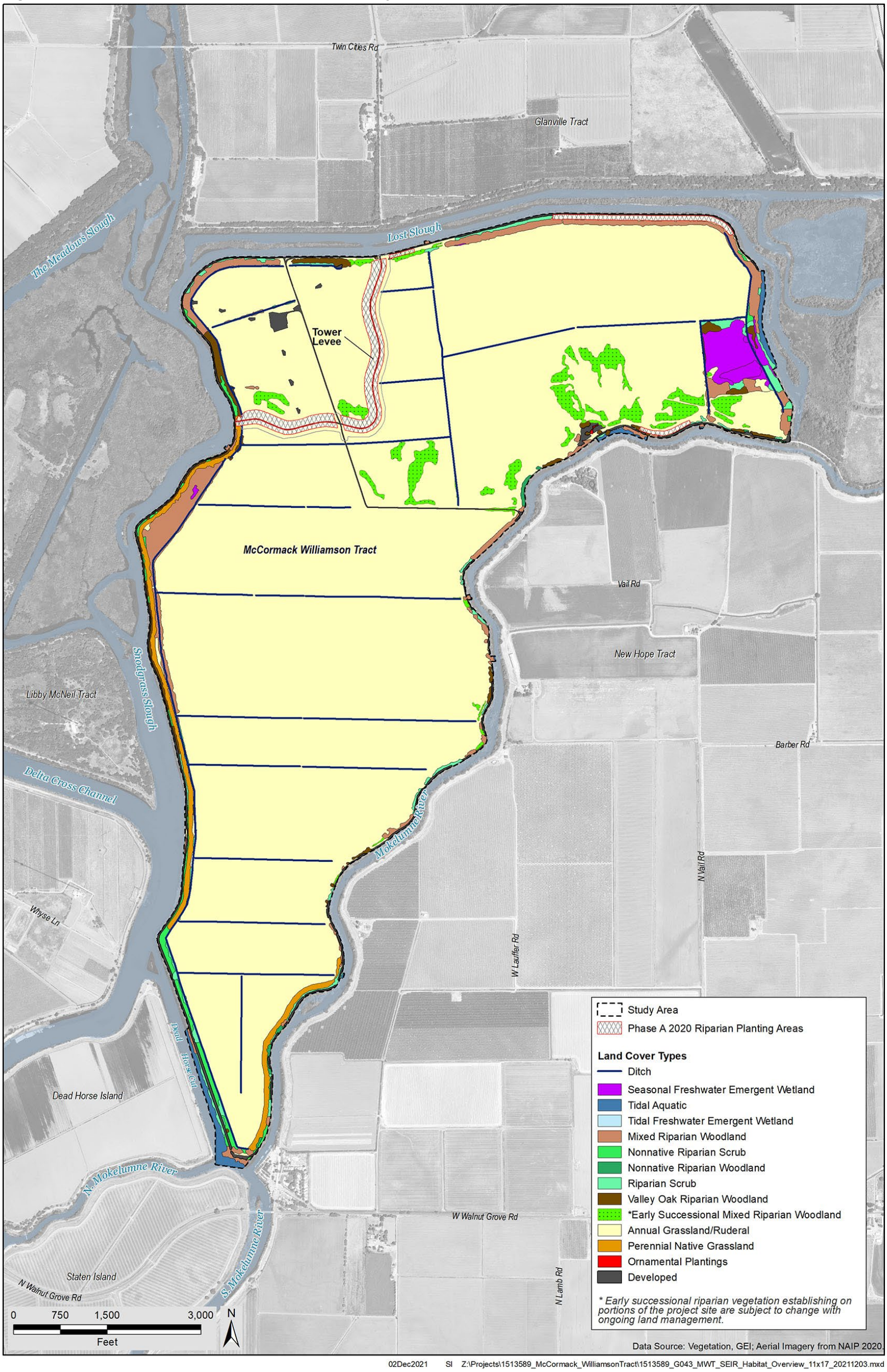


Figure Source: GEI Consultants, Inc. 2021.

Figure 3.6-2. Distribution of Current Land Cover Types in SMUD Distribution Line Relocation Corridors

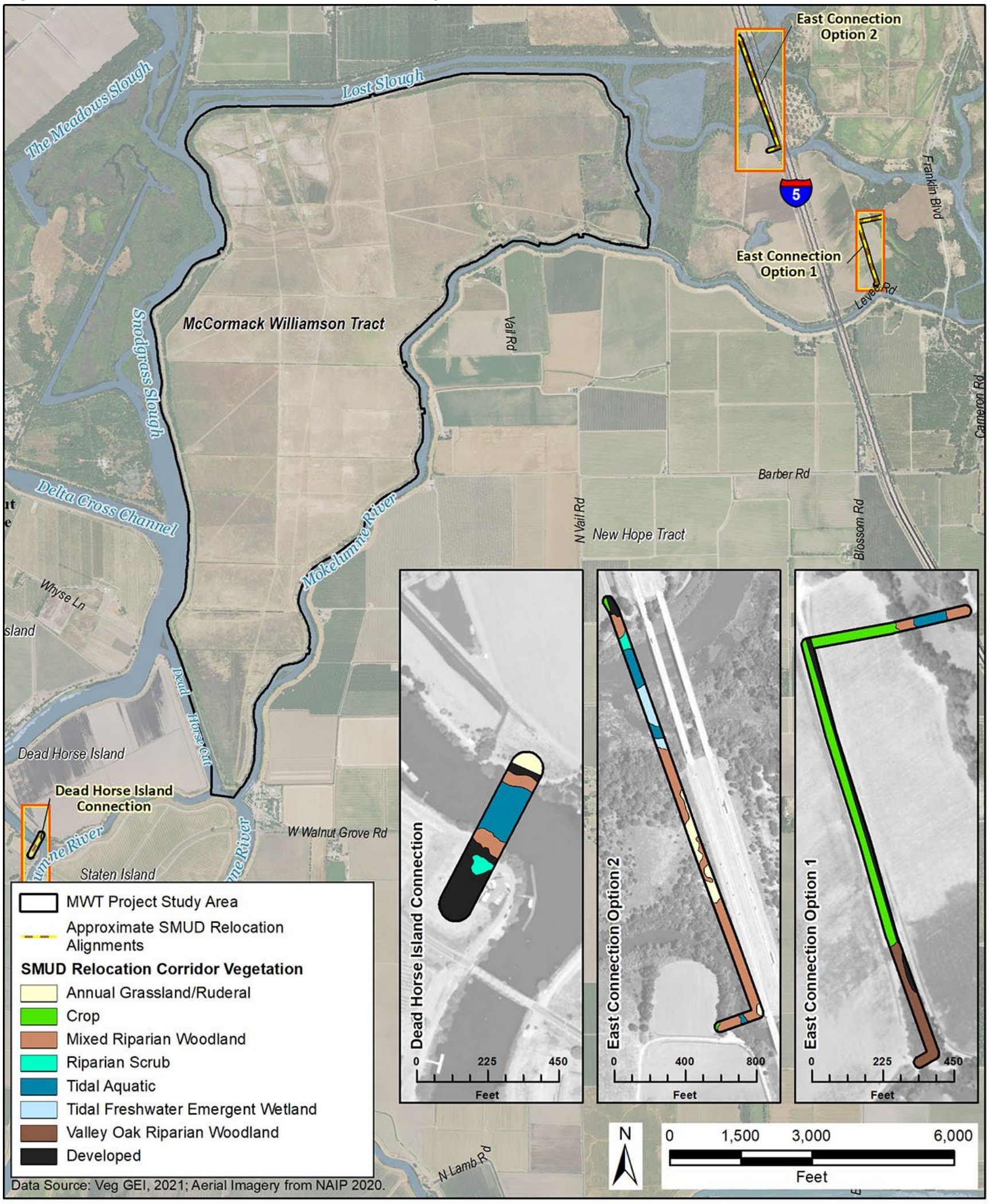
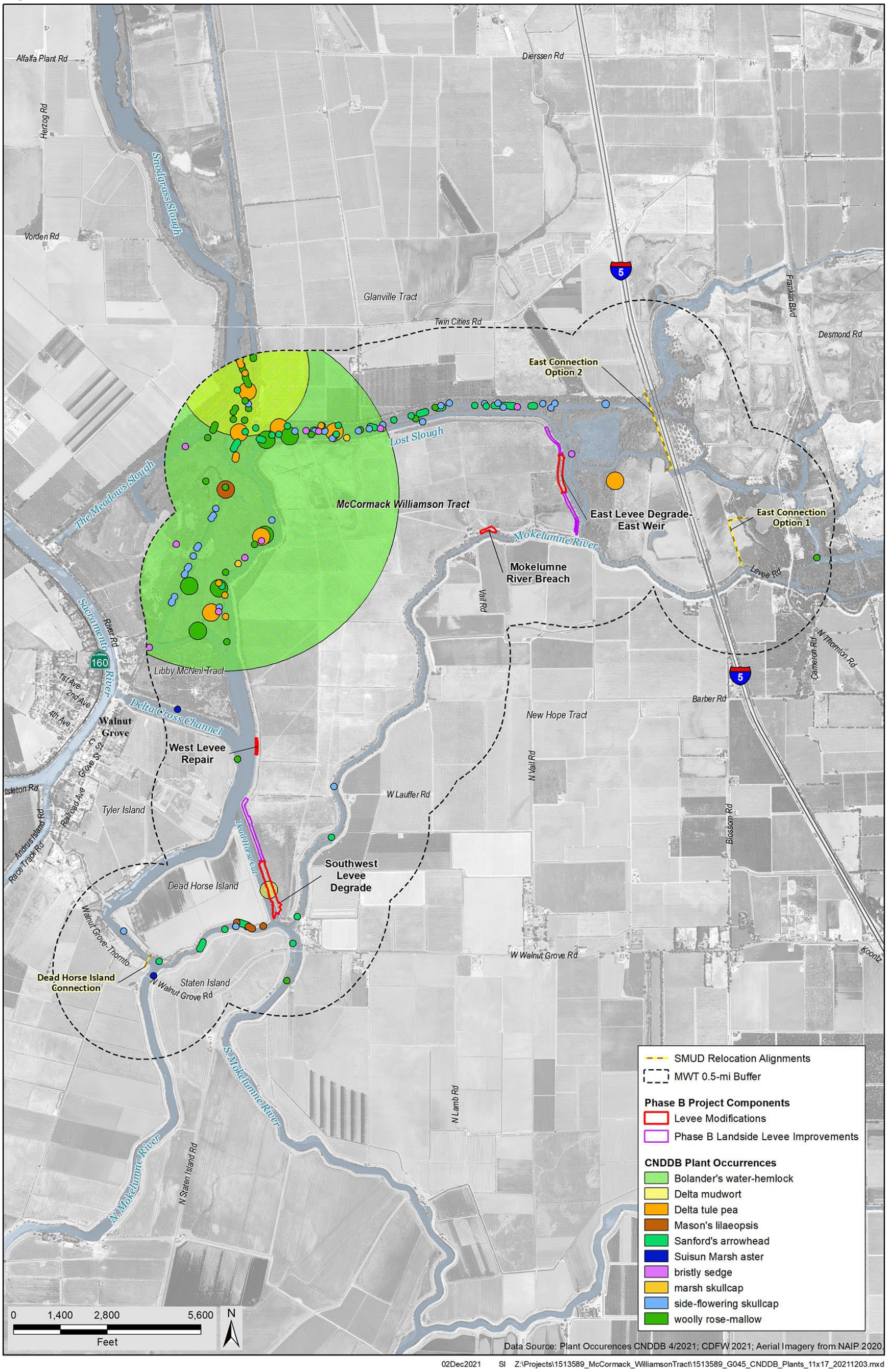


Figure Source: GEI Consultants, Inc. 2021.

Figure 3.6-3. Special-status Plant Occurrences within 0.5 mile of Phase B Construction Areas



Source: California Department of Fish and Wildlife 2021, adapted by GEI Consultants, Inc. in 2021

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Fisheries and Aquatics

Aquatic Habitats and Ecosystems

The description of aquatic ecosystems for Alternative 1-A in the North Delta EIR generally remains applicable to the environmental setting for Phase B. However, the operational schedule of the Delta Cross Channel now includes seasonal closures with fewer allowable days open in December, based on the following criteria (USBR 2021):

- December 1 – May 20: Gates are typically closed. The high flow threshold that typically triggers winter closure is 22,500 cfs.
- May 21 – June 15: Gates are typically closed for a total of 14 days for fisheries protection as requested by USFWS, NMFS, and CDFW. Whenever possible, the gates are open on weekends and on Memorial Day to facilitate recreational boating.
- June 16 – September 30: Gates are typically open but close intermittently during fishery experiments or maintenance.
- October 1 – November 30: Gates are typically open. When real-time fishery monitoring indicates salmon migration in the Delta, gates close for up to 5 days to benefit migratory conditions.

Fish Resources

The North Delta EIR provides information on fish resources, including special-status species, that occur at least seasonally in the project area. For purposes of this analysis, special-status fish include taxa that are officially listed, candidates for listing, or proposed for listing by the Federal government or the State of California as endangered or threatened; meet the criteria for listing; or are identified by CDFW as species of special concern; or are listed as Fully Protected under the CFGC. The regulatory status of two special-status fish species addressed in the North Delta EIR has changed. Delta smelt (*Hypomesus transpacificus*) was upgraded from threatened to endangered under the California Endangered Species Act (CESA) in 2010. Longfin smelt (*Spirinchus thaleichthys*) was listed as threatened under CESA in 2009 and the San Francisco Bay-Delta distinct population segment (DPS) became a candidate for listing under the Federal Endangered Species Act (ESA) in 2012. In addition, two updates to critical habitat for Federally listed fish have occurred. The final rule designating critical habitat for the southern DPS of green sturgeon was published in 2009 (74 FR 52299) and includes Snodgrass Slough, which is directly adjacent to the west side of MWT. The final rule designating critical habitat for the Central Valley spring-run Chinook salmon evolutionarily significant unit was published in 2005 (70 FR 52488) and includes the Delta Cross Channel, which connects the Sacramento River to Snodgrass Slough just to the west of MWT.

Notably, delta smelt abundance appears to have declined substantially in recent years. Summer townet and fall midwater trawl data show fluctuating annual abundance from 1991–1996, with an increasing trend in the late 1990's, followed by an overall decline in abundance since 1999 (Bryant and Souza 2004). USFWS estimated that there were 48,000 adult delta smelt in 2017, compared to an estimated 16,000 adult delta smelt in early 2016 (USFWS 2017). However, the fall midwater trawl index was 0 in 2018, 2019, and 2020. In 2020 and 2021, Spring Kodiak

Trawl data indicated the lowest relative abundance to date[12].Site-specific data related to fish resources at MWT was collected during fish sampling and salvage conducted after the 2017 levee breach. Fish sampling efforts on MWT were conducted by biologists at the University of California, Davis (unpublished data). This sampling was conducted by boat while the tract was inundated and was limited by permit limitations. Only nonnative carp (*Cyprinus carpio*), sunfish (*Lepomis* spp.), and wakasagi (*Hypomesus nipponensis*) were trapped during these efforts. As part of a separate effort, Stillwater Sciences biologists captured approximately 168,000 fish from agricultural ditches on MWT following the breach and subsequent draining of most of the tract, and relocated them to the nearest habitat waterside of the levees. Five native species and 16 nonnative species were documented during this effort (Stillwater Sciences 2018). Sampling occurred as feasible but avoided ditches with a higher proportion of native species, and therefore, may have resulted in a slight under-representation of the total proportion of native fish. Four nonnative species accounted for more than 70 percent of the fish in the samples: black crappie (*Pomoxis nigromaculatus*), threadfin shad (*Dorosoma petenense*), golden shiner (*Notemigonus crysoleucas*), and brown bullhead (*Ameiurus nebulosus*). Three native species were identified during salvage sampling but accounted for less than 1 percent of the total number of fish in the samples: Sacramento pikeminnow (*Ptychocheilus grandis*), Sacramento sucker (*Catostomus occidentalis*), and prickly sculpin (*Cottus asper*). Two additional native species, Sacramento splittail (*Pogonichthys macrolepidotus*) and Sacramento blackfish (*Orthodon microlepidotus*), were observed during salvage efforts but not encountered during salvage sampling.

Wildlife

Wildlife Habitat—Land Cover Type Associations

The North Delta EIR summarizes the relationship between wildlife habitats and land cover types that occur on MWT and in adjacent areas. As described in the "Vegetation and Wetlands" environmental setting discussion above, the proportion of land cover types has changed, primarily because MWT no longer supports agricultural production, but the wildlife habitat–land cover type associations (i.e., the types of habitats that wildlife species generally occur in) described in the North Delta EIR generally remain applicable to Phase B.

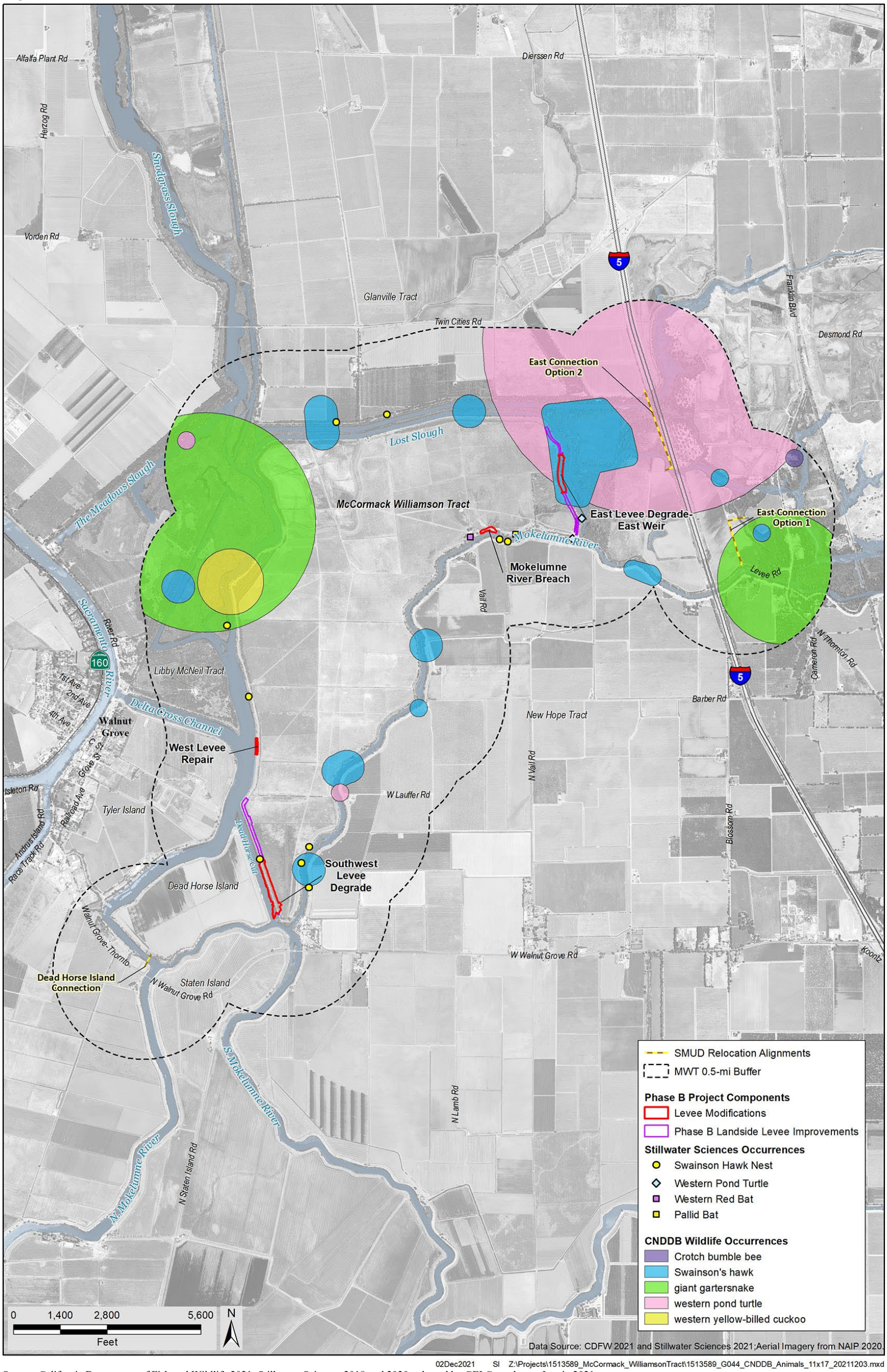
Special-status Animals

The North Delta EIR describes special-status animals known or with potential to occur in the study area, including MWT. For purposes of this analysis, special-status animals include taxa that are officially listed, candidates for listing, or proposed for listing by the Federal government or the State of California as endangered or threatened; meet the criteria for listing; are identified by CDFW as species of special concern; or are listed as Fully Protected under the CFGC.

A number of recent occurrences of these species have been documented on or adjacent to MWT, primarily during surveys conducted by DWR to support the Bay Delta Conservation Plan (CDFW 2021) and surveys conducted to support MWT Phase A implementation (Stillwater Sciences 2018 and 2020). **Figure 3.6-4** shows CNDDB occurrences of special-status animals on and within 0.5 mile of the Phase B project site. The occurrence extents vary depending on

[12] https://www.dfg.ca.gov/delta/data/skt/indices.asp

Figure 3.6-4. Special-status Wildlife Occurrences within 0.5 mile of the Phase B Construction Areas



Source: California Department of Fish and Wildlife 2021; Stillwater Sciences 2018 and 2020; adapted by GEI Consultants, Inc. in 2021

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specificity of the CNDDB location information and do not necessarily indicate that the species occurs within the entire extent shown in the figure. One of these occurrences is of a nesting Swainson's hawk pair observed along Lost Slough since the North Delta EIR was prepared. The figure also shows active Swainson's hawk nest locations documented by Stillwater Sciences during focused surveys conducted in 2016-2019 in support of Phase A; on average, three or four of these nest sites were active in each year. Other special-status species documented on MWT during Phase A surveys include: western pond turtle (*Emys marmorata*) basking along the Mokelumne River, near the upstream end of MWT; bald eagle (*Haliaeetus leucocephalus*) foraging in the MWT interior during the 2017 inundation; northern harrier (*Circus hudsonius*) foraging and likely nesting in the MWT interior; white-tailed kite (*Elanus leucurus*) foraging in the MWT interior (no nests were observed); and acoustic detections of pallid bat (*Antrozous pallidus*) and western red bat (*Lasiurus blossevillii*) in the northeast portion of MWT, before abandoned building removal in 2019 (Stillwater Sciences 2018 and 2020).

Several notable changes in regulatory status of several special-status animals addressed in the North Delta EIR have occurred: monarch butterfly (*Danaus plexippus*) became a candidate for Federal listing as threatened or endangered in 2020; California tiger salamander (*Ambystoma californiense*) was State and Federally listed as threatened in 2004 and 2010, respectively; bald eagle (*Haliaeetus leucocephalus*) was delisted as Federally threatened in 2007; American peregrine falcon (*Falco peregrinus anatum*) was delisted as State endangered in 2009; the western DPS of yellow-billed cuckoo (*Coccyzus americanus occidentalis*) was Federally listed as threatened in 2014; and tricolored blackbird (*Agelaius tricolor*) was State listed as threatened in 2019.

Western yellow-billed cuckoo was mentioned in the North Delta EIR, but potential for impacts on this species was not evaluated because it was determined to have low potential to occur in the study area. However, migrant individuals were detected in riparian habitat near MWT in 2009 and 2010, during DWR surveys along Snodgrass Slough (CDFW 2021).

3.6.2 Regulatory Setting

Federal, State, regional, and local regulatory conditions identified in the North Delta EIR are generally applicable to the Phase B project, except for the following updates and additions.

Federal Plans, Policies, Regulations, and Laws

The Navigable Waters Protection Rule, which became effective on June 22, 2020 (85 FR 22250), redefined the scope of navigable "waters of the United States." However, on June 9, 2021, EPA and USACE announced their intention, through two separate rulemakings, to revise the definition of waters of the United States. On August 31, 2021, the U.S. District Court for the District of Arizona vacated and remanded the Navigable Waters Protection Rule in the case of the Pascua Yaqui Tribe v. EPA. Following the decision, EPA and USACE halted implementation of the Navigable Waters Protection Rule and are currently interpreting "waters of the United States" consistent with the pre-2015 regulations and associated guidelines and case law, including the Supreme Court decision Rapanos v. United States, 547 U.S. 715 (2006). Therefore, despite these regulatory changes in recent years, the current definition of waters of the United States is consistent with that presented in the North Delta EIR.

State Plans, Policies, Regulations, and Laws

Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary

As described in Section 3.1, "Hydrology and Water Quality," D-1641 places responsibility on DWR and Reclamation for measures to meet specified water quality objectives, including salinity water quality objectives and implementation measures to protect fish and wildlife and other uses. Compliance with D-1641 was not specifically addressed in the biological resource analyses of the North Delta EIR, but it includes salinity standards intended to protect a more natural distribution of species composition and habitats across the Delta. These standards are intended to maintain water quality conditions to prevent the following: a) loss of biodiversity, b) conversion of brackish marsh to salt marsh habitat; c) decreased population abundance of fish and wildlife species and/or loss of habitat from increased salinity, and d) significant reductions in plant stature or percent cover from soil salinity or other water quality issues.

Delta Levees Program

DWR has run the Delta Levees Program for nearly 30 years through grant funds with Delta-located RDs to maintain or improve non-project (i.e., not regulated by USACE) levees, such as the levees surrounding MWT. DWR's Delta Ecosystem Enhancement section operates as the environmental arm of the Delta Levees Program. Working cooperatively with CDFW's Delta Levee Habitat Improvement Program, Delta Ecosystem Enhancement provides environmental oversight for program-funded levee improvement projects through Delta RDs. Delta Ecosystem Enhancement's environmental responsibilities arise from the Delta Levees Program requirement of no net long-term loss of habitat (Water Code sections 12314(c) and 12987(c)) as well as the net long-term habitat improvement requirement (California Water Code sections 12314(d) and 12987(d)).

Cutting the Green Tape Initiative

Beginning in Fiscal Year 2020-2021, CDFW is implementing several initiatives to increase the pace and scale of large- and small-scale restoration through permitting and granting efficiencies under the Cutting the Green Tape program. With support from the California Natural Resources Agency, on November 30, 2020, the California Landscape Stewardship Network released, "Cutting the Green Tape: Regulator Efficiencies for a Resilient Environment," providing 14 important recommendations for improving regulatory processes for projects that benefit the environment. The California Natural Resource Agency is working to implement these recommendations including actions that could be applicable to the Phase B project.

Regional and Local Plans, Policies, Regulations, and Ordinances

Sacramento County General Plan

The Conservation Element of the Sacramento County General Plan was amended in 2011 and includes numerous goals, policies, and implementation measures related to vegetation and wildlife, aquatic resources, and terrestrial resources. These include habitat preservation, management, and mitigation; protection of special-status species and their habitats; preservation, enhancement, restoration, and management of streams, rivers, and riparian corridors and their ecological functions; fisheries preservation; and native vegetation protection, enhancement, and restoration.

South Sacramento Habitat Conservation Plan

The South Sacramento Habitat Conservation Plan (SSHCP) streamlines Federal and State permitting processes for SSHCP-covered development and infrastructure projects while protecting habitat, open space, and agricultural lands. The SSHCP was adopted in 2018, and the regulatory agency permits were issued in 2019. The SSHCP plan area encompasses more than 300,000 acres in southern Sacramento County, including MWT. Within the SSHCP plan area, 36,282 acres will become part of an interconnected system of new preserves. Existing preserves do not count towards achieving the SSHCP biological goals and objectives or any other components of the SSHCP Conservation Strategy. MWT is identified as an existing preserve.

Sacramento County Aquatic Resources Protection Ordinance

The Sacramento County Aquatic Resources Protection Ordinance was adopted to support successful implementation of the SSHCP by achieving no-net-loss of aquatic resource function and services within the SSHCP plan area. All proposed projects in the plan area that permanently and/or temporarily impact aquatic resource require an aquatic resources impact permit from Sacramento County. All provisions of the ordinance can be met by complying with an approved permit that satisfies all State and Federal Clean Water Act requirements and Porter-Cologne Water Quality Control Act requirements and requires compensatory mitigation ratios equal to or greater than those required by the ordinance.

3.6.3 Environmental Impacts and Mitigation Measures

Significance Criteria

The criteria used in the North Delta EIR for determining the significance of an impact on vegetation and wetlands, fisheries and aquatics, and wildlife generally remain applicable to Phase B. The only updates to the significance criteria provided below are specific reference to waters of the State and the SSHCP.

Impacts on vegetation and wetlands are considered significant if implementation of the project would result in:

- temporary or permanent removal, filling, grading, or disturbance of waters of the United States or waters of the State, including wetlands and jurisdictional and non-jurisdictional woody riparian vegetation;

- temporary or permanent loss of occupied special-status species habitat or indirect or direct mortality of special-status species;
- a reduction in the area or geographic range of rare natural communities and significant natural areas;
- a conflict with the provisions of the SSHCP; or
- spreading or introducing new noxious weed species into the project area.

Impacts on fisheries and aquatic resources are considered significant if implementation of the project would result in:

- interference with the movement of any resident or migratory fish species;
- long- or short-term loss of habitat quality or quantity;
- adverse effects on rare or endangered species or habitat of the species that affect population abundance or distribution;
- adverse effects on fish communities or species protected by applicable environmental plans and goals; or
- degradation of aquatic ecosystem processes or the reduction of the structural characteristics of the aquatic ecosystem that support fish communities or species protected by applicable environmental plans.

Impacts on wildlife are considered significant if implementation of the project would result in:

- a temporary or permanent loss or degradation of any riparian, wetland, or other sensitive natural community identified in local, State, or Federal regional plans, policies, or regulations;
- a temporary or permanent disruption of wildlife movement or fragmentation or isolation of riparian habitats;
- a temporary or permanent loss or disturbance of important upland land cover types used by wildlife for breeding, roosting, or foraging habitat;
- a temporary or permanent loss or disturbance of important agricultural land cover types used by wildlife for breeding, roosting, or foraging habitat;
- direct mortality to, or lowered reproductive success of, Federally or State listed wildlife species or loss of habitat of these species, including the loss of occupied or suitable habitat for these species;
- direct mortality to, or lowered reproductive success of, substantial portions of local populations of species that are candidates for Federal or State listing or that are California

species of special concern, including the loss of occupied or suitable habitat for these species; and

- temporary disturbance or mortality of special-status species resulting from implementation of mitigation measures or habitat management actions.

Analysis Methodology

Consistent with the approach in the North Delta EIR, the analysis of Phase B impacts on vegetation and wetlands is based on the type and extent of land cover types that would be temporarily or permanently affected by construction and operation and maintenance activities. The wildlife impact analysis also is based primarily on land cover associations and considers potential species occurrence at MWT and adjacent areas and the magnitude and duration of Phase B activities. The analysis of impacts on fish and aquatic resources considers the potential occurrence of species and their life stages relative to the nature, timing, and duration of Phase B construction and operation and maintenance activities and resulting changes in environmental conditions that affect the survival, growth, fecundity, and movement of a species.

As described in Section 3.1, "Hydrology and Water Quality," a salinity model was used to evaluate potential changes in salinity as a result of implementing Phase B (**Appendix E**). The model predicts EC and has been applied to flow and salinity impacts analysis for numerous restoration projects in the Bay-Delta system. Increases in Delta salinity levels have been correlated with effects on fish populations and changes to their habitats. The term "X2" represents the distance, measured in kilometers upstream from the Golden Gate Bridge, to where salinity measured 1 meter above the estuary bed is 2 parts per thousand. X2 demarcates the low salinity zone where freshwater transitions into brackish water. This zone is historically associated with higher primary productivity, zooplankton populations, and native estuarine species abundance. D-1641 requires the location of X2 to be west of certain specific locations for a specified number of days each month. The North Delta EIR discussed the importance of salinity levels on delta smelt, but it did not discuss potential project-related effects on the location of X2, which is important for delta smelt and longfin smelt. Therefore, this additional analysis is provided in the Fisheries and Aquatics impact discussion below, under Impact Fish-10 below in this section.

In addition, during preparation of this Draft Supplemental EIR, CDFW was consulted to obtain input on the analysis and mitigation measures in this section.

Environmental Commitments

The North Delta EIR identified Environmental Commitments to avoid or minimize potential impacts on biological resources. Environmental Commitments related to biological resources include measures that address erosion and sediment control, water quality management, and fisheries protection. The following Environmental Commitments described in the North Delta EIR, and updated as indicated below, have been incorporated into Phase B and are therefore not presented as new mitigation measures:

- Access Point/Staging Areas
- Erosion and Sediment Control Plan
- Stormwater Pollution Prevention Plan
- Dust Control Plan
- Construction-Area Fish Management Program (Note: The Fish Stranding Management Plan portion of this program is no longer required because Phase B design facilitates positive drainage and fish passage on MWT and minimizes potential for fish stranding. However, mitigation measures described below address the potential for physical features that represent a fish stranding risk to develop on the site.)

DWR also identified CALFED Programmatic Mitigation Measures applicable to vegetation and wetlands (pages 4.1-27 and 4.1-28 of the North Delta EIR), fisheries and aquatics (page 4.2-37 of the North Delta EIR), and wildlife (pages 4.3-22 through 4.3-25 of the North Delta EIR). Applicable programmatic mitigation measures from CALFED have been either incorporated into the Phase B project description or used to develop new or updated mitigation measures presented herein.

Future Flooding Events at MWT

Land use and biological conditions within MWT have been maintained due to the repair of the MWT perimeter levees following breaching and flooding of the MWT interior during larger storm events, including in 2017. Due to the restricted height and conditions of MWT perimeter levees, there's a chance of levee breaching and flooding of the MWT interior each year. MWT could flood before construction of the project begins, could flood before degrading/breaching of levees for the project is completed (in the scenario construction occurs over 2 or more years and floods after interior construction), or would inevitably flood without the project. In the past, breaches to MWT perimeter levees were repaired to maintain agricultural production and other uses within MWT. While repairs were made after the 2017 event, agricultural production never resumed due to concerns of recurring flooding and the Phase A project was implemented, providing flood protection to the communications tower on MWT. As a result, RD 2110 does not currently plan on repairing breaches to the MWT perimeter levees after future flood events because agricultural production and other flood-sensitive uses are no longer maintained onsite, and due to the high cost of constructing these repairs and allocation of funds to the funds to the Phase B project. Under this scenario, inundation of the MWT interior would occur and be allowed to continue and would result in impacts to existing biological habitats at MWT, similar to many impacts from the Phase B project. The impacts from future flooding are qualitatively addressed in the impact discussions, where relevant, after consideration of impacts based on existing conditions.

If MWT floods before the Phase B project construction is complete, changes to the Phase B project design and construction activities or other future actions may be required but are not currently known, and therefore, are not addressed in this Supplemental EIR.

Relevant Issues Not Discussed Further in the Supplemental EIR

Conflict with South Sacramento Habitat Conservation Plan and Other Local Plans and Ordinances (New Issue)

Phase B would result in substantial enhancement of habitats that the SSHCP is designed to preserve and would not conflict with the provisions of the SSHCP or the associated aquatic resources protection ordinance. In addition, MWT is identified in the SSHCP as an existing preserve and, therefore, Phase B does not count towards achieving the SSHCP biological goals and objectives or any other components of the SSHCP Conservation Strategy. Phase B would be consistent with goals and policies of the Sacramento County General Plan that are designed to conserve function and values of wetland, rivers, stream, and riparian areas; protect, restore, and enhance fish and wildlife habitat; and preserve and protect sensitive plant and animal species. In addition, DWR is not subject to local regulations unless expressly authorized by the Legislature. Therefore, these issues are not evaluated further in the Supplemental EIR.

Temporary Disturbance and Possible Mortality of Fish, including Special-status Species, as a Result of Construction Activities (North Delta EIR Impact FISH-1)

Impact FISH-1 under Alternative 1-A described in the North Delta EIR identified construction-related impacts associated with water quality that could adversely affect resident and migratory species, including delta smelt, Sacramento splittail, Chinook salmon (all races), steelhead, striped bass, green sturgeon, and other gamefish, and their habitats. The North Delta EIR concluded that disturbance of soil adjacent to the shoreline and RSP placement would temporarily increase turbidity (suspended sediments) above natural background levels in the immediate vicinity of these activities, potentially affecting fish species. Settling of suspended particles contributes to sedimentation and could also affect fish species. Effects in the North Delta EIR were considered less-than-significant because Environmental Commitments related to erosion, turbidity, sedimentation, and in-channel work windows would be implemented. In addition, the North Delta EIR indicated expected increases in turbidity and suspended sediment would be temporary, limited to a small portion of available habitat, and would occur primarily during authorized work windows when the relative abundance of sensitive fish species is low (i.e., during the summer). The Phase B project includes less in-channel work because the extent of the levee modifications has been reduced. Therefore, temporary disturbance of habitat (including designated critical habitat) and potential fish mortality from Phase B would be less than previously evaluated. In addition, measures to reduce these potential impacts would be implemented, including avoiding equipment operation in water, timing in-water excavations, to the extent possible, to coincide with low tide, and using silt curtains or similar controls around in-water excavation to reduce turbidity and total suspended solids. Therefore, there are no substantive changes to this impact evaluation or conclusion and these issues are not discussed further in this Supplemental EIR.

Temporary Disturbance, Direct Injury, and Possible Mortality of Fish, including Special-status Species, as a Result of Accidental Spills of Construction Materials (North Delta EIR Impact FISH-2)

Impact FISH-2 under Alternative 1-A described in the North Delta EIR addressed risk for construction equipment operation in or near water bodies to result in accidental spills and leakage of fuel, lubricants, hydraulic fluids, and coolants. Construction materials may fall directly into water bodies or enter aquatic habitats in surface water runoff. Effects in the North Delta EIR were considered less than significant because measures would be implemented to prevent accidental spills and unintentional actions from reaching levels that would cause measurable effects on survival, growth, and reproductive success of substantial portions of fish populations. The North Delta EIR concluded that accidental spills would be contained quickly, effects on fish would be temporary and limited to a small portion of available habitat, and the potential for adverse water quality effects would be limited to periods when the relative abundance of sensitive fish species is low (i.e., during the summer). The Phase B project includes less in-channel work because the extent of the levee modifications has been reduced. Therefore, temporary disturbance of habitat (including designated critical habitat) and potential fish injury and mortality from potential accidental spills during Phase B construction would be less than previously evaluated. In addition, measures to prevent and resolve accidental spills would be implemented during Phase B construction. Therefore, there are no substantive changes to this impact evaluation or conclusion and these issues are not discussed further in this Supplemental EIR.

Loss of Fish, including Special-status Species, from Direct Injury as a Result of Construction (North Delta EIR Impact FISH-3)

Impact FISH-3 under Alternative 1-A described in the North Delta EIR acknowledged in-water construction associated with levee breaches, levee degradation, and floodplain channel construction could directly kill or injure fish through direct contact with construction equipment. Effects in the North Delta EIR were considered less than significant because the number of fish potentially injured or killed during construction would likely be small. The North Delta EIR concluded that in-water construction would occur over a relatively short period and be limited to periods of low abundance and outside primary spawning and migration periods; aquatic habitat that would be directly affected represents a small percentage of the total stream habitat available, thereby limiting the number of fish potentially exposed to direct injury and mortality; and fish would likely avoid affected portions of the channels. The Phase B project includes less in-channel work because the extent of the levee modifications has been reduced. Therefore, potential loss of fish from direct injury during Phase B construction would be less than previously evaluated. In addition, measures to reduce these potential impacts would be implemented, including avoiding equipment operation in water and timing in-water excavations, to the extent possible, to coincide with low tide. Therefore, there are no substantive changes to this impact evaluation or conclusion and these issues are not discussed further in this Supplemental EIR.

Increased Availability and Quality of Spawning Habitat for Splittail, Delta Smelt, and Other Floodplain-Spawning Species, as a Result of Project Operation (North Delta EIR Impact FISH-5)

Impact FISH-5 under Alternative 1-A in the North Delta EIR described how the MWT would be restored to function as a floodplain to the Mokelumne River via the east weir and Mokelumne River breaches and inundated tidally throughout the dry season via the MWT Southwest Levee degrade. The North Delta EIR concluded that up to 80 percent of floodplain habitat on MWT would be inundated at least once every 2 years, and fluvial flows could inundate the tract for several weeks at a time with several ft of water. In addition, minor grading was proposed to ensure native vegetation types would be restored, maintain positive drainage, and provide more diverse geomorphic surfaces. This impact was considered beneficial in the North Delta EIR because it would increase the amount and quality of spawning habitat in the North Delta for Sacramento splittail and other floodplain spawning species, relative to existing conditions. The Phase B project would create approximately 400 to 600 acres of subtidal open water and shallow subtidal habitat and approximately 600 to 900 acres of tidal marsh bisected by subtidal channels. This is substantially more than the 356 acres of perennial tidal shallow-water habitat proposed in the North Delta EIR. The Phase B design results in this increase because there would be more extensive interior grading, including increasing riparian floodplain and tidal marsh acreages and excavating a tidal channel network connecting to the large shallow subtidal and tidal marsh areas. The increase in availability and quality of habitat for floodplain-spawning species would be greater than previously evaluated in the North Delta EIR. Therefore, this impact conclusion remains beneficial, and these issues are not discussed further in this Supplemental EIR.

Increased Availability and Quality of Rearing Habitat for Juvenile Chinook Salmon, Splittail, and Delta Smelt, as a Result of Project Operation (North Delta EIR Impact FISH-6)

Impact FISH-6 under Alternative 1-A described in the North Delta EIR concluded that 356 acres of perennial tidal shallow-water habitat would be created by lowering the elevation of the MWT Southwest Levee to match the elevation of the island floor. This would allow tidal water onto the tract from the southern end, facilitating the formation of dendritic intertidal channels at elevations near sea level and keeping the southernmost portion of the tract as shallow open water. The North Delta EIR considered this creation of floodplain and tidal shallow-water habitat beneficial because it is expected to benefit juvenile Chinook salmon, Sacramento splittail, and delta smelt by creating high-quality floodplain rearing habitat, increasing food availability, and increasing growth rates. The Phase B project includes more extensive interior grading in order to increase riparian floodplain and tidal marsh acreage and excavate a tidal channel network connecting to the large shallow subtidal and tidal marsh areas to maximize quality and quantity of floodplain rearing habitat. Approximately 400 to 600 acres of subtidal open water and shallow subtidal habitat and 600 to 900 acres of tidal marsh bisected by subtidal channels would be created under Phase B. The resulting increase in availability and quality of rearing habitat would be substantially greater than the 356 acres of creation proposed in the North Delta EIR. Therefore, this impact conclusion remains beneficial, and these issues are not discussed further in this Supplemental EIR.

Forgone Water Diversion and Agricultural Discharges (North Delta EIR Impact FISH-9)

Impact FISH-9 under Alternative 1-A described in the North Delta EIR indicated existing agricultural pumps and water management infrastructure on MWT would be selectively decommissioned or reused to facilitate habitat development, and the remaining agricultural diversions would be screened following current agency guidelines. The North Delta EIR identified a net reduction in total diversion and fish entrainment associated with in-river diversions to MWT and improved water quality conditions in adjacent waterways from reduced discharge of agricultural runoff. Although difficult to quantify, the net effect of adding fish screens to existing agricultural diversions and forgone pumping and agricultural discharge on fisheries was considered beneficial in the North Delta EIR. Under the Phase B project, pumps and siphons would be decommissioned or reused for habitat development consistent with the description in the North Delta EIR. Temporary mobile pumps with screens meeting CDFW and NMFS fish screen criteria also may be used to extract irrigation water from adjacent waterways. This potential additional irrigation component would not substantially reduce the overall benefit of foregone agricultural pumping and discharge. Therefore, there are no changes to this impact evaluation or conclusion and these issues are not discussed further in this Supplemental EIR.

Loss of Agricultural Land and Ruderal-Associated Wildlife Habitat (North Delta EIR Impact WILD-5)

This impact from the North Delta EIR discusses common species and does not include special-status species. Impact WILD-5 under Alternative 1-A described in the North Delta EIR concluded approximately 1,300 acres of agricultural land and 70 acres of annual grassland/ruderal habitat would be impacted, most of which would be permanent loss from inundation of the MWT interior. The effect on common wildlife species from loss of this agricultural land and ruderal habitat was considered less than significant in the North Delta EIR because these land cover types are common in the project area. Because agricultural production on MWT ceased following the 2017 flood event, all habitat associated with this impact in the North Delta EIR is now characterized as annual grassland/ruderal for Phase B. An estimated 1,226.27 acres of annual grassland/ruderal would be permanently impacted by implementing Phase B, primarily as a result of floodplain inundation and conversion to wetland and open water, and an additional 76.76 acres would be temporarily impacted during construction. Although the proportion of agricultural land and annual grassland/ruderal habitat has changed substantially, the extent of the impacted area would be similar to that described in the North Delta EIR. A very similar assortment of common wildlife species use both of these habitat types, and the habitat changes that would result from implementing the Phase B Project would be similar to those analyzed in the North Delta EIR. Therefore, this issue is not discussed further in this Supplemental EIR.

Loss or Disturbance of Aleutian Canada Goose (North Delta EIR Impact WILD-17)

Impact WILD-17 under Alternative 1-A described in the North Delta EIR concluded that degrading MWT levees, permanent inundation of the southern portion of the island, and conversion of the remainder of the tract to native land cover types would result in the permanent loss of approximately 1,700 acres of agricultural land that provide wintering and foraging habitat for Aleutian Canada goose (*Branta canadensis leucopareia*), now known as cackling goose (*Branta hutchinsii leucopareia*). However, this impact was considered less than significant in the

North Delta EIR. Implementing the Phase B project components would no longer affect agricultural foraging habitat for cackling goose, because agricultural production on MWT ceased several years ago. Habitat on the interior of MWT is now dominated by nonnative annual grassland and ruderal vegetation. Although these habitats provide some foraging value, they are not a preferred habitat type and have less foraging value than the agricultural crops that were formerly cultivated. Therefore, the severity of this impact is less than was analyzed in the North Delta EIR, and this issue is not discussed further in this Supplemental EIR.

Loss or Disturbance of Wintering Bald Eagle (North Delta EIR Impact WILD-18)

Impact WILD-18 under Alternative 1-A described in the North Delta EIR indicated that construction activities could result in temporary loss or disturbance of bald eagle wintering and foraging habitat but would have a net increase in foraging habitat for this species. This impact was considered less than significant in the North Delta EIR. Potential construction-related impacts of the Phase B project would be less than analyzed in the North Delta EIR because the extent of in-water work has been reduced. In addition, habitat creation would be greater because aquatic habitat creation has substantially increased from 356 acres of perennial tidal shallow-water habitat to approximately 400 to 600 acres of subtidal open water and shallow subtidal habitat and 600 to 900 acres of tidal marsh bisected by subtidal channels. This impact is now considered beneficial, and this issue is not discussed further in this Supplemental EIR.

Impact Analysis

Table 3.6-1 compares impacts on land cover types and wildlife habitat associations that are attributable to the MWT component of Alternative 1-A (including Phase A) that was evaluated in the North Delta EIR and impacts on MWT that would result from implementing the Phase B project. These impacts are based on the Phase B project footprint and land cover mapping completed by GEI in 2020. Changes in impact acreages are a result of several factors, including reduced extent of levee modifications, increased extent of interior grading, and changes in habitat conditions since the North Delta EIR mapping was completed (e.g., cessation of agricultural production, natural recruitment of riparian vegetation, and natural transition of open water habitat to emergent wetland).

Potential impacts associated with the SMUD distribution line relocations are not quantified in Table 3.6-1 because the precise locations and impact extents are not known. However, the extent of potential impacts are addressed in the impact discussions, based on the mapped land cover/habitat types within the offsite SMUD relocation corridors and the following assumptions: 1) tidal aquatic habitat would be spanned by conductors and would not be physically disturbed by construction activities, and 2) either Option 1 or 2 would be developed for the East Connection (not both options); and 3) the Walnut Grover Feeder Connection would primarily disturb annual grassland/ruderal areas in the northwest corner of MWT, however, trimming or removal of very small areas of riparian land cover types may also be needed.

The waterside extent of permanent impacts associated with levee modifications would be less under the Phase B project than described for Alternative 1-A in the North Delta EIR because the levee degrade areas have been reduced in size and replaced with landside re-sloping where degrading would not occur as previously described. The extent of grading of the MWT interior would be greater under the Phase B project because more active reconfiguration of the site to

establish elevations necessary to enhance and sustain target habitat characteristics is necessary, including placing fill to increase tidal marsh acreage, excavating an extensive tidal channel system, and constructing expanded riparian floodplain areas and riparian berms. However, the overall change in area permanently impacted is relatively small because the primary source of permanent impact on MWT under both the Phase B project and Alternative 1-A described in the North Delta EIR is exposure to permanent tidal inundation. **Figure 3.6-5** depicts the area that would be subject to inundation after the Phase B project is implemented and existing habitats that would be affected. If the MWT interior were to flood again, as discussed in the "Future Flooding Events at MWT" section above, impacts to land covers from inundation are anticipated to be similar. Temporary Phase B impacts would be limited to a small proportion of the site where construction activities such as access and staging would occur outside eventual inundation areas.

Table 3.6-1. Comparison of MWT Habitat and Land Cover Type Impacts in the North Delta EIR and for the Phase B Project[1]

Wildlife Habitat	Land Cover Type	Temporary Impacts: North Delta EIR	Temporary Impacts: Phase B	Permanent Impacts: North Delta EIR	Permanent Impacts: Phase B[4]
Tidal perennial aquatic habitat	Tidal aquatic	0.54	1.59	0.42	1.82
Tidal freshwater emergent marsh habitat	Tidal freshwater emergent wetland	--	0.07	--	0.01
Nontidal freshwater emergent wetland	Perennial freshwater emergent wetland	0.08	--	3.37	13.05
	Seasonal freshwater emergent wetland	--	0.07	--	4.38
Lacustrine	Farm and borrow pit depressions	--	--	8.69	--
	Agricultural ditch	0.91	0.02[2]	10.95	19.84[2]
Valley/foothill riparian[3]	Valley oak riparian woodland	0.06	0.17	2.07	3.35
	Mixed riparian woodland	0.42	1.35	1.22	33.97
	Early successional mixed riparian woodland	--	0.03	--	16.05
	Riparian scrub	3.85	0.42	13.46	8.44
	Nonnative riparian woodland	--	--	--	--
	Nonnative riparian scrub	0.04	0.32	6.99	6.02
Grassland	Annual grassland/ruderal	6.68	63.68	62.50	1,218.77
	Perennial grassland	--	13.08	--	7.50
Upland cropland	Corn and grain fields	54.63	--	1,255.29	--
Developed	Developed/Road	0.76	0.16	7.68	1.84
Totals		**67.97**	**80.94[2]**	**1,372.64**	**1,315.20[2]**

Notes: All units are shown in acres; MWT=McCormack-Williamson Tract

[1] Impact acreages associated with Sacramento Municipal Utility District relocations are not included.

[2] Agricultural ditch impact acreages for Phase B are provided for comparison purposes but habitat conditions have changed substantially since agricultural production ceased (most ditches no longer support open water); these acreages duplicate those of the underlying or overhanging land cover types they overlap and are not included in the acreage totals.

[3] Cottonwood-willow woodland addressed in the North Delta EIR is included in mixed riparian woodland and Himalayan blackberry is included in nonnative riparian scrub.

[4] Permanent impacts include areas of cover types that are disturbed by construction activities or changed from inundation of MWT.

Figure 3.6-5. Tidal Inundation Impacts on Current Land Cover Types on the McCormack-Williamson Tract

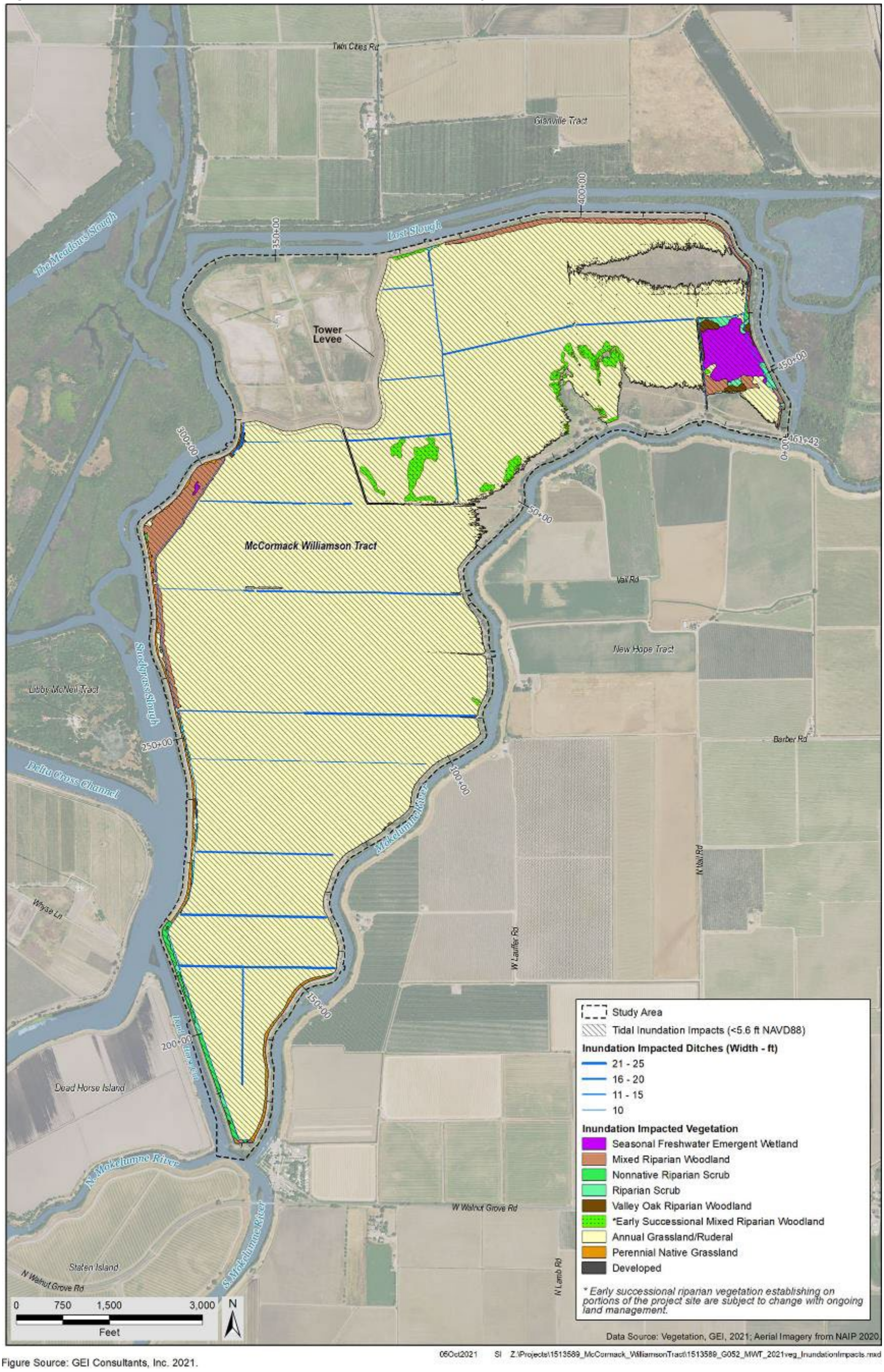

Figure Source: GEI Consultants, Inc. 2021.

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Vegetation and Wetlands

Impact VEG-1 (North Delta EIR): Loss or Disturbance of Valley/Foothill Riparian Land Cover Types.

Alternative 1-A North Delta EIR Conclusions

Impacts on valley/foothill riparian land cover types identified in the North Delta EIR include the complete removal of trees and shrubs, limb pruning, and disruption of the root zone as a result of ground-disturbing activities. Impacts also would include inundation of MWT following levee breaches. However, because riparian land cover types would also be created, a net increase in riparian cover was anticipated to occur. MWT components of Alternative 1-A would result in permanent impacts on 23.74 acres of valley/foothill riparian cover type and temporary impacts on 4.37 acres. Impacts on more than 166 acres of this cover type that would result from implementing all potential components of Alternative 1-A were considered significant (a separate impact conclusion specific to the MWT components was not provided). Mitigation Measures VEG-1 and VEG-2 were identified to replace valley/foothill riparian cover types and avoid and minimize impacts on sensitive biological resources, including valley/foothill riparian. This impact was considered less-than-significant with mitigation.

Phase B Updated Evaluation

Some Phase B project changes, such as landside levee re-sloping of MWT levee segments that were identified to be degraded in the North Delta EIR, would reduce resulting impacts on riparian habitat from those presented in the North Delta EIR. Recent riparian vegetation recruitment following flooding and cessation of agricultural production in 2017, and more precise modeling of the tidal inundation area since preparation of the North Delta EIR, have led to an estimated increase in permanent impacts on riparian habitat in Phase B compared to what was presented in the North Delta EIR. A summary of anticipated permanent changes to valley/foothill riparian cover types on MWT from the Phase B project is shown in **Table 3.6-2** and summarized below. The summary below references the row letters in Table 3.6-2.

Existing Conditions

- **Row A.** There are currently approximately 162 acres of valley/foothill riparian cover types on MWT, including vegetation that has become established since the 2017 flood event and the abandonment of agricultural production on MWT, as shown in Figure 3.6-1.

Proposed Phase B Project

- **Row B.** Approximately 95 acres of exiting valley/foothill riparian habitat cover types would be avoided by construction activities and inundation of MWT and permanently preserved on MWT.

Table 3.6-2. Anticipated Permanent Changes to Valley/Foothill Riparian Land Cover Types MWT from the Phase B Project

Valley/Foothill Riparian Land Cover Types on MWT	Approximate Acreage
Existing Conditions	
A. Existing land cover[1]	162
Proposed Phase B Project	
B. Existing land cover preserved by Phase B[1]	95
C. Existing land cover permanently removed by Phase B construction activities below MHHW (within area permanently inundated by Phase B)	19
D. Existing land cover permanently removed by Phase B construction activities above MHHW (above area permanently inundated by Phase B)	8
E. Existing land cover permanently inundated by Phase B (below MHHW and not impacted by construction activities)	41
F. Land cover created/restored by the Phase B project	80 to 155
Post-Phase B Project Conditions	
G. Post-project land cover on MWT (i.e., land cover preserved and restored by Phase B)[1] (G = B + F)	175 to 250[2]

Notes: Does not include land cover in the study area for offsite SMUD distribution line relocations.

[1] Includes areas planted for the MWT Phase A project.

[2] Does not include the 41 acres of existing land cover that would be converted to new habitat values (see discussion for Row E below this table).

- **Row C and D.** The Phase B project would permanently remove approximately 27 acres of valley/foothill riparian cover types during construction activities, including approximately 8 acres located above MHHW and primarily on the levee segments that will be affected by construction and approximately 19 acres below MHHW and impacted by project construction in areas that would be affected by internal landform grading to enable habitat restoration in areas of future inundation. These areas would be modified and/or graded to develop project components providing flood protection and aquatic habitat restoration, and the riparian vegetation would be lost.

- **Row E.** The tidal inundation of an additional approximately 41 acres of valley/foothill riparian cover types occurring at lower elevations/below MHHW on the tract interior is expected to cause a gradual conversion of woody riparian vegetation to intertidal marsh or shallow subtidal open water. While tidal inundation would immediately reduce utility of riparian habitat for ground-dwelling or ground-nesting species, the riparian canopy may survive for several years following inundation. It is also likely that some established woody riparian vegetation at the higher end of the tidal range could survive and persist long-term, as established tree roots may extend into less anoxic soils at supratidal elevations, and areas between MHW and MHHW are not always subjected to daily inundation. For areas where woody riparian vegetation dies back over time, the structural woody material in these flooded riparian habitats would persist long-term and would continue to provide valuable habitat, enhancing habitat heterogeneity and high quality refugia for native fishes. Snags of riparian trees would provide potential perching and nesting habitat for a variety of bird species, including colonial waterbirds such as egrets, herons, and cormorants and cavity-nesting birds such as woodpeckers, swallows, and bluebirds. Tidal inundation of the valley/foothill riparian cover types would reduce some associated habitat values, but it would enhance other habitat values and would not represent a loss, but rather a conversion of habitat value. If the

MWT interior were to flood again, as discussed in the "Future Flooding Events at MWT" section above, impacts to valley/foothill riparian cover types from inundation would be anticipated to be similar. Therefore, the 41 acres of valley oak/foothill riparian cover types would be expected to transition to provide different habitat values.

- **Row F.** A total of approximately 80 to 155 acres of MWT that would be located above the intertidal zone are anticipated to become riparian habitat, including scrub and woodlands, after regular flooding and natural recruitment, as discussed in Section 2.4.4.

Post-Phase B Project Conditions

- **Row G.** After implementation of the Phase B project, MWT would provide 175 to 250 acres of riparian habitat, including scrub and woodlands, as shown in Figure 2-9**.** This area consists of the approximately 95 acres of riparian habitat preserved onsite during Phase B and the 80 to 155 acres of riparian habitat created/restored by the Phase B project. Since more riparian habitat would be created/restored than is lost (i.e., removed by construction activities), the Phase B project would result in a long-term net increase (or enhancement) in riparian habitat on MWT. The post-project riparian habitat area does not include the approximately 41 acres inundated after Phase B, which is not anticipated to be lost but rather converted to different habitat values (as discussed for Row E above).

The riparian habitat created/restored by the Phase B project would generally be of higher quality than that impacted by the Phase B project, for multiple reasons. The valley/foothill riparian cover types currently existing on the tract consist primarily of narrow linear features associated with levees or levee toes, and (outside of uncontrolled levee breach events) do not experience tidal or fluvial flooding. In contrast, the restoration project proposes placing fill throughout various areas of the tract interior. This is expected to greatly expand riparian floodplain patch sizes to provide high quality nesting habitat for riparian-associated bird species and to increase leaf litter and woody debris inputs to the adjacent aquatic habitats (SFEI-ASC 2016). Riparian berms proposed adjacent to tidal channels would also create valuable habitat heterogeneity, including riparian-marsh edge habitat and woody shaded aquatic habitat ecotones that are regionally limited and ecologically desirable (SFEI-ASC 2016) and provide riparian and SRA habitat corridor connectivity across the tract interior. In addition, instead of being hydrologically isolated landside woodlands and scrub, the conserved and restored riparian habitats would be exposed to regular flooding and located adjacent to tidal marsh and open water, which would provide highly valuable and regionally rare interface ecotones between terrestrial and aquatic habitats. The restoration of tidal-fluvial hydrology and a terrestrial-aquatic interface would increase riparian habitat resilience and heterogeneity and greatly contribute to regional aquatic foodweb complexity and productivity.

The study area for SMUD distribution line relocations includes up to approximately 2 acres of riparian scrub and woodland habitat. The amount of this habitat that could be impacted by the offsite SMUD distribution line relocations is anticipated to be less than 0.2 acre.

The Phase B project would result in a long-term increase in riparian vegetation acreage and riparian habitat quality. However, because there would be a temporal loss of approximately 27 acres of valley/foothill riparian cover types removed during construction activities before naturally recruiting valley/foothill riparian cover types mature, the short-term impact would be **potentially significant**.

Mitigation Measures: Mitigation Measures VEG-1 and VEG-2 from the North Delta EIR have been adapted to address Impact VEG-1.

> **Mitigation Measure VEG-1 (Updated): Replace Valley/Foothill Riparian Cover Types.**
>
> Compensation for temporal impacts will be primarily provided on MWT by passive restoration via natural recruitment of valley/foothill riparian cover types as part of the Phase B project, and active riparian plantings in these areas as needed. Monitoring and adaptive management will be conducted to ensure replacement of riparian cover occurs.
>
> Passive restoration of the riparian communities would occur following construction activities by controlling nonnative plants to improve conditions for reestablishing native plants and enhancing and restoring the original site hydrology to allow the natural reestablishment of the affected plant community. Flooding events would import propagules such as willows, cottonwoods, and perennial herbs that would naturally colonize frequently flooded portions of the site. In addition, planting of riparian species will occur as needed, in the appropriate season immediately following construction, and additional plantings would also occur if the need is identified during project monitoring.
>
> Replacement of riparian cover types will be provided at a ratio adequate to ensure there is no net loss of riparian habitat functions or values, including temporary loss, and up to 3:1 for each acre of riparian habitat lost. Appropriate mitigation ratios and requirements for replacement of riparian cover, including plantings, for the proposed project will be determined in consultation with CDFW and in accordance with:
>
> 1) a Lake and Streambed Alteration Agreement, pursuant to Section 1600 of the CFGC, which will be obtained from CDFW prior to project construction; and
>
> 2) water code sections 12314(c), 12987(c), 12314(d), and 12987(d), which are implemented through DWR's Delta Levees Program.
>
> DWR will prepare a habitat restoration plan and DWR or RD 2110 will implement the plan and monitor the restoration and habitat recruitment on the tract over time. The restoration plan will be prepared by a qualified restoration ecologist and reviewed by the appropriate resource agencies, as applicable to their jurisdiction over the restored habitats. Success criteria will be established as part of the plan and during the permitting process, to ensure no net loss of riparian habitat functions or values, including temporary effects. For active riparian plantings, the restoration plan will specify the planting stock, ensuring the use of local genetic stock, and will describe the most successful techniques available at the time of planting. Riparian habitat will be maintained as needed to satisfy success criteria established in the plan, and according to applicable permits. Maintenance

activities could include weed removal, irrigation, and herbivory protection as deemed necessary. Selective weed control and site management methods will also be employed to facilitate native species growth and recruitment while reducing target invasive cover.

DWR or RD 2110 will monitor the MWT riparian plantings and natural recruitment to ensure riparian habitats are progressing appropriately towards success criteria, as established in project permits. RD 2110 will submit monitoring reports of riparian vegetation establishment to the regulatory agencies issuing permits related to habitat impacts—CDFW, USACE, NMFS, and USFWS, according to permit requirements. Adaptive management will be applied if success criteria are not being met. The riparian habitat mitigation will be considered successful when the amount of riparian cover meets the success criteria, and the habitat no longer requires active management.

Timing: Prior to, during, and after project construction.

Responsibility: DWR will prepare the habitat restoration plan; RD 2110 prior to and during construction; DWR or RD 2110 after construction; and DWR will provide all funding.

Mitigation Measure VEG-2 (Updated): Avoid and Minimize Impacts on Sensitive Biological Resources.

RD 2110 will implement the following measures to avoid and minimize impacts on sensitive natural communities, including riparian habitats, waters of the United States, waters of the State, and special-status plants:

1. RD 2110 will provide an onsite biologist/environmental monitor during construction who will be responsible for monitoring implementation of the conditions in the State and Federal permits (CWA Section 401, 402, and 404; ESA Section 7; CFGC Section 1602); project plans (SWPPP); and mitigation measures.

2. Prior to each construction season, the onsite biologist/environmental monitor will determine the location of environmentally sensitive areas adjacent to construction sites based on mapping of existing land cover types and special-status plant species, unless observed field conditions warrant a modification of the environmentally sensitive area boundaries. To avoid construction phase disturbance of sensitive habitats immediately adjacent to the project site, the monitor will identify the boundaries and add a 50-foot buffer where feasible with orange construction barrier fencing or other high-visibility markers. The fencing/markers will be included on the project construction drawings. Erosion control materials will be placed at the edges of construction where the construction activities are upslope of wetlands and channels to prevent washing of sediments from the construction site into surrounding environmentally sensitive areas. The environmentally sensitive areas and erosion-control materials will be installed before any construction activities are initiated in each construction season, and will be maintained throughout the construction period.

3. RD 2110 will provide a worker environmental awareness training program for all construction personnel before the start of construction activities. The program will educate workers about special-status species, riparian habitats, waters of the United States, and waters of the State present on and adjacent to the site, how to properly avoid impacts on these resources during construction, and the regulations and penalties for unmitigated effects on these sensitive biological resources.

4. Where feasible, construction will avoid and minimize trimming or complete removal of vegetation.

5. Following construction, the construction contractor will remove all litter and construction debris and implement a revegetation plan for temporarily disturbed vegetation in the construction zones.

   Timing: Prior to, during, and after project construction.

   Responsibility: RD 2110 prior to and during construction; DWR or RD 2110 after construction; and DWR will provide all funding.

Significance after Mitigation: Implementation of Mitigation Measures VEG-1 and VEG-2 would reduce this impact because impacts on valley/foothill riparian cover types would be minimized by identifying and avoiding environmentally sensitive areas adjacent to construction areas and compensating/offsetting temporal loss of valley/foothill riparian cover types by ensuring riparian habitat at MWT is restored/enhanced. Therefore, this impact would be **less-than-significant with mitigation**.

Impact VEG-2 (North Delta EIR): Loss or Disturbance of Nontidal Freshwater Emergent Wetland Land Cover Types.

Alternative 1-A North Delta EIR Conclusions

Impacts on nontidal freshwater emergent wetland land cover types identified for Alternative 1-A in the North Delta EIR include filling, cutting of wetland vegetation, disruption of the root zone as a result of ground-disturbing activities, and tidal inundation of nontidal wetlands. Implementing MWT components of Alternative 1-A would result in permanent impacts on 3.37 acres of nontidal freshwater emergent wetland and temporary impacts on 0.08 acre. Impacts on more than 50 acres of this cover type that would result from implementing all potential components of Alternative 1-A (primarily as a result of excavation and restoration at the Grizzly Slough property) were considered significant. Mitigation Measures VEG-2 and VEG-3 were identified to replace nontidal freshwater emergent wetland and avoid and minimize impacts on sensitive biological resources, including nontidal freshwater emergent wetland. This impact was considered less-than-significant with mitigation.

Phase B Updated Evaluation

Impacts considered for the Grizzly Slough property in the North Delta EIR analysis are not relevant to the Phase B project at MWT. Interior grading and inundation of MWT from Phase B are estimated to permanently impact 17.45 acres and temporarily impact 0.07 acre of nontidal freshwater emergent wetland in the MWT interior. The increase in impact acreage compared to what was analyzed in the North Delta EIR is a result of areas previously identified as open water now being categorized as wetland. If the MWT interior were to flood again, as discussed in the "Future Flooding Events at MWT" section above, impacts to nontidal freshwater emergent wetland habitat from inundation are anticipated to be similar.

Most of the nontidal wetland that would be inundated occurs at the scour pond/borrow site feature adjacent to the MWT East Levee (on the landside). Before agriculture and active irrigation ceased on MWT, this area supported persistent ponded open water, but it now only ponds water during wet periods, and the previously ponded area supports perennial emergent wetland and sparse seasonal wetland vegetation. Two small areas of nontidal wetland also occur at the other historical borrow area adjacent to the west levee, and near the landside toe of the north levee.

The primary habitat objective of Phase B is to restore natural tidal floodplain habitat and associated species. Although nontidal wetland habitat would not be restored or enhanced, Phase B implementation would create approximately 600 to 900 acres of tidal marsh habitat (as shown in Figure 2-9) and would result in a substantial long-term net-increase in emergent wetland habitat. There would also be a short-term temporal loss of freshwater wetland vegetation until tidal marsh vegetation becomes established.

Nontidal emergent wetland habitat is not anticipated to be impacted by the offsite SMUD distribution line relocations. Due to the very large magnitude of the net-increase in emergent wetland habitat from Phase B, permanent and short-term impacts would be more than offset by the habitat restoration design updated for Phase B even without monitoring and adaptive management. Therefore, this impact is considered **less than significant.**

Mitigation Measure: No mitigation is required.

Impact VEG-3 (North Delta EIR): Loss or Disturbance of Tidal Perennial Aquatic Land Cover Types.

Alternative 1-A North Delta EIR Conclusions

Impacts on tidal perennial aquatic land cover types identified in the North Delta EIR include habitat removal or fill. Implementing MWT components of Alternative 1-A would result in permanent impacts to 0.42 acre of tidal perennial aquatic habitat and temporary impacts to 0.54 acre. Although tidal perennial aquatic land cover types would be created on MWT, impacts to nearly 280 acres of this cover type that would result from implementing all potential components of Alternative 1-A (primarily as a result of dredging; not on MWT) were considered significant. Mitigation Measures VEG-2 and VEG-4 were identified to replace tidal perennial aquatic habitat and avoid and minimize impacts on sensitive biological resources, including tidal perennial aquatic habitat. This impact was considered less-than-significant with mitigation.

Phase B Updated Evaluation

Estimated Phase B impacts on MWT include 1.59 acres of tidal perennial aquatic habitat temporarily impacted by levee degrading and 1.82 acres permanently impacted by placement of RSP at levee degrades/breaches. RSP placement would permanently change the substrate of the aquatic habitat and somewhat degrade the quality of this benthic habitat, but it would not result in permanent overall loss of perennial aquatic habitat. Phase B implementation would create approximately 400 to 600 acres of subtidal open water and shallow subtidal habitats (as shown in Figure 2-9).

The study area for SMUD distribution line relocations includes up to approximately 0.75 acre of perennial aquatic habitat. This habitat is anticipated to be spanned by the new power line conductor and is unlikely to be impacted by pole installation. If complete avoidance is not possible, the amount of this habitat that could be impacted by the offsite SMUD distribution line relocations is anticipated to be less than 0.1 acre.

Although the significance criteria identify temporary or permanent removal, filling, grading, or disturbance of waters of the United States or waters of the State as a significant impact, Phase B creates substantially more acres of subtidal open water and shallow subtidal habitats immediately upon project completion and tidal inundation. Therefore, there are substantial short- and long-term benefits to these habitats that far exceed the impacts, and this impact is considered **beneficial**.

Mitigation Measure: No mitigation is required.

Impact VEG-4 (North Delta EIR): Loss or Disturbance of Tidal Freshwater Emergent Wetland Land Cover Type.

Alternative 1-A North Delta EIR Conclusions

The North Delta EIR did not identify impacts on tidal freshwater emergent wetland that would result from implementing MWT project components. However, impacts on 11 acres of this cover type that would result from dredging under Alternative 1-A were considered significant. Mitigation Measures VEG-2 and VEG-5 were identified to replace tidal freshwater emergent wetland habitat and avoid and minimize impacts on sensitive biological resources, including tidal freshwater emergent wetland habitat. This impact was considered less-than-significant with mitigation.

Phase B Updated Evaluation

Based on updated habitat mapping, a very small (approximately 0.1 acre) area of tidal freshwater emergent wetland occurs along a portion of the waterside extent of the Mokelumne River breach site and would be impacted by levee degrade activities. In addition, Phase B implementation would create approximately 600 to 900 acres of tidal marsh (as shown in Figure 2-9).

The study area for SMUD distribution line relocations includes up to approximately 0.35 acre of tidal wetland habitat. As with the perennial aquatic habitat in these areas, the tidal wetlands also are anticipated to be spanned by the new powerline conductor and are unlikely to impacted by pole installation. If complete avoidance is not possible, the amount of this habitat that could be impacted by the offsite SMUD distribution line relocations is anticipated to be less than 0.1 acre.

Although the significance criteria identify temporary or permanent removal, filling, grading, or disturbance of waters of the United States or waters of the State as a significant impact, Phase B would impact a very small amount tidal freshwater emergent wetland and would create a substantial amount of tidal marsh habitat. Therefore, this impact is considered **less than significant**.

Mitigation Measure: No mitigation is required.

Impact VEG-5 (North Delta EIR): Establishment of Invasive Nonnative Plants.

North Delta EIR Conclusions

The North Delta EIR concluded that implementing MWT project components of Alternative 1-A has potential to introduce nonnative invasive plants to the project area. Construction and operational activities could result in the introduction or spread of noxious weed species, which could displace native species, thereby changing the diversity of species or number of any species of plants. Soil-disturbing activities during construction could promote the introduction of plant species that are not currently found in the project area, including exotic pest plant species. Construction activities could also spread exotic pest plants that already occur in the project area. Introduction or spread of noxious weeds was considered a significant impact because it would degrade special-status plant habitat and riparian communities. Mitigation Measure VEG-6 was identified to minimize the potential for the introduction of new noxious weeds and the spread of weeds previously documented in the project area. This impact was considered less-than-significant with mitigation.

Phase B Updated Evaluation

Potential impacts associated with introduction and expansion of invasive nonnative weeds under the Phase B project would be generally similar to those described in the North Delta EIR for Alternative 1-A. The composition and extent of nonnative upland vegetation on MWT has increased since agricultural production on the tract ceased following the 2017 flooding, but the species that present the greatest threat are similar, and appropriate means of minimizing introduction and expansion of these upland invasive species remain the same. In addition, the Phase B Project would include specific measures targeted to control these species. Invasive aquatic plants also have potential to become established on MWT after the tract is exposed to tidal inundation. Because introduction of new noxious weeds and the spread of weeds previously documented in the project area is of critical concern to the habitat values provided on the tract in the long term, this impact is **potentially significant**.

Mitigation Measure: Mitigation Measure VEG-6 from the North Delta EIR has been adapted to address Impact VEG-5.

Mitigation Measure VEG-6 (Updated): Avoid Introduction and Spread of New Noxious Weeds during and after Project Construction.

The following measures will be included in project construction conditions to minimize the potential for the introduction of new noxious weeds and the spread of weeds previously documented in the project area:

- Educate construction supervisors and managers on weed identification and the importance of controlling and preventing the spread of noxious weed infestations.
- Treat isolated infestations of noxious weeds 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 outside of grading footprints to the greatest extent possible.
- Where seeding is used for vegetation establishment or erosion control, seed will be certified weed-free, as provided in the revegetation plan developed in cooperation with CDFW. Any mulch used on the site will be 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 promote native vegetation establishment to prevent invasive species from colonizing.
- Restore or enhance suitable habitat areas that are occupied by, or are near and accessible to, special-status species that have been adversely affected by the permanent removal of occupied habitat areas.
- Report observed infestations of invasive aquatic plants to CDBW for management under existing CDBW practices. The habitat restoration plan prepared for the project (refer to requirement in Mitigation Measures VEG-1) will provide procedures for reporting observed infestations of invasive aquatic plants to CDBW and tracking management of these infestations.

Timing: Prior to, during, and after project construction.

Responsibility: RD 2110 and its construction contractors prior to and during construction; DWR or RD 2110 after construction; and DWR will provide all funding.

Significance after Mitigation: Implementation of Mitigation Measure VEG-6 would reduce this impact because onsite project personnel would be educated regarding the risks, infestations of noxious weeds would be treated, and erosion control and seeding materials used on site would be certified weed-free. Therefore, this impact would be **less-than-significant with mitigation**.

Impact VEG-6 (North Delta EIR): Loss or Disturbance of Special-status Species.

Alternative 1-A North Delta EIR Conclusions

The North Delta EIR stated that Delta mudwort (*Limocella australis*), Mason's lilaeopsis (*Lilaeopsis masonii*), Sanford's arrowhead (*Sagittaria sanfordii*), woolly rose-mallow, Delta tule pea (*Lathyrus jepsonii* var. *jepsonii*), Suisun Marsh aster (*Symphyotrichum lentum*), and bristly sedge (*Carex comosa*) occur in similar habitats and have been observed in intertidal areas within mudflats in the tidal freshwater emergent marsh habitat cover type throughout the project area. It was concluded that implementing Alternative 1-A would directly or indirectly affect these special-status species, and this was determined to be a significant impact. Mitigation Measures VEG-2, VEG-7, and VEG-8 were identified to avoid and minimize impacts on special-status plant habitat and compensate for loss of special-status plants. This impact was considered less-than-significant with mitigation.

Phase B Updated Evaluation

As shown in Figure 3.6-2, a number of occurrences of aquatic special-status plants are known from the project vicinity, including on the exterior of the MWT levees. Based on current habitat conditions, species with potential to occur on or adjacent to the project site, including in the SMUD project areas, include those addressed in the North Delta EIR, as well as Bolander's water-hemlock. To date, Delta mudwort is the only species that has been reported from the Phase B project site. One plant of this species was reportedly observed in September 2009, along Dead Horse Cut in the MWT Southwest Levee degrade; however, this occurrence is ranked as poor in the CNDDB. Current presence or absence of special-status plants in the levee degrade areas or other project areas including those affected by SMUD relocations would be determined when focused surveys of those areas are conducted closer to the construction period. Because temporary or permanent loss of occupied special-status species habitat or indirect or direct mortality of special-status species is identified as a significant impact, this impact would be **potentially significant**.

Mitigation Measures: Mitigation Measures VEG-2, VEG-7, and VEG-8 from the North Delta EIR have been adapted to address Impact VEG-6.

> **Mitigation Measure VEG-2 (Updated): Avoid and Minimize Impacts on Sensitive Biological Resources.**
>
> Please refer to Mitigation Measure VEG-2 in Impact VEG-1 above for the full text of this mitigation measure.
>
> **Mitigation Measure VEG-7 (Updated): Conduct Preconstruction Surveys for Special-status Plants.**
>
> Within 1 year before initiating construction, surveys for special-status-plant will be conducted within potentially suitable habitat within construction areas. Surveys will be conducted by a qualified biologist/botanist familiar with special-status species in the Delta and will occur during the appropriate season(s) for identifying the target species. The purpose of these surveys will be to verify that any relevant known locations of special-status plants are extant, identify any new special-status plant occurrences, and

map occupied habitat on the project site. Locations of special-status plants in construction areas will be recorded using a GPS unit and marked in the field.

Timing: Within 1 year prior to start of project construction.

Responsibility: RD 2110 with funding provided by DWR.

Mitigation Measure VEG-8 (Updated): Avoid and Minimize Impacts on Special-status Species and Compensate for Special-status Species Loss.

Locations of any special-status plant occurrences found during preconstruction surveys (in Mitigation Measures VEG-7) will be indicated on construction drawings, as applicable. Occurrences that can be avoided in the construction area will be fenced or otherwise designated with high-visibility markers, including a buffer of 50 ft on all sides, where feasible. If the special-status plants cannot be avoided, DWR will consult with CDFW on actions to minimize impacts and mitigate if needed. If impacts to Mason's lilaeopsis, which is designated as a rare plant under CESA, will occur from the project, authorization will be obtained from CDFW before impacts occur.

Compensation for unavoidable loss of special-status plants, identified based on preconstruction survey results, will include creating suitable tidal habitat at a ratio adequate to ensure there is no net loss of tidal habitat. Special-status plant habitat creation will be implemented as a component of the tidal habitat creation on MWT included as part of the Phase B Project. Any salvage and relocation would be conducted in close coordination with CDFW.

Timing: Prior to, during, and after project construction.

Responsibility: RD 2110 prior to and during construction; DWR or RD 2110 after construction; DWR will consult with CDFW, if needed; and DWR will provide all funding.

Significance after Mitigation: Implementation of Mitigation Measures VEG-2, VEG-7, and VEG-8 would reduce this impact because preconstruction surveys for special-status plant species will identify any such plants, measures will be taken to flag and avoid such plants to the extent feasible, plants may be moved out of harm's way, if applicable, and compensation will be provided for any unavoidable loss of special-status species by creating suitable tidal habitat to facilitate plant habitat creation. Therefore, this impact would be **less-than-significant with mitigation**.

Impact VEG-7 (North Delta EIR): Loss or Disturbance of Perennial Grassland.

Alternative 1-A North Delta EIR Conclusions

The North Delta EIR did not identify impacts on perennial grassland that would result from implementing MWT project components of Alternative 1-A. However, impacts on 0.92 acre of this cover type that would result from dredging activities under Alternative 1-A were considered significant. Mitigation Measures VEG-2 and VEG-9 were identified to replace perennial grassland and avoid and minimize impacts on sensitive biological resources, including perennial grassland. This impact was considered less-than-significant with mitigation.

Phase B Updated Evaluation

Perennial grassland does not occur in the potential SMUD distribution line relocation areas. Portions of the MWT East Levee and Southwest Levee that were re-sloped in 2018-2019 as part of Phase A were seeded with native grasses for erosion control purposes. These areas are shown as perennial grassland in Figure 3.6-1, but they do not function as a perennial grassland community because they are limited to the maintained upper slopes of the levees and do not provide the ecological characteristics, habitat value, and species composition typical of a natural perennial grassland system. Therefore, although 7.5 acres of this land cover type are estimated to be permanently impacted by grading activities and/or tidal inundation, this does not constitute loss of a sensitive natural community and this impact would be **less than significant**. It should also be noted that if the MWT interior were to flood again, as discussed in the "Future Flooding Events at MWT" section above, impacts to perennial grassland are anticipated to be similar.

Mitigation Measure: No mitigation is required.

Fisheries and Aquatics

Impact Fish-4 (North Delta EIR): Loss of Shaded Riverine Aquatic Cover as a Result of Construction.

Alternative 1-A North Delta EIR Conclusions

Levee degrading and breaching described for Alternative 1-A in the North Delta EIR would result in the permanent loss of riparian vegetation, some of which provides shaded riverine aquatic (SRA) cover. The analysis concluded that additional fragmentation of SRA cover in the study area would contribute to the increasing and cumulative degradation of this sensitive natural community in the North Delta region. Removal of SRA cover was considered a significant impact because of the unique value and relatively scarcity of this cover type in the Sacramento and San Joaquin River systems and because SRA cover is an essential component of fish habitat, especially for listed salmonids. Mitigation Measures Fish-1 and Fish-2 were identified to compensate for loss of SRA habitat. This impact was considered less-than-significant with mitigation.

Phase B Updated Evaluation

Phase B project changes would reduce SRA habitat loss and substantially increase SRA habitat creation, compared to what was evaluated for MWT components of Alternative 1-A in the North Delta EIR. Reducing the width of MWT East and Southwest Levee degrades compared to what was proposed in the North Delta EIR would reduce SRA habitat loss on the exterior of the levees, while changes to interior grading and inundation from Phase B would increase the amount of fish habitat that is created, including SRA habitat. Riparian vegetation on the interior slopes of the MWT levees that is at or near the tidal inundation extent would become SRA habitat after Phase B is constructed and the MWT interior is subject to tidal inundation. Areas on the outer slope of the tower levee that were planted with riparian vegetation in 2020 as part of Phase A will also provide SRA habitat as they mature. In addition, the periphery of the interior riparian vegetation that would be tidally inundated and eventually die will provide SRA habitat for a period of time, and the remaining flooded riparian habitat would serve the same purpose as SRA habitat. Finally, naturally recruiting vegetation on the riparian berms adjacent to tidal channels would provide SRA habitat as it becomes established and matures.

SRA habitat is anticipated to be spanned by the relocated SMUD distribution powerline conductor and is unlikely to be impacted by pole installation. If complete avoidance is not possible, the amount of SRA habitat that could be impacted by offsite SMUD distribution line relocations is anticipated to be less than 0.1 acre.

Because the significance criteria identify any reduction of structural characteristics of aquatic ecosystems that support fish communities as a significant impact and SRA habitat in the degrade areas would be permanently removed, this impact is considered **significant**.

Mitigation Measure: Mitigation Measure Fish-2 from the North Delta EIR has been adapted to address Impact Fish-4. Mitigation Measure Fish-1 from the North Delta EIR will not be implemented because it is not feasible to incorporate instream woody material into RSP in the degraded levee sections.

> **Mitigation Measure Fish-2 (Updated): Replace Shaded Riverine Aquatic Habitat.**
>
> Following final project design and before project construction begins, evaluate SRA cover provided by existing streamside riparian vegetation within the Phase B construction areas and riparian vegetation that currently does not support SRA cover but is anticipated to support SRA cover or flooded riparian habitat that provides similar habitat characteristics as a result of MWT inundation. This evaluation will serve to confirm that implementing Phase B will result in a net increase in SRA cover and flooded riparian vegetation and woody material that serves the same habitat purpose. The evaluation also will meet any agency requirements related to SRA cover, if such requirements are established during the Phase B permitting process.
>
> As part of riparian restoration/enhancement measures and associated monitoring activities described in Mitigation Measure VEG-2, creation of SRA and flooded riparian habitat will be monitored to demonstrate Phase B results in no net loss of such habitat, including temporal loss. Monitoring will be conducted in compliance with applicable measures established during the Phase B permitting process. Potential adaptive

management measures will be identified and implemented if monitoring indicates the performance standard of no net loss has not been achieved.

Timing:	Prior to, during, and after project construction.
Responsibility:	RD 2110 prior to and during construction; DWR or RD 2110 after construction; and DWR will provide all funding.

Significance after Mitigation: Implementation of Mitigation Measure Fish-2 would reduce this impact because it would ensure the Phase B project does not result in a net permanent loss of SRA cover or habitat that provides the same ecological functions. Therefore, this impact would be **less-than-significant with mitigation**.

Impact Fish-7 (North Delta EIR): Fish Entrapment or Delayed Migration from Project Operation.

Alternative 1-A North Delta EIR Conclusions

The North Delta EIR described how floodwaters would naturally drain from MWT by gravity into the adjacent channels, mainly through the southern end of the tract, and that additional floodplain draining could occur in the upper tract through the "starter channel" that would be excavated to maintain a perennial connection with the Mokelumne River. Although positive drainage would reduce potential for fish stranding, diversion of fish onto MWT could delay migration and fish could become stranded if scour holes or other low-lying areas pond water and become isolated from main channels. Stranded fish could include Chinook salmon (all races), steelhead, Sacramento splittail, and delta smelt. Effects of potential fish stranding on native species associated with floodplain inundation and shallow-water habitat would be offset by the benefits of increased floodplain inundation and shallow-water habitat. However, fish stranding was considered a significant impact because of potential for large areas to be scoured and form isolated pools that could result in fish stranding. Mitigation Measure Fish-3 was identified to identify and fill scour holes that are a fish stranding issue. This impact was considered less-than-significant with mitigation.

Phase B Updated Evaluation

The current Phase B design does not include the starter channel at the Mokelumne River Breach, but interior grading would be more extensive than considered in the North Delta EIR and would include excavating an extensive tidal channel network connecting to the large shallow subtidal and tidal marsh areas. This design maximizes tidal inundation and drainage of the MWT interior and provides numerous routes by which fish can access and leave the floodplain on rising and receding tides, as well as receding floodwaters. Under this current design, it is very unlikely scour pools would form at elevations above the daily tidal inundation area and create areas where fish stranding could occur. However, because the potential for large flood events to create hydrologically isolated pools and potentially result in stranding of special-status fish species cannot be ruled out, this impact is considered **potentially significant**.

Mitigation Measure: Mitigation Measure Fish-3 from the North Delta EIR has been adapted to address Impact Fish-7.

Mitigation Measure Fish-3 (Updated): Monitor for Fish Stranding and Fill any Substantial Hydrologically Disconnected Scour Pools that Form Following Large Flood Events.

For 10 years following initiation of tidal inundation on MWT, DWR/RD 2110 will monitor MWT following large flood events that inundate significant portions of the MWT interior to identify whether any areas above tidal inundation elevations were scoured, became hydrologically isolated from intertidal and subtidal zones, and resulted in fish stranding. Monitoring will be conducted in compliance with any applicable measures established during the Phase B permitting process. If monitoring indicates that fish stranding has occurred, DWR/RD 2110 will use appropriate methods (e.g., seining, electrofishing), as authorized, as soon as possible following isolation of the water body to remove stranded fish. Rescued fish will be released to the nearest main channel area. Qualified fish biologists will conduct monitoring and fish rescue operations. To reduce the potential for further fish stranding at locations where scour pools have formed in riparian floodplain elevations following a significant flood event, DWR/RD 2110 will use appropriate methods (e.g., grading, rock placement) to fill in new scour holes in which fish have become stranded to reduce their potential to strand fish in the future. Scour areas and depressions that are identified to be potential stranding sites will be filled before the beginning of the next flood season. This monitoring would occur after flood events each year during the first 10 years following site breaching. Subsequently, the site will be checked for significant scour and ponding in upland areas that could cause fish stranding following any significant (i.e., 25-year recurrence or greater) flood events, as part of long-term management activities.

Timing:	After project construction is complete, during the first 10 years of project operations.
Responsibility:	DWR or RD 2110 with funding provided by DWR.

Significance after Mitigation: Implementation of Mitigation Measure Fish-3 would reduce this impact because it would ensure the Phase B project does not result in substantial stranding of special-status fish. Therefore, this impact would be **less-than-significant with mitigation**.

Impact Fish-8 (North Delta EIR): Potential for Loss of Native Fish from Predation as a Result of Project Operation.

Alternative 1-A North Delta EIR Conclusions

The North Delta EIR identified potential for greater predation of special-status fish species that use floodplain habitats, such as Chinook salmon, delta smelt, and Sacramento splittail. The abundance of predatory nonnative fish species could increase in response to the increase of floodplain spawning and rearing habitat, and native fish species occupying inundated floodplain habitats and perennial shallow-water habitat may experience reduced survival from predation by fish-eating birds that are attracted to shallow water. Effects of increased predation on native species would be offset, to some degree, by the benefits of increased floodplain inundation and shallow-water habitat. However, this impact was considered significant because, in the absence of suitable quantities of cover, shallow water habitat may provide greater benefits to predatory

alien species and piscivorous birds at the expense of native fish species. Mitigation Measure Fish-4 was identified to ensure project design maximizes potential benefits to native fish species and minimizes creation of habitat favoring nonnative predatory fish species. This impact was considered less-than-significant with mitigation.

Phase B Updated Evaluation

Changes to the Phase B design emphasize creating high-quality floodplain fish habitat. Habitat inundated on MWT after Phase B would have adequate submerged cover and habitat complexity (i.e., tidal channels) for native fish to avoid substantial predation by birds and some nonnative fish. In addition, the benefits of increasing tidally inundated fish habitat on MWT would outweigh the risks of predation on native fish, including special-status species, by nonnative fish species and fish-eating birds. Therefore, this impact is considered **less than significant**.

Mitigation Measure: No mitigation is required.

Impact Fish-10 (New): Violate Salinity Standards to Protect Fish during Project Operation.

New Phase B Impact Evaluation

The D-1641 stations for fish and wildlife beneficial uses are: D15 (San Joaquin River at Jersey Point), D29 (San Joaquin River at Prisoners Point), and C2 (Sacramento River at Collinsville). Based on the modeling results, implementing the Phase B project would not cause exceedance of D-1641 salinity standards during compliance periods or increase the number of days of non-compliance at Prisoners Point or Collinsville. At Jersey Point, modeled EC for the existing salinity condition and Phase B exceed the standards near the end of the compliance period each year. However, a comparison with observed data shows that the model overpredicts salinity during the late summer and fall due to limitations of the depth-averaged model. If modeled incremental EC increases resulting from Phase B are applied to observed values at this location, EC remains well below the compliance standard. Therefore, when salinity changes are considered relative to D-1641 standards, the Phase B project would not cause exceedance of EC standards that are protective of fish and wildlife beneficial uses. In addition, modeling of changes to X2 indicate Phase B would generally decrease monthly averaged X2 by 0.1 km or less, compared to existing conditions. This very small average shift in X2 would be seaward, the direction of X2 shift that is correlated with improved habitat conditions for many native Delta species. Therefore, salinity changes projected to result from Phase B project operations would not adversely affect population abundance or distribution of rare or endangered species, including delta and longfin smelt, and this impact would be **less than significant**.

Mitigation Measure: No mitigation is required.

Wildlife

Impact WILD-1 (North Delta EIR): Loss of Riparian-associated Wildlife Habitat.

Alternative 1-A North Delta EIR Conclusions

Implementing MWT components of Alternative 1-A would result in permanent impacts on 23.74 acres of valley/foothill riparian cover type and temporary impacts on 4.37 acres from complete removal of trees and shrubs, limb pruning, and disruption of the root zone as a result of ground-disturbing activities. Impacts would also result from inundation of riparian vegetation on the interior levees of MWT. Loss or further fragmentation of riparian-associated wildlife habitat was considered a significant impact. Mitigation Measures WILD-1, WILD-2, and WILD-4 were identified to replace valley/foothill riparian cover and avoid and minimize impacts on sensitive wildlife. This impact was considered less-than-significant with mitigation.

Phase B Updated Evaluation

Some Phase B changes, such as landside levee re-sloping of levee segments previously proposed for degradation in the North Delta EIR, would reduce impacts on riparian habitat, while recent riparian vegetation recruitment and more precise modeling of the tidal inundation area have led to an increase in permanent impacts on riparian habitat in Phase B. A total of 67.83 acres of valley/foothill riparian are estimated to be permanently impacted. If the MWT interior were to flood again, as discussed in the "Future Flooding Events at MWT" section above, impacts to riparian habitat from inundation are anticipated to be similar.

The study area for SMUD distribution line relocations includes up to approximately 2 acres of riparian scrub and woodland habitat that could be impacted outside of MWT. A total of approximately 175 to 250 acres of MWT that are above the projected MHHW elevation are anticipated to be riparian habitat, including scrub and woodlands, after implementation of the Phase B project, as shown in Figure 2-9. Therefore, Phase B would result in a long-term increase in both quantity and quality of riparian-associated wildlife habitat. However, because construction-related impacts would result in temporal loss of riparian habitat used by wildlife for breeding, roosting, and foraging and could result in direct mortality to, or lowered reproductive success of, affected wildlife species, this impact over the short-term is considered **potentially significant**.

Mitigation Measures: Mitigation Measures WILD-1, WILD-2, and WILD-3 from the North Delta EIR have been adapted to address Impact WILD-1.

> **Mitigation Measure WILD-1 (Updated): Implement Mitigation Measure VEG-1, Replace Valley/Foothill Riparian Cover Types.**
>
> Please refer to Mitigation Measure VEG-1 in Impact VEG-1 above for the full text of this mitigation measure.

Mitigation Measure WILD-2 (Updated): Avoid and Minimize Effects on Nesting Birds during Construction and Maintenance.

Protective fencing or high-visibility markers will be used to protect bird nesting habitat immediately outside of the construction and maintenance areas. To the extent feasible, DWR/RD 2110 will remove woody and herbaceous vegetation from the construction area during the nonbreeding season for most native bird species (September 1 – February 1) and will maintain remaining herbaceous vegetation at a height of approximately 6 inches to minimize the potential for bird nesting in the construction area.

If construction occurs during the breeding season and not all affected vegetation has been removed, a survey for active bird nests will be conducted by a qualified biologist. The survey will cover all potential onsite and offsite nesting habitat within 500 ft of the construction limits. The survey will be conducted no more than 15 days before the start of onsite project activities. If a lapse in onsite project-related activities of 14 days or longer occurs, another focused survey will be conducted before project activities are reinitiated.

If any active nests are found, a qualified biologist will prepare a site-specific take avoidance plan to comply with the Migratory Bird Treaty Act and CFGC. Measures may include but are not limited to nest-specific no disturbance buffers, biological monitoring, rescheduling project activities around sensitive periods for the species (e.g., nest establishment), or implementing construction best practices, such as staging equipment out of the species' line of sight from the nest. All feasible avoidance/protection measures will be implemented before construction activities begin within 500 ft of an identified nest and continue until the nest is no longer active.

Timing:	Prior to and during project construction and maintenance.
Responsibility:	RD 2110 prior to and during construction; DWR or RD 2110 during maintenance; and DWR will provide all funding.

Mitigation Measure WILD-3 (Updated): Implement Mitigation Measure VEG-2, Avoid and Minimize Impacts on Sensitive Biological Resources.

Please refer to Mitigation Measure VEG-2 in Impact VEG-1 above for the full text of this mitigation measure.

Significance after Mitigation: Implementation of Mitigation Measures WILD-1, WILD-2, and WILD-3 would reduce this impact because valley/foothill riparian cover would be created and impacts on sensitive biological resources would be avoided and minimized by marking habitat to be avoided, conducting preconstruction surveys, and implementing protective measures for active bird nests. Therefore, this impact would be **less-than-significant with mitigation**.

Impact WILD-2 (North Delta EIR): Loss of Tidal Freshwater Emergent Wetland–Associated Wildlife Habitat.

Alternative 1-A North Delta EIR Conclusions

The North Delta EIR did not identify any impacts on tidal freshwater emergent wetland that would result from implementing MWT project components. However, impacts on 11 acres of this cover type that would result from dredging under Alternative 1-A were considered significant. Mitigation Measures WILD-2, WILD-3, WILD-4, and WILD-5 were identified to replace nontidal freshwater emergent wetland and tidal perennial aquatic habitat and avoid and minimize impacts on sensitive wildlife. This impact was considered less-than-significant with mitigation.

Phase B Updated Evaluation

Based on updated habitat mapping conducted for this Supplemental EIR, a very small (approximately 0.1 acre) area of tidal freshwater emergent wetland occurs along a portion of the waterside extent of the Mokelumne River breach site and would be impacted by levee degrading and RSP placement for Phase B. In addition, Phase B implementation would create approximately 600 to 900 acres of tidal marsh (as shown in Figure 2-9).

The study area for SMUD distribution line relocations includes up to approximately 0.35 acre of tidal wetland habitat. This habitat is anticipated to be spanned by the new powerline conductor and is unlikely to be impacted by pole installation. If complete avoidance is not possible, the amount of this habitat that could be impacted by the offsite SMUD distribution line relocations is anticipated to be less than 0.1 acre.

Adverse impact on up to 0.2 acre of tidal freshwater emergent habitat would have a minor impact on common wildlife associated with this habitat because it represents a very small proportion of the tidal freshwater emergent habitat present in the immediate vicinity and a substantial amount of tidal marsh habitat would be created by the Phase B Project. Therefore, this impact would be **less than significant**.

Mitigation Measure: No mitigation is required.

Impact WILD-3 (North Delta EIR): Loss or Disturbance of Tidal Perennial Aquatic–associated Wildlife Habitat.

Alternative 1-A North Delta EIR Conclusion

Impacts on tidal perennial aquatic-associated wildlife habitat identified for Alternative 1-A in the North Delta EIR include habitat fill, sheet pile-braced cofferdam placement and temporary dewatering, and disturbance during in-channel work for siphon retrofitting. Implementing MWT components of Alternative 1-A would result in permanent impacts on 0.42 acre of tidal perennial aquatic habitat and temporary impacts on 0.54 acre. Impacts on nearly 280 acres of this cover type that would result from implementing all potential components of Alternative 1-A (primarily as a result of dredging) were considered significant. Mitigation Measures WILD-3 and WILD-5 were identified to replace nontidal wetland habitat and avoid and minimize impacts on sensitive wildlife. This impact was considered less-than-significant with mitigation.

Phase B Updated Evaluation

Estimated Phase B impacts on MWT include 1.59 acres of tidal perennial aquatic habitat temporarily impacted by levee degrading and 1.82 acres permanently impacted by placement of RSP at levee breaches. RSP placement would permanently change the substrate of the aquatic habitat and somewhat degrade the quality of this benthic habitat, but it would not result in permanent overall loss of perennial aquatic habitat or substantially degrade the habitat quality for the common wildlife species it supports. Phase B implementation would create approximately 400 to 600 acres of subtidal open water and shallow subtidal habitats (as shown in Figure 2-9).

The study area for SMUD distribution line relocations includes up to approximately 0.75 acre of perennial aquatic habitat. This habitat is anticipated to be spanned by the new powerline conductor and is unlikely to be impacted by pole installation. If complete avoidance is not possible, the amount of this habitat that could be impacted by the offsite SMUD distribution line relocations is anticipated to be less than 0.2 acre.

Temporary construction impacts and permanent substrate change in 3.4 acres acre of tidal perennial aquatic is not considered a significant impact on wildlife associated with this habitat, particularly in the context of the Phase B project creating a substantial amount of tidal perennial aquatic habitat upon project completion and tidal inundation. In-water construction would occur over a relatively short period, tidal perennial aquatic habitat that would be impacted represents a small percentage of the total habitat available, and aquatic wildlife would likely avoid affected portions of the channels. Therefore, the number of individuals that would be affected during construction is anticipated to be very low, and this impact would be **less than significant**.

Mitigation Measure: No mitigation is required.

Impact WILD-4 (North Delta EIR): Loss or Disturbance of Nontidal Freshwater Emergent Wetland–Associated Wildlife Habitat.

Alternative 1-A North Delta EIR Conclusions

Impacts on nontidal freshwater emergent wetland land cover types identified for Alternative 1-A in the North Delta EIR include filling, cutting of wetland vegetation, disruption of the root zone as a result of ground-disturbing activities, and tidal inundation of nontidal wetlands. Implementing MWT components of Alternative 1-A would result in permanent impacts on 3.37 acres of nontidal freshwater emergent wetland and temporary impacts on 0.08 acre. Impacts on more than 50 acres of this cover type that would result from implementing all potential components of Alternative 1-A (primarily as a result of excavating and restoring the Grizzly Slough property) were considered significant. Mitigation Measures WILD-2, WILD-3, and WILD-6 were identified to replace nontidal wetland land cover and avoid and minimize impacts on sensitive wildlife. This impact was considered less-than-significant with mitigation.

Phase B Updated Evaluation

Interior grading and inundation of MWT from Phase B are estimated to permanently impact 17.45 acres and temporarily impact 0.07 acre of nontidal freshwater emergent wetland in the MWT interior. If the MWT interior were to flood again, as discussed in the "Future Flooding Events at MWT" section above, impacts to nontidal freshwater emergent wetland habitat from inundation are anticipated to be similar. Most of the nontidal wetland that would be converted to tidal wetland occurs at the scour pond/borrow site feature adjacent to the MWT East Levee which currently supports perennial emergent wetland and sparse seasonal wetland vegetation. The primary habitat objective of Phase B is to restore natural tidal floodplain habitat and associated species. Although nontidal wetland habitat would not be restored or enhanced, Phase B implementation would create approximately 600 to 900 acres of tidal marsh habitat (as shown in Figure 2-9) and would result in a very substantial long-term net-increase in emergent wetland-associated wildlife habitat. However, because construction-related impacts could result in direct mortality to, or lowered reproductive success of wetland-associated wildlife species, this impact is considered **potentially significant**.

Mitigation Measures: Mitigation Measures WILD-2 and WILD-3 from the North Delta EIR have been adapted to address Impact WILD-4.

> **Mitigation Measure WILD-2 (Updated): Avoid and Minimize Effects on Nesting Birds during Construction and Maintenance.**
>
> Please refer to Mitigation Measure WILD-2 in Impact WILD-1 above for the full text of this mitigation measure.
>
> **Mitigation Measure WILD-3 (Updated): Implement Mitigation Measure VEG-2, Avoid and Minimize Impacts on Sensitive Biological Resources.**
>
> Please refer to Mitigation Measure VEG-2 in Impact VEG-1 above for the full text of this mitigation measure.

Significance after Mitigation: Implementation of Mitigation Measures WILD-2 and WILD-3 would reduce this impact because impacts on sensitive wildlife would be avoided and minimized by marking habitat to be avoided and conducting preconstruction surveys and implementing protective measures. Therefore, this impact would be **less-than-significant with mitigation**.

Impact WILD-7 (North Delta EIR): Potential Effects on Greater Sandhill Crane as a Result of Loss of Agricultural Lands.

Alternative 1-A North Delta EIR Conclusions

According to the North Delta EIR, implementing MWT project components of Alternative 1-A would result in permanent loss of approximately 1,250 acres of agricultural land and temporary loss of approximately 50 acres as a result of construction activities and agricultural land conversion to native land cover types. Project operations would have a substantial impact on foraging habitat because MWT would be allowed to convert to native land cover types, including tidal perennial aquatic habitat, tidal emergent wetland habitat, and riparian habitat. Construction activities that occur during the period when sandhill cranes are present in the area (approximately

September – February) could also disturb foraging cranes or limit the availability of MWT as foraging habitat. These impacts were considered significant. Mitigation Measures WILD-2, WILD-3, and WILD-7 were identified to compensate for loss of foraging habitat and avoid and minimize impacts on sandhill cranes and their habitat. This impact was considered less-than-significant with mitigation.

Phase B Updated Evaluation

Implementing the Phase B project components would no longer affect agricultural foraging habitat for greater sandhill crane, because agricultural production on MWT ceased several years ago. Habitat on the interior of MWT is now dominated by nonnative annual grassland and ruderal vegetation. Although sandhill cranes sometimes use grassland habitat, it is not a preferred habitat type. As indicated in the North Delta EIR, the species feeds and roosts in pasture, flooded and unflooded grain fields, and seasonal wetlands. Wheat and corn fields are favored, particularly newly flooded fields; pasture used for foraging is typically grazed. The North Delta EIR indicated that MWT was not a key foraging site, and the value of MWT to this species has declined since agricultural production ceased. Although existing habitat provides some foraging value, it is not a preferred habitat type and has substantially lower foraging value than the agricultural crops that were formerly cultivated. Greater and/or lesser sandhill cranes have been observed infrequently and in small numbers during biological surveys and monitoring conducted on MWT since agricultural production ceased. Based on relatively poor habitat quality and infrequent use of MWT, the tract is not an important wintering site for greater sandhill crane. Because substantial areas of much higher-quality foraging habitat occur in the region and greater sandhill crane does not rely on MWT as foraging habitat, impacts from conversion of annual grassland/ruderal habitat to tidal open water, marsh, and riparian would be **less than significant**.

Mitigation Measure: No mitigation is required.

Impact WILD-8 (North Delta EIR): Potential Effects on Valley Elderberry Longhorn Beetle.

Alternative 1-A North Delta EIR Conclusions

Implementing MWT components of Alternative 1-A would result in the loss or disturbance of valley elderberry longhorn beetle habitat. Elderberry shrubs and shrub clusters on MWT would be affected by degrading levees, enhancing interior levee slopes, and breaching the Mokelumne River Levee. Impacts may include shrub removal or soil disturbance and vehicle traffic near shrubs. Elderberry shrubs that occur on the lower portion of the interior levee slopes would be subject to permanent, daily, or seasonal inundation. It was assumed that elderberry shrubs that are inundated permanently or daily (i.e., occurring below MHHW tidal elevation) would not survive and would be permanently lost. Alternative 1-A would also have a beneficial effect because the MWT interior levee improvements and conversion of agricultural land to native land cover types would increase the extent of potential valley elderberry longhorn beetle habitat. However, the overall impact on valley elderberry longhorn beetle was identified as significant. Mitigation Measures WILD-8, WILD-9, and WILD-10 were identified to quantify, avoid/ minimize, and compensate for unavoidable impacts on elderberry shrubs. This impact was considered less-than-significant with mitigation.

Phase B Updated Evaluation

Impacts on valley elderberry longhorn beetle from the Phase B project would be consistent with those described in the North Delta EIR and would primarily result from levee degradation, enhancing interior levee slopes, and inundation. Elderberry shrub surveys were conducted on MWT in 2020 and 2021 in accordance with the 2017 USFWS *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle*. Approximately 875 elderberry plants were mapped within the Phase B project boundary, approximately 95 of which are within levee breach or re-sloping areas and would be removed and likely transplanted onsite. Based on the current project design, it is assumed that approximately 90 elderberry shrubs below the modeled MHHW elevation would be inundated permanently or daily and would not survive; these shrubs would also likely be transplanted onsite. If the MWT interior were to flood again, as discussed in the "Future Flooding Events at MWT" section above, impacts to elderberry shrubs from inundation are anticipated to be similar. More than 650 elderberry shrubs within the Phase B project boundary are expected to be preserved because they are outside the levee degrade, levee re-sloping, interior grading, and inundation areas. In addition, implementing Phase B would result in an overall long-term increase in the amount of riparian habitat on MWT.

A small number of elderberry shrubs, estimated at fewer than 10, also could be affected by installing the new offsite SMUD distribution lines, but these locations have not been surveyed and precise impacts are not known.

Based on the prevalence of elderberry shrubs on MWT and observations of extensive natural recruitment via seed, many additional elderberry shrubs are anticipated to become established in these new riparian areas over time. However, the short-term loss of approximately 190 elderberry shrubs would be a **significant** impact.

Mitigation Measures: Mitigation Measures WILD-9 and WILD-10 from the North Delta EIR have been adapted to address Impact WILD-8. Mitigation Measure WILD-8 from the North Delta EIR is not included because pre-construction surveys have already been completed and other components of the measure are addressed in updated Mitigation Measures WILD-9 and WILD-10.

> **Mitigation Measure WILD-9 (Updated): Avoid and Minimize Impacts on Elderberry Shrubs.**
>
> Wherever feasible, RD 2110 will avoid and minimize project effects on elderberry shrubs. Avoidance and minimization efforts will be implemented in accordance with the 2017 USFWS *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle*. If elderberry shrubs with one or more stems measuring 1 inch or greater in diameter at ground level are located in or within 165 ft of proposed construction areas, RD 2110 will implement the following actions:
>
> - Mark locations of elderberry shrubs and shrub clusters within 165 ft of the project boundary (and not separated from the construction area by perennial aquatic habitat) on project plans and in the field with high visibility flagging before construction begins.

- Avoid disturbance of elderberry shrubs that will not be removed during project construction by establishing and maintaining, to the maximum extent feasible, a minimum 20-foot buffer marked with high visibility stakes and/or flagging around elderberry shrubs that provide suitable habitat for valley elderberry longhorn beetle.

- Consult with and gain approval from USFWS for unavoidable elderberry shrub removal and trimming.

- Train onsite project personnel on the status of valley elderberry longhorn beetle, its host plant and habitat, the need to avoid damaging elderberry shrubs, and the possible penalties for noncompliance.

Timing: Prior to and during project construction.

Responsibility: RD 2110 with funding provided by DWR.

Mitigation Measure WILD-10 (Updated): Compensate for Unavoidable Impacts on Elderberry Shrubs.

RD 2110 will obtain authorization from USFWS for unavoidable effects on valley elderberry longhorn beetle and will compensate for unavoidable effects in accordance with the 2017 USFWS *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle*. Mitigation efforts may include transplanting elderberry shrubs, planting additional elderberry and associated plant species at an onsite or offsite mitigation area, or purchasing valley elderberry longhorn beetle mitigation credits at a USFWS–approved mitigation bank.

Timing: Prior to and during project construction.

Responsibility: RD 2110 with funding provided by DWR.

Significance after Mitigation: Implementation of Mitigation Measures WILD-9 and WILD-10 would reduce this impact because impacts on elderberry shrubs would be avoided and minimized by marking habitat to be avoided, training onsite personnel, and compensating for unavoidable impacts Therefore, this impact would be **less-than-significant with mitigation**.

Impact WILD-9 (North Delta EIR): Potential Effects on Giant Garter Snake.

Alternative 1-A North Delta EIR Conclusions

Implementing MWT components of Alternative 1-A described in the North Delta EIR would result in the loss or disturbance of giant garter snake habitat. Construction in areas adjacent to nontidal freshwater emergent wetlands and irrigation ditches associated with agricultural land on MWT would remove suitable habitat, and direct impacts on individuals could occur during construction. Construction activities would affect 3.45 acres of nontidal wetland habitat and 20.55 acres of ponds and agricultural ditches, as well as adjacent upland habitat. Conversion of the southern portion of MWT to tidal perennial aquatic and tidal emergent wetland habitat would increase giant garter snake habitat in the project area. However, impacts on giant garter snake

were identified as significant. Mitigation Measures WILD-4, WILD-6, WILD-11, and WILD-12 were identified to minimize impacts on giant garter snake and their habitat. This impact was considered less-than-significant with mitigation.

Phase B Updated Evaluation

No suitable aquatic habitat for giant garter snake currently occurs on the MWT interior. Suitable aquatic habitat surrounding MWT, which is primarily concentrated in Lost Slough and Snodgrass Slough, would be impacted by Phase B levee degrade and repair activities, but these impacts would be limited to RSP placement and temporary impacts during in-water construction activities. A small amount of suitable upland habitat within the levee degrade footprints would also be impacted by Phase B, but most of the habitat within these areas is unsuitable for giant garter snake. Extensive areas of aquatic habitat would be created by implementing Phase B. In addition, portions of MWT that are outside the inundation area, including higher elevation sections of interior levees slopes and some portions of the area protected by the Tower Levee, would provide suitable upland habitat for giant garter snake. Therefore, the primary source of potential impacts on giant garter snake from Phase B is injury or mortality of individuals during construction. This impact would be **potentially significant**.

Mitigation Measures: Mitigation Measures WILD-11 and WILD-12 have been adapted from the mitigation included in the North Delta EIR and identified to address Impact WILD-9.

Mitigation Measure WILD-11 (Updated): Conduct Preconstruction Surveys and Monitoring for Giant Garter Snake.

Preconstruction surveys for giant garter snake will be conducted in suitable habitat in the Phase B construction area. Preconstruction surveys will be performed by a qualified biologist within 24 hours of beginning construction activities. A qualified biologist also will be present when initial ground-disturbing activities (e.g., clearing and grubbing) are conducted in the levee degrade and repair areas. If a giant garter snake is observed, construction activities will not begin or will cease immediately in the area where the snake was observed. Construction activities will not begin or resume until the snake has left the construction area on its own volition.

Timing: Prior to and during project construction.

Responsibility: RD 2110 with funding provided by DWR.

Mitigation Measure WILD-12 (Updated): Minimize Construction-related Disturbances in Suitable Giant Garter Snake Habitat.

To the greatest extent practicable, ground-disturbing construction activities that affect giant garter snake habitat will be initiated during the species' active period (May 1 – October 1) and will continue until construction activities are completed. Clearing of wetland vegetation in suitable habitat will be confined to the minimum area necessary to complete the required activities. The movement of heavy equipment will be restricted to established roadways or constructed haul roads to minimize habitat disturbance. Onsite

project personnel will be trained on the status of giant garter snake, its habitat and need to minimize disturbance, and the possible penalties for noncompliance.

Timing: During project construction.

Responsibility: RD 2110 and its construction contractor with funding provided by DWR.

Significance after Mitigation: Implementation of Mitigation Measures WILD-11 and WILD-12 would reduce this impact because impacts on giant garter snake habitat would be minimized, and pre-construction surveys and monitoring would be conducted to minimize potential for injury and mortality of individuals. Therefore, this impact would be **less-than-significant with mitigation**.

Impact WILD-10 (North Delta EIR): Loss or Disturbance of Swainson's Hawk Nests or Foraging Habitat.

Alternative 1-A North Delta EIR Conclusions

According to the North Delta EIR, implementing MWT components of Alternative 1-A would impact approximately 4 acres of riparian woodland, which provides nesting habitat for Swainson's hawk. Permanent and daily inundation of MWT would result in the permanent loss of approximately 1,250 acres of agricultural land that provides foraging habitat for this species. Noise and visual disturbances associated with equipment operation and other construction- and maintenance-related activities could result in nest abandonment, a reduction in the level of care provided by adults, or forced fledging. Overall, Alternative 1-A would have a beneficial effect on Swainson's hawk nesting habitat because conversion of agricultural land to native riparian and valley oak habitat would increase the number of potential nest trees in the long term. However, conversion of agricultural land to native riparian and wetland land cover types would decrease foraging habitat. Disturbance of nesting Swainson's hawks and loss of foraging and nesting habitat were identified as significant impacts. Mitigation Measures WILD-1, WILD-3, WILD-13, WILD-14, WILD-15, and WILD-16 were identified to minimize impacts on Swainson's hawk nests and compensate for habitat loss. This impact was considered less than significant with mitigation.

Phase B Updated Evaluation

As shown in Figure 3.6-4, Swainson's hawk nests have been documented at several locations along and adjacent to the MWT perimeter during Phase A biological surveys (Stillwater Sciences 2018 and 2020). Potential impacts on Swainson's hawk associated with the Phase B project would generally be similar to those described in the North Delta EIR for Alternative 1-A. Based on currently available data of recent Swainson's nest locations (refer to Figure 3.6-3), no trees containing a Swainson's hawk nest would be removed during Phase B. However, new nests could become established prior to construction.

Some Phase B project changes, such as landside levee re-sloping of MWT levee segments that were identified to be degraded in the North Delta EIR, would reduce resulting impacts on riparian woodland, while more precise modeling of the tidal inundation area combined with more riparian habitat becoming established onsite since 2017, has led to an increase in permanent impacts on riparian woodland in Phase B. A total of approximately 37 acres of mature woodland habitat that may be suitable for nesting would be permanently changed (either removed by construction or converted to different habitat values from inundation). MWT is anticipated to support approximately 175 to 250 acres of riparian habitat after implementation of the Phase B project in the long term, including woodlands that would provide suitable nest trees. While there would be temporal riparian habitat loss, due to the large amount of riparian habitat, including woodlands, created by the Phase B project, a net-beneficial impact to potential nesting habitat is anticipated.

The annual grassland/ruderal habitat now present in the MWT interior provides suitable foraging habitat for Swainson's hawk. The potential value of this foraging habitat varies, based on vegetation conditions. Prior to ceasing agriculture production on MWT in 2017, corn and other grains, safflower, and tomatoes were grown. These crops are not considered prime foraging habitat for Swainson's hawk. Since agricultural production ceased, MWT has become increasingly vegetated by dense patches of tall weedy species such as thistle, poison hemlock, and black mustard, which limit access to prey and reduce foraging quality. Based on existing conditions at MWT, foraging quality for Swainson's hawk is likely moderate. Up to approximately 1,300 acres of annual grassland/ruderal habitat that may provide suitable foraging habitat is anticipated to be lost as a result of Phase B. However, since Swainson's hawk use a variety of habitat types for foraging, habitat created/restored on MWT by the Phase B project may also provide some amount of value for foraging. If the MWT interior were to flood again, as discussed in the "Future Flooding Events at MWT" section above, impacts to foraging habitat for Swainson's hawk from inundation are anticipated to be similar.

A total of approximately 100 Swainson's hawk nest sites or breeding pairs have been documented within 10 miles of MWT since 2005; approximately 40 of which are within 5 miles of MWT (CDFW 2021). These include all locations where a nest or breeding activity has been observed and reported to the CNDDB, including multiple nest locations for the same pair and for multiple pairs over the more than 15-year period. An unknown number of nesting pairs and non-breeding or migrant individuals from this vicinity may use MWT for foraging. However, this region supports extensive areas of alternative foraging habitat, including much higher-quality habitat than is provided by MWT. Based on the most recent available DWR land use mapping (2018), a minimum of approximately 17,000 acres of cover types that provide moderate or high-suitability Swainson's hawk foraging habitat during all of the Swainson's hawk nesting season (i.e., alfalfa, pasture) or a portion of the season (i.e., wheat, other grain/hay, tomatoes) (Estep Environmental Consulting 2009) was present within 5 miles of MWT in 2018; a minimum of approximately 51,000 acres of these cover types were present within 10 miles (DWR 2021). Most notably, this habitat included approximately 3,700 and 12,500 acres of alfalfa within 5 and 10 miles, respectively; alfalfa provides the highest quality foraging habitat available in the Central Valley.

The study area for SMUD distribution line relocations includes up to approximately 2 acres of riparian woodland habitat that may be suitable for nesting. The amount of this habitat that could be impacted by the offsite SMUD distribution line relocations is anticipated to be less than 0.2 acre.

Because the Phase B Project would include construction disturbance within 0.5 miles of known, recently active Swainson's hawk nest sites and would result in loss of low-quality foraging habitat, impacts on Swainson's hawk from Phase B would be **potentially significant**.

Mitigation Measures: Mitigation Measures WILD-1, WILD-3, WILD-13, WILD-14, and WILD-15 from the North Delta EIR have been adapted to address Impact WILD-10. Mitigation Measures WILD-14 and WILD-16 have been consolidated into Mitigation Measure WILD-14.

Mitigation Measure WILD-1 (Updated): Implement Mitigation Measure VEG-1, Replace Valley/Foothill Riparian Cover Types.

Please refer to Mitigation Measure VEG-1 in Impact VEG-1 above for the full text of this mitigation measure.

Mitigation Measure WILD-3 (Updated): Implement Mitigation Measure VEG-2, Avoid and Minimize Impacts on Sensitive Biological Resources.

Please refer to Mitigation Measure VEG-2 in Impact VEG-1 above for the full text of this mitigation measure.

Mitigation Measure WILD-13 (Updated): Conduct Preconstruction Surveys for Nesting Swainson's Hawks before Construction and Maintenance.

Preconstruction surveys for Swainson's hawk will be conducted at and adjacent to all locations to be disturbed by project construction. Preconstruction surveys will consist of surveying all accessible potential nesting habitat within 0.5 mile of proposed construction areas. Surveys will be performed several times during the breeding season, in accordance with standard protocols (Swainson's Hawk TAC 2000; CEC and CDFG 2010). Nest sites will be marked on an aerial photograph, and the position will be recorded using GPS.

Timing:	Prior to project construction and maintenance.
Responsibility:	RD 2110 prior to construction; DWR or RD 2110 prior to maintenance; and DWR will provide all funding.

Mitigation Measure WILD-14 (Updated): Avoid and Minimize Construction-related Disturbances within 0.5 Mile of Active Swainson's Hawk Nest Sites.

To the greatest extent practicable, major construction activities that would occur within 0.5 mile of an active Swainson's hawk nest will be avoided during the breeding season. If practicable, construction that would result in the greatest disturbance to an active nest site will be deferred until after or as late in the breeding season as possible. DWR/RD 2110 will notify CDFW of the locations of active nest sites identified during the

preconstruction surveys and will coordinate with CDFW on appropriate avoidance and minimization measures on a case-by-case basis.

To the extent feasible, potential nesting trees within the construction footprint will be removed before construction and before the nesting season for Swainson's hawk and most native birds (i.e., removal will occur between September 1 and February 1). Potential nest trees outside the construction footprint will be retained. If construction activities require tree removal during the nesting season, DWR/RD 2110 will perform clearance surveys to confirm active nests are not present in trees to be removed. If active nests are present, tree removal will be delayed until the nests are no longer active.

A qualified biologist will prepare a site-specific Swainson's hawk nest disturbance avoidance plan for submittal to CDFW. Measures may include but are not limited to nest-specific no disturbance buffers, biological monitoring, rescheduling project activities around sensitive periods for the species (e.g., nest establishment), or implementing construction best practices, such as staging equipment out of the line of sight from the nest tree. DWR/RD 2110 will implement the maximum buffer feasible around active nest sites and, if possible, will delay construction and maintenance around individual nests until after the young have fledged. The avoidance/ protection measures will be implemented before construction activities begin within 0.5 mile of an identified Swainson's hawk nest and continue until the nest is no longer active. DWR/RD 2110 will immediately cease work if a young bird becomes agitated as a result of project-related construction or maintenance activities. CDFW will be contacted if the biologist determines there is potential for a bird to prematurely leave its nest as a result of project-related construction or maintenance activities.

Timing: Prior to and during project construction and maintenance.

Responsibility: RD 2110 and its construction contractor prior to and during construction; DWR or RD 2110 prior to and during maintenance; and DWR will provide all funding.

Mitigation Measure WILD-15 (Updated): Replace or Compensate for the Loss of Swainson's Hawk Foraging Habitat.

To offset impacts to foraging habitat, DWR may need to secure Swainson's hawk foraging habitat mitigation land. This may be accomplished by a combination of methods, potentially including, but not limited to, preserving existing foraging habitat, converting and preserving unsuitable foraging habitat to suitable foraging habitat, and/or enhancing foraging quality with active management. Mitigation land may be obtained by DWR and/or through purchase of credits from a CDFW-approved mitigation bank.

If determined through consultation with CDFW, DWR will secure mitigation land to compensate for loss of Swainson's hawk foraging habitat at a ratio adequate to ensure no net loss of overall foraging value. The appropriate mitigation ratio for the proposed project, up to 1:1 for each acre of foraging habitat lost, will be determined in consultation with CDFW, based on quality of habitat that could be lost, foraging quality of habitat

created/restored on MWT, and characteristics of mitigation land, including whether mitigation land includes preservation of existing foraging habitat, creation of new foraging habitat, and/or active management to maximize foraging value.

Mitigation land will include agricultural or other lands that provide suitable foraging habitat and will be protected via a conservation easement or other means of conservation in perpetuity. For mitigation land not obtained through purchase of mitigation bank credits, DWR will provide funding for long-term management and maintenance of mitigation land as Swainson's hawk foraging habitat. This funding will consist of a site management endowment or other binding financial commitment at an amount determined through an appropriate economic analysis (e.g., Property Analysis Record).

DWR will make every reasonable effort to secure mitigation land in close proximity to MWT (i.e., within 10 miles). However, the ability to do so will be dependent on identifying land that is available for permanent preservation and is appropriate to meet the mitigation needs. If adequate land within 10 miles of MWT cannot be identified for permanent preservation, consultation with CDFW will inform whether the mitigation land may be located more than 10 miles from MWT, but will be as close as can be feasibly implemented.

Timing: Prior to, during, and after project construction.

Responsibility: DWR at offsite locations; RD 2110 at MWT prior to and during construction, if applicable; DWR or RD 2110 at MWT after construction, if applicable; and DWR will provide all funding.

Implementation of Mitigation Measures WILD-1, WILD-3, WILD-13, WILD-14, and WILD-15 would reduce this impact because impacts on active Swainson's hawk nests would be avoided by conducting preconstruction surveys and implementing protective measures and loss of nesting and foraging habitat would be compensated. Impacts on active Swainson's hawk nests and nesting habitat would be **less-than-significant with mitigation**.

Impact WILD-11 (North Delta EIR): Loss or Disturbance of Nesting or Wintering Western Burrowing Owls.

Alternative 1-A North Delta EIR Conclusions

The North Delta EIR concluded that implementing MWT components of Alternative 1-A would result in the loss or disturbance of suitable burrowing owl habitat, potentially including loss or disturbance of active nests and direct mortality of nesting owls or nest abandonment. Construction activities and project operations would affect 70 acres of annual grassland/ruderal habitat. Permanent impacts would include all land within the footprint of levees where RSP would be placed and the conversion of ruderal habitat to tidal perennial aquatic, tidal emergent wetland, and riparian habitats. Impacts on burrowing owls and their habitat were considered significant. Mitigation Measures WILD-2, WILD-3, WILD-17, WILD-18, WILD-19, WILD-20, and WILD-21 were identified to minimize impacts on burrowing owl and compensate for habitat loss. This impact was considered less-than-significant with mitigation.

Phase B Updated Evaluation

The types of potential impacts on burrowing owl associated with the Phase B project would be generally similar to those described in the North Delta EIR for Alternative 1-A. Because agricultural production on MWT ceased in 2017, all habitat associated with this impact is now characterized as annual grassland/ruderal. Approximately 1,300 acres that may contain areas with suitable habitat would be permanently impacted by implementing Phase B, primarily as a result of floodplain inundation and conversion to wetland and open water. If the MWT interior were to flood again, as discussed in the "Future Flooding Events at MWT" section above, impacts to suitable habitat for burrowing owls from inundation are anticipated to be similar.

Approximately 0.5 acre of annual grassland/ruderal habitat occurs in the offsite SMUD distribution line relocation study areas. The potential impacts on this habitat from the offsite SMUD relocations are anticipated to be less than 0.1 acre.

Although the amount of grassland/ruderal habitat has increased substantially on MWT since agricultural production ceased, much of this area supports tall vegetation and provides poor-quality habitat for burrowing owls, which prefer areas that are barren, sparsely vegetated, or vegetated with low-growing species. In addition, burrowing owls have not been observed during focused surveys conducted for Phase A. However, potential for burrowing owls to occur on MWT or in the SMUD distribution line relocation areas during construction cannot be ruled out until a focused habitat assessment and occupancy surveys are conducted closer to the construction period. Therefore, the potential remains for Phase B construction and operation to affect burrowing owls and their habitat, including destruction of occupied burrows, nest failure, and direct mortality. These potential impacts on burrowing owl would be **potentially significant**.

Mitigation Measures: Mitigation Measures WILD-2, WILD-3, WILD-17, WILD-18 and WILD-20 from the North Delta EIR have been adapted to address Impact WILD-11. (Mitigation Measures WILD-18 and WILD-19 have been consolidated into Mitigation Measure WILD-18 and Mitigation Measures WILD-20 and WILD-21 have been consolidated into Mitigation Measure WILD-20.

> **Mitigation Measure WILD-2 (Updated): Avoid and Minimize Effects on Nesting Birds during Construction and Maintenance.**
>
> Please refer to Mitigation Measure WILD-2 in Impact WILD-1 above for the full text of this mitigation measure.
>
> **Mitigation Measure WILD-3 (Updated): Implement Mitigation Measure VEG-2, Avoid and Minimize Impacts on Sensitive Biological Resources.**
>
> Please refer to Mitigation Measure VEG-2 in Impact VEG-1 above for the full text of this mitigation measure.

Mitigation Measure WILD-17 (Updated): Conduct Habitat Assessment and Preconstruction Surveys for Burrowing Owls.

RD 2110 will complete a burrowing owl habitat assessment of the Phase B project site and adjacent areas within a minimum of 500 ft . The assessment will be conducted by a qualified biologist who will determine if suitable habitat is present.

If the biologist determines suitable burrowing owl habitat is present on or adjacent to the Phase B project site, surveys of suitable habitat will be conducted to determine if burrows occupied by burrowing owl, including nest burrows, are present. Surveys will be conducted according to CDFW guidelines for this species (CDFG 2012). At a minimum, a take avoidance survey will be conducted within 14 days before onsite project activities begin.

Timing: Prior to project construction.

Responsibility: RD 2110 with funding provided by DWR.

Mitigation Measure WILD-18 (Updated): Avoid or Minimize Disturbance of Occupied Burrows.

If occupied burrowing owl burrows are detected during preconstruction surveys, RD 2110 will notify CDFW of the locations of occupied burrows and coordinate with CDFW regarding avoidance and minimization measures on a case-by-case basis. Buffers will be established around occupied burrows and maintained as long as the burrows remain occupied, and a qualified biologist will monitor the occupied burrows during project activities to confirm effectiveness of the buffers and adjust the buffer size if needed. The size of the buffer will depend on whether the burrow supports an active nest, the type and intensity of project disturbance, the presence of visual buffers, and other variables that could affect susceptibility of the owls to disturbance.

If destruction of an occupied burrow cannot be avoided and it is determined, in consultation with CDFW, that passive exclusion of owls from the construction footprint is an appropriate means of minimizing direct impacts, an exclusion and relocation plan will be developed and implemented in coordination with CDFW and in accordance with CDFW guidelines (CDFG 2012). Passive exclusion will not be conducted during the breeding season (February 1–August 31), unless a qualified biologist verifies through noninvasive means that either (1) the birds have not begun egg laying or (2) juveniles from the occupied burrows are foraging independently and are capable of independent survival.

Timing: Prior to and during project construction.

Responsibility: RD 2110 with funding provided by DWR.

Mitigation Measure WILD-20 (Updated): Create New or Enhance Existing Suitable Burrows and Replace Lost Burrowing Owl Foraging Habitat.

If the destruction of occupied burrows is unavoidable, DWR will acquire, protect, and manage a burrowing owl mitigation site or purchase mitigation or conservation bank credits at a CDFW-approved bank.

If DWR implements the mitigation, a mitigation plan will be developed and implemented to provide permanent conservation of suitable vegetation communities for burrowing owl nesting, foraging, wintering, and dispersal (i.e., during breeding and non-breeding seasons) comparable to or better than that of the impact area and (b) sufficiently large acreage and presence of fossorial mammals. The mitigation plan also will address long-term ecological sustainability and maintenance of the site for burrowing owls. DWR will fund the maintenance and management of mitigation land by establishing a long-term funding mechanism such as an endowment.

Timing:	Prior to, during, and after project construction.
Responsibility:	DWR or RD 2110 will prepare the mitigaiton plan, if applicable; DWR at offsite locations; RD 2110 at MWT prior to and during construction, if applicable; DWR or RD 2110 at MWT after construction; and DWR will provide all funding.

Significance after Mitigation: Implementation of Mitigation Measures WILD-2, WILD-3, WILD-17, WILD-18, and WILD-20 would reduce this impact because impacts on burrowing owls would be avoided and minimized by conducting preconstruction surveys and implementing protective measures for occupied burrows and destruction of occupied burrows and associated habitat loss would be compensated. Therefore, this impact would be **less-than-significant with mitigation**.

Impact WILD-12 (North Delta EIR): Loss or Disturbance of Raptor Nest Sites.

Alternative 1-A North Delta EIR Conclusions

Implementing MWT components of Alternative 1-A described in the North Delta EIR would result in permanent and temporary loss of raptor nesting habitat. Noise and visual disturbances associated with equipment operation and other construction- and maintenance-related activities could result in nest abandonment, a reduction in the level of care provided by adults, or forced fledging. Some species would benefit from an increase in nesting habitat because conversion of agricultural land to native riparian and valley oak woodland habitat would increase the quantity of potential nest trees in the project area. Impacts related to loss or disturbance of raptor nest sites were considered significant. Mitigation Measures WILD-1, WILD-2, WILD-3, WILD-4, and WILD-6 were identified to minimize impacts on raptor nests and compensate for habitat loss. This impact was considered less-than-significant with mitigation.

Phase B Updated Evaluation

Nests of several raptor species have been documented on the MWT perimeter during Phase A biological surveys, including barn owl (*Tyto alba*), great horned owl (*Bubo virginianus*), osprey (*Pandion haliaetus*), red-shouldered hawk (*Buteo lineatus*), and white-tailed kite. In addition, northern harrier has been observed foraging on MWT and could nest onsite. Potential impacts associated with the Phase B project would be generally similar to those described in the North Delta EIR for Alternative 1-A. Some Phase B project changes, such as landside levee re-sloping of MWT levee segments that were identified to be degraded in the North Delta EIR, would reduce resulting impacts on riparian woodland, while more precise modeling of the tidal inundation area has led to an increase in permanent impacts on riparian woodland in Phase B. Conversion of agricultural crops to annual grassland/ruderal habitat has likely improved nesting habitat suitability for northern harrier. A total of approximately 37 acres of mature woodland habitat that may be suitable for nesting would be permanently changed (either removed by construction or converted to different habitat values via inundation). If the MWT interior were to flood again, as discussed in the "Future Flooding Events at MWT" section above, impacts to riparian woodlands suitable for nesting from inundation are anticipated to be similar.

The study area for SMUD distribution line relocations includes up to approximately 2 acres of riparian woodland habitat that supports suitable nesting habitat for these species. The amount of this habitat that could be impacted by the offsite SMUD distribution line relocations is anticipated to be less than 0.2 acre.

A total of approximately 175 to 250 acres of MWT that are above the projected MHHW elevation are anticipated to be riparian habitat, including woodlands, after implementation of the Phase B project. This riparian habitat would provide suitable nest trees in the long term, but there would be a temporal habitat loss. These impacts on raptor nesting habitat and active raptor nests would be **potentially significant**.

Mitigation Measures: Mitigation Measures WILD-1, WILD-2, and WILD-3 from the North Delta EIR have been adapted to address Impact WILD-12. Mitigation Measures WILD-4 and WILD-6 are not included because they are not relevant to reducing this potentially significant impact.

> **Mitigation Measure WILD-1 (Updated): Implement Mitigation Measure VEG-1, Replace Valley/Foothill Riparian Cover Types.**
>
> Please refer to Mitigation Measure VEG-1 in Impact VEG-1 above for the full text of this mitigation measure.
>
> **Mitigation Measure WILD-2 (Updated): Avoid and Minimize Effects on Nesting Birds during Construction and Maintenance.**
>
> Please refer to Mitigation Measure WILD-2 in Impact WILD-1 above for the full text of this mitigation measure.

Mitigation Measure WILD-3 (Updated): Implement Mitigation Measure VEG-2, Avoid and Minimize Impacts on Sensitive Biological Resources.

Please refer to Mitigation Measure VEG-2 in Impact VEG-1 above for the full text of this mitigation measure.

Significance after Mitigation: Implementation of Mitigation Measures WILD-1, WILD-2, and WILD-3 would reduce this impact because impacts on active raptor nests would be avoided by conducting preconstruction surveys and implementing protective measures and loss of riparian nesting habitat would be compensated. Therefore, this impact would be **less-than-significant with mitigation**.

Impact WILD-13 (North Delta EIR): Loss of Western Pond Turtle or Suitable Habitat.

Alternative 1-A North Delta EIR Conclusions

Implementing MWT components of Alternative 1-A described in the North Delta EIR would result in the loss or disturbance of western pond turtle habitat, including active nests and foraging habitat. Construction activities in areas within or adjacent to wetland and aquatic habitats could cause direct mortality of, or remove habitat for, western pond turtles. Most habitat effects would be temporary because most of the affected habitats would be restored following construction. Permanent impacts on breeding habitat would include land within the footprint of the construction features, including the extent of levee slopes where RSP would be placed. Impacts on individuals of this species could also occur during in-water construction. Overall, the species would benefit from inundation of the southern portion of MWT, but loss of western pond turtles and their habitat was identified as a significant impact. Mitigation Measures WILD-4, WILD-5, WILD-6, and WILD-22 were identified to minimize impacts on western pond turtle and compensate for habitat loss. This impact was considered less-than-significant with mitigation.

Phase B Updated Evaluation

No suitable aquatic habitat for western pond turtle currently occurs on the MWT interior. Suitable aquatic habitat surrounding MWT, which is primarily concentrated in Lost Slough and Snodgrass Slough, would be impacted by Phase B levee degrade and repair activities, but these impacts would be limited to RSP placement and temporary impacts during in-water construction activities. Potentially suitable aquatic habitat also occurs in the offsite SMUD distribution line relocation study areas, but potential impacts on this habitat are anticipated to be less than 0.1 acre. Grassland and ruderal habitat on the perimeter of the MWT interior adjacent to suitable aquatic habitat provides potentially suitable nesting habitat, but no evidence of nesting on MWT has been observed. Areas of potential nesting habitat on MWT would be converted to open water and marsh habitat, but portions of MWT that are outside the inundation area, including higher elevation sections of interior levees slopes and some portions of the area protected by the Tower Levee, provide suitable nesting habitat.

The study area for SMUD distribution line relocations includes up to approximately 0.5 acre of annual grassland/ruderal habitat that may provide suitable nesting habitat. The impacts to this habitat from the offsite SMUD destruction line relocations are anticipated to be less than 0.1 acre.

Because suitable nesting habitat would be preserved on portions of MWT and large areas of grassland/ruderal habitat occur on adjacent tracts, loss of potential nesting habitat associated with the Phase B Project is unlikely to have a substantial adverse effect on western pond turtle. Therefore, the primary source of potential impacts on western pond turtle from Phase B is direct injury or mortality of individuals, including nests, during construction. This short-term impact would be **potentially significant**.

Mitigation Measure: Mitigation Measure WILD-22 from the North Delta EIR have been adapted to address Impact WILD-13. Mitigation Measures WILD-4 and WILD-5 are not included because there would be no net loss of suitable habitat for western pond turtle.

> **Mitigation Measure WILD-22 (Updated): Avoid and Minimize Construction-related Disturbances in the Vicinity of Occupied Habitat.**
>
> Where practical, RD 2110 will install silt curtains or similar measures during in-channel work to minimize turbidity and sediment transfer from the in-channel work areas to adjacent portions of the waterways, thereby minimizing degradation of aquatic habitats outside the work area and inhibiting movement of some turtles into the construction zone. An onsite biologist will be present during in-channel work to relocate western pond turtles outside of the construction zones. Individuals found in the work area that can be safely captured by a qualified biologist will be transported to a nearby suitable location outside of the work area.
>
> If ground-disturbing construction activities would begin during the pond turtle nesting season (March – August), suitable nesting habitat within the construction footprint will be surveyed for pond turtle nests. If a pond turtle nest is found, it will not be disturbed by project activities, if feasible, until the eggs have hatched.
>
> **Timing:** Prior to and during project construction.
>
> **Responsibility:** RD 2110 with funding provided by DWR.

Significance after Mitigation: Implementation of Mitigation Measure WILD-22 would reduce this impact because emergent wetland and perennial aquatic habitats would be created and pre-construction surveys, monitoring, and relocation would be conducted to minimize potential for injury and mortality of western pond turtles. Therefore, this impact would be **less-than-significant with mitigation**.

Impact WILD-14 (North Delta EIR): Loss of Tricolored Blackbird Nesting Habitat.

Alternative 1-A North Delta EIR Conclusions

Implementing MWT components of Alternative 1-A described in the North Delta EIR would result in the loss or disturbance of tricolored blackbird habitat and active nests. Overall, there would be a beneficial effect on tricolored blackbird nesting habitat because degradation of MWT levees and inundation of the southern portion of the island would increase tidal emergent wetland in the project area. Conversion of the remainder of MWT to native land cover types may result in an increase of suitable tricolored blackbird nesting habitat, but it also would decrease foraging

habitat in the project area. The loss of foraging habitat was not considered significant because the ruderal habitats and agricultural lands in which this species may forage are abundant in the study area and represent a small percent of the overall potential agricultural land foraging habitat for tricolored blackbirds in the North Delta region. Loss or disturbance of tricolored blackbird active nests and loss of nesting habitat were considered significant impacts. Mitigation Measures WILD-1, WILD-2, WILD-3, WILD-4, WILD-6, WILD-23, and WILD-24 were identified to minimize impacts on tricolored blackbird nests and compensate for habitat loss. This impact was considered less-than-significant with mitigation.

Phase B Updated Evaluation

Tricolored blackbird nest colonies have not been documented on or near MWT, but potentially suitable nesting habitat occurs on the tract. Impacts associated with the Phase B project would be generally similar to those described in the North Delta EIR for Alternative 1-A, but the Phase B project would result in less impact on potential riparian scrub nesting habitat. Phase B implementation would create approximately 600 to 900 acres of tidal marsh habitat and would result in a long-term net-increase in potentially suitable emergent wetland nesting habitat.

Suitable nesting habitat is not anticipated to occur in the offsite SMUD distribution line relocation study areas.

Since there is potential for construction-related disturbance of active nest colonies, impacts on tricolored blackbird would be **potentially significant**.

Mitigation Measures: Mitigation Measures WILD-1, WILD-2, WILD-3, WILD-23, and WILD-24 from the North Delta EIR have been identified to address Impact WILD-14.

> **Mitigation Measure WILD-1 (Updated): Implement Mitigation Measure VEG-1, Replace Valley/Foothill Riparian Cover Types.**
>
> Please refer to Mitigation Measure VEG-1 in Impact VEG-1 above for the full text of this mitigation measure.
>
> **Mitigation Measure WILD-2 (Updated): Avoid and Minimize Effects on Nesting Birds during Construction and Maintenance.**
>
> Please refer to Mitigation Measure WILD-2 in Impact WILD-1 above for the full text of this mitigation measure.
>
> **Mitigation Measure WILD-3 (Updated): Implement Mitigation Measure VEG-2, Avoid and Minimize Impacts on Sensitive Biological Resources.**
>
> Please refer to Mitigation Measure VEG-2 in Impact VEG-1 above for the full text of this mitigation measure.

Mitigation Measure WILD-23 (Updated): Conduct Preconstruction Surveys for Tricolored Blackbird.

Preconstruction surveys for tricolored blackbird nesting colonies will be conducted at and adjacent to all locations to be disturbed by construction. Preconstruction surveys will consist of surveying all suitable accessible breeding habitat within 0.25 mile of construction areas. Pedestrian survey transects will be used, when possible, to provide 100 percent coverage of the suitable breeding habitat. Nest colony surveys are recommended to begin at the end of April with subsequent surveys occurring throughout the breeding season (Beedy and Hamilton 1997). If a nesting colony is observed, the location will be marked on an aerial photograph, and the position will be recorded using GPS.

Timing: Prior to project construction.

Responsibility: RD 2110 with funding provided by DWR.

Mitigation Measure WILD-24 (Updated): Minimize Construction-related Disturbances in the Vicinity of Active Tricolored Blackbird Colonies.

To the greatest extent practicable, major construction activities that occur within 0.25 mile of tricolored blackbird nest sites will be avoided during the breeding season (mid-April – July). RD 2110 will notify CDFW of the locations of active tricolored blackbird nest sites identified during the preconstruction surveys and will address tricolored blackbird nest avoidance in the site-specific take avoidance plan described in Mitigation Measure WILD-2.

Timing: Prior to and during project construction.

Responsibility: RD 2110 with funding provided by DWR.

Significance after Mitigation: Implementation of Mitigation Measures WILD-1, WILD-2, WILD-3, WILD-23, and WILD-24 would reduce this impact because impacts on active tricolored blackbird nests would be avoided by conducting preconstruction surveys and implementing protective measures and loss of riparian and emergent wetland nesting habitat would be compensated. Therefore, this impact would be **less-than-significant with mitigation**.

Impact WILD-15 (North Delta EIR): Loss or Disturbance of California Black Rail or Suitable Nesting Habitat.

Alternative 1-A North Delta EIR Conclusions

Implementing MWT components of Alternative 1-A would result in permanent impacts on 3.37 acres of nontidal freshwater emergent wetland and temporary impacts on 0.08 acre. The North Delta EIR did not identify impacts on tidal freshwater emergent wetland that would result from implementing MWT project components. Impacts on suitable wetland habitat could result in loss or disturbance of California black rail nests and nesting habitat. Overall, there would be a beneficial effect on California black rail breeding habitat because degradation of MWT levees

and permanent inundation of the southern portion of the island would increase tidal emergent wetland in the project area. However, loss or disturbance of active California black rail nests and loss of nesting habitat were considered significant impacts. Mitigation Measures WILD-2, WILD-3, WILD-4, WILD-6, WILD-25, and WILD-26 were identified to minimize impacts on tricolored blackbird nests and compensate for habitat loss. This impact was considered less-than-significant with mitigation.

Phase B Updated Evaluation

California black rail has not been documented on or near MWT. Freshwater emergent wetland on the MWT interior has been evaluated and determined to be unsuitable/unoccupied (Stillwater Sciences 2018). A very small (approximately 0.1 acre) area of tidal freshwater emergent wetland occurs along a portion of the waterside extent of the Mokelumne River breach site and would be impacted by levee degrade activities. However, this is an isolated patch of habitat that does not support adequately dense vegetation and is too small to provide suitable habitat for black rail. Potentially suitable habitat occurs approximately 400 ft east of the MWT East levee degrade area, but this habitat is separated from the degrade area by open water and riparian woodland that serves as a visual barrier. Therefore, MWT East Levee degrade activities are unlikely to disturb black rails, if present in emergent wetlands to the east.

The only anticipated potential for Phase B implementation to impact black rail and its habitat is associated with the new SMUD distribution line east connection options. Emergent wetland habitat occurs at and adjacent to both of the potential connection locations and may occur in an area large enough to be suitable for black rail. Suitable habitat is unlikely to be directly impacted by the SMUD distribution line installation, but if black rails nest close enough to the disturbance areas, line installation could result in nest failure.

Since installation of the offsite SMUD distribution lines could indirectly result in nest failure, impacts on California black rail would be **potentially significant**.

Mitigation Measures: Mitigation Measures WILD-2, WILD-3, WILD-25, and WILD-26 from the North Delta EIR have been adapted to address Impact WILD-15. Mitigation Measure WILD-4 is not included because there would be no loss of suitable habitat for California black rail.

> **Mitigation Measure WILD-2 (Updated): Avoid and Minimize Effects on Nesting Birds during Construction and Maintenance.**
>
> Please refer to Mitigation Measure WILD-2 in Impact WILD-1 above for the full text of this mitigation measure.
>
> **Mitigation Measure WILD-3 (Updated): Implement Mitigation Measure VEG-2, Avoid and Minimize Impacts on Sensitive Biological Resources.**
>
> Please refer to Mitigation Measure VEG-2 in Impact VEG-1 above for the full text of this mitigation measure.
>
> **Mitigation Measure WILD-25 (Updated): Conduct Preconstruction Surveys for California Black Rail.**

If SMUD distribution lines would be installed in or adjacent to tidal emergent wetland areas that are greater than 1.2 acres (0.5 hectare) in total area and have shallow water or moist soil conditions, focused surveys for California black rail will be conducted in accordance with established black rail monitoring protocol (Conway et al. 2002). Fixed survey points will be selected and marked in the field and by using a GPS. Surveys will be conducted several times during the breeding season to avoid and minimize effects on late-nesting birds. Surveys will be conducted during periods of good weather (e.g., clear to cloudy skies, no precipitation, minimal wind). The survey points will be surveyed in either the early morning or evening. Morning surveys will begin within 30 minutes of sunrise and will be completed within 4 hours after sunrise. Evening surveys will begin 4 hours before sunset and be completed before dark. A recording of a black rail call will be played at varying intervals and responses will be recorded. If a response is heard, the location will be marked on an aerial photograph, and the position will be recorded using GPS.

Timing: Prior to project construction.

Responsibility: RD 2110 or SMUD with funding provided by DWR.

Mitigation Measure WILD-26 (Updated): Minimize Construction-related Disturbances in the Vicinity of Active California Black Rail Nest Sites.

To the greatest extent practicable, SMUD distribution line installation near suitable black rail nesting habitat will be avoided during the breeding season (mid-March – July). DWR will notify CDFW of the locations of active black rail nest sites identified during the preconstruction surveys and will address black rail nest avoidance in the site-specific take avoidance plan described in Mitigation Measure WILD-2.

Timing: Prior to and during SMUD distribution line installation.

Responsibility: RD 2110 or SMUD with funding provided by DWR.

Significance after Mitigation: Implementation of Mitigation Measures WILD-2, WILD-3, WILD-25, and WILD-26 would reduce this impact because impacts on active California black rail nests would be avoided by conducting preconstruction surveys and implementing protective measures. Therefore, this impact would be **less-than-significant with mitigation**.

Impact WILD-16 (North Delta EIR): Loss or Disturbance of Colonial Waterbird Rookeries.

Alternative 1-A North Delta EIR Conclusions

Construction activities associated with MWT components of Alternative 1-A described in the North Delta EIR may result in the direct removal of rookeries or the disturbance of occupied rookeries if birds are nesting at the time the trees are removed or disturbed by these activities. Rookery nesting species that could be affected include great blue heron (*Ardea herodias*), great egret (*Ardea alba*), snowy egret (*Egretta thula*), black crowned night-heron (*Nycticorax nycticorax*), double-crested cormorant (*Phalacrocorax auritus*), and white-faced ibis (*Plegadis chihi*). Implementing MWT project components would affect 3.77 acres of riparian woodland

and 24.34 acres of riparian scrub that could support active nest sites. Noise and visual disturbances associated with operation of equipment and other construction- and maintenance-related activities could result in nest abandonment, reduction in the level of care provided by adults for eggs and young, or forced fledging. Loss or disturbance of colonial waterbird rookeries was considered a significant impact. Mitigation Measures WILD-1, WILD-2, WILD-3, WILD-27, WILD-28, WILD-29, and WILD-30 were identified to minimize impacts on colonial waterbird rookeries and compensate for habitat loss. This impact was considered less-than-significant with mitigation.

Phase B Updated Evaluation

Two waterbird colonies have been documented during Phase A biological surveys (Stillwater Sciences biologist observations). These include a great egret colony on the north side of Lost Slough, approximately 0.2 mile north of the east levee degrade area, and a double-crested cormorant colony farther east along the north side of Lost Slough. Potential impacts associated with the Phase B project would be generally similar to those described in the North Delta EIR for Alternative 1-A. Some Phase B project changes, such as landside levee re-sloping of MWT levee segments that were identified to be degraded in the North Delta EIR, would reduce resulting impacts on riparian habitat, while recent riparian vegetation recruitment and more precise modeling of the tidal inundation area have led to an increase in permanent impacts on riparian habitat in Phase B. A total of 67.83 acres of valley/foothill riparian woodland and scrub are estimated to be permanently impacted. MWT is anticipated to support approximately 175 to 250 acres of riparian habitat, including woodland and scrub, after implementation of the Phase B project. This riparian habitat would provide suitable nesting habitat in the long term, but there would be a temporary habitat loss. In addition, there is potential for construction-related disturbance of active nest colonies.

The study area for SMUD distribution line relocations includes up to approximately 2 acres of riparian scrub and woodland habitat. The amount of this habitat that could be impacted by the offsite SMUD distribution line relocations is anticipated to be less than 0.2 acre.

Impacts related to temporary habitat loss on MWT and construction-related disturbances of colonial waterbird nest colonies would be **potentially significant**.

Mitigation Measures: Mitigation Measures WILD-1, WILD-2, WILD-3, and WILD-27, and WILD-28 from the North Delta EIR have been adapted to address Impact WILD-16. (Mitigation Measures WILD-29 and WILD-30 from the North Delta EIR are not included, because they are accounted for in Mitigation Measures WILD-1 and WILD-2, respectively.)

> **Mitigation Measure WILD-1 (Updated): Implement Mitigation Measure VEG-1, Replace Valley/Foothill Riparian Cover Types.**
>
> Please refer to Mitigation Measure VEG-1 in Impact VEG-1 above for the full text of this mitigation measure.

Mitigation Measure WILD-2 (Updated): Avoid and Minimize Effects on Nesting Birds during Construction and Maintenance.

Please refer to Mitigation Measure WILD-2 in Impact WILD-1 above for the full text of this mitigation measure.

Mitigation Measure WILD-3 (Updated): Implement Mitigation Measure VEG-2, Avoid and Minimize Impacts on Sensitive Biological Resources.

Please refer to Mitigation Measure VEG-2 in Impact VEG-1 above for the full text of this mitigation measure.

Mitigation Measure WILD-27 (Updated): Conduct Preconstruction Surveys to Locate Rookeries.

Preconstruction surveys for waterbird nesting colonies will be conducted at and adjacent to all locations to be disturbed by construction. Preconstruction surveys will consist of surveying all suitable accessible breeding habitat within 0.25 mile of construction areas. Surveys will be conducted several times during the breeding season to avoid and minimize impacts on late-nesting birds. Rookery locations will be marked on an aerial photograph, and the position will be recorded using GPS. Preconstruction survey data will be used in accordance with conservation measure listed below.

Timing: Prior to project construction.

Responsibility: RD 2110 with funding provided by DWR.

Mitigation Measure WILD-28 (Updated): Minimize Construction-related Disturbances within 0.25 Mile of Active Rookeries.

To the greatest extent practicable, major construction activities that would occur within 0.25 mile of an active rookery will be avoided during the breeding season. RD 2110 will notify CDFW of the locations of active rookeries identified during the preconstruction surveys and will address disturbance avoidance in the site-specific take avoidance plan described in Mitigation Measure WILD-2.

Timing: Prior to and during project construction.

Responsibility: RD 2110 with funding provided by DWR.

Significance after Mitigation: Implementation of Mitigation Measures WILD-1, WILD-2, WILD-3, WILD-27, and WILD-28 would reduce this impact because impacts on colonial waterbird nest rookeries would be avoided by conducting preconstruction surveys and implementing protective measures and loss of riparian nesting habitat would be compensated. Therefore, this impact would be **less-than-significant with mitigation**.

Impact WILD-19 (North Delta EIR): Loss or Disturbance of Migratory Birds

Alternative 1-A North Delta EIR Conclusions

Implementing MWT project components of Alternative 1-A described in the North Delta EIR would result in loss or disturbance of nesting habitat for many species, including special-status species such as loggerhead shrike (*Lanius ludovicianus*) and Modesto song sparrow (*Melospiza melodia*). Construction activities would result in the permanent and temporary loss of nest trees, nesting substrate, and foraging area. Loss or disturbance of nesting migratory birds was considered a significant impact. Mitigation Measures WILD-2 and WILD-3 were identified to minimize impacts on migratory birds. This impact was considered less-than-significant with mitigation.

Phase B Updated Evaluation

Impacts associated with the Phase B project would be similar to those described in the North Delta EIR for Alternative 1-A. The proportion of habitats affected on MWT would be somewhat different, primarily because agricultural production has ceased, but the nature and extent of the potential impacts are similar. These habitats provide similar quality foraging and nesting habitat for the relevant species.

The study area for the offsite SMUD distribution lines also provides suitable nesting and foraging habitat. However, habitat of similar quality is abundant in the immediate project vicinity and impacts on habitat would not have a substantial adverse effect on these species.

Since implementing the Phase B project could result in loss or disturbance of nesting migratory birds, this impact would be **potentially significant**.

Mitigation Measures: Mitigation Measures WILD-2 and WILD-3 from the North Delta EIR have been adapted to address Impact WILD-19.

> **Mitigation Measure WILD-2 (Updated): Avoid and Minimize Effects on Nesting Birds during Construction and Maintenance.**
>
> Please refer to Mitigation Measure WILD-2 in Impact WILD-1 above for the full text of this mitigation measure.
>
> **Mitigation Measure WILD-3 (Updated): Implement Mitigation Measure VEG-2, Avoid and Minimize Impacts on Sensitive Biological Resources.**
>
> Please refer to Mitigation Measure VEG-2 in Impact VEG-1 above for the full text of this mitigation measure.

Significance after Mitigation: Implementation of Mitigation Measures WILD-2 and WILD-3 would reduce this impact because impacts on active bird nests would be avoided and minimized by conducting preconstruction surveys and implementing protective measures. Therefore, this impact would be **less-than-significant with mitigation**.

Impact WILD-20 (North Delta EIR): Loss or Disturbance of Bats and Bat Habitat as a Result of Construction Activities

Alternative 1-A North Delta EIR Conclusions

Construction activities associated with MWT project components of Alternative 1-A described in the North Delta EIR were expected to affect bat habitat, including relocating existing structures on MWT and removing some large trees in the work areas. These activities would result in the temporary loss of habitat and the loss of bats if they are roosting during the period when the structures or large trees are removed. This was considered a significant impact. Mitigation Measures WILD-2, WILD-3, and WILD-31 were identified to minimize impacts on bats. This impact was considered less-than-significant with mitigation.

Phase B Updated Evaluation

All structures on MWT were removed as part of Phase A. Therefore, the amount of potential roosting habitat is less than was previously evaluated. In addition, fewer large trees would be removed from MWT because the extent of levee modifications has been reduced. However, suitable roost trees could occur in the offsite SMUD distribution line relocation study areas and require removal. Therefore, potential for bats to be impacted by removing large trees during Phase B would be similar to that described for Alternative 1-A in the North Delta EIR. This would be a **potentially significant** impact.

Mitigation Measures: Mitigation Measures WILD-2, WILD-3, and WILD-31 from the North Delta EIR have been adapted to address Impact WILD-20.

> **Mitigation Measure WILD-2 (Updated): Avoid and Minimize Effects on Nesting Birds during Construction and Maintenance.**
>
> Please refer to Mitigation Measure WILD-2 in Impact WILD-1 above for the full text of this mitigation measure.
>
> **Mitigation Measure WILD-3 (Updated): Implement Mitigation Measure VEG-2, Avoid and Minimize Impacts on Sensitive Biological Resources.**
>
> Please refer to Mitigation Measure VEG-2 in Impact VEG-1 above for the full text of this mitigation measure.
>
> **Mitigation Measure WILD-31 (Updated): Conduct Preconstruction Surveys for Bats.**
>
> If removal of suitable roost trees would occur between April and August, a qualified biologist will conduct acoustic and visual surveys for bats one or two times between April and August before construction begins to determine if large trees on the Phase B project site are being used as day, night, and/or maternal roosts. If any special-status bat species are documented, removal of large trees that support maternity roosts will be avoided until after the maternity season (April – August) has ended.

Timing: Prior to and during project construction.

Responsibility: RD 2110 with funding provided by DWR.

Significance after Mitigation: Implementation of Mitigation Measures WILD-2, WILD-3, and WILD-31 would reduce this impact because impacts on bat roosting habitat and active bat roosts would be avoided and minimized by conducting preconstruction surveys and implementing protective measures. Therefore, this impact would be **less-than-significant with mitigation**.

Impact WILD-21 (New): Loss or Disturbance of Monarch Butterfly

New Phase B Impact Evaluation

Adult monarch butterflies feed on a diversity of blooming nectar resources throughout their migration routes and breeding grounds (spring through fall). Monarchs also require milkweed (primarily *Asclepias* spp.) for egg laying and larval development and feeding. In western North America, nectar and milkweed resources are often associated with riparian corridors (USFWS 2020). Migratory monarchs in the western population primarily overwinter in groves along the coast of California and Baja California. Monarchs have been documented at the Cosumnes River Preserve in recent years (Western Monarch Milkweed Mapper 2021). Milkweed has not been documented on MWT (Stillwater Sciences 2018 and 2020), but nectar species such as willow and coyotebrush (*Baccharis pilularis*) occur on the tract and likely in the offsite SMUD distribution line relocation study areas. Although implementing the Phase B project would convert nectar habitat to tidal aquatic and marsh habitats that likely would not support nectar species, it also would result in a substantial increase in riparian scrub that would provide suitable nectar habitat. Therefore, this impact is considered **less than significant**.

Mitigation Measure: No mitigation is required.

Impact WILD-22 (New): Loss or Disturbance of Western Yellow-billed Cuckoo

New Phase B Impact Evaluation

As shown in Figure 3.6-3, western yellow-billed cuckoo has been documented adjacent to MWT. The species was heard calling in dense mixed riparian woodland along Snodgrass Slough on three occasions in 2009 and 2010 (CDFW 2021). For many years, the northern California breeding population of western yellow-billed cuckoo has been restricted to the lower Feather River and the Sacramento River in the Colusa region, although focused surveys conducted along the Feather River in 2012 and 2013 did not document any yellow-billed cuckoos (Dettling et al. 2014). Therefore, the individuals detected near MWT were likely migrating to breeding sites much farther north. Because the Phase B Project area is well outside the current breeding range of western yellow-billed cuckoo, no nesting habitat for the species would be affected. MWT and the SMUD distribution line relocation study areas provide relatively poor habitat for migrant individuals, which are more likely to use larger tracts of higher-quality habitat west of Snodgrass Slough. Therefore, migrating yellow-billed cuckoos are unlikely to be impacted by Phase B construction activities. In addition, implementing the project would substantially increase the amount of riparian habitat on MWT and within the larger area, thereby improving habitat conditions for migrating individuals. Therefore, this impact would be **less than significant**.

Mitigation Measure: No mitigation is required.

Residual Significant Impacts

Mitigation measures have been implemented to reduce impacts to Swainson's hawk to the maximum extent possible. However, even with all feasible mitigation measures implemented, adequate foraging habitat appropriate to compensate for Phase B project impacts may not be available for conservation in perpetuity. If an adequate amount of habitat cannot be conserved in perpetuity, then the Phase B project would have residual significant and unavoidable impacts related to Swainson's hawk foraging habitat.

3.7 Land Use, Agriculture, and Recreation

3.7.1 Environmental Setting

McCormack-Williamson Tract

Since flooding of MWT in 2017, MWT is no longer maintained for agricultural production. The former agricultural areas are now primarily grassland/ruderal land cover, with some areas having naturally revegetated with early successional riparian habitat. MWT does not include forestlands.

New SMUD Distribution Line Locations

Locations of existing SMUD distribution lines on MWT that would be removed and potential locations for new SMUD distribution lines are shown in Figures 2-8 and 2-2, respectively, of Chapter 2, "Description of Project Changes, Refinements, and Additions." The proposed DHI Connection to the west of MWT would include a tubular steel pole on DHI and another on Tyler Island. Both islands are generally maintained for agriculture (prime farmland). This distribution line would span Snodgrass Slough. The Walnut Grove Feeder Connection would be located in the northwest corner of MWT, which was used as a borrow site for Phase A of the project and contains a communications tower. Land use at East Connection Options 1 and 2 is agricultural and designated as unique farmland and prime farmland, respectively. East Connection Option 2 would also span Lost Slough. The potential new SMUD distribution line locations do not include forestlands.

3.7.2 Regulatory Setting

Federal, State, regional, and local regulatory conditions identified in the North Delta EIR are generally applicable to the Phase B project. DWR is not subject to local regulations unless expressly authorized by the Legislature. Local plans, policies, regulations, and ordinances potentially relevant to Phase B are addressed in this section for informational purposes because they may be relevant to certain responsible agencies.

3.7.3 Environmental Impacts and Mitigation Measures

Significance Criteria

The State CEQA Guidelines, as amended in 2019, and county standards and standard professional practice were used to determine whether the Phase B project would result in a significant impact related to land use, agriculture (including forestry resources), and recreation.

The Phase B project is considered to have a significant impact on land use if it would:

- physically divide an established community;
- conflict with applicable environmental plans or policies adopted by agencies with jurisdiction over the project;
- conflict with general plan designations or zoning or:

- cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect;

The Phase B project is considered to have a significant impact on agriculture and forestry resources if it would:

- convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use;
- conflict with existing zoning for agricultural use or a Williamson Act contract;
- conflict with existing zoning for, or cause rezoning of, forestland (as defined in PRC Section 12220[g]), timberland (as defined by PRC Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104[g]);
- result in the loss of forestland or conversion of forestland to nonforest use;
- involve other changes in the existing environment that, because of their location or nature, could result in conversion of Farmland to nonagricultural use or conversion of forest land to nonforest use.
- cause substantial adverse effects on adjacent agricultural operations (for example, creation of no-spray zones adjacent to new habitat, siltation from levee construction, or other incompatible uses); or
- cause a substantial inconsistency with objectives of local, regional, and state plans.

The Phase B project is considered to have a significant impact on recreation if it would:

- increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated;
- include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment; or
- result in a substantial change in recreation opportunities or use in the Project area or region.

There is no forestland present with the Phase B project site. Therefore, the Phase B project would not impact forestland and this impact is not discussed further in this Supplemental EIR.

Analysis Methodology

Evaluation of the potential impacts of the Phase B project on land use, agriculture, and recreation was based on a review of planning documents pertaining to the Phase B project area, particularly the *Sacramento County General Plan of 2005 – 2030* (Sacramento County 2011) and the *Sacramento County General Plan Update Environmental Impact Report* (Sacramento County 2010), as well as the Sacramento County Code (Sacramento County 2020), and the Sacramento County General Map Viewer (Sacramento County 2021).

Relevant Issues Not Discussed Further in Supplemental EIR

Conflict with Sacramento County General Plan Designation or Zoning (North Delta EIR Impact LU-4)

Phase B includes installing SMUD distribution lines at new project locations on lands zoned for agriculture. However, installation of these distribution lines would not require any rezoning and would not conflict with the General Plan Designation as the distribution lines would not result in a loss of farmland and the site would continue to be used for agricultural production. Therefore, this impact is not discussed further in this Supplemental EIR.

Impact Analysis

Land Use

Impact LU-1 (North Delta EIR): Loss of Farmland.

Alternative A-1 North Delta EIR Conclusions

The North Delta EIR analyzed the conversion of agricultural land on MWT to wildlife habitat. The North Delta EIR proposed two project features for farmland protection: 1) establishing a conservation easement on Staten Island to ensure protection of agriculture land within the project area, and 2) consideration of managing the MWT and the Grizzly Slough properties to support wildlife friendly agricultural practices. This impact was considered potentially significant and less than significant if the project features for farmland protection were adopted.

Phase B Updated Evaluation

The MWT historically consisted of agricultural production, however, agricultural production ceased after the levee breach and flooding that occurred in 2017. Therefore, no agricultural production is currently active on the MWT. The Phase B project would not result in any additional loss of agricultural lands on MWT. As mentioned above, DWR has already filed notification with Sacramento County to remove MWT lands from their Williamson Act contracts.

The Phase B project includes installing new SMUD connections east and west of MWT that were not analyzed in the North Delta EIR. A portion of the DHI distribution line connection site is in agricultural production and could be impacted during construction and operation activities. Additionally, East Connection Options 1 and 2 are located on agricultural land and also have the potential to disrupt agricultural production. Equipment and workers for distribution line installation could disrupt agricultural production and line placement could make it difficult for farmers to maneuver equipment and potentially limit access to portions of their land. The design and location of these replacement poles have not been finalized yet and although it is unlikely they would result in the loss of farmland, the extent of the impact cannot be precisely determined until the final design and location are known. Therefore, this impact would be **potentially significant**.

Mitigation Measure: The following new mitigation measure has been identified to address this impact.

Mitigation Measure LU-3 (New): Consultation with Landowners and Pole Placement to Minimize Agricultural Impacts.

RD 2110 and/or SMUD will coordinate with landowners to identify locations and design the relocation sites in such a way as to minimize impacts to farmers so the distribution poles do not hinder agricultural production and result in loss of farmland.

Timing:	Prior to project implementation.
Responsibility:	RD 2110 and/or SMUD and its construction contractors with funding provided by DWR.

Significance after Mitigation: Implementation of Mitigation Measure LU-3 would reduce this impact by incorporating landowner feedback during the design and construction planning stage, thereby avoiding or minimizing impacts to agricultural uses. Therefore, this impact would be **less-than-significant with mitigation**.

Impact LU-3 (North Delta EIR): Inconsistency with Agricultural Objectives of Local, Regional, and State Plans.

Alternative A-1 North Delta EIR Conclusions

The North Delta EIR analyzed the impacts associated with the conversion of MWT from prime farmland to a natural preserve. The project was determined to be consistent with the County of Sacramento General Plan Farmland and Agricultural Resource Protection goals to "protect permanent crops and other agricultural investments from catastrophic flooding." Project modifications discussed in Impact LU-1 of the North Delta EIR would satisfy the County's policy of initiating intergovernmental agreements with State and Federal wildfire management authorities to mitigate loss of prime farmland or land with intensive agricultural investment due to natural habitat conversion. Additionally, the project was designed to minimize impacts to adjacent agricultural productions. Therefore, this impact was considered less than significant.

Phase B Updated Evaluation

Since there is no active agricultural production on MWT, the Phase B project would not result in an inconsistency with agricultural objectives of local, regional, and state plans. Relocation of SMUD distribution lines could take place on land that is currently used for agricultural production. Installation and operation of these distribution lines could interfere with agricultural production because equipment onsite during installation could make it difficult for farmers to maneuver around and therefore could potentially limit access to portions of the land. Additionally, depending on the design on the distribution lines, the presence of these distribution lines could hinder the ability of farmers to maintain their land. Therefore, this impact would be **potentially significant**.

Mitigation Measure: The following new mitigation measure has been identified to address this impact.

Mitigation Measure LU-3 (New): Consultation with Landowners and Pole Placement to Minimize Agricultural Impacts.

Please refer to Mitigation Measure LU-3 in Impact LU-1 above for the full text of this mitigation measure.

Significance after Mitigation: Implementation of Mitigation Measure LU-3 would reduce this impact by incorporating landowner feedback during the design and construction planning stage, thereby avoiding impacts to property landowners to the extent feasible, consistent with all agricultural objectives identified in the County of Sacramento General Plan. Therefore, this impact would be **less-than-significant with mitigation**.

Recreation

Impact REC-6 (New): Disruption of Boating Activities from Utility Relocations.

The DHI distribution line connection would require installation of two approximately 100- to 115-ft-tall tubular steel poles to span Snodgrass Slough. Additionally, the East Connection Option 2 distribution line would require poles allowing vessels to pass underneath the electrical conductor and, therefore, would not disrupt boating activities during operations. After the poles are installed, the distribution lines would be strung across the waterways to connect two or more poles. Therefore, this impact would be **less than significant**.

Mitigation Measure: No mitigation is required.

Residual Significant Impacts

There would be no residual significant impacts to land use, agriculture, and recreation associated with the Phase B project.

3.8 Energy

Since the North Delta EIR was prepared, the State CEQA Guidelines have been amended and a new Energy resource topic has been added. The North Delta EIR includes a section titled Power Production and Energy; however, this section was prepared pursuant to the State CEQA Guidelines Section 15126.2(b) and Appendix F of the State CEQA Guidelines, which require that EIRs include a discussion of the potential energy impacts of projects.

3.8.1 Environmental Setting

Electricity Use and Generation

The unincorporated Sacramento County receives electrical power from SMUD and natural gas services from PG&E (Sacramento County 2010). In 2019, the total electricity consumption for Sacramento County was approximately 10,828 million kilowatts per hour (CEC 2019).

3.8.2 Regulatory Setting

Federal Plans, Policies, Regulations, and Laws

Energy Policy and Conservation Act

The Energy Policy and Conservation Act of 1975 established nationwide fuel economy standards to reduce energy consumption by increasing the fuel economy of cars and light trucks. Pursuant to this Act, the National Highway Traffic and Safety Administration, part of the U.S. Department of Transportation (DOT), is responsible for revising existing fuel economy standards and establishing new vehicle economy standards.

Corporate Average Fuel Economy Standards

The Corporate Average Fuel Economy (CAFE) program was established to determine vehicle manufacturer compliance with the government's fuel economy standards. Compliance with the CAFE standards is determined based on each manufacturer's average fuel economy for the portion of their vehicles produced for sale in the country. EPA calculates a CAFE value for each manufacturer based on the city and highway fuel economy test results and vehicle sales. Using information generated under the CAFE program, DOT is authorized to assess penalties for noncompliance. Under the Energy Independence and Security Act of 2007 (described below), the CAFE standards were revised for the first time in 30 years.

Energy Policy Act of 2005 and Independence and Security Act of 2007

The Energy Policy Act of 2005 provides renewed and expanded tax credits for electricity generated by domestic energy production, such as landfill gas; provides bond financing, tax incentives, grants, and loan guarantees for energy efficiency, such as clean renewable energy and rural community electrification; and establishes a Federal purchase requirement for renewable energy. Improved national energy efficiency is encouraged through the development of new statutory standards, requirements for Federal action, and incentives for voluntary improvements.

The Energy Independence and Security Act of 2007 increases the production of clean renewable fuels; increases the efficiency of products, buildings, and vehicles; promotes research on and implementation of greenhouse gas capture and storage options; improves the energy performance of the Federal Government; and increases the United States energy security, develops renewable fuel production, and improves vehicle fuel economy (EPA 2019). The Energy Independence and Security Act of 2007 set a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel in 2022, which represents a nearly five-fold increase over levels at the time; and reduces U.S. demand for oil by setting a national fuel economy standard of 35 miles per gallon by 2020—an increase in fuel economy standards of 40 percent. The Energy Independence and Security Act of 2007 builds on progress made by the Energy Policy Act of 2005 in setting out a comprehensive national energy strategy for the 21st century.

State Plans, Policies, Regulations, and Laws

Senate Bills 350 and 100—De Leon (Clean Energy and Pollution Reduction Act of 2015, 100 Percent Clean Energy Act of 2017)

The Clean Energy and Pollution Reduction Act (Senate Bill 350) was signed into law in 2015 and establishes State goals for renewable energy, energy efficiency, and transportation electrification, and directs the Energy Commission and Public Utilities Commission to update targets and rules consistent with these goals.

To meet the State of California climate change goals, Senate Bill 350 increases California's renewable electricity procurement goal from 33 percent by 2020 to 50 percent by 2030. Senate Bill 350 also requires the state to double statewide energy efficiency savings in electricity and natural gas end uses by 2030. To help meet these goals and reduce GHG emissions, large utilities will be required to develop and submit integrated resource plans. These plans detail how utilities will meet their customers' resource needs, reduce GHG emissions, and ramp up the use of clean energy resources.

Senate Bill 100 was signed into law in 2018 and established key provisions include updating the Senate Bill 350 renewable portfolio standards requirement from 50 to 60 percent by 2030 and creating the policy of planning to meet all the state's retail electricity supply with a mix of renewable portfolio standards-eligible and zero-carbon resources by December 31, 2045, for a total of 100% clean energy.

3.8.3 Environmental Impacts and Mitigation Measures

Significance Criteria

The significance criteria used to evaluate the project impacts to energy are based on Appendix G of the State CEQA Guidelines, as amended. The Phase B project is considered to have a significant impact from energy usage if it would:

- result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation; or
- conflict with or obstruct a State or local plan for renewable energy or energy efficiency.

Analysis Methodology

Evaluation of the potential impacts of the Phase B project on energy consumption was based on a review of State and Federal Regulations and information presented in the North Delta EIR.

Relevant Issues Not Discussed Further in Supplemental EIR

Conflict with a State or Local Plan for Renewable Energy or Energy Efficiency (New Issue)

Sacramento County has not adopted a local plan for renewable energy or energy efficiency; however, the State has a Climate Commitment (Senate Bills 350 and 100) to reduce the reliance on non-renewable energy sources by 60 percent by 2030 (CEC 2015, State of California 2018). Electricity use during operations of the project is limited to use of pumps and would generally be similar to current and past uses onsite, or may result in temporary slight increases during periods of pumping. The Phase B project would not conflict or obstruct the State's Climate Commitment. Therefore, Phase B would not conflict with State or Local energy plans and this issue is not discussed further in this Supplemental EIR.

Impact Analysis

Impact PUB-1, originally included in the North Delta EIR Section 5.4, "Utilities and Public Services," is more applicable to this section and is included below.

Impact EN-1 (New): Cause Wasteful, Inefficient, or Unnecessary Consumption of Energy Usage.

New Phase B Impact Evaluation

CEQA requires mitigation measures to reduce "wasteful, inefficient, and unnecessary" energy usage (PRC 21100(b)(3)). However, no criteria have been established that define wasteful, inefficient, or unnecessary use of energy.

The Phase B project would involve the use of gas- and diesel-fueled vehicles and equipment during onsite construction activities and import/export of materials to and from the project site. The project's use of energy resources during construction would be non-recoverable but temporary and would not include unnecessary, inefficient, or wasteful energy use. Project construction would temporarily increase fuel consumption. However, fuel would only be used to the extent it is needed to complete construction activities and would not be consumed in a wasteful manner during construction. Fuel consumption associated with vehicle trips generated by the project would not be considered inefficient, wasteful, or unnecessary in comparison to that associated with other, similar rural counties.

The North Delta EIR Impact PPE-1, "Change in Power Consumption," states that implementing the project would result in decommissioning four electric pumps with a combined rating of 121 horsepower and four pumps powered by either diesel fuel or propane with a combined rating of 322 horsepower. Two existing electric pumps with a combined rating of 35 horsepower would be retained but operated less frequently than under existing conditions, and two existing gasoline powered pumps with a combined rating of 10 horsepower would be retained and operated in a

manner similar to existing conditions. The North Delta EIR determined that compared to existing conditions, the Project would reduce electricity and fossil fuel consumption.

To ensure access to the tower within the northwest corner of MWT during the wet conditions, the updated Phase B project includes installing and operating a new drainage pump or repurposing an existing pump for active water management and drainage in the northwest corner of MWT for at least the duration of the communications tower lease (until 2032). The drainage pump would be used to extract excess accumulated water from the toe ditch on the inside of the Tower Levee and discharge to the tidal portion of the MWT. In addition, mobile pumps may be used temporarily to extract irrigation water from adjacent waterways during the restoration planting establishment period. However, as mentioned in the North Delta EIR, several nearby drainages pumps would be decommissioned or operated less frequently. Therefore, use of these potential pumps would likely still reduce energy consumption. Although unlikely, if pump use associated with Phase B were to result in temporary slight increases of energy consumption above current conditions, this would not be considered a wasteful, inefficient, or unnecessary consumption of energy usage. This impact is considered **less than significant**.

Mitigation Measure: No mitigation is required.

Impact PUB-1 (North Delta EIR): Increase in Use of Energy.

Alternative 1-A North Delta EIR Conclusions

The North Delta EIR concluded that constructing the proposed new levees, demolishing the proposed old levees, and dredging under Alternative 1-A would require the use of heavy equipment. A slight increase in energy was anticipated to be required to relocate existing structures such as pipelines and aboveground transmission lines to new locations outside the new intertidal zones on MWT. Additionally, retrofitting the pump station was determined to require minimal amounts of energy. Because construction activities would be short-term and would not require a significant amount of energy to complete, the North Delta EIR concluded that Alternative 1-A would not result in a substantial long-term permanent increase in energy use. This impact was considered less than significant.

Phase B Updated Evaluation

While the construction plan for Phase B has changed, use of gas- and diesel-fueled vehicles and equipment would temporarily increase energy usage similar to activities evaluated under Alternative 1-A in the North Delta EIR, as discussed in Impact EN-1. Following completion of the Phase B project, energy consumption from vehicles and equipment would cease, except for periodic vehicle trips for maintenance activities. The Phase B project changes include potentially installing and operating a drainage pump to remove water from inside the Tower Levee and potential temporary use of portable irrigation pumps. However, as discussed in Impact EN-1 above, it is unlikely that this pump use would increase energy use compared to existing conditions. This impact is considered **less than significant**.

Mitigation Measure: No mitigation is required.

Residual Significant Impacts

There would be no residual significant impacts to energy associated with the Phase B project.

3.9 Visual Resources

3.9.1 Environmental Setting

There are no designated scenic highways or scenic vistas located in the project vicinity and the tract is isolated from urban areas and smaller towns in the Delta (Caltrans 2019a and 2019b).

The visual character of the potential new SMUD distribution line locations is similar to the existing locations in rural, agricultural areas, and Delta waterways described in the North Delta EIR for MWT. However, East Connector Options 1 and 2 would be visible by road users on Levee Road and I-5. The view of these two distribution line connection options from Franklin Boulevard would be screened by vegetation. Views for sensitive receptors in the vicinity of the DHI connector are also similar to the rural, agricultural areas described in the North Delta EIR, with the addition of vineyards. The DHI Connector would also be visible to drivers on Walnut Grove-Thornton Road (J11) and the associated Miller Ferry Bridge, southeast of the site. Due to distance, ensuing topography, and screening vegetation, the DHI Connector poles would not be visible from Walnut Grove but visitors to the Walnut Grove Marina would have the DHI connection on Tyler Island in their viewshed from these locations. The DHI Connector may also be visible in the background to boaters on Snodgrass Slough. Additionally, one residence is located near the DHI connection pole location on Deadhorse Island and, as mentioned above, Giusti's is located near the DHI connection pole location on Tyler Island.

There are no additional sensitive receptors such as residences or businesses located in the vicinity of East Connector Options 1 and 2 or the northwest corner of MWT (Walnut Grove Feeder Distribution Line) area.

3.9.2 Regulatory Setting

Federal, State, regional, and local regulatory conditions identified in the North Delta EIR are generally applicable to the Phase B project. DWR is not subject to local regulations unless expressly authorized by the Legislature. Local plans, policies, regulations, and ordinances potentially relevant to Phase B are addressed in this section for informational purposes because they may be relevant to certain responsible agencies.

3.9.3 Environmental Impacts and Mitigation Measures

Significance Criteria

The State CEQA Guidelines, as amended in 2019, were used to determine if Phase B would result in a significant impact on visual resources. The Phase B project is considered to have a significant impact on visual resources if it would:

- Have a substantial adverse effect on a scenic vista;
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;

- In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings (public views are those that are experienced from a publicly accessible vantage point.) and if the project is in an urbanized area, conflict with applicable zoning and other regulations governing scenic quality; or

- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

Analysis Methodology

For consistency with the North Delta EIR, visual quality is evaluated using the well-established approach to visual analysis adopted by the Federal Highway Administration (FHWA), employing the concepts of vividness, intactness, and unity (FHWA 2015).

Relevant Issues Not Discussed Further in Supplemental EIR

Temporary Visual Change as a Result of Construction Activities (North Delta EIR Impact VIS-1)

Temporary visual changes during construction were evaluated under VIS-1 in the North Delta EIR. Construction activities associated with changes to Phase B would use the same types of heavy equipment and associated vehicles, including cranes, scrapers, excavators, and graders, as were previously analyzed in the North Delta EIR. Additionally, much of the area surrounding MWT is subject to the continual presence of tractors, trucks, and other equipment used for agriculture under existing conditions. Therefore, the presence of construction equipment during Phase B construction activities does not change the North Delta EIR analysis and this issue is not evaluated further in this Supplemental EIR.

Impact Analysis

Impact VIS-2 (North Delta EIR): Permanent Changes in Viewshed.

Alternative 1-A North Delta EIR Conclusions

The North Delta EIR concluded that project components, specifically changes to the configuration of levees and additional placement of vegetation and rock slope protection on levees, would not alter the quality or character of the visual setting, and this impact was considered less than significant.

Phase B Updated Evaluation

While changes are proposed to levee modification and habitat restoration components under Phase B, these components would result in similar visual changes to those evaluated in the North Delta EIR.

SMUD distribution line relocations would require removing many SMUD poles and an electrical conductor associated with distribution lines through the interior of MWT. New distribution line segments would be constructed in the northwest corner of MWT (i.e., the Walnut Grove Feeder Connection) and new offsite locations to maintain existing service. Visual changes associate with these relocations are discussed below.

Walnut Grove Feeder Connection

This route is anticipated to require installing approximately 11 new poles and guy wires if wood poles are used. New vegetation growing within the alignment would be minimal, if any, but would need to be maintained. This location is immediately adjacent to an existing communication tower that is much taller than the new poles would be and includes long guy wires. In addition, five other large transmission towers occur in the vicinity and are visible from the surrounding area. The new distribution line poles and electrical conductor at this location would be similar in character to what viewers see currently in this part of the project area. Additionally, it is anticipated that boaters along Snodgrass Slough would only briefly notice portions of the additional poles (behind the existing levee) in this area.

DHI Connection

This connection requires two tubular steel poles–one pole on DHI and another on the east bank of Tyler Island. The two poles would be 100 to 115 ft tall to span the waterway at a height that allows vessels to pass underneath the electrical conductor. There are existing telephone poles and lines running immediately adjacent to the residence on DHI and tall parking lot lights and telephone/electrical poles on the Tyler Island side of this proposed connection. In addition, four other large transmission towers in the vicinity and are visible from the surrounding area. Due to the presence of existing utility lines, the planned utility relocation would be of a similar character to existing infrastructure poles at this location. Additionally, the steel poles planned for this site would be spaced over 300 ft apart, further reducing the effect on the viewshed. As discussed in the North Delta EIR, boaters along the waterways in the project vicinity experience short duration views and the electrical line spanning the waterway would be noticed only briefly.

East Connection Option 1

This option requires approximately six poles and guy wires if wood poles are used. The alignment extend north from the north bank of the Mokelumne River and turns east to cross a small water feature. Riparian vegetation along the north bank of the Mokelumne River and both banks of the water feature may require removal or trimming. There are existing wooden poles immediately east and southwest of this relocation site. Additionally, a cleared right-of-way occurs in this area and there are existing wooden electric/phone poles in this area. The addition of electrical poles in this area would be similar to what is currently seen in the vicinity of this potential relocation site.

East Connection Option 2

This option also requires approximately six poles and guy wires if wood poles are used. Steel poles are likely needed to create a longer/taller span across Lost Slough. The height of these poles is currently unknown. Riparian vegetation may need to be removed along Lost Slough and a tributary slough/drainage at the southern end of this segment. There are existing wooden poles immediately adjacent to I-5 along this potential distribution line connection. This alignment is also immediately adjacent to I-5 and four, large transmission towers (including the communications tower on MWT) are visible in this area. Boaters along the waterways in the project vicinity experience short duration views and the electrical line spanning Lost Slough would be noticed only briefly.

Impact Conclusions

Although the addition of metal and/or wooden poles and tall tubular steel poles at the potential new SMUD distribution line locations would add additional upright, linear features to the local viewshed, there are existing electrical, transmission, light, and telephone poles in the vicinity and viewshed in which each of the proposed relocation sites is located. Many Delta roads and fields in the project vicinity are also characterized by the regular pattern of adjacent infrastructure poles as viewers travel through the project area. The poles would also be slender and would not block the background views of surrounding agricultural lands and Delta waterways that characterize the viewshed in the project area. Additionally, from a distance, the poles do not present a major visual obstruction and electrical poles are not lit at night and would not be visible from far away.

The access roads needed for the utility relocations are typically 15 ft wide and would be similar in character to other levee and agricultural access roads present throughout the project area. Some vegetation removal would be needed for pole construction and maintenance of access roads and maintenance rights-of-way. However, intermittent vegetation removal in the project vicinity is not uncommon, due to constant levee maintenance and erosion protection, agricultural activities, and maintenance of existing facilities, such as roads and other infrastructure. Intermittent patches of missing vegetation along levees and sloughs is also common to the project area, as a natural distribution cycle of riparian vegetation along levees include gaps since vegetation periodically falls into waterways and other vegetation eventually recruits to the site. Vegetation clearing associated with electrical relocation maintenance would be similar in character to periodic vegetation gaps seen by existing viewers in the Delta, as they travel, live, and work in close proximity to the interface between a managed agricultural and natural waterside vegetated environment. For these reasons, impacts of SMUD distribution line relocations on local viewsheds would be **less than significant**.

Mitigation Measure: No mitigation is required.

Residual Significant Impacts

There would be no residual significant impacts to visual resources associated with the Phase B project.

3.10 Public Health and Hazards

3.10.1 Environmental Setting

Hazardous Materials

Hazardous Substances Assessment Report

A *Hazardous Substances Assessment Summary Report* (HSA) was prepared in 2015 to investigate any issues or potential concerns associated with hazardous, toxic, and radioactive waste that may be located within MWT (included as **Appendix F**). A summary of the findings from the HSA is presented below. Samples were collected from stained soil, which was observed beneath one of the onsite diesel above-ground storage tanks (AST), under the onsite used motor oil AST, and inside an onsite pesticide mixing shed. These facilities are located in the area proposed for landside levee improvements, just west of the 2017 Mokelumne River Levee breach, and were associated with former agricultural operations at MWT. The soil samples were analyzed for a variety of volatile organic compounds (VOCs), petroleum hydrocarbons, metals, and pesticides. Groundwater samples were not obtained.

Stained soil from the diesel AST contained VOCs and petroleum hydrocarbons at concentrations that exceeded the respective screening levels to the maximum depth of excavation conducted for the HSA (i.e., 1.5 ft below ground surface). Arsenic was detected above screening levels to 1.5 ft below ground surface in the soil below the diesel AST and used motor oil AST, and zinc was detected above screening levels at 1.5 ft below ground surface in the soil under the diesel AST.

Dichlorodiphenyldichloroethane (DDD) and dichlorodiphenyltrichloroethane (DDT) were detected at concentrations that exceeded the respective screening levels to the maximum depth of excavation conducted for the HSA (i.e., 1.5 ft below the ground surface) at both sample locations inside the pesticide storage shed.

The HSA recommended that the full extent of the contaminated soil should be ascertained, and the contaminated soil should be removed and disposed of offsite at an appropriate landfill. Gasoline exploration pits that were discussed in the North Delta EIR were not found and the pits are presumed to have been filled.

Since the HSA was prepared, additional Phase A levee work was performed, and the onsite pesticide storage shed and ASTs were removed. The contaminated soil was capped with approximately 3 ft of clean fill dirt. Onsite structures associated with the farm residence, which contained elevated levels of lead in paint samples, were demolished and removed.

Regulatory Database Review

As part of the HSA prepared in 2015, Environmental Data Resources, Inc. performed a search of over 200 regulatory databases related to hazardous substances at MWT, including those databases that are part of the Cortese List. The HSA determined that none of the reported sites represented a hazardous condition for the proposed project at MWT. (**Appendix F**).

In 2021, a second search was performed of the GeoTracker and EnviroStor databases for MWT, the new distribution line project locations, and open and closed sites within 0.5 mile of all Phase

B project locations. The GeoTracker database is maintained by SWRCB and provides a listing of leaking underground storage sites and other known cleanup sites in California (SWRCB 2021). The EnviroStor database is maintained by the California Department of Toxic Substances Control (DTSC) and provides a listing of hazardous waste facility cleanup sites in California (DTSC 2021). Also, a search of the U.S. Environmental Protection Agency's Superfund database was performed in 2021. Together, these three databases cover most known hazardous material sites in California.

A review of the GeoTracker database (SWRCB 2021) indicates there was a release of approximately 1,680 gallons of diesel stored in an AST at the communication tower in the northwest portion of MWT, in 2005. The release was caused by an act of vandalism. The AST was replaced with a new tank that includes secondary containment, and contaminated soil was excavated and properly disposed of at an offsite landfill. Groundwater monitoring wells were installed in 2006, and the concentration of groundwater contaminants declined steadily over time, indicating that natural attenuation was occurring. By 2009, groundwater sampling results indicated that contaminant concentrations were barely above laboratory detection limits; therefore, the case was closed in December 2009 and this site is now inactive. The AST was inspected as part of the 2015 HSA and no evidence of leakage was observed (**Appendix F**). There are no other open or closed sites within 0.5 mile of proposed onsite construction areas. Furthermore, there are no open or closed hazardous material sites listed in the GeoTracker database within 0.5 mile of the proposed offsite SMUD construction areas (SWRCB 2021).

A review of the EnviroStor database (DTSC 2021) indicates there are no known open or closed hazardous materials sites within 2.5 miles of the Phase B project locations.

The nearest Superfund sites are located approximately 25 miles north in Sacramento and approximately 20 miles south in Stockton (U.S. Environmental Protection Agency 2021).

Gas Pipelines and Wells

PG&E has indicated that there are existing underground natural gas lines on MWT, which are abandoned. However, these lines may still contain natural gas. The locations of these gas lines are shown on Figure 2-8. Additionally, there are more than 20 inactive gas wells on MWT (Figure 2-8).

Emergency Response and Evacuation

Since the North Delta EIR was prepared, Sacramento County has prepared a Local Hazard Mitigation Plan (Foster Morrison 2016), which identifies hazards such as wildfires, floods, levee failures, drought, and severe weather hazards, and includes mitigation strategies that the County and participating jurisdictions will use to decrease vulnerability and increase resiliency and sustainability in the community, including improved emergency response and identification of evacuation routes.

In addition, Sacramento County, in cooperation with the respective local reclamation districts (in this case, RD 2110), has prepared maps showing evacuation routes throughout the county. Evacuation routes in the project area consist of Levee Road, Twin Cities Road, West Walnut Grove Road, I-5, and SR 160. For the offsite SMUD improvement areas, evacuation routes

consist of Levee Road, Thornton Road, West Walnut Grove Road, Walnut Grove-Thornton Road, I-5, and SR 160 (Sacramento County Department of Water Resources 2017).

Schools

The North Delta EIR did not identify school nearby the project site. There are no K–12 schools within 0.25 mile of MWT or the new distribution line project locations. The nearest school is Walnut Grove Elementary, approximately 0.85 mile west of the southern end of MWT and approximately 1 mile northwest of the DHI distribution line connection site.

Airports

The North Delta EIR did not identify airports nearby the project site. There are no public airports or public use airport within 2 miles of the project site. The Walnut Grove Airport (also known as Spezia Airport) is a privately owned and operated airstrip approximately 1.8-miles southwest of the DHI distribution line connection. An airport land use compatibility plan has not been prepared for the Walnut Grove Airport.

3.10.2 Regulatory Setting

Federal, State, regional and local regulatory conditions identified in the North Delta EIR are generally applicable with the exception of updates and additions described below.

State Plans, Policies, Regulations, and Laws

Gas Wells

State regulations (California Code of Regulations [CCR] Title 14, Division 2, Chapter 4, Article 3, Section 1723), which are administered by the California Geologic Energy Management Division (CalGEM), regulate the operation and abandonment of oil and gas wells. Wells that can no longer be used must be plugged to prevent the oil and gas reservoir fluids from migrating up over time and possibly contaminating soil and/or freshwater aquifers. A well is plugged by setting mechanical or cement plugs in the wellbore at specific intervals to prevent fluid flow. The plugging process usually requires a workover rig and cement that is pumped into the wellbore. CCR Section 1723 prescribes the depth intervals which must be cemented and the materials that are allowable in plugging practices. To receive a permit from CalGEM for a plugged and abandoned cased well, a cement plug must be inserted in the well, extending at least 100 ft above the top of a landed liner, the uppermost perforations, the casing cementing point, the water shut-off holes, or the oil or gas zone, whichever is highest.

Regional and Local Plans, Policies, Regulations, and Ordinances

DWR is not subject to local regulations unless expressly authorized by the Legislature. Local plans, policies, regulations, and ordinances potentially relevant to Phase B are addressed in this section for informational purposes because they may be relevant to certain responsible agencies.

Sacramento County General Plan

The following goals, objective, and policies from the Sacramento County General Plan (Sacramento County 2017) related to public health and environmental hazards are relevant to Phase B and were not identified in the North Delta EIR.

Hazardous Materials Element

Public Health and Safety Objective: Protect the residents of Sacramento County from the effects of a hazardous material incident via the implementation of various public health and safety programs.

- **Policy HM-4:** The handling, storage, and transport of hazardous materials shall be conducted in a manner so as not to compromise public health and safety standards.
- **Policy HM-8:** Continue the effort to prevent ground water and soil contamination.
- **Policy HM-9:** Continue the effort to prevent surface water contamination.

Safety Element

Goal: Minimize the loss of life, injury, and property damage due to fire hazards.

- **Policy SA-24:** The County shall require, unless it is deemed infeasible to do so, the use of both natural and mechanical vegetation control in lieu of burning or the use of chemicals in areas where hazards from natural cover must be eliminated, such as levees and vacant lots.

Delta Protection Element

- **Policy DP-59:** Impacts associated with construction of transmission lines and utilities can be mitigated by locating new construction in existing utility or transportation corridors, or along property lines, and by minimizing construction impacts. Before new transmission lines are constructed, the utility should determine if an existing line has available capacity. To minimize impacts on agricultural practices, utility lines shall follow edges of fields. Pipelines in utility corridors or existing rights-of-way shall be buried to avoid adverse impacts to terrestrial wildlife. Pipelines crossing agricultural areas shall be buried deep enough to avoid conflicts with normal agricultural or construction activities. Utilities shall be designed and constructed to minimize any detrimental effect on levee integrity or maintenance, agricultural uses and wildlife within the Delta. Utilities shall consult with communities early in the planning process for the purpose of creating an appropriate buffer from residences, schools, churches, public facilities and inhabited marinas.

3.10.3 Environmental Impacts and Mitigation Measures

Significance Criteria

Based on Appendix G of the State CEQA Guidelines, as amended in 2019, and the significance criteria used in the North Delta EIR, a public health and environmental hazards impact is considered significant if the proposed project would:

- create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment;
- for a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area;
- impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan;
- expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires

Refer to Section 3.0.4, "Resource Topics Not Discussed Further in this Supplemental EIR," for discussion of potential wildfire risk at the Phase B project locations. Wildlife is not discussed further in this section.

Analysis Methodology

The proposed project is compared against existing conditions in 2021 (i.e., environmental baseline) to determine potential impacts. Compliance with applicable Federal and State health and safety laws and regulations would protect the health and safety of the public. State and local agencies are required to enforce applicable requirements. In determining the level of significance, the analysis in this section considers implementation of the proposed project in the context of required Federal and State laws and regulations. In addition to an updated hazardous materials database search performed in 2021, and other publicly available information related to hazards and hazardous materials, this section also relies on the information contained in the 2015 HSA (**Appendix F**).

Relevant Issues Not Discussed Further in Supplemental EIR

Releases of Hazardous Materials During Construction (North Delta EIR Impact PH-1)

The North Delta EIR in Impact PH-1 discusses that small quantities of hazardous materials such as fuel, oil, and solvents would be used to operate project-related construction equipment. These materials have the potential to be released into the environment during construction activities as a result of accidental spills, leaks, rainwater runoff, or airborne (wind) dispersal. However, the use, storage, and transport of these materials are heavily regulated at the Federal, State, and local levels. Furthermore, the project would not use or store large quantities of hazardous or flammable materials. Construction contractors would be required to use, store, and transport hazardous materials in compliance with Federal, State, and local regulations during project construction. Finally, the SWPPP and dust control plan environmental commitments, included as part of the project, would require that fuels and lubricants are properly handled, and dust generated during construction is attenuated. Phase B includes similar types and amounts of construction, both on MWT and at new distribution line locations, and for similar improvements as those described in the North Delta EIR. Therefore, Phase B would not change this impact evaluation, and these issues are not discussed further in this Supplemental EIR.

Impact Analysis

Impact PH-2 (North Delta EIR): Potential Exposure to Currently Unidentified Contaminated Waters or Soils during Construction.

Alternative 1-A North Delta EIR Conclusions

Previous land management activities occurring on MWT may have included the use or storage of hazardous substances such as gasoline, diesel, oil, solvents, pesticides, and agricultural chemicals, resulting in potential residual contamination. Soil and groundwater potentially could have been adversely affected by hazardous materials, and project construction activities may expose construction workers to such materials, posing a public health hazard. This impact was significant. Mitigation Measure PH-1 was identified to prepare and implement a hazardous waste contingency plan to address the actions that would be taken during construction in the event that unexpected, contaminated soil or groundwater is discovered. Therefore, this impact was less-than-significant with mitigation.

Phase B Updated Evaluation

Similar to the discussion for MWT in the North Delta EIR, previous land management activities occurring at new distribution line project locations may use or store hazardous substances such as gasoline, diesel, oil, solvents, pesticides, and agricultural chemicals, resulting in potential residual contamination. Construction at the new distribution line project locations has the same potential to expose construction workers and the environment to previously unknown contaminated soil or groundwater as described in the North Delta EIR for MWT.

As discussed in detail in the "Environmental Setting" section above, several ASTs and a pesticide mixing and storage shed were located adjacent to and west of the proposed excavations for the Mokelumne River Levee breach. Results of limited soil sampling obtained as part of the 2015 HSA from the area associated with the ASTs and the pesticide storage shed (where soil staining was visible) indicated that elevated levels of VOCs, petroleum hydrocarbons, metals, and pesticides were present (**Appendix I** Groundwater samples were not obtained. Since the HSA was prepared, additional Phase A levee work was performed, and the onsite pesticide storage shed and ASTs were removed. The contaminated soil has been capped with approximately 3 ft of clean fill dirt. Since the full extent of possible contamination has never been defined, although unlikely, it remains possible that excavation associated with Phase B could encounter previously unidentified extents of the contaminated soil.

Since there is potential to encounter previously unidentified contamination at MWT and the new distribution line project locations, this impact is considered **potentially significant.**

Mitigation Measure: The following mitigation measure from the North Delta EIR has been identified to address this impact.

> **Mitigation Measure PH-1 (Updated): Properly Dispose of Contaminated Materials.**
>
> If evidence of contaminated materials is encountered during construction, construction will cease immediately and applicable requirements of the Comprehensive Environmental Response and Liability Act and California Code of Regulations (CCR) Title 22 regarding the disposal of waste will be implemented. In addition, a contingency plan will be prepared to address the actions that will be taken during construction in the event that unexpected contaminated soil or groundwater is discovered. The plan will include health and safety considerations, instructions on handling and disposal of wastes, reporting requirements, and emergency procedures.
>
> **Timing:** Before and during construction activities.
>
> **Responsibility:** RD 2110 and its construction contractor with funding provided by DWR.

Significance after Mitigation: Implementation of Mitigation Measure PH-1 would reduce this impact because a hazardous waste contingency plan would be prepared and implemented to address the actions that would be taken during construction in the event that unexpected contaminated soil or groundwater is discovered. Therefore, this impact would be **less-than-significant with mitigation**.

Impact PH-5 (New): Potential Exposure to Known Hazardous Materials.

New Phase B Impact Evaluation

MWT includes a known hazardous materials site that is on the Cortese List, associated with an accidental release of diesel fuel from an AST at the communications tower. However, the old AST was replaced with a new double-walled AST and the contaminated soil was excavated and removed. Furthermore, natural attenuation of groundwater resulted in constituent levels that were barely above laboratory detection thresholds in 2009, and therefore the case was closed that same year. Continued natural attenuation over the last 12 years would have long since reduced the small amount of groundwater constituents to levels that are below human health, environmental, and laboratory detection thresholds. As part of the HSA performed in 2015, the new AST was inspected, and no evidence of leaks was observed. Therefore, this closed case does not pose a hazard for Phase B activities. In addition, as discussed in Impact PH-2 above, contaminated soil from several ASTs and a pesticide mixing and storage shed located west of the Mokelumne River Breach has been capped with approximately 3 ft of clean fill dirt, and Phase B excavation is proposed at this location.

Several abandoned natural gas pipelines are present underground on MWT. Although PG&E has indicated that these pipelines have been abandoned, natural gas could still be present. If excavation associated with project construction were to encounter and rupture these pipelines, an explosion could occur. However, before conducting grading activities, the specific locations of abandoned gas lines that could be affected by grading would be surveyed using electromagnetic pipe location methods or other detection methods, and if any abandoned gas lines would not be avoided during grading operations, the abandoned gas lines would be removed within the excavation area and cut and capped outside of the excavated area.

Several inactive natural gas wells are also located on MWT. A minimum 100-ft setback would be maintained around inactive gas wells for excavation activities. However, some wells may receive a soil cap, and wells could be exposed to floodwater inundation in the future after project construction. Wells that can no longer be used must be plugged to prevent the oil and gas reservoir fluids from migrating up-hole over time and possibly contaminating soil and/or freshwater aquifers. All wells are required by law to be properly plugged and abandoned as required by CCR Title 14, Division 2, Chapter 4; and PRC Section 3208 (as administered by CalGEM). Therefore, this impact would be **less than significant.**

Mitigation Measure: No mitigation is required.

Residual Significant Impacts

There would be no residual significant impacts to public health and hazards associated with the Phase B project.

3.11 Cultural and Tribal Cultural Resources

3.11.1 Environmental Setting

The North Delta EIR summarized the existing conditions in the broader Alternative 1-A project area (which includes the Phase B project), including summaries of regional prehistory, ethnography, and history. Sources consulted consisted of a review of existing information, consultation with the Native American Heritage Commission (NAHC) and interested Native Americans, and archaeological and historic architectural surveys of the project site. Additional information not included in the North Delta EIR is summarized below.

Sources of Additional Information

Sources of additional information used to prepare this Supplemental EIR that were not available when the North Delta EIR was prepared include a survey of MWT conducted by AECOM in 2016 (included as **Appendix G**) and a North Central Information Center (NCIC) records search for the MWT and potential new SMUD distribution line locations in January 2021. The results of these efforts are summarized below. In addition, Tribal consultation was conducted to support this Supplemental EIR, including request of a Sacred Lands File search from the NAHC (submitted by AECOM), and Tribal consultation pursuant to Assembly Bill 52 (AB 52) conducted by DWR cultural resources specialists.

NCIC Records Search

An updated NCIC records search (File No. SAC-21) dated January 7, 2021 indicated that one additional investigation has taken place within the MWT in recent years (since 2016), and that one additional previously undocumented resource is located within the MWT. The new investigation assessed 5.3 acres. This document, *Addendum: Cougar wetland restoration project* (CA-018-S-SV-14/01) (Reclamation 2013), did not identify any other previously undocumented cultural resources.

The newly identified resource is a Tribal Cultural Landscape (P-34-05225). This Tribal Cultural Landscape, identified by the Nisenan as *Hoyo Sayo/Tah Sayo* (United Auburn Indian Community [UAIC]) and the Plains Miwok as *Waka-ce/Waka-Ly* (Wilton Rancheria), roughly encompasses the Lower Sacramento River environs from the northern end of the Natomas Basin to the southern end of Sherman Island, an area that includes MWT. The primary character-defining elements of this landscape are the waterways, tule habitat, fisheries, and other wildlife. These natural resources once served as the lifeblood of the local inhabitants. Today, relics of historical habitat still survive, with the river supporting anadromous and resident fish populations, as well as shellfish and waterfowl. The natural levees lining the banks of the river historically were covered with riparian forests. Behind the levee/forests were flood basins filled with tidal and non-tidal freshwater emergent wetlands hosting vast tule stands and large backwater lakes. The upland margins behind these wetlands/lakes, vegetated with willow thickets, were dissected by distributary networks of creeks that emptied into the flood basin sinks.

The Tribal Cultural Landscape was recommended as a culturally significant natural landscape and is eligible for inclusion on the National Register of Historic Places (NRHP) and the California Register of Historical Resources (CRHR) under Criterion A/1 for its association with the cultural practices and beliefs of the Nisenan and Plains Miwok, maintaining the continuing cultural identity of the living descendants, and contributing to the broader patterns of prehistory. The UAIC, Wilton Rancheria, and Ione Band regard this landscape as an area of Tribal importance because of its association with events (traditional stories), such as how fire was acquired and how salmon received its color. Further, UAIC cites the importance of the tule and tule habitat (*yakin*) as materials for creating traditional structures, clothing, and watercraft.

Field Investigations

An additional investigation, not currently on file at the NCIC, is the *Cultural Resources Inventory and Evaluation MWT Levee Modification and Habitat Enhancement Project (***Appendix G**). General background research conducted during the investigation included, but was not limited to, a records search undertaken by the NCIC and the Central California Information Center, reviews of existing project-related material, and supplemental archival research pertaining to the regional prehistory and history of the area. AECOM personnel also conducted a pedestrian survey of portions of the MWT and a geoarchaeological study to document and describe the subsurface contexts at various locations within the MWT. This study included intensive survey transects at 5- to 10-meter increments on approximately 372 acres (a subset of MWT), and 13 backhoe test pits excavated in areas where project-related excavation could potentially encounter buried soils (paleosols) and associated buried archaeological deposits. This study did not include the potential new SMUD distribution line locations.

No archaeological resources were identified during surface or subsurface investigations. Three built environment resources were identified and consisted of a previously identified farmstead (P-34-1665) and newly documented segments of the MWT and DHI Levees. An evaluation of these resources concluded that none are eligible for inclusion on the NRHP or the CRHR. The farm complex, which was removed during Phase A, was not particularly important to the agricultural development of MWT or the Delta, was not associated with individuals who made significant contributions to history, lacked distinctive characteristics, and did not appear likely to yield information important to history. The levee segments are not associated with significant events in history. MWT was late to develop and is not directly associated with earlier reclamation activities. The levee segments have no known direct associations with persons significant in history. As engineered structures, the levee segments are common examples of their type, period, and method of construction. Finally, the levee segments do not appear likely to yield information important to history. In addition, results from the geoarchaeological study indicate that, although buried landforms were identified in the project area, they are either not conducive to human occupation and the accumulation of archaeological sites (e.g., wetland landforms) or are at depths beyond anticipated project excavation depths. (**Appendix G**.)

Native American Consultation

On behalf of DWR, AECOM submitted a Sacred Lands File and Native American Contacts List request to the NAHC. AECOM received a response from NAHC on March 12, 2021, confirming that a search of the Sacred Lands File had failed to indicate the presence of Native American cultural resources in the Phase B project area.

In letters dated January 25, 2021, DWR invited the Ione Band of Miwok Indians, Shingle Springs Band of Miwok Indians, UAIC, and Wilton Rancheria to consult with DWR under AB 52, pursuant to PRC Section 21080.3.1, on the Phase B project (refer to documentation in **Appendix H**). As of release of this Draft Supplemental EIR for public review and comment, responses to DWR's consultation letters have not been received.

3.11.2 Regulatory Setting

Federal, State, regional, and local regulatory conditions presented in the North Delta EIR are generally applicable to the Phase B project except for the following updates and additions.

State Plans, Policies, Regulations, and Laws

AB 52

AB 52, passed in 2014, amends sections of CEQA relating to Native Americans. AB 52 establishes a new category of cultural resources, named Tribal Cultural Resources (TCRs), and states that a project that may cause a substantial adverse change in the significance of a TCR may have a significant effect on the environment.

Section 21074 was added to the PRC to define TCRs, as follows:

(a) "TCRs" are either of the following:

(1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:

(A) Included or determined to be eligible for inclusion in the California Register of Historical Resources.

(B) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.

(2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

(b) A cultural landscape that meets the criteria of subdivision (a) is a TCR to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.

(c) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a "non-unique archaeological resource" as defined in subdivision (h) of Section 21083.2 may also be a Tribal cultural resource if it conforms with the criteria of subdivision (a).

Per AB 52, the lead agency must begin consultation with any tribe that is traditionally or culturally affiliated with the geographic area. In addition, AB 52 includes time limits for certain responses regarding consultation, as follows:

- within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a Tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice;
- after provision of the formal notification by the public agency, the California Native American tribe has 30 days to request consultation; and
- the lead agency must begin consultation process within 30 days of receiving a California Native American tribe's request for consultation.

Regional and Local Plans, Policies, Regulations, and Ordinances

Sacramento County General Plan

Sacramento County General Plan policies were not included in the North Delta EIR. Sacramento County recognizes the importance of significant cultural resources. The 2011 County of Sacramento General Plan as amended seeks to protect these resources through the implementation of objectives, goals, and policies that "Promote the inventory, protection and interpretation of the cultural heritage of Sacramento County, including historical and archaeological settings, sites, buildings, features, artifacts and/or areas of ethnic historical, religious or socio-economical importance."

Cultural resource goals and policies are listed in the Conservation Element of the Sacramento County General Plan and those with relevance to the Phase B project are presented below:

GOAL: Promote the inventory, protection and interpretation of the cultural heritage of Sacramento County, including historical and archaeological settings, sites, buildings, features, artifacts and/or areas of ethnic historical, religious or socioeconomical importance.

The term site refers to sites, buildings, structures, and human alterations to the natural environment as well as the artifacts.

Cultural Resource Surveys

Objective: Comprehensive knowledge of archeological and historic site locations. A survey and inventory cataloging historic structures, old farmsteads, and recorded Native American sites would assist the county in protecting areas of cultural significance while planning for development. This information would be subject to restrictions outlined in Government Code Sections 6254 (r) and 6254.10 for further that restricts the release of culturally sensitive information.

Archeological Site Protection During Development

Objective: Attention and care during project review and construction to ensure that cultural resource sites, either previously known or discovered on the project site, are properly protected with sensitivity to cultural and ethnic values of all affected.

Policies:

- **CO-150.** Utilize local, State and national resources, such as the NCIC, to assist in determining the need for a cultural resources survey during project review.
- **CO-151.** Projects involving an adoption or amendment of a General Plan or Specific Plan or the designation of open space shall be noticed to all appropriate Native American tribes in order to aid in the protection of traditional Tribal cultural places.
- **CO-152.** Consultations with Native American tribes shall be handled with confidentiality and respect regarding sensitive cultural resources on traditional Tribal lands.
- **CO-153.** Refer projects with identified archeological and cultural resources to the Cultural Resources Committee to determine significance of resource and recommend appropriate means of protection and mitigation. The Committee shall coordinate with the Native American Heritage Commission in developing recommendations.
- **CO-154.** Protection of significant prehistoric, ethnohistoric and historic sites within open space easements to ensure that these resources are preserved in situ for perpetuity.
- **CO-155.** Native American burial sites encountered during preapproved survey or during construction shall, whenever possible, remain in situ. Excavation and reburial shall occur when in situ preservation is not possible or when the archeological significance of the site merits excavation and recording procedure. Onsite reinterment shall have priority. The project developer shall provide the burden of proof that offsite reinterment is the only feasible alternative. Reinterment shall be the responsibility of local Tribal representatives.
- **CO-156**. The cost of all excavation conducted prior to completion of the project shall be the responsibility of the project developer.
- **CO-157.** Monitor projects during construction to ensure crews follow proper reporting, safeguards, and procedures.
- **CO-158**. As a condition of approval of discretionary permits, a procedure shall be included to cover the potential discovery of archaeological resources during development or construction.
- **CO-159**. Request a Native American Statement as part of the environmental review process on development projects with identified cultural resources.
- **CO-160**. County Planning and Environmental Review staff shall take historical and cultural resources into consideration when conducting planning studies and documents in preparation

of, including but not limited to, areas plans, corridor plans, community plans, and specific plans.

- **CO-161**. As a condition of approval for discretionary projects, require appropriate mitigation to reduce potential impacts where development could adversely affect paleontological resources.

Historic Structure Preservation

Objective: Preserve structures such as buildings, bridges, or other permanent structures with architectural or historical importance to maintain contributing design elements.

Policies

- **CO-164**. Structures having historical and architectural importance shall be preserved and protected.

- **CO-165.** Refer projects involving structures or within districts having historical or architectural importance to the Cultural Resources Committee to recommend appropriate means of protection and mitigation.

- **CO-166**. Development surrounding areas of historic significance shall have compatible design in order to protect and enhance the historic quality of the areas.

- **CO-167**. When conducting planning studies, County Planning and Environmental Review staff, shall encourage the adaptive reuse of historic resources when the original use is no longer feasible or allowed under proposed area planning efforts.

- **CO-168**. County-owned historic and cultural resources shall be preserved and maintained, such that modifications, alterations, and rehabilitations are conducted in a manner that is consistent with the U.S. Secretary of the Interiors Standards for the Treatment of Historic Properties.

3.11.3 Environmental Impacts and Mitigation Measures

Significance Criteria

Based on Appendix G of the State CEQA Guidelines (14 CCR 15064.5), as amended, and the significance criteria used in the North Delta EIR, the proposed project would result in a potentially significant impact on cultural resources if the project would cause a substantial adverse change in the significance of a historical resource or archaeological resource, or disturb any human remains, including those interred outside of dedicated cemeteries (14 CCR 15064.5[b]).

CEQA further states that a substantial adverse change in the significance of a resource means the physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historic resource would be materially impaired. Actions that would materially impair the significance of a historic resource are any actions that would demolish or adversely alter those physical characteristics of a historic resource that

convey its historic significance and qualify it for inclusion in the CRHR or in a local register or survey that meets the requirements of PRC Sections 5020.1(k) and 5024.1(g).

Based on Appendix G of the State CEQA Guidelines, the proposed project would result in a potentially significant impact on TCRs if it would cause a substantial adverse change in the significance of a TCR, defined in PRC Section 21074 as ether a site, feature, place, cultural landscape, that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe that is:

- Listed or eligible for listing in the CRHR, or in a local register of historical resources as defined in PRC Code Section 5020.1(k), or
- A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Analysis Methodology

The impact analysis and mitigation measures presented in this section are based on archival research, records searches, AB 52 consultation with Native Americans, consultation with the NAHC, and limited field surveys and subsurface geoarchaeological investigations conducted in 2016 (**Appendix G**). Field surveys were limited; however, sufficient data have been gathered to evaluate the significance of cultural resource impacts in lieu of a complete field inventory of the project area.

Impact Analysis

Cultural Resources

Impact CR-15 (New): Impacts on Previously Unidentified Human Remains.

New Phase B Impact Evaluation

Potential impacts to previously unidentified human remains were not evaluated in the North Delta EIR. Project construction on MWT would involve grading, trenching, excavation, soil stockpiling, and other earthmoving activities. In addition, installation of the new SMUD distribution lines would involve excavation. There has been no indication that these areas have been used for human burials in the recent or distant past; therefore, human remains are unlikely to be encountered. However, in the unlikely event that human remains are discovered during subsurface activities, they could be inadvertently damaged. Therefore, excavation during project construction could disturb previously undiscovered human remains and this impact is considered **potentially significant**.

Mitigation Measure: The following new mitigation measure has been identified to address this potential impact.

Mitigation Measure CR-1 (New): Implement Measures to Treat and/or Protect Previously Unidentified Human Remains, if Discovered.

If human remains are discovered during any demolition/construction activities, potentially damaging ground-disturbing activities within 100 ft of the remains will be halted immediately, and RD 2110 will notify the Sacramento County coroner and the NAHC immediately, according to PRC Section 5097.98 and Section 7050.5 of the California Health and Safety Code. If the remains are determined by the NAHC to be Native American, the guidelines of the NAHC will be followed during the treatment and disposition of the remains. RD 2110 will also retain a professional archaeologist with Native American burial experience to conduct a field investigation of the specific site and consult with the Most Likely Descendant, if any, identified by the NAHC. Following the coroner's and NAHC's findings, the archaeologist and the NAHC-designated Most Likely Descendant shall determine the ultimate treatment and disposition of the remains and take appropriate steps to ensure that additional human interments are not disturbed. PRC Section 5097.94 identifies the responsibilities for acting upon notification of a discovery of Native American human remains.

Timing: Throughout construction.

Responsibility: RD 2110 with funding provided by DWR.

Significance after Mitigation: Mitigation Measure CR-1 would substantially reduce this potential impact because it requires the performance of professionally accepted and legally compliant procedures in case of the discovery of human remains. Therefore, this potential impact would be reduced to **less-than-significant with mitigation**.

Impact CR-16 (New): Impacts on Previously Unidentified Cultural Resources within the New SMUD Distribution Line Locations.

New Phase B Impact Evaluation

Potential impacts to previously unidentified cultural resources within the potential new SMUD distribution line locations—the DHI Connection and East Connection Options 1 and 2—were not evaluated in the North Delta EIR. The NCIC records search indicated that the new distribution line project locations have not been subjected to cultural resource investigations. Project-related ground-disturbing activities could result in the discovery of or damage to as-yet undiscovered archaeological or historical resources as defined in Section 15064.5 of the State CEQA Guidelines. Therefore, this impact is considered **potentially significant.**

Mitigation Measure: The following new mitigation measure has been identified to address this potential impact.

Mitigation Measure CR-2 (New): Conduct Cultural Resource Survey and Implement Measures to Preserve, Replace, and/or Recover Any Significant Cultural Resources Prior to Project Implementation.

Prior to the start of construction, RD 2110 or SMUD will conduct a cultural resources investigation for all locations of ground disturbance associated with the new SMUD distribution line connections located outside of MWT, to identify archaeological and/or historical resources and assesses the significance as outlined in Section 15064.5 of the State CEQA Guidelines. If an archaeological and/or historical resource is discovered, and the resource is determined significant, the following measures, including those for prehistoric resources developed in coordination with interested Native American groups, will be implemented as appropriate to reduce this potential impact to a less-than-significant level:

- preservation in place (the preferred manner of mitigating impacts on archaeological sites),
- archival research (conducted in association with one or more other measures listed herein),
- replacement of cultural items for educational or cultural purposes, and/or
- contiguous block unit excavation and data recovery (when it is the only feasible mitigation, and pursuant to a data recovery plan).

Timing: Prior to construction.

Responsibility: RD 2110 or SMUD and its construction contractor(s) with funding provided by DWR.

Significance after Mitigation: Mitigation Measure CR-2 would reduce this potential impact because it requires RD 2110 or SMUD to use professionally accepted and legally compliant procedures to identify and preserve significant cultural resources to the extent posssible, or when resources cannot be preserved in place, minimizes impacts through other accepted procedures. Therefore, the potential impact would be reduced to **less-than-significant with mitigation**.

Impact CR-17 (New): Impacts on Previously Unidentified Archaeological Resources.

New Phase B Impact Evaluation

Potential impacts to previously unidentified archaeological resources were not evaluated in the North Delta EIR. Previous surface and subsurface investigations failed to identify archaeological resources and indicated that the MWT has a low sensitivity for the presence of these resources. However, preconstruction activities or ground disturbance during the construction period could encounter previously undiscovered or unrecorded archaeological sites and materials and damage as-yet undiscovered archaeological resources as defined in Section 15064.5 of the State CEQA Guidelines. Therefore, this potential impact is considered **potentially significant.**

Mitigation Measure: The following new mitigation measure has been identified to address this potential impact.

Mitigation Measure CR-3 (New): Implement Measures to Preserve, Replace, and/or Recover Any Significant Archaeological, if Discovered.

Prior to the start of construction, RD 2110 shall provide worker awareness training to the construction contractor and RD 2110's project superintendent regarding the potential for cultural resources and TCRs that could be encountered during ground disturbance, the regulatory protections afforded to such finds, and the procedures to follow in the event of discovery of a previously unknown resource, including notifying RD 2110 representatives. RD 2110 shall invite representatives of interested Native American groups to periodically inspect the active areas of the project, including any soil piles, trenches, or other disturbed areas.

If any prehistoric or historic-era subsurface archaeological features or deposits, including locally darkened soil ("midden") that could conceal cultural deposits, are discovered during construction, all ground-disturbing activity shall cease within 100 ft of the resource(s) discovered. A qualified cultural resources specialist and Native American representatives or monitors from culturally affiliated Native American Tribes shall assess the significance of the find and make recommendations for further evaluation and treatment as necessary. These recommendations shall be documented in the project record. For any recommendations made by interested Native American Tribes that are not implemented, the project record shall provide a justification explaining why the recommendation was not followed. If the qualified archaeologist determines the find to be a significant archaeological resource, and if an adverse impact on a significant archaeological resource occurs, then RD 2110 shall consult with interested Native American groups and individuals regarding mitigation contained in PRC Sections 21084.3(a) and 21084.3(b) and State CEQA Guidelines Section 15370. The following measures, developed in coordination with interested Native American groups. will be implemented as appropriate to reduce this potential impact to a less-than-significant level:

- preservation in place (the preferred manner of mitigating impacts on archaeological sites),
- archival research (conducted in association with one or more other measures listed herein),
- replacement of cultural items for educational or cultural purposes, and/or
- contiguous block unit excavation and data recovery (when it is the only feasible mitigation, and pursuant to a data recovery plan).

Timing: Throughout construction.

Responsibility: RD 2110 and its construction contractor(s) with funding provided by DWR.

Significance after Mitigation: Mitigation Measure CR-3 would reduce this potential impact because it requires RD 2110 to use professionally accepted and legally compliant procedures to identify and preserve significant cultural resources to the extent posssible, or when resources cannot be preserved in place, minimizes impacts through other accepted procedures. Therefore, the potential impact would be reduce to **less-than-significant with mitigation**.

Tribal Cultural Resources

Impact TCR-1 (New): Impacts on Tribal Cultural Landscape Site P-34-005225.

New Phase B Impact Evaluation

Potential impacts to Tribal Cultural Landscape Site P-34-005225 was not evaluated in the North Delta EIR. The Tribal Cultural Landscape was recommended as a culturally significant natural landscape and is eligible for inclusion in the NRHP and CRHR under Criterion A/1 for its association with the cultural practices and beliefs of the Nisenan and Plains Miwok, maintaining the continuing cultural identity of the living descendants, and contributing to the broader patterns of prehistory. The Ione Band, UAIC, and Wilton Rancheria regard this landscape as an area of Tribal importance because of its association with events (traditional stories), such as how fire was acquired and how salmon received their color. Further, UAIC cites the importance of the tule and tule habitat (*yakin*) as materials for creating traditional structures, clothing, and watercraft. Although not formally listed in the NRHP, site P-34-005225 is considered NRHP eligible.

DWR is proposing landform modifications on MWT for Phase B to increase acreage of riparian habitats to counterbalance the expected inundation and conversion of existing woody riparian habitats occurring within tidal and subtidal elevations on MWT. Incorporating the tidal channel network would increase tidal-marsh edge length and habitat quality, while providing food web benefits for fish and other aquatic organisms. The Phase B project, therefore, would not result in adverse impacts to existing landscape elements associated with P-34-005225. Therefore, the impact from the project is **less than significant**.

Mitigation Measure: No mitigation is required.

Impact TCR-2 (New): Impacts on Previously Unidentified Tribal Cultural Resources.

New Phase B Impact Evaluation

Potential impacts to previously unidentified TCRs were not evaluated in the North Delta EIR. No unique archaeological resources have been identified on the project site and the NAHC Sacred Lands Database search was negative. In addition, no Tribal representatives responded to DWR's requests for AB 52 consultation. However, unknown TCRs may exist at the project site and could be affected by the project. This potential impact would be **potentially significant**.

Mitigation Measure: The following new mitigation measure has been identified to address this potential impact.

Mitigation Measure TCR-1 (New): Implement Measures to Avoid, Preserve, Treat, and/or Protect any Previously Unidentified Tribal Cultural Resources, if Discovered.

If TCRs are identified that have the potential to be adversely affected by the project, RD 2110 will notify Tribal representatives and implement measures in consultation with interested Native American groups and individuals to minimize those impacts to a less-than-significant level. These mitigation measures will include the following or equally effective measures (as identified in PRC Section 21084.3):

1. Avoiding and preserving the resources in place, including but not limited to planning and construction to avoid the resources and protect the cultural and natural context, or planning greenspace, parks, or other open space to incorporate the resources with culturally appropriate protection and management criteria.

2. Treating the resource with culturally appropriate dignity, taking into account the Tribal cultural values and meaning of the resource, including but not limited to the following:

    a) protecting the cultural character and integrity of the resource,

    b) protecting the traditional use of the resource, and

    c) protecting the confidentiality of the resource.

3. Implementing permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.

4. Protecting the resource.

5. Preserving substitute TCRs, resources, or environments.

Timing: Throughout construction.

Responsibility: RD 2110 and its construction contractor(s) with funding provided by DWR.

Significance after Mitigation: Mitigation Measures TCR-1 would reduce this potential impact because it requires that Tribal consultation be completed, and measures be developed and implemented as appropriate for any TCRs identified during consultation that have the potential to be adversely affected by the project. Therefore, the impact from the project would be reduced to **less-than-significant with mitigation**.

Residual Significant Impacts

There would be no residual significant impacts to cultural and tribal cultural resources associated with the Phase B project.

3.12 Greenhouse Gas Emissions

GHG emissions were not assessed as part of the North Delta EIR but were required in CEQA analyses when the State CEQA Guidelines were modified in 2018. GHGs typically persist in the atmosphere for extensive periods time, long enough to be dispersed throughout the globe and result in long-term global impacts. As such, implementation of the proposed Project will not, by itself, contribute significantly to climate change; however, cumulative emissions from many projects and plans all contribute to global GHG concentrations and the climate system. Accordingly, this section considers the cumulative contribution of implementation of the proposed Project to the significant cumulative impact of climate change.

3.12.1 Environmental Setting

Greenhouse Gases

Certain gases in the earth's atmosphere, classified as GHGs, trap heat in the atmosphere and play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space. A portion of the radiation is absorbed by the earth's surface, and a smaller portion of this radiation is reflected toward space through the atmosphere. However, infrared radiation is selectively absorbed by GHGs in the atmosphere. As a result, infrared radiation released from the earth that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the "greenhouse effect," is responsible for maintaining a habitable climate on Earth. Anthropogenic (e.g., human caused) emissions of these GHGs lead to atmospheric levels in excess of natural ambient concentrations and have the potential to adversely affect the environment because such emissions contribute, on a cumulative basis, to global climate change.

The Intergovernmental Panel on Climate Change (IPCC) concluded that variations in natural phenomena, such as solar radiation and volcanoes, produced most of the warming of the earth from pre-industrial times to 1950. Some variations in natural phenomena also had a small cooling effect. From 1950 to the present, increasing GHG concentrations resulting from human activity, such as fossil fuel burning and deforestation, have been responsible for most of the observed temperature increase (IPCC 2015).

During the same period when increased global warming has occurred, many other changes have occurred in other natural systems. Sea levels have risen; precipitation patterns throughout the world have shifted, with some areas becoming wetter and others drier; snowlines have increased elevation, resulting in changes to the snowpack, runoff, and water storage; and numerous other conditions have been observed. Although it is difficult to prove a definitive cause-and-effect relationship between global warming and other observed changes to natural systems, there is a high level of confidence in the scientific community that these changes are a direct result of increased global temperatures caused by the increased presence of GHGs in the atmosphere (IPCC 2018).

The following are the principal GHG pollutants that contribute to climate change and their primary emission sources:

- **Carbon Dioxide (CO_2):** Natural sources of CO_2 include decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; and evaporation from oceans. Anthropogenic (human) sources include burning of coal, oil, natural gas, and wood.

- **Methane:** Emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and by the decay of organic waste in municipal solid waste landfills.

- **Nitrous Oxide:** Primary human-related sources of nitrous oxide are agricultural soil management, sewage treatment, mobile and stationary combustion of fossil fuel, adipic acid production, and nitric acid production. Nitrous oxide is also produced naturally from a wide variety of biological sources in soil and water, particularly microbial action in wet tropical forests.

- **Fluorinated gases:** These gases are typically emitted in smaller quantities, but because they are potent GHGs, they are sometimes called High Global Warming Potential (High GWP) gases. These High GWP gases include:

    - **Chlorofluorocarbons:** These GHGs are used for refrigeration, air conditioning, packaging, insulation, solvents, or aerosol propellants.

    - **Perfluorinated Chemicals:** Emitted as by-products of industrial processes and are also used in manufacturing.

    - **Sulfur hexafluoride:** This is a strong GHG used primarily as an insulator in electrical transmission and distribution systems.

    - **Hydrochlorofluorocarbons:** These have been introduced as temporary replacements for chlorofluorocarbons and are also GHGs.

    - **Hydrofluorocarbons:** These were introduced as alternatives to ozone-depleting substances in serving many industrial, commercial, and personal needs. Hydrofluorocarbons are GHGs emitted as by-products of industrial processes and are also used in manufacturing.

GHGs are not monitored at local air pollution monitoring stations and do not represent a direct impact to human health. Rather, GHGs generated locally contribute to global concentrations of GHGs, which changes the climate and environment.

GHGs are present in the atmosphere naturally, are released by natural and anthropogenic (human-caused) sources and are formed from secondary reactions taking place in the atmosphere. Natural sources of GHGs include the respiration of humans, animals, and plants; organic matter decomposition; volcanic activity; and ocean evaporation. Anthropogenic sources include the combustion of fossil fuels by stationary and mobile sources, waste treatment, and agricultural processes.

Methods have been set forth to describe emissions of GHGs in terms of a single gas to simplify reporting and analysis. The most commonly accepted method to compare GHG emissions is the global warming potential (GWP) methodology defined in IPCC reference documents. GWP is a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. GWP is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and the length of time the gas remains in the atmosphere ("atmospheric lifetime"). IPCC defines the GWP of various GHG emissions on a normalized scale that recasts all GHG emissions in terms of metric tons of CO_2 equivalents (MT CO_2e), which compares the gas in question to that of the same mass of CO_2 (CO_2 has a GWP of 1, by definition).

To better understand the sources and magnitudes of GHG emissions, public and private entities at the Federal, State, and local level are developing GHG inventories. The California Assembly Bill "(AB 32) Climate Change Scoping Plan (the Scoping Plan) identifies the primary GHG emission "sectors," or types of activities, that account for the majority of GHG emissions generated within California. A brief description of each of the GHG emission sectors is provided below:

- **Transportation:** GHG emissions associated with on-road motor vehicles, off-road equipment, recreational vehicles, aviation, ships, and rail. Transportation is the largest emissions sector for the State as a whole (and for the county, as well).

- **Electricity:** GHG emissions associated with use and production of electrical energy. Approximately 25 percent of electricity consumed in California is imported; thus, GHG emissions associated with out-of-State electricity production are also included as part of this sector.

- **Industry:** GHG emissions associated with industrial land uses (e.g., manufacturing plants and refineries). Industrial sources are predominantly composed of stationary sources (e.g., boilers and engines) associated with process emissions.

- **Commercial and Residential:** Commercial and residential GHG emission sources include area sources such as landscape maintenance equipment, fireplaces, and natural gas consumption for space and water heating.

- **Agriculture:** GHG emissions associated with agricultural processes. Agricultural sources of GHG emissions include off-road farm equipment, irrigation pumps, residue burning, livestock, and fertilizer volatilization.

- **High Global Warming Potential:** Examples of high GWP GHG sources include refrigerants (e.g., hydrofluorocarbons, chlorofluorocarbons) and electrical insulation (e.g., sulfur hexafluoride). Although these GHGs are typically generated in much smaller quantities than CO_2, their high GWP results in considerable CO_2e.

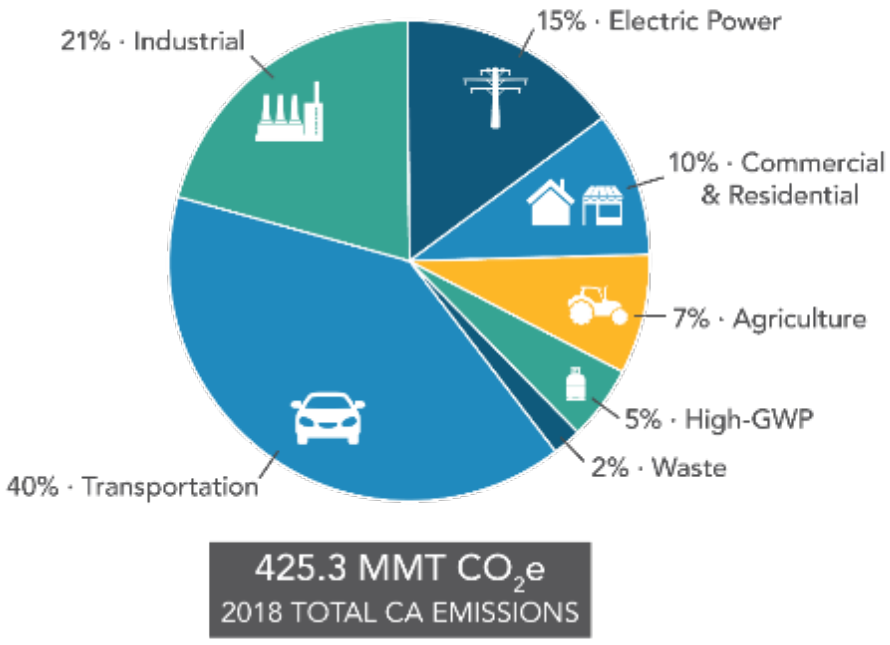
- **Recycling and Waste:** GHG emissions associated with waste management facilities and landfills.

Greenhouse Gas Emissions Inventories

CARB prepares an annual, statewide GHG emissions inventory, including an analysis of emissions by sector. California produced 425.3 million MT CO_2e in 2018 (the latest available full year of reporting). As shown in **Figure 3.12-1**, combustion of fossil fuel in the transportation sector was the single largest source of California's GHG emissions in 2018, accounting for 40 percent of total GHG emissions. Transportation was followed by industry, which accounted for 21 percent, and then the electricity sector (including in-State and out-of-State sources) accounted for 14 percent of total GHG emissions (CARB 2020).

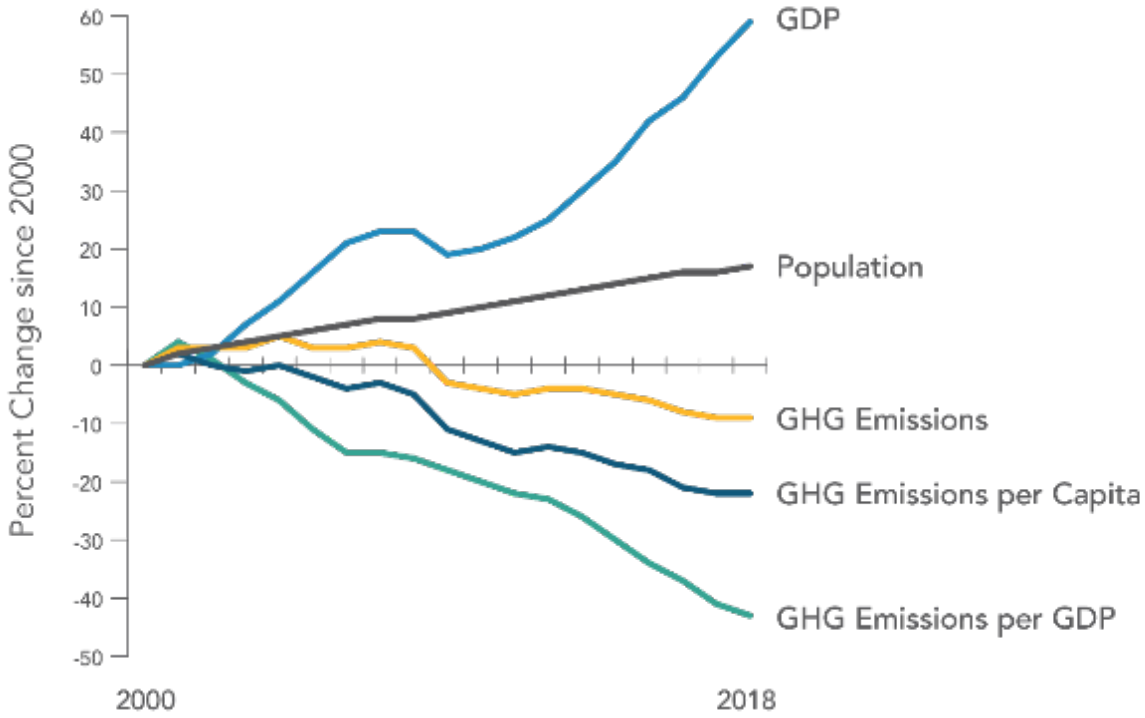
California has implemented several programs and regulatory measures to reduce GHG emissions. **Figure 3.12-2** demonstrates California's progress in achieving statewide GHG emissions reduction targets. Since 2007, California's GHG emissions have been declining; GHG emissions have continued to decline even as population and gross domestic product have increased.

Figure 3.12-1. California 2018 Greenhouse Gas Emissions Inventory by Sector.



Source: CARB, 2020.

Figure 3.12-2. Trends in California Greenhouse Gas Emissions from 2000 to 2018.



Source: CARB, 2020

3.12.2 Regulatory Setting

While many Federal, State, regional, and local plans, policies, and regulations pertaining to GHG emissions do not directly apply to the implementation of the Phase B project, the information below is helpful for understanding the overall context for GHG emissions impacts and strategies to reduce GHG emissions from projects with construction activities.

Federal Plans, Policies, Regulations, and Laws

U.S. Environmental Protection Agency "Endangerment" and "Cause or Contribute" Findings

On December 7, 2009, the EPA Administrator signed two distinct findings regarding GHGs under Section 202(a) of the Federal Clean Air Act:

- **Endangerment Finding:** The current and projected concentrations of the six key GHGs in the atmosphere—CO_2, methane, nitrous oxide, hydrofluorocarbons, perfluorinated chemicals, and sulfur hexafluoride—threaten the public health and welfare of current and future generations.

- **Cause or Contribute Finding:** The combined emissions of these GHGs from new motor vehicles and new motor vehicle engines contribute to GHG pollution, which threatens public health and welfare.

State Plans, Policies, Regulations, and Laws

The State's legal framework for GHG emission reductions has come about through executive orders, legislation, regulations, and court decisions. CARB coordinates and oversees State programs intended to reduce emissions. CARB has delegated oversight for stationary sources to regional air districts while maintaining jurisdiction over mobile sources. California has enacted laws, discussed below, directing CARB to develop actions to reduce GHG emissions, and several other State legislative actions related to climate change and GHG emissions have come into play in the past decade.

Statewide Emission Reduction Targets Pursuant to the California Global Warming Solutions Act of 2006

EO S-3-05 (2005) and AB 32 (2006)

Issued by the Governor in recognition of California's vulnerability to the effects of climate change EO S-3-05 established progressive GHG emission reduction targets for the State, as follows:

- By 2010, reduce GHG emission to the year 2000 level;
- By 2020, reduce GHG emissions to the year 1990 level; and
- By 2050, reduce GHG emissions to 80 percent below the 1990 level.

The California Global Warming Solutions Act of 2006, commonly known as AB 32, further detailed and put into law the midterm GHG reduction target established in EO S-3-05 to reduce statewide GHG emissions to 1990 levels by 2020 and created a comprehensive, multi-year program to reduce GHG emissions in California. AB 32 also directed CARB to accomplish the following core tasks:

- Establish the statewide goal of reducing GHG emissions.
- Establish a mandatory reporting system to track and monitor emissions levels.
- Develop various compliance options and enforcement mechanisms.

EO B-30-15 (2014) and SB 32 (2016)

EO B-30-15 established a statewide GHG reduction goal of 40 percent below 1990 levels by 2030. This emission reduction goal serves as an interim goal between the AB 32 target to achieve 1990 emission levels by 2020 and the long-term goal set by EO S-3-05 to reduce statewide emissions 80 percent below 1990 levels by 2050. In addition, the executive order aligned California's 2030 GHG reduction goal with the European Union's 2030 reduction target that was adopted in October 2014.

SB 32 signed into law the emissions goal of EO B-30-15, extending the provisions of AB 32 from 2020 to 2030 with a new target of 40 percent below 1990 levels by 2030.

EO B-55-18 (2018)

EO B-55-18 acknowledges the environmental, community, and public health risks posed by future climate change. It further recognizes the climate stabilization goal adopted by 194 states and the European Union under the Paris Agreement. Based on the worldwide scientific agreement that carbon neutrality must be achieved by midcentury, EO B-55-18 establishes a new State goal to achieve carbon neutrality as soon as possible and no later than 2045, and to achieve and maintain net negative emissions thereafter. The EO charges the CARB with developing a framework for implementing and tracking progress towards these goals. EO B-55-18 is only binding on State agencies.

California's Climate Change Scoping Plan

CARB adopted the Scoping Plan in 2008, which contains California's primary strategies for achieving the GHG reductions required by AB 32. The Scoping Plan encourages local governments to align land use, transportation, and housing plans to minimize vehicle trips.

CARB is required to update the Scoping Plan at least once every 5 years to evaluate progress and develop future inventories that may guide this process. The First Update to the Climate Change Scoping Plan: Building on the Framework (CARB 2014) determined that the State was on schedule to achieve the 2020 target. However, an accelerated reduction in GHG emissions would be required to achieve the EO S-3-05 emissions reduction target for 2050.

California's 2017 Climate Change Scoping Plan: The Strategy for Achieving California's 2030 Greenhouse Gas Target (CARB 2017) was driven by the 2030 target (pursuant to SB 32). The 2017 Scoping Plan Update established a plan of action, consisting of a variety of strategies to be implemented, rather than a single solution, to achieve the SB 32 emissions target.

Senate Bill 97 and State CEQA Guidelines

Senate Bill (SB) 97, enacted in 2007, acknowledges that climate change is a prominent environmental issue requiring analysis of GHG emissions under CEQA. SB 97 directed the Governor's Office of Planning and Research to prepare and develop guidelines for the California Natural Resources Agency for the analysis and feasible mitigation of GHG emissions under CEQA. In 2009, the California Natural Resources Agency adopted the State CEQA Guidelines amendments, as required by SB 97. These amendments provide guidance to public agencies for analyzing and mitigating the effects of GHG emissions in draft CEQA documents. The amendments became effective in 2010. In late 2018, the California Natural Resources Agency finalized amendments to the State CEQA Guidelines, including changes to State CEQA Guidelines Section 15064.4, which addresses the analysis of GHG emissions. These amendments became effective on December 28, 2018.

Section 15064.4 of the State CEQA Guidelines addresses the significance of GHG emissions and calls on lead agencies to make a "good-faith effort" to "describe, calculate or estimate" GHG emissions in CEQA environmental documents. CEQA further states that the analysis of GHG impacts should consider:

- The extent to which a project may increase or reduce GHG emissions.
- Whether project emissions would exceed a locally applicable threshold of significance.
- The extent to which a project would comply with "regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions."

The State CEQA Guidelines also state that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project would comply with a previously approved plan or mitigation program (including plans or regulations for reducing GHG emissions) that provides specific requirements to avoid or substantially lessen the cumulative problem in the geographic area in which the project is located (State CEQA Guidelines Section 15064[h][3]). The State CEQA Guidelines do not, however, set a numerical threshold of significance for GHG emissions

The Office of Planning and Research acknowledges that the State Legislature encourages lead agencies to tier or streamline their environmental documents whenever feasible, and that the GHG emissions may be best analyzed and mitigated at the programmatic level (California Office of Planning and Research, 2018). A qualified GHG reduction strategy may be used in the impact analysis for later projects. Consequently, if a project is consistent with a GHG reduction strategy that was created to meet that agency's or region's fair share reductions towards the State's GHG targets, then the project would be consistent with statewide GHG reduction goals and would not result in a significant GHG impact.

California Department of Water Resources Greenhouse Gas Emissions Reduction Plan

DWR developed and approved its initial Climate Action Plan Phase 1: Greenhouse Gas Emissions Reduction Plan (GGERP) in 2012. The GGERP, which addresses reducing GHG emissions from DWR activities, represents the first phase of DWR's Climate Action Plan. Phases II and III address technical approaches to characterizing and analyzing the impacts of climate change on DWR activities, and measures for resiliency and adaptation to future conditions expected to result from climate change. More recently, DWR developed the GGERP Update 2020 to review its GHG reductions since the 2012 GGERP and to update strategies for further reductions consistent with legislative changes since the initial GGERP adoption, including the GHG emissions reduction targets established in SB 32 (2016), SB 100 (2018), EO B-18-12 (2012), EO B-30-15 (2015), and EO B-55-18 (2018), as described above in Section 3.12.2, "Regulatory Setting."

DWR's near-term goal in the 2012 GGERP was to reduce its emissions to 50 percent below 1990 emissions level by 2020. DWR achieved this goal 5 years early and received a Climate Leadership Award for this accomplishment in 2018 (DWR 2020). Under the GGERP Update 2020, DWR established the following midterm and long-term GHG emissions reduction goals to guide decision-making beyond 2020:

- Mid-term Goal—By 2030, reduce GHG emissions to at least 60 percent below the 1990 level.

- Long-term Goal—By 2045, supply 100 percent of electricity load with zero-carbon resources and achieve carbon neutrality.

DWR has committed to monitoring the implementation of the GHG-reduction measures and to update the GGERP again in 2030. If monitoring results indicate that DWR will not meet its GHG-reduction goals, DWR may add additional measures or take other actions. DWR will continue to report its GHG emissions to The Climate Registry, which is an organization that designs and operates GHG-reporting programs. In 2019, DWR received the highest level of recognition from The Climate Registry for complete reporting, transparency, emission reduction goal achievement, and GHG emission and compliance management (DWR 2020).

DWR has identified 11 measures that it will implement to achieve the GHG emissions reduction goals identified in the GGERP. The GHG emissions reduction measures are broken into three categories:

- **Specific actions:** Measures that DWR will implement as individual projects or as a series of stand-alone projects, which will reduce emissions from ongoing and future DWR activities by changing the way DWR operates.

- **Project-level:** Measures that must be incorporated into future projects. Those projects will rely on the analysis in the GGERP to help streamline the analyses of cumulative impacts in later project-specific environmental documents under CEQA.

- **Conditional measures:** Measures that may or may not be incorporated into future projects, depending on the characteristics of the specific project and its ability to incorporate the measure. Emissions reductions from conditional measures have not been included in DWR's projections of future GHG emissions reductions.

Regional and Local Plans, Policies, Regulations, and Ordinances

DWR is not subject to local regulations unless expressly authorized by the Legislature. Local plans, policies, regulations, and ordinances potentially relevant to the proposed project are addressed in this section for informational purposes because they may be relevant to certain responsible agencies.

Sacramento Metropolitan Air Quality Management District

The SMAQMD is one of 35 regional air quality districts in California responsible for local air quality planning, monitoring, and stationary source and facility permitting" SMAQMD regulates local air quality and air quality sources in Sacramento County. In the CEQA Guide to Air Quality Assessment, SMAQMD includes a GHG chapter that discusses the recommended approach to evaluating GHG emissions. SMAQMD states that GHG emissions should first be evaluated and addressed on a program level, if possible, in the context of a jurisdiction's GHG reduction plan or climate action plan. For project-level analyses, SMAQMD also includes a list of analysis expectations and methodologies for CEQA analyses. In addition, to assist lead

agencies in determining significance of impacts related to GHG emissions for proposed projects through 2030 and beyond, SMAQMD provides recommended thresholds of significance that are consistent with achieving the portion of the State's targeted GHG emissions reductions specific to the quantities and sectors of emissions from Sacramento County.

Sacramento County Climate Action Plan

The County of Sacramento adopted its Government Operations Climate Action Plan in 2012, which addresses GHG emissions from County operations including County owned facilities, vehicles, equipment, and employee commutes. It identified an action plan to reduce County government GHG emissions to a level 15 percent below baseline 2005 levels by 2020. The commitment to a Communitywide Climate Action Plan is identified in General Plan Policy LU-115 and associated Implementation Measures F through J of the County's General Plan Land Use Element. The Countywide CAP was re-initiated in early 2020, with a target adoption of 12-18 months from July 1, 2020.

Sacramento County General Plan

The following policies and implementation measure from the *Sacramento County General Plan of 2005-2030* Land Use and Air Quality Elements address GHG emissions (Sacramento County 2020a and 2020b).

Land Use Element:

GOAL: Policies and Programs of County departments and other governmental agencies and jurisdictions mutually consistent with one another and with the policies contained in this plan.

State and Federal Agency Coordination Objective: Habitat enhancement, open space protection, GHG emission reduction and cohesive urban design accomplished by Local, State, and Federal agency coordination.

- **Policy LU-115.** It is the goal of the County to reduce GHG emissions to 1990 levels by the year 2020. This shall be achieved through a mix of State and local action[s].

Air Quality Element:

GOAL: Improve air quality to promote the public health, safety, welfare, and environmental quality of the community.

Multidisciplinary Coordination Objective: The integration of air quality planning with land use, transportation, and energy planning processes to provide a safe and healthy environment.

- **Policy AQ-1.** New development shall be designed to promote pedestrian/bicycle access and circulation to encourage community residents to use alternative modes of transportation to conserve air quality and minimize direct and indirect emission of air contaminants.

Motor Vehicle Emissions Objective: A reduction in motor vehicle emissions through a decrease in the average daily trips and vehicle miles traveled and an increasing reliance on the use of low emissions vehicles.

- **Policy AQ-11.** Encourage contractors operating in the county to procure and to operate low-emission vehicles, and to seek low emission fleet status for their off-road equipment.

Reducing Air Pollutants Objective: Compliance with Federal and State air quality standards to reduce all air pollutants, including ozone-depleting compounds to ensure the protection of the stratospheric ozone layer.

- **Policy AQ-16.** Prohibit the idling of on-and off-road engines when the vehicle is not moving or when the off-road equipment is not performing work for a period of time greater than five minutes in any one-hour period.

- **Policy AQ-19.** Require all feasible reductions in emissions for the operation of construction vehicles and equipment on major land development and roadway construction projects.

- **Policy AQ-22.** Reduce GHG emissions from County operations as well as private development.

3.12.3 Environmental Impacts and Mitigation Measures

Significance Criteria

Based on Appendix G of the State CEQA Guidelines, as amended, and the significance criteria used in the North Delta EIR, the generation of GHG emissions from the project are considered significant if the proposed project would:

- generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or

- conflict with an applicable plan, policy, or regulation adopted for the purposes of reducing the emissions of GHGs.

Pursuant to State CEQA Guidelines Sections 15064(h)(3) and 15183(b), lead agencies may rely on plans for the reduction of GHGs in evaluating a project's GHG emission; a project's incremental contribution to a cumulative GHG emissions effect may be determined not to be cumulatively considerable if it complies with the requirements of a previously adopted plan or mitigation program, including a GHG reduction plan or climate action plan, under specified circumstances. As noted by the Natural Resources Agency in the Final Statement of Reasons for the changes to the State CEQA Guidelines, including the changes that added Section 15183.5 on GHG reduction programs, "the addition of GHG emissions reduction plans and regulations for the reduction of GHG emissions reflects the view of both the Office of Planning and Research and the Resources Agency that the effects of GHG emissions resulting from individual projects are best addressed and mitigated at a programmatic level" and the "Legislature has created several tiering and streamlining methods, reflected in various provisions of the existing State CEQA Guidelines, that can reduce duplication in the analysis of GHG emissions." SMAQMD similarly notes that it supports that GHG emissions are "best analyzed and mitigated at the program level" (SMAQMD 2021). Consequently, if a project is consistent with a local climate action plan that was created to meet that area's fair share reductions towards the State's GHG

targets, then the project would be consistent with statewide GHG reduction goals and would not result in a significant GHG impact.

As explained above in the State Plans, Policies, Regulations, and Ordinances described under Section 3.12.2, "Regulatory Setting," DWR adopted and updated its GGERP in 2020. DWR specifically prepared its GGERP as a "plan for the reduction of GHG emissions" as discussed in State CEQA Guidelines Section 15183.5(b). Section 15183.5(b) states that such a document, which must meet specified requirements, "may be used in the cumulative impacts analysis of later projects." Because global climate change, by its very nature, is a global cumulative impact, an individual project's compliance with a qualifying GHG reduction plan may suffice to mitigate the project's incremental contribution to that cumulative impact to a level that is not "cumulatively considerable." (See State CEQA Guidelines Section 15064[h][3].) Therefore, for the purposes of analysis, the Phase B project is considered less than significant if it is consistent with the GGERP.

Analysis Methodology

Construction-related greenhouse emissions were modeled using the same methods and assumptions as those described in Section 3.4, "Air Quality," of this Supplemental EIR. GHG emissions would be generated during construction from exhaust generated by the use off-road equipment, off-road vehicles, and on-road vehicles. CalEEMod Version 2016.3.2 and EMFAC 2017 were used to model GHG emissions associated with these sources. Phase B project construction is anticipated to require up to 3 years. This analysis evaluates the most intensive scenario of constructing the Phase B project in 1 year to provide a worst-case consideration of potential emissions. Construction would typically be conducted 5 days per week, 8 hours per day. Although all construction equipment and on-road vehicles may not be used for the entirety of each day, emissions conservatively assume full operation of equipment and vehicles for 8 hours each day of construction of each respective activity. Total estimated GHG emissions from construction of the Phase B project are provided in **Table 3.12-1**. Detailed project inputs, assumptions, and calculations are provided in **Appendix B**. If the final design is to lower a 1,000-ft-long section of the MWT Southwest Levee, then emissions would be reduced compared the estimate in Table 3.12-1 for lowering a 1,500-ft-long section of this levee.

Chapter 12 of DWR's GGERP outlines how individual projects can demonstrate consistency with the GGERP so that they may rely on the analysis it provides for the purposes of a CEQA cumulative GHG impacts analysis. Projects that are consistent with the GGERP may use this consistency determination in lieu of a project-specific GHG emissions analysis to address potential GHG emissions impacts. Therefore, GHG emissions generated from implementation of the proposed project are evaluated based upon compliance with DWR's GGERP.

Table 3.12-1. Unmitigated Phase B Construction-related GHG Emissions.

Phase B Project Components	Annual CO_2e Emissions (tons per year)
Dead Horse Island Distribution Line Connection	55
Walnut Grove Feeder and East (Either Option 1 or 2) Connection Distribution Lines	15
Remove MWT Distribution Line	78
Tidal Channel Excavation	994
Subtidal Borrow Area Excavation	459
Marsh Plain Construction	887
Riparian Berm Construction	80
Riparian Floodplain Construction	85
Degrade MWT East Levee and Landside Re-sloping	642
Degrade MWT Southwest Levee and Landside Re-sloping	1090
Breach Mokelumne River Levee	200
Repair MWT West Levee	37
Levee Roadway Aggregate Base	123
Turnaround Area	4
Marsh Plain Fill (potential fill from Grizzly Slough)	1
Construct Dewatering Station for Northwest Corner	19
Mobilization and Demobilization of Equipment	5
Total Annual Emissions	**4,411**

Notes: CO_2e = carbon dioxide equivalents.
Estimates are based on lower a 1,500-ft-long section of the MWT Southwest Levee.
Source: AECOM 2021, See Appendix B

Impact Analysis

Impact GHG-1 (New): Generate Greenhouse Gas Emissions, Either Directly or Indirectly, That May Have a Significant Impact on the Environment.

New Phase B Impact Evaluation

Consistent with the steps required of each DWR project per the GGERP, GHG emissions were estimated for construction of Phase B. Construction of Phase B would result in maximum annual emissions of approximately 4,696 metric tons of CO_2e, as shown in **Table 3.12-1**. DWR's GGERP considers projects that generate 25,000 MT of CO_2e over the entire project construction period, or 12,500 MT of CO2e in any single construction year, to be "extraordinary construction projects." Such extraordinary projects are not included in the GGERP and are not eligible to use the plan to streamline the cumulative impacts analysis of later projects under CEQA. Using this threshold, the Phase B project is not considered an extraordinary construction project.

Operations of Phase B would not generate any maintenance or business activities that were not previously inventoried in DWR's verified emissions reporting. Section 12 of the GGERP outlines the steps that each DWR project will take to demonstrate consistency with the GGERP. Among these steps are the following:

- Analyze GHG emissions from construction of the project.
- Determine that the project's construction emissions do not exceed the levels of construction emissions analyzed in the GGERP.
- Incorporate DWR's project-level GHG emissions reduction strategies into the design of the project.
- Determine that the project does not conflict with DWR's ability to implement any of the "Specific Action" GHG emissions reduction measures identified in the GGERP.
- Determine that the project would not add electricity demands to the State Water Project system that could alter DWR's emissions reduction trajectory in such a way as to impede its ability to meet its emissions reduction goals.

Consistent with these requirements, a GGERP Consistency Determination Checklist is presented in **Appendix B** documenting that the Phase B project has met each of the required elements. Therefore, based on the analysis conducted in support of the GGERP, the level of GHG emissions that would be generated during construction, and the demonstrated consistency of Phase B with the GGERP, Phase B's incremental contribution to the significant cumulative impact of GHG emissions would be less than cumulatively considerable. Therefore, this impact would be **less than significant**.

Mitigation Measure: No mitigation is required.

Impact GHG-2 (New): Conflict with an Applicable Plan, Policy, or Regulation Adopted for the Purposes of Reducing Greenhouse Gas Emissions.

New Phase B Impact Evaluation

As noted above, DWR adopted its GGERP, which details DWR's efforts to reduce GHG emissions consistent with EO S-3-05 and AB 32 and consistent with more recent State targets established in SB 32 (2016), SB 100 (2018), EO B-18-12 (2012), EO B-30-15 (2015), and EO B-55-18 (2018). The GGERP estimates historical (back to 1990), current, and future GHG emissions from operations, construction, maintenance, and business practices (e.g., building-related energy use). The plan specifies aggressive 2035 and 2045 emissions reduction goals and identifies a list of measures to achieve these goals.

As detailed in Impact GHG-1 above, Phase B is found to be consistent with the GGERP. The GGERP was specifically developed with consideration of State legislation including the State's GHG reduction targets and Scoping Plan. In addition, a CEQA initial study and negative declaration analyzing the environmental effects of the 2012 Plan was adopted in 2012. For the purposes of Update 2020, DWR prepared an addendum to the negative declaration pursuant to State CEQA Guidelines Sections 15162(b) and 15164(b). In the addendum, DWR evaluated the changes to the 2012 Plan under Update 2020 and changes in surrounding circumstances (including legislative, regulatory, and market changes) and concluded that these changes would not cause any new significant environmental impacts that would require preparation of a

subsequent negative declaration or an environmental impact report. Therefore, this impact would be **less than significant**.

Mitigation Measure: No mitigation is required.

Residual Significant Impacts

There would be no residual significant impacts to GHG emissions associated with the Phase B project.

Chapter 4. Other Statutory Considerations

4.1 Introduction

This chapter describes other required EIR topics including growth-inducing impacts, significant and unavoidable impacts, significant irreversible environmental changes relative to the proposed project, and the potential for significant cumulative impacts from the proposed project in conjunction with other past, current, and reasonably foreseeable future projects. This section focuses only on changed or new impacts identified in this Supplemental EIR.

4.2 Growth-Inducing Impacts

The North Delta EIR analyzed growth-inducing impacts from construction and operational activities including the MWT project. The analysis determined that a temporary increase in employment during construction was not expected to result in growth-inducing effects because the increase represents a very small percentage of total employment in Sacramento and San Joaquin Counties. The conclusion in the North Delta EIR for construction activities is unchanged in this Supplemental EIR and remains less than significant.

For operations, the North Delta EIR determined that a project with a flood control component, such as the North Delta Project, could reduce flood risk and thereby indirectly induce growth, especially if an area was removed outside of the 100-year floodplain. Therefore, if the project site were to provide a level of flood protection to the extent of the 100-year floodplain, the flood risk would be reduce and consequently could be made available for development, if floodplain status was the dominant barrier to growth. While the Phase B project would reduce flood risk, it would not do so to such a level that would result in growth-inducing effects within the surrounding area. Moreover, the MWT is being managed for habitat restoration and there are no plans for housing construction or other growth-inducing infrastructure on MWT from the Phase B project. Therefore, the Phase B project would not result in growth-inducing impacts, the same conclusion reached in the North Delta EIR for the larger North Delta Project.

4.3 Significant and Unavoidable Impacts

State CEQA Guidelines Section 15126(b) requires an EIR to "describe any significant impacts, including those which can be mitigated but not reduced to a level of insignificance. Chapter 3.0 of this Supplemental EIR describes potential environmental impacts of the proposed project and recommends mitigation measures to reduce any potentially significant impacts to a less-than-significant level. After implementation of the recommended mitigation measures, all potentially significant impacts associated with the proposed project would be reduced to a less-than-significant level.

4.4 Significant Irreversible Environmental Changes

The irreversible and irretrievable commitment of resources are the permanent loss of resources for future or alternative purposes. Irreversible and irretrievable resources are those that cannot be recovered or recycled, or those that are consumed or reduced to unrecoverable forms. Phase B implementation would
result in the irreversible and irretrievable commitments of energy and material resources during project construction and operations and maintenance, including the following:

- construction materials, including such resources as rock;
- land and water area committed to new/expanded project components; and
- energy expended in the form of electricity, gasoline, diesel fuel, and oil for equipment and transportation vehicles that would be needed for project construction and operations and maintenance.

The use of these nonrenewable resources is expected to account for only a negligible portion of the region's resources and would not affect the availability of these resources for other needs within the region. Construction activities would not result in inefficient use of energy or natural resources.

4.5 Cumulative Impacts

As defined in State CEQA Guidelines Section 15355, a cumulative impact "refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." The focus of a cumulative impacts analysis is to determine if a proposed project's effects make a "cumulatively considerable" incremental contribution to a significant cumulative impact resulting from the effects of past, present, and probable future projects, including the proposed project (State CEQA Guidelines Section 15130[a]). If a project's incremental effect is not cumulatively considerable, or the resulting cumulative impact with other projects is not significant, then the project would not make a cumulatively considerable incremental contribution to a significant cumulative impact and the cumulative impact would be less than significant.

State CEQA Guidelines Section 15130(b) states that the discussion of cumulative impacts need not provide as much detail as the discussion of the direct and indirect effects attributable to the project. The level of detail should be guided by what is practical and reasonable.

The elements provided below are necessary for an adequate discussion of significant cumulative impacts (State CEQA Guidelines Section 15130[b]):

- A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency; or a summary of projections contained in an adopted general plan or related planning document; or in a prior environmental document which has been adopted or certified, which described or evaluated regional or areawide conditions contributing to the cumulative impact. Any such planning document shall be referenced and made available to the public at a location specified by the lead agency.

- A defined geographic scope of the area affected by the cumulative effect and a reasonable explanation for the geographic limits identified.

- A summary of expected environmental effects that might be produced by those projects with specific reference to additional information stating where that information is available.

- A reasonable analysis of the cumulative impacts of the relevant projects. An EIR shall examine reasonable, feasible options for mitigating or avoiding the project's cumulatively considerable contribution to any significant or potentially significant cumulative effects.

4.5.1 Cumulative Analysis Methodology

This cumulative impact analysis has three steps as defined below:

- Define and present the geographic scope of potential cumulative impacts (Subsection 4.5.1, "Geographic Scope of Cumulative Impacts").

- List and summarize past, present, and reasonably foreseeable projects to include in the cumulative analysis (Subsection 4.5.2, "List of Projects Considered in Cumulative Impact Analysis").

- Conduct cumulative impact analyses (Subsection 4.5.3, "Resource-specific Cumulative Analysis").

State CEQA Guidelines indicate that lead agencies "should define the geographic scope of the area affected by the cumulative effect" (CCR Section 15130[b][3]). The geographic scope of the area affected by cumulative impacts varies by resource topic. The geographic scope of the area affected by the project for each of the topics addressed in this Supplemental EIR is listed in **Table 4-1** as well as whether the evaluation method was a qualitative ("Projects") or quantitative ("Projections") evaluation of impacts from past, present, and probable future projects.

List of Projects Considered in the Cumulative Impact Analysis

A list of relevant past, present, and probable future projects was compiled and categorized (**Table 4-2)**. For the purposes of this discussion, these projects could have a significant cumulative effect, with the Phase B project, on the resources of the project area and are often referred to as the "collective projects."

Table 4-1. Geographic Area and Evaluation Method for Cumulative Impact Analysis by Resource Area

Resource Area	Geographic Area	Evaluation Method
Hydrology / Water Quality	Immediate project vicinity and Sacramento and San Joaquin River watersheds within the legal boundaries of the Delta	Projects
Geology, Seismicity, Soils, and Mineral Resources	Project Site	Projects
Transportation and Navigation	Delta and Project Site	Projects
Air Quality	Local (toxic air contaminants and odors) Air Basin (construction-related and mobile sources)	Projections
Noise	Delta and Project Site	Projects
Biological Resources	Delta and Project Site	Projects
Land Use, Agriculture, and Recreation	Delta and Project Site	Projects and Projections
Energy	Delta and Project Site	Projects
Visual Resources	Delta and Project Site	Projects
Public Health and Environmental Hazards	Delta and Project Site	Projects
Cultural and Tribal Cultural Resources	Delta and Project Site	Projects
Greenhouse Gas Emissions	Global and Regional	Projections
Climate Change Impacts	Delta and Project Site	Projections

Table 4-2. Related Projects for Cumulative Analysis

Project Name	Project Type	Location	Lead Agency/ Proponent	Status
ARCF WRDA 2016 SREL Levees Improvement Project	Flood Control	Sacramento County	USACE/CVFPB/SAFCA	Planning
ARCF WRDA 2016 Sacramento Weir Expansion Project	Flood Control	Sacramento County	USACE/CVFPB/SAFCA	Planning
Capital Conservation Bank	Habitat Restoration	Yolo County	Yolo County	Planning
Davis-Woodland Water Supply Project	Water Supply	Yolo County	City of Davis; UC Davis; City of Woodland	Construction completed 2016
Decker Island Levee Repair Demonstration Project	Infrastructure Repair / Enhancement	Solano County	DWR	Planning
Decker Island Tidal Habitat Restoration Project	Habitat Restoration	Solano County	DWR	Construction completed 2018
Rio Vista Estuarine Research Station	Natural Resource Management	Solano and San Joaquin Counties	DWR	Planning

Project Name	Project Type	Location	Lead Agency/ Proponent	Status
Dutch Slough Tidal Marsh Restoration Project	Habitat Restoration	Contra Costa County	DWR	Construction began May 2018. Next Phase to begin 2021.
Fremont Weir Adult Fish Passage Modification Project	Fish Passage Improvement	Yolo County	DWR; USBR	Construction completed in 2018
Lambert Road Flood Flight	Flood Control	Sacramento County	Sacramento County	Planning
Lindsey Slough Freshwater Tidal Marsh Enhancement Project	Habitat Restoration	Solano County	CDFW	Construction complete
Lisbon Weir Fish Passage Enhancement	Agriculture; Infrastructure Repair / Enhancement; Resource Management	Yolo County	USBR; DWR	Planning
Lower Elkhorn Basin Levee Setback	Flood Control	Yolo County	DWR	Planning
Lower Putah Creek Realignment Project	Habitat Restoration; Flood Control	Yolo County	CDFW	Planning
Lower Yolo Ranch Restoration Project	Habitat Restoration	Yolo County	Westlands Water District	Construction planned for 2020
Montezuma Wetlands Restoration Project, Phase I	Habitat Restoration	Suisun Marsh	Solano County	Planning
North American Wetlands Conservation Act 3 – Lower Putah Creek Floodplain Restoration	Habitat Restoration; Flood Control	Solano, Yolo Counties	Solano County Water Agency	Planning
North Delta Fish Conservation Bank	Habitat Restoration	Yolo County	RD 2093	Completed 2013
North Delta Flood Control and Ecosystem Restoration Project	Habitat Restoration; Flood Control; Recreation	Sacramento County	DWR	Planning
Prospect Island Tidal Habitat Restoration Project	Habitat Restoration	Solano County	DWR	NOD Filed August 2019
SRFCP General Reevaluation Report	Flood Control	Central Valley-wide	CVFPB	Planning
South Canal Diversion Fish Screen Project	Resource Management	Yuba County	YWA	Planning
Southport Sacramento River Early Implementation Project	Flood Control	Yolo County	Southport Sacramento River Early Implementation Project	Planning

Project Name	Project Type	Location	Lead Agency/ Proponent	Status
Tule Red Tidal Restoration Project	Habitat Restoration	Suisun Marsh	State and Federal Water Contractors Water Agency	Construction completed Fall 2019
Wildlife Corridors for Flood Escape on the Yolo Bypass Wildlife Area	Habitat Restoration	Yolo County	Yolo County Resource Conservation District	Planning
Winter Island Tidal Habitat Restoration Project	Habitat Restoration	Contra Costa County	DWR	Completed Fall 2019
Winters Putah Creek Nature Park / Floodplain Restoration and Recreational Access Project	Flood Control; Recreation	Solano, Yolo Counties	CVFPB	Completed 2018
Wings Landing	Habitat Restoration	Solano	DWR	Planning
Yolo Bypass Salmonid Habitat Restoration and Fish Passage Project	Habitat Restoration; Resource Management	Yolo County	DWR	Planning Construction planned for 2021
Yolo Flyway Farms Restoration Project	Habitat Restoration	Yolo County	DWR	Construction completed in 2018

Notes: American River Common Features (ARCF), Sacramento River East Levee (SREL), U.S. Army Corps of Engineers, Central Valley Flood Protection Board (CVFPB), Sacramento Area Flood Control Agency (SAFCA), U.S. Bureau of Reclamation (USBR), California Department of Fish and Wildlife (CDFW), Sacramento River Flood Control Project (SRFCP), Yuba County Water Agency (YWA)

Consideration of Climate Change in the Cumulative Impact Analysis

The cumulative impacts analysis includes consideration of cumulative impacts related to climate change; specifically, by examining, to the extent possible without speculating, if the project has the potential to exacerbate the impacts of climate change anticipated in the project region. The geographic area of climate change impacts considered is the same as the geographic area identified for each resource in Table 4-1 above. The following climate change impacts are considered relevant to the project.

- Sea level rise-driven higher daily tidal water elevations.
- Sea level rise-driven changes to salinity and the location of X2 within the Delta.
- Increases in the magnitude and length of periodic flood events.
- Changes to the periodicity and seasonality of flood and drought events.
- Increases in frequency and intensity of extreme heat events.
- Increases in typical water temperatures, both upstream and downstream of the Delta.

- An increasing shift in Delta inflow and mismatch between Delta inflows and water demand, where more winter precipitation falls as rain and earlier spring snow melt leads to higher winter/spring Delta outflow followed by reduced summer/fall outflow volumes.

- Changes in sediment behaviors, both deposition and erosion.

Background information on each climate change impact relevant to the project is described in greater detail in **Appendix I**. The following questions, developed using CEQA considerations in DWR's CAP: Phase II Climate Change Analysis Guidance (DWR 2018), were investigated to help determine if the project has the potential to exacerbate impacts of climate change.

1. Will extreme climate phenomena such as floods and heat waves impact project performance by overwhelming design considerations?

2. How might extreme climate phenomena and changing climate trends alter the timing, nature, or magnitude of environmental impacts of the project?

3. How might climate change increase vulnerability or de-stabilize natural and human systems increasing sensitivity to project impacts?

Appendix I also provides an analysis of the climate change mitigation, adaptation, and resilience aspects of the project.

4.5.2 Resource-Specific Cumulative Analysis

Hydrology and Water Quality

Since the adoption of the North Delta EIR, new projects have been implemented in the Delta, including Phase A actions, which have changed hydrodynamic conditions. These changes have been incorporated into the flood modeling in the baseline (2020) conditions. For example, changes to the MWT levees and the resulting hydrodynamic conditions due to the 2017 flood-fighting activities are incorporated in the updated modeling. During the 2017 flood, a group of downstream landowners and Reclamation Districts in coordination with RD 2110 air lifted excavators to the tract to create a flood release valve by intentionally breaching the levees of MWT near the DCC and Dead Horse Cut to prevent a catastrophic levee failure as seen in 1997. The flood modeling for Phase B includes changes in the baseline condition to reflect the post 2017 flood conditions where levees on MWT were breached and subsequently repaired. It also incorporates the changes to the levees that occurred during Phase A, such as the constructed ring levee and levee re-sloping within the tract interior that was completed in 2019. The environmental implications of these changes are addressed in the context of the resources affected by the change.

Flood Control and Levee Stability

The North Delta EIR includes a cumulative impact analysis for flood control and levee stability that considers the effects of the project in combination with the South Sacramento Streams Project and the Cosumnes River Dry Dam project and concludes that the cumulative effect of the dry dam, the project, and the South Sacramento Streams Project would provide a substantial reduction in flood damage in the project area and lower Cosumnes River watershed.

As identified in Table 3.1.1 of Section 3.1, "Hydrology and Water Quality," hydraulic benefits to the Beach Stone Lake floodplain including areas around Point Pleasant and areas further north. These stage reductions of the 100-year event range from 0.25 ft to 0.28 ft . DWR and CVFPB had partnered with the USACE and the Sacramento Area Flood Control Agency (SAFCA) to implement the Federally authorized (1999) South Sacramento Streams Group (SSSG) project. The SSSG project was deemed by the USACE to have no mitigable hydraulic impact downstream of the Beach Lake levee system. The modelling indicated that impacts to the downstream properties were up to 0.1 ft. During the authorization of the SSSG project, the North Delta study being led by the State was looking to lower water surface elevation in the Point Pleasant area and other communities by having water conveyed through MWT, Dead Horse Island, and Staten Island. This MWT project, if implemented, would lower the stages to below the pre-SSSG condition for Point Pleasant and surrounding areas.

As discussed in **Appendix I**, climate change may increase flood magnitude and the frequency of large flood events. In general, without changes in daily water levels or sedimentation, the project would be expected to provide flood protection as designed and on a more frequent basis. Climate change is likely to result in higher daily water elevations on average combined with higher variability in water elevations at MWT. The specific impacts of these shifts in daily water elevations on project flood conveyance benefits are unclear. However, under the future scenario where water elevations are higher due to climate change, flood protection benefits from the project are generally anticipated to remain under "likely" sea level rise scenarios, but the magnitude of benefits could be reduced. Climate change is also changing sedimentation rates and patterns within the Delta. Sedimentation appears to be more likely to increase than decrease at MWT, which could offset some of the impacts of sea level rise in terms of total water depth, but consequently could increase the elevation of the MWT interior restored habitats and decrease total flood volume storage capacity.

Climate change is anticipated to increase the frequency of larger flood events, but impacts to the periodicity of smaller flood events, such as 10-year storms, is currently hard to predict. Predictions do not specifically address the changes in frequency to the size of storm currently referred to as a 10-year event. The general expectation is that long term precipitation totals may stay relatively similar to historical levels, with the increased variability. If this is the case, and large floods increase, the frequency of smaller floods could well decrease. Flood protection from the project would remain, but magnitude may decrease while frequency increases. The specific impacts of these shifts in daily water elevations on project flood conveyance benefits are unclear.

Less-than-significant impacts are identified for the Phase B project, with some impacts to flood control and levee stability incorporating project mitigation measures. Incremental changes due to the project that could affect the cumulative condition including increases in flood stage elevations at locations downstream of MWT during small flood events (i.e., 10-year storms), the potential to increase seepage at adjacent tracts due to tidal inundation at MWT, and increased scour or deposition in waterways upstream and downstream of MWT due to changes in hydrodynamics. These incremental impacts are not individually significant nor are they cumulatively considerable. Mitigation measures such as the funding agreement for maintenance of the DHI east levee (Mitigation Measure FC-2) were included to reduce the potentially significant impacts to a less-than-significant level. Other projects and localized actions, such as long-term maintenance activities of Delta levees, are expected to be beneficial and not create

adverse effects in the same areas. Therefore, the project would not make a cumulatively considerable incremental contribution to significant cumulative impacts regarding flood control and levee stability.

Geomorphology and Sediment Transport

The North Delta EIR includes a cumulative impact analysis for geomorphology and sediment transport that considers the effects of the project in combination with the sediment storage and export characteristics of the upper Mokelumne and Cosumnes River systems under baseline conditions and concludes that the sediment characteristics of the project area would not change to the point that management activities beyond those already implemented in the region would require significant modification. These management activities include site-specific bank erosion control activities and limited dredging activity in depositional areas.

As discussed in **Appendix I**, previous studies for the MWT project (Cbec 2021) and a 2020 study led by the USGS (Stern et al. 2020), examined the future of sediment transport in the Delta under climate change scenarios and both indicate a trend of increasing sedimentation within the Delta due to a variety of climate impacts. In general, increased sedimentation at the rates predicted could offset the impacts of sea level rise for habitat restoration at MWT and add climate resilience to the project. However, a leveling off or decline of sediment are also plausible outcomes. A leveling off or continued decline of sediment could significantly deteriorate the health and resiliency of the Bay-Delta as the climate continues to change.

Less-than-significant impacts are identified for the Phase B project, with some impacts to geomorphology and sediment transport incorporating project mitigation measures. Incremental changes due to the project that could affect the cumulative condition include increased sediment deposition in channels, the potential for increased scour on levees, and the potential for increased scour at DHI. As discussed in the cumulative analysis for flood control and levee stability, these incremental impacts are not individually significant nor are they cumulatively considerable. Mitigation measures such as the funding agreement for maintenance of the DHI east levee (Mitigation Measure FC-2) were included to account for potentially significant impacts. Other projects and localized actions, such as long-term maintenance activities of Delta levees, are expected to be beneficial and not create adverse effects in the same areas. Therefore, the project would not make a cumulatively considerable incremental contribution to a significant cumulative impact to geomorphology and sediment transport.

Water Quality

The North Delta EIR includes a cumulative effects analysis for water quality that considers other actions that might affect Delta water quality including managing and regulating flows into the Delta; exporting water from the Delta by the CVP, SWP, Contra Costa Water District, and other municipal diverters; agricultural practices, including management of diversions and return flows; discharges from wastewater treatment plants; upstream land use practices that affect stormwater runoff; and other factors. The analysis concludes that the project does not make cumulatively considerable incremental contributions to significant cumulative water quality impacts.

The North Delta EIR considers project impacts from the potential release of pollutants during construction, as well as the potential release of organic carbon and methylmercury from tidal restoration. In addition, the project would have a less-than-significant impact on water quality due to the use of pesticides and herbicides for invasive species management and mosquito management and due to changes in salinity. Delta waterways have been designated as impaired for specific pesticides and agricultural drainage and other factors have contributed to a cumulatively considerable impact. Controls would be implemented during the project's pesticide use, which would result in the project not making a cumulatively considerable incremental contribution to a significant cumulative impact on water quality.

As discussed under Impact WQ-5, high salinity water from Suisun and San Francisco Bays intrudes into the Delta during periods of low Delta outflow, adversely affecting beneficial uses. As such, Delta outflow and salinity concentrations at compliance and water export locations are highly managed. Project modeling indicates that the Phase B project would increase or decrease salinity at various locations in the Delta – changes in peak monthly salinity would range from less than 1 percent to up to 8 percent. Although the project would affect salinity, these changes would not result in non-compliance with the D 1641 water quality objectives.

As discussed in **Appendix I**, climate change is expected to increase Delta salinities year-round through a combination of decreased freshwater input and increased Bay input from sea level rise. While the specific impacts of a combination of climate-induced salinity increases and project-induced salinity changes have not been quantified, it is likely that project and cumulative-induced changes would be small compared to climate-induced changes.

Other restoration projects are occurring in the Delta, which also have the potential to affect salinity. A regional restoration model was developed for the Lookout Slough Tidal Habitat Restoration and Flood Improvement Project (RMA, 2020b)[13] which incorporates project changes at MWT and other regional restoration projects[14]. The regional restoration salinity modeling for Lookout Slough found no violations of water quality objectives at any of the intakes occurring with Regional Restoration. Because the contribution from regional projects and the Phase B project were considered in this modeling, this indicates that the MWT project would not make a cumulatively considerable incremental contribution to a significant cumulative impact on Delta salinity.

[13] Available as Appendix S in the Lookout Slough Tidal Habitat Restoration and Flood Improvement Project Final EIR, which is available at: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Environmental-Services/Restoration-Mitigation-Compliance/Files/Lookout-Slough-FEIR_DES_v1_11032020_ay11.pdf

[14] MWT, Arnold Slough, Bradmoor Island, Chipps Island, Decker Island, DOW Wetlands, Dutch Slough, Flyway Farms, Hill Slough, Lookout Slough, Lower Yolo, Mallard Farms, Prospect Island, Tule Red, West Island, Wings Landing, Winter Island.

Water Supply and Management

The North Delta EIR includes a cumulative impact analysis for water supply that considers the effects of the project in combination with local irrigated agricultural water use and DCC re-operations. The analysis concludes that the project, in combination with DCC re-operations, may result in water supply and quality benefits for water routed through the Delta for delivery via the CVP and SWP.

The Phase B project would have a less-than-significant impact on water supply and management due to small increases in evapotranspiration and the continued use of drainage pumps to extract accumulated water in some areas of MWT. Other actions that affect Delta water supplies include SWP and CVP Delta operations, the East Bay Municipal Utility District (EBMUD) Mokelumne River operations, and the Woodbridge Irrigation District diversions; export of water from the Delta by Contra Costa Water District and other municipal diverters; agricultural diversion and return flows; and other factors. The incidental water use and drainage from the project would be a small incremental addition to the cumulatively considerable condition and the project would not cause a substantial increase in conflicts between water users and environmental needs or reduce access to economically efficient water supplies for other water users. Furthermore, the project would not affect salinity such that these salinity changes would result in non-compliance with the D 1641 water quality objectives. Therefore, the project would not make a cumulatively considerable incremental contribution to significant cumulative impacts related to water supply and management.

Groundwater

Cumulative impacts to groundwater were not identified in the North Delta EIR. The Phase B project would have a less-than-significant impact on groundwater resources with incorporation of project mitigation measures. The project would restore tidal inundation at MWT, which could increase groundwater seepage to adjacent islands/tracts and change the cumulative condition. Current conditions include high groundwater and periodic seepage, primarily during high-flow events. As discussed in Mitigation Measure FC-1 (Revised), implementation of a seepage-monitoring program will establish a baseline, provide early detection of seepage problems caused by the project, and quantify and document seepage impacts. Seepage control measures will then be implemented to the extent that the seepage monitoring indicates impacts attributable to the project. Therefore, the project would not make a cumulatively considerable incremental contribution to a significant cumulative impact related to groundwater.

Geology, Seismicity, Soils, and Mineral Resources

The North Delta EIR did not identify any significant cumulative impacts associated with geology and related resources. However, project implementation along with other CALFED actions was deemed to be potentially cumulatively considerable regarding the potential for structural damage as a result of fault rupture, ground shaking, liquefaction, development on expansive soils; accelerated runoff, erosion, and sedimentation from construction activities; and localized subsidence from placement of material on peat soils. Incorporation of Mitigation Measures GEO-1 and GEO-2 reduced the project's contribution to any cumulative impact and the project's contribution to these impacts was considered less than significant. Additionally, after the incorporation of environmental commitments associated with construction standards and

CALFED Geology and Soils Mitigation Measures 1, 2, 3, 5, and 6 in the North Delta EIR, no further mitigation for cumulative impacts was required.

Phase B updated project elements that were not discussed in the North Delta EIR would be implemented in accordance with local requirements for geotechnical studies and with environmental commitments to incorporate requirements for standard UBC Seismic Zone 3, CBSC, and county general plan construction standards into the project design, to minimize the potential liquefaction and expansive soil hazards. Other projects that may be constructed in the project vicinity in close temporal or physical proximity to Phase B construction, would not increase the overall regional potential for structural damage and injury associated with liquefaction or construction on expansive soils, because although seismic events have then potential to affect the entire region, the potential for liquefaction or shrink-swell potential of soils is site-specific by nature and would be mitigated by preparing a geotechnical report and implementing its recommendations prior to the start of construction and incorporation of the previously referenced environmental commitments associated with construction standards.

Some other projects are large restoration or levee projects with considerable earthmoving components. However, the increased potential for runoff, erosion, and sedimentation during Phase B project construction would not be affected by construction of these other projects because this type of impact is managed locally, many of these projects are already constructed (no temporal overlap in impacts), and others are located sufficiently distanced from MWT such that there would be no spatial overlap in impacts. The proposed project would include the previously mentioned environmental commitment regarding SWPPP preparation or compliance with the County grading code. This potential impact would also be, managed by implementing CALFED Geology and Soils Mitigation Measures 1, 2, 3, 5, and 6 in the North Delta EIR.

Since liquefaction potential, expansive soils, and erosion and sedimentation are localized to the project site, and Phase B project implementation would include project mitigation measures and, environmental commitments and CALFED mitigation measures described above, there would be no cumulatively considerable incremental contribution to a significant cumulative impact from runoff, erosion, and sedimentation.

Transportation and Navigation

There were no cumulative effects related to transportation and navigation identified in the North Delta EIR. The geographic scope of effects on transportation consists of the publicly available roadways connecting the project site to the region. There are no other projects identified nearby that could generate a permanent increase in VMT in the same area and during the same time that would be affected by construction of the proposed project. During construction, increased VMT would be generated from import and export of construction equipment and materials, earthwork associated with levee modifications and habitat enhancement, and worker trips. However, the project would not make a cumulatively considerable incremental contribution to a significant cumulative impact on VMT in the area.

Air Quality

The North Delta EIR determined that because the air quality of the Sacramento metropolitan region is already impaired, the project would result in a significant and unavoidable cumulative air quality impact during construction in combination with other construction projects.

As shown in **Table 3.4-4** (maximum daily emissions), and described under Impact AIR-1, maximum daily construction-related criteria air pollutant and ozone precursor emissions could exceed SMAQMD thresholds of significance. However, with implementation of all air quality mitigation measures included herein, emissions would be reduced to a level that would not exceed the SMAQMD thresholds of significance. SMAQMD thresholds are used as a proxy for determining whether impacts would be cumulatively considerable. Therefore, the project's construction activities would not make a cumulatively considerable incremental contribution to the significant cumulative impact that exists with respect to the region's air quality. Furthermore, the operations and maintenance activities of the Plan B project would be very minor and also would not make a cumulatively considerable incremental contribution to the significant cumulative impact that exists with respect to the region's air quality.

Noise

The North Delta EIR states that noise associated with construction activities, dredging, and pumping operations would not have a substantial cumulative effect due to noise sensitive land uses being sparse. However, noise from project-related trucking would likely result in significant cumulative effects due to trucking potentially occurring on roadways where the cumulative noise from traffic could exceed local noise standards.

The Phase B project updates would not result in new or different cumulative effects than what was analyzed in the North Delta EIR. The Phase B project would result in temporary construction, dredging, pumping, and trucking-related impacts on noise, but these would not result in a cumulatively considerable incremental contribution to significant cumulative noise impact.

Biological Resources

The North Delta EIR generally determined that the project would have a beneficial effect on fish, vegetation, and wildlife, and that it would, when considered with the CALFED Ecosystem Restoration Program and other Delta ecosystem restoration projects currently in operation or in the planning stages at the time, have a cumulatively considerable beneficial effect on biological resources. The following discussion analyzes potential for the Phase B project to make a cumulatively considerable incremental contribution to significant cumulative impacts on biological resources, based on current conditions.

As indicated in Table 4-2, most of the related projects that have been implemented or are currently being planned in the Delta region are habitat restoration projects. Although these restoration projects and the other project types would have some degree of adverse impact on certain biological resources, the overall long-term result of the Phase B project on most biological resources is anticipated to be beneficial. The Phase B project and related projects throughout the Delta would convert upland and non-tidal wetland habitat to tidal aquatic and

wetland habitats and would ultimately increase the amount of riparian, aquatic, and wetland habitats and benefit the common and special-status native plant, fish, and wildlife species associated with these habitats. However, there would be a permanent substantial loss of grassland and other non-riparian upland habitat and associated impacts on species that use such habitats.

Climate change impacts to natural habitats, and sensitive or protected plant and wildlife species are global, diverse, and hard to overestimate. Currently United Nation estimates are that 1 in 8 species worldwide is threatened with climate extinction (Diaz et al, 2019). Climate change will certainly exacerbate Project-specific biological impacts. However, the project is inherently a climate adaptation project, converting a climate-sensitive habitat (previous row crops that are sensitive to heat, drought, floods and sea level rise) to more climate-resilient habitats, such as tidal marsh and subtidal habitat which are less sensitive to heat, drought, and sea level rise. The long-term habitat value benefits of the project are designed to be maintained under future climate change projections. The grading designs aim to raise land elevations to support greater acreages of tidal marsh that are expected to accrete at rates that will keep pace with sea level rise at the modeled rate of 18 inches over 40 years. The project is designed to maximize sediment capture and deposition and marsh bioaccretion, while gradually sloped habitat levees around the tract perimeter will allow for upward migration of marsh and riparian habitats with increased tidal elevations. The project will add improved riparian and aquatic connectivity, new riparian and marsh habitat, and new aquatic habitat. These features are in line with the State's general understanding that regional conservation efforts, including the protection and restoration of open space and refugia habitats, when paired with climate-smart practices, will enhance regional ecological resilience (Ackerly 2018).

Sensitive Habitats

Phase B construction would remove approximately 27 acres of existing riparian vegetation cover types on MWT. However, approximately 16 acres of this habitat are early successional vegetation that has recently become established, and 175 to 250 acres of MWT are anticipated to be woody riparian habitat after implementation of the Phase B project. Because it would take several years for restored riparian vegetation to reach maturity, there would be a short-term loss of riparian vegetation for the Phase B project and related restoration projects, if other projects were to remove riparian vegetation at a similar time. However, related projects in the vicinity also would be required to mitigate for loss of riparian vegetation, and nearly 64 acres of existing riparian vegetation on MWT would be preserved and remain in place throughout project construction and operation. In addition, project implementation would increase the amount of other sensitive habitats (aquatic and wetland habitats) on MWT by more than 1,000 acres. Given the Phase B project would preserve extensive areas of onsite existing riparian vegetation and result in a substantial long-term increase in aquatic, wetland, and riparian habitat, the project would not make a cumulatively considerable incremental contribution to a significant cumulative impact on any of these sensitive habitats.

Special-status Plants

Phase B construction would affect potentially suitable habitat for special-status plants that have also been documented elsewhere in the Delta, including on or near the sites of other related projects. Phase B construction would result in temporary and permanent loss of suitable habitat for these special-status plants and could result in loss of individuals if occupied habitat occurs in the project footprint and cannot be avoided. Implementing Mitigation Measures VEG-7 and VEG-8 would avoid and minimize impacts and compensate for unavoidable impact, and similar mitigation would likely be implemented for the related projects. In addition, implementing the Phase B project and the related restoration projects would result in a substantial long-term increase in the amount of suitable habitat for these species and is anticipated to have a long-term beneficial effect on the species. Therefore, the Phase B project would not make a cumulatively considerable incremental contribution to significant cumulative impacts on special-status plants.

Special-status Fish

The Phase B project could cause temporary and permanent adverse impacts to special-status fish species through construction-related injury or mortality, temporary habitat degradation, permanent SRA habitat loss, and stranding and predation during project operation. Special-status fish with the potential to be adversely affected have documented ranges throughout the Bay-Delta and have critical habitat adjacent to MWT and construction areas of related projects. Implementing the Phase B project Environmental Commitments related to water quality and in-channel work windows would minimize temporary construction-related impacts, and implementing the current project design and Mitigation Measures Fish-3 and Fish-4 would reduce impacts related to potential fish stranding and increased predation to a minimal level. Loss of SRA habitat associated with existing riparian vegetation in the levee degrade areas would be offset when MWT is inundated and existing riparian vegetation on the interior provides similar habitat on the levee exterior, and naturally recruiting vegetation on the riparian berms adjacent to tidal channels would provide SRA habitat as it becomes established and matures.

In addition, the Phase B project would generally decrease monthly averaged X2 by 0.1 km or less and result in a small average seaward shift, a direction that is correlated with improved habitat conditions for many native Delta fish species. As discussed in the cumulative analysis for "Water Quality" above, the Lookout Slough Tidal Habitat Restoration and Flood Improvement Project found no violations of water quality objectives at any of the intakes occurring with the MWT project combined with other regional restoration projects. Because the contribution from regional projects and the Phase B project were considered in this modeling, this indicates that the MWT project would not make a cumulatively considerable incremental contribution to a significant cumulative impact on Delta salinity.

Most notably, the project would create more than 1,000 acres of high-quality floodplain fish habitat. Because the Phase B project and related projects would create extensive areas of valuable floodplain, they would have a beneficial effect on habitat for special-status fish species. For these reasons, the Phase B project would not make a cumulatively considerable incremental contribution to significant cumulative impacts on special-status fish.

Special-status Animals

Similar to impacts on riparian vegetation, Phase B construction would directly remove elderberry shrubs, the host plant for valley elderberry longhorn beetle, and result in indirect loss of additional shrubs due to tidal inundation. However, numerous existing elderberry shrubs would be preserved on MWT, and additional shrubs would become established in riparian habitat created through passive restoration and active planting. Related projects throughout the Delta that would remove riparian vegetation and non-riparian elderberry shrubs have the potential for cumulative impacts on valley elderberry longhorn beetle. However, these related projects are primarily ecosystem restoration projects that would leave portions of existing riparian vegetation in place or avoid the removal of non-riparian elderberry shrubs and would plant new riparian vegetation and/or elderberry shrubs to replace vegetation that has been removed. This habitat preservation and replacement associated with Phase B and related projects would enable the valley elderberry longhorn beetle's continued use of occupied sites and result in long-term habitat increase and/or enhancement. Therefore, the Phase B project would not make a cumulatively considerable incremental contribution to significant cumulative impacts on valley elderberry longhorn beetle.

Phase B construction activities would temporarily and permanently impact habitat for giant garter snake and western pond turtle. The MWT interior does not provide suitable aquatic habitat for either species, but the waterways surrounding the tract are suitable, and suitable upland habitat for both species occurs on the tract. Upland habitat would be permanently impacted in the levee degrade footprints and portions of the MWT interior that are near aquatic habitat and would be converted to open water and marsh habitat. Although these areas would no longer provide suitable upland habitat, portions of MWT that are outside the inundation area would continue to provide suitable upland habitat, and more than 1,000 areas of aquatic and wetland habitat suitable for giant garter snake and western pond turtle would be created. Therefore, the primary source of potential impacts on giant garter snake and western pond turtle would be injury or mortality of individuals during Phase B construction. These potential impacts would be minimized by implementing Mitigation Measures WILD-12 and WILD-22, and related projects throughout the Delta that could injure or kill individuals also would be required to implement impact minimization measures. In addition, most of the related projects are habitat restoration projects that also would result in a greater abundance of suitable aquatic habitat. For these reasons, the Phase B project would not make a cumulatively considerable incremental contribution to significant cumulative impacts on giant garter snake or western pond turtle.

Special-status Birds and Bats

The Phase B project would impact special-status bird species, other bird species protected by the CFGC and Migratory Bird Treaty Act, and roosting bats through habitat loss and potential construction-related nest and roost disturbance. Destruction and indirect failure of active bat roosts, active bird nests, and occupied burrowing owl burrows during Phase B construction would be avoided by implementing Mitigation Measures WILD-2, WILD-14, WILD-18, WILD-24, WILD-26, WILD-28, and WILD-31, and related projects would be required to similarly avoid such impacts. As described above, riparian vegetation would be temporarily and permanently impacted by the Phase B project; these areas provide bird nesting and bat roosting habitat. Although there would be a short-term loss of riparian vegetation for the Phase B project and related restoration projects that remove riparian vegetation at a similar time, an extensive

amount of existing riparian vegetation on MWT would be preserved and continue to provide suitable nesting habitat. In addition, the Phase B project and related projects would result in a substantial long-term increase in riparian and wetland habitats. Therefore, the project would not make a cumulatively considerable incremental contribution to significant cumulative impacts on nesting birds or roosting bats in riparian or wetland habitats.

Approximately 1,300 acres of annual grassland/ruderal vegetation that provides foraging and/or nesting habitat for a variety of bird species, including special-status species such as Swainson's hawk, white-tailed kite, and northern harrier, would be permanently lost when the MWT interior is converted to aquatic, wetland, and riparian habitats. Related projects also would result in loss of foraging and nesting habitat for these species. The Phase B project and related projects include measures to mitigate this impact, and analysis of land cover types in the region indicate extensive areas of habitat of similar or greater value occur. As a result, implementing the Phase B project and related projects, including mitigation, is not anticipated to result in a substantial overall loss of habitat for species that forage and/or nest in grassland and suitable agricultural crops in the Delta or to have a significant cumulative impact on these species. Because implementing mitigation measures identified for the Phase B project would ensure no net loss of value associated with this cover type, it would not make a cumulatively considerable incremental contribution to a significant cumulative impact on special-status birds that forage and/or nest in grassland and agricultural crops.

Land Use and Agriculture

The North Delta EIR states that cumulative land use changes would involve the permanent conversion of agricultural lands to non-agricultural uses. Other land uses would not be affected by the project. Although the project would result in the loss of less than 1 percent of farmland, if the rate of conversion of farmland to non-farmland continues for Sacramento and San Joaquin Counties, the loss of the 1,970 acres of prime farmland as a result of the project would represent a significant proportion of this annual loss and would be cumulatively considerable. Implementation of project features for farmland protection, described in the North Delta EIR Section 5.1, "Land Use, Recreation, and Economics," and summarized in Impact LU-1, would reduce the impact on prime farmland attributable to the project, but would not reduce it to a less-than-significant level. Mitigation Measure LU-2 would reduce this impact to a less-than-significant level.

Although unlikely, the Phase B project could result in the loss of a small amount of additional farmland at the new distribution line project locations. However, Mitigation Measure LU-3 requires consultation with landowners to avoid or minimize impacts to farmland and would reduce this impact to less than significant. Therefore, the Phase B project would not make a cumulatively considerable incremental contribution to significant cumulative impacts related to land use and agriculture.

Recreation

The North Delta EIR states that the project is designated to benefit recreation in the North Delta and there would be no significant cumulative effects to recreation. The Phase B project would not result in any new or modified impacts to recreation from those identified in the North Delta EIR. Therefore, the Phase B project would not make a cumulatively considerable incremental contribution to a significant cumulative impact on recreation.

Energy

The Phase B project would result in energy usage; however, energy would not be consumed in a wasteful, inefficient, or unnecessary manner due to the predominately temporary nature of the project and only minimal operational energy usage. The use of gas- and diesel-fueled vehicles and equipment would temporarily increase energy usage. However, energy use from construction would be temporary and would cease following completion of construction activities. The construction and operation of an additional drainage pump would increase energy use. However, operation of this additional drainage pump would only consume a small amount of energy. Impacts related to energy usage are considered minimal and less than significant. The Phase B project would not result in new or different cumulative effects than what was analyzed in the North Delta EIR and would not result in a cumulatively considerable incremental contribution to a significant cumulative impact on energy.

Visual Resources

There were no cumulative effects related to visual resources identified in the North Delta EIR. There are existing roads, including I-5, and numerous large transmission towers and agricultural infrastructure and equipment within the viewshed of the project area. There are no other known future projects identified nearby that could generate or contribute to permanent changes to the viewshed of the project area. The Phase B project would add similar pole towers and electrical lines, but these and other components of the Phase B project are not considered to be considerable cumulative effects in this area. Therefore, the project would not make a cumulatively considerable incremental contribution to a significant cumulative impact on visual resources.

Public Health and Environmental Hazards

All of the projects considered in this cumulative analysis, including the proposed project, would result in the handling of small quantities of hazardous materials used in construction equipment (e.g., fuels, oils, lubricants). However, permits are required for the use, handling, and storage of these materials and compliance with appropriate standards of regulatory agencies, which also require all projects to avoid inadvertent releases of hazardous waste. The storage, use, disposal, and transport of hazardous materials are extensively regulated by various Federal, State, regional, and local agencies. Construction companies that handle hazardous substances are required by law to implement and comply with these existing regulations. Any accidental spills of hazards materials would be localized to the area where the materials are being used and would not be additive to other hazardous materials-related impacts. Furthermore, all of the cumulative projects, as well as the proposed project, are required by law to implement a SWPPP, which must contain provisions to prevent accidental spills and for prompt cleanup if spills do occur.

Therefore, the proposed project would not make a cumulatively considerable incremental contribution to a significant cumulative impact related to the use, handling, storage, transport, and accidental spills of hazardous materials.

The projects considered in this cumulative analysis, including the proposed project, could expose construction workers and the public onsite existing hazardous materials (i.e., soil and groundwater contamination, natural gas transmission lines, and gas wells) during project-related construction, and environmental degradation could occur from exposure to these hazardous materials during flood operations. However, implementation of Mitigation Measures PH-1 (North Delta EIR) and PH-2 (New) would reduce the proposed project's impacts to a less-than-significant level. Furthermore, if hazardous materials were encountered onsite during construction of the related projects, the associated effects would be localized to each related project site and would not be additive to other hazardous materials-related effects associated with other projects. Therefore, the proposed project would not make a cumulatively considerable incremental contribution to a significant cumulative impact related to construction or operation in areas of known or unknown hazardous materials.

Cultural Resources

Cultural Resources Section 5.7 of the North Delta EIR identifies several significant impacts on cultural resources that taken together with other Delta projects, the project's impacts on cultural resources would contribute to cumulative effects on cultural resources. Implementation of the mitigation measures described in Section 5.7 of the North Delta EIR would reduce the project's contribution to these cumulative impacts to a level below the "cumulatively considerable" threshold. Because no new cultural resources were identified from additional information sources and for the new distribution line project locations, there would be no change in the impact analysis from the North Delta EIR; the proposed project would not make a cumulatively considerable incremental contribution to a significant cumulative impact related to cultural resources.

Tribal Cultural Resources

Cumulative effects to TCRs were not discussed in the North Delta EIR. Cumulative effects to TCRs are based on analysis of past, present, and reasonably foreseeable future actions in the vicinity of the proposed project in combination with potential effects of this project. In general, TCRs found within the Sacramento Valley and Delta region are the result of thousands of years of human occupation. Previous development and agriculture and construction of levees has disturbed or destroyed numerous resources that most likely would qualify as a TCR and resulted in a degradation of the prehistoric fabric and integrity of delta landscape. Because no significant TCRs have been identified within or in the immediate vicinity of the proposed project, however, future actions would be below the "cumulatively considerable" threshold. Therefore, the North Delta EIR Project would not make a cumulatively considerable incremental contribution to a significant cumulative impact on TCRs.

Greenhouse Gas Emissions

The atmospheric concentration of GHGs determines the intensity of climate change. Current levels are already leading to increases in global temperatures, sea level rise, severe weather, and other environmental impacts. The continued increase in atmospheric GHG concentrations will only worsen the severity and intensity of climate change, leading to irrevocable environmental changes. GHG emissions typically persist in the atmosphere for extensive periods of time—long enough to be dispersed globally and result in long-term global climate change and related impacts. As such, implementation of the Phase B would not, by itself, contribute significantly to climate change; however, cumulative emissions from many projects and plans all contribute to global GHG concentrations and the climate system, ultimately contributing substantially to the phenomenon of global climate change and its associated environmental impacts. As such, impacts associated with GHG emissions are inherently cumulative.

As discussed under Impacts GHG-1 and GHG-2 in Section 3.12, "Greenhouse Gas Emissions," GHG emissions from construction of Phase B would be less than significant. Phase B would be consistent with the goals and actions of DWR's GGERP Update, which considers the cumulative contribution of implementation of DWR's projects and ongoing operations and maintenance activities to the significant cumulative impact of climate change. Therefore, the contribution of Phase B to the global cumulative impact would be less than cumulatively considerable.

Furthermore, the MWT Project has the potential to result in a net reduction in GHG emissions. As discussed in **Appendix I**, the project would sequester GHGs by converting previous agricultural lands to significant acreages of woody riparian, tidal marsh, and subtidal open water habitats. The net increase of approximately 13 to 88 acres of riparian habitat acreage on MWT is anticipated to provide an annual average GHG sequestration benefit ranging from 13 to 193.6 metric tons per year, depending on the extent of riparian habitat restoration and rate of sequestration. Restoration of approximately 745 acres of freshwater tidal marsh is also expected to sequester carbon in the soil. Some estimates indicate that restoration of freshwater marsh can result in a net effect of 8.3 metric tons carbon sequestered per acre per year in the Delta (Vittorio 2017 and Knox 2015). However, this may be an overestimation for expected net sequestration on MWT since the site is dominated by mineral soils and not primarily peat soils. It is unclear whether the specific subtidal open water habitat created would provide net GHG sequestration or net emissions.

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