Meeting Date: 10/22/20
Lease Number: 4743
Staff: D. Tutov

Staff Report 22

LESSEE/APPLICANT:

Contra Costa County Flood Control and Water Conservation District

PROPOSED ACTION:

Termination and Issuance of a General Lease – Public Agency Use

AREA, LAND TYPE, AND LOCATION:

Sovereign land in Walnut and Pacheco Creeks, near Martinez, Contra Costa County.

AUTHORIZED USE:

Habitat restoration, flood protection, and public access along Walnut and Pacheco Creeks.

TERM:

20 years, beginning October 22, 2020.

CONSIDERATION:

The public use and benefit; with the State reserving the right at any time to set a monetary rent if the Commission finds such action to be in the State's best interests.

SPECIFIC LEASE PROVISIONS:

Lessee agrees and acknowledges hazards associated with sea-level rise may require additional maintenance or protection strategies regarding the improvements on the Lease Premises.

STAFF ANALYSIS AND RECOMMENDATION:

AUTHORITY:

Public Resources Code sections 6005, 6216, 6301, 6501.1, and 6503; California Code of Regulations, title 2, sections 2000 and 2003.

PUBLIC TRUST AND STATE'S BEST INTERESTS:

On May 29, 1969, the Commission authorized a 49-year Public Agency Permit PRC 4215 to the Applicant for the construction and maintenance of a flood control channel (Item 1, May 29, 1969). That permit expired on April 29, 2018. On April 26, 1973, the Commission authorized a 49-year Public Agency Permit PRC 4743 to the Applicant for the maintenance of a second flood control channel (Item 3, April 26, 1973). That permit will expire on April 30, 2022. The Contra Costa County Flood Control and Water Conservation District (District) has requested that the existing permit be terminated and that a new General Lease – Public Agency Use be authorized for habitat restoration, flood protection, and public access along Walnut and Pacheco Creeks, which will include the two existing flood control channels, to be modified as part of the Lower Walnut Creek Restoration Project (Project).

The purpose of the proposed Project is to restore and enhance wetlands and associated habitats in Walnut and Pacheco Creeks and provide sustainable flood management, while allowing opportunities for public access and recreation. The proposed Project would directly restore or create approximately 93 acres of tidal wetland, 20 acres of nontidal wetlands, 12 acres of tidal waters, 4 acres of nontidal waters, and 90 acres of transitional and upland areas. In addition, the project would result in indirect beneficial enhancement of approximately 78 acres of marsh habitat adjacent to the Project site by increasing tidal connectivity. The Project will improve habitat quality, diversity, and connectivity along Walnut and Pacheco Creeks, and along the southern Suisun Bay shoreline. The Project will breach and lower levees and berms to reintroduce the tides to formerly diked baylands, construct new setback levees for flood protection, and create new tidal wetland areas. The habitats would be gradually sloped, from marsh to upland elevations for a wide ecotone zone reducing impacts from erosion and siltation. The Project will provide habitat for native and special-status species such as the salt marsh harvest mouse, Ridgway's rail, California black rail, salmonids, and rare plant species.

Restoration efforts are divided into four project reaches, the North Reach, South Reach, Pacheco Reach, and Middle Reach. Implementation will occur in two phases, with the North, South, and Pacheco Reaches constructed first, starting in 2021, and the Middle Reach as a second, future phase. Most of the Project will be located on parcels owned by the District or where the District has an easement. However, certain portions of the restoration Project are proposed on land under the Commission's jurisdiction.

Tidal marsh restoration elements planned for the project site include vegetated brackish tidal marsh, tidal channel networks, and shallow brackish marsh ponds. These elements would be achieved through grading channels that would reconnect Walnut Creek to its adjacent habitats and through general grading to provide topographic

variety. The graded tidal marsh plain and channels would enhance ecological values and function in the short term, and provide long-term high marsh habitat during sea level rise over decades. Complex restored tidal marshes would support a diversity of native wildlife species. Fish could forage in the marsh plain during spring high tides and forage in channels during most levels of the tide. Small mammals would have access to some high marsh areas where cover and available flood refuge habitat would be created, and birds may forage or nest in the low and high marsh.

The South Reach would be restored by breaching and lowering the existing flood protection levees along Walnut and Pacheco Creeks to restore tidal inundation to the existing nontidal wetlands. New tidal channels would be excavated within the restored wetlands and adjacent existing marsh, to connect the restored wetlands to the creeks. The existing levees would be lowered to create high and mid marsh habitat, and areas of terrestrial lowland grasslands and uplands. Flood protection would be provided by a new setback levee along the western edge of the project site. The project site would be designed to facilitate the implementation of future public access improvements, including the extension of the Iron Horse Trail along the new setback levee and construction of pedestrian crossings.

Existing grades in the North Reach would be higher relative to the tides compared to the Middle and South Reaches. The North Reach design would preserve large portions of the site above the elevations of present-day tidal marsh, with the expectation that these areas would gradually convert to tidal marsh habitats over time as sea levels rise. The District would construct levees and berms that provide width and opportunity for trails and would conduct the initial grading for public amenities during the initial phases of the Project. Future project phase which would include recreational facilities to be constructed and maintained by the John Muir Land Trust (JMLT) is planned by the Applicant. In the future, the Applicant or JMLT will submit an application to include the construction and long-term maintenance of the planned recreational facilities at the North Reach of the Project.

Invasive species removal and native vegetation planting would occur along the Pacheco Creek Reach of the project site. Vegetation management activities would include removal of invasive species using hand, low impact mechanical, and/or herbicide application methods. Revegetation would focus on planting native species to enhance habitats for native fish and wildlife along Pacheco Creek.

The proposed Project will enhance habitat restoration and preservation and public access opportunities, which are recognized Public Trust uses, while providing flood protection. Project activities are designed to minimize potential direct and indirect impacts to listed species during construction, while meeting long-term restoration goals. The proposed lease does not alienate the State's fee simple interest or

permanently impair public rights. The lease is limited to a 20-year term that allows the Commission flexibility to determine if the Public Trust needs of the area have changed over time. Furthermore, the Applicant will conduct post-project monitoring through review of field observations and studies to evaluate outcomes of the Project.

CLIMATE CHANGE:

Climate change impacts, including sea-level rise, more frequent and intense storm events, and increased flooding and erosion, affect both open coastal areas and inland waterways in California. The subject facilities are located on the south bank of Suisun Bay, in a tidally influenced site vulnerable to flooding at current sea levels and at a higher risk of flood exposure given projected scenarios of sea-level rise.

The California Ocean Protection Council updated the State of California Sea-Level Rise Guidance in 2018 to provide a synthesis of the best available science on sea-level rise projections and rates. Commission staff evaluated the "high emissions," "medium-high risk aversion" scenario to apply a conservative approach based on both current emission trajectories and the lease location and structures. The San Francisco tide gauge was used for the projected sea-level rise scenario for the region as listed in Table 1.

Table 1. Projected Sea-Level Rise for San Francisco

Year	Projection (feet)
2030	0.8
2040	1.3
2050	1.9
2100	6.9

Source: Table 13, State of California Sea-Level Rise Guidance: 2018 Update
Note: [1] Projections are with respect to a 1991 to 2009 baseline.

This effect could increase Suisun Bay's inundation levels within the lease area. In addition, as stated in *Safeguarding California Plan: 2018 Update* (California Natural Resources Agency 2018), climate change is projected to increase the frequency and severity of natural disasters related to flooding, fire, drought, extreme heat, and storms (especially when coupled with sea-level rise). In rivers and tidally influenced waterways, more frequent and powerful storms can result in increased flooding conditions and damage from storm-created debris as well as decreased bank stability and structure. Conversely, climate-change induced droughts could decrease river levels and flow for extended periods of time. Climate change and sea-level rise will further influence riverine areas by changing erosion and sedimentation rates. Flooding and storm flow, as well as runoff, will likely increase scour and decrease bank stability at a faster rate.

The combination of these projected conditions could increase the likelihood of damage and affect access to proposed berms and levees of Lower Walnut Creek and other site improvements and habitat restoration within the lease premises during the term of the lease. For example, the potential for more frequent and stronger storm events may expose the lease area structures to higher flood risks and cause facilities to be damaged or dislodged, presenting hazards to public safety as well as dangers for flood water conveyance within the proposed restored creek channel. Conversely, prolonged drought conditions could lower water levels, exposing previously submerged structures to the elements and potentially leading to increased wear-and-tear on the berms and levees. The design and construction of the habitat restoration should account for the potential changes in water level for the life of the Project. Lowered water levels could also reduce navigability of the creek channel, thereby increasing hazards and impacting the function and utility of the lease area public access.

Any shoreline improvements must be adaptable to variable water levels, allowing them to withstand the rise and fall of water with storms and droughts and increasing their resiliency to some climate change impacts, but may require more frequent maintenance to ensure continued function during and after storm seasons and to avoid any dislodgement. All fixed features may need reinforcement to withstand higher levels of flood exposure and more frequent storm events. The design of the berms, levees and habitat restoration should account for the potential rise and fall of tidal water levels within the footprint of the lease areas. Regular maintenance, as required by the terms of the lease, will reduce the likelihood of severe structural degradation or dislodgement.

Pursuant to the proposed lease, the Applicant acknowledges that the lease premises and adjacent upland (not within the lease area) are located in an area that may be subject to effects of climate change, including sea-level rise.

CONCLUSION:

For all the reasons above, staff believes the issuance of this lease is consistent with the common law Public Trust Doctrine; will not substantially interfere with Public Trust needs at this location, at this time, and for the foreseeable term of the proposed lease; and is in the best interests of the State.

OTHER PERTINENT INFORMATION:

1. Approval or denial of the application is a discretionary action by the Commission. Each time the Commission approves or rejects a use of sovereign land, it exercises legislatively delegated authority and responsibility as trustee of the State's Public

Trust lands as authorized by law. If the Commission denies the application, the Applicant will not be allowed to proceed with the Project. Upon expiration or prior termination of the lease, the lessee has no right to a new lease or to renewal of any previous lease.

2. This action is consistent with Strategy 1.1 of the Commission's Strategic Plan to deliver the highest levels of public health and safety in the protection, preservation, and responsible economic use of the lands and resources under the Commission's jurisdiction.

3. A Mitigated Negative Declaration, State Clearinghouse No. 2019099043, and a Mitigation Monitoring Program (MMP) were prepared by the Contra Costa County Flood Control and Water Conservation District and adopted on November 19, 2019, for this Project. Commission staff has reviewed these documents.

   Commission staff prepared an independent MMP incorporating the District's MMP and recommends its adoption by the Commission.

4. This activity involves lands identified as possessing significant environmental values pursuant to Public Resources Code section 6370 et seq., but such activity will not affect those significant lands. Based upon staff's consultation with the persons nominating such lands and through the California Environmental Quality Act (CEQA) review process, it is staff's opinion that the Project, as proposed, is consistent with its use classification.

APPROVALS REQUIRED:

U.S. Army Corps of Engineers
U.S. Fish and Wildlife Service
California Department of Fish and Wildlife
San Francisco Bay Regional Water Quality Control Board
San Francisco Bay Conservation and Development Commission

EXHIBITS:

A. Land Description
B. Site and Location Map
C. Mitigation Monitoring Program

RECOMMENDED ACTION:

It is recommended that the Commission:

CEQA FINDINGS:

Find that a Mitigated Negative Declaration, State Clearinghouse No. 2019099043, and a Mitigation Monitoring Program were prepared by Contra Costa County Flood Control and Water Conservation District and adopted on November 19, 2019, for this Project and that the Commission has reviewed and considered the information contained therein; that in the Commission's independent judgment, the scope of activities to be carried out under the lease to be issued by this authorization have been adequately analyzed; that none of the events specified in Public Resources Code section 21166 or the State CEQA Guidelines section 15162 resulting in any new or substantially more severe significant impact has occurred; and, therefore no additional CEQA analysis is required.

Adopt the Mitigation Monitoring Program, as contained in the attached Exhibit C.

SIGNIFICANT LANDS INVENTORY FINDING:

Find that this activity is consistent with the use classification designated by the Commission for the land pursuant to Public Resources Code section 6370 et seq.

PUBLIC TRUST AND STATE'S BEST INTERESTS:

Find that the proposed lease will not substantially impair the public rights to navigation and fishing or substantially interfere with Public Trust needs and values at this location, at this time, and for the foreseeable term of the proposed lease; is consistent with the Public Trust Doctrine; and is in the best interests of the State.

AUTHORIZATION:

1. Authorize termination, upon execution of a new lease as authorized herein, of Public Agency Permit No. PRC 4743 issued to the Contra Costa County Flood Control and Water Conservation District.

2. Authorize a General Lease – Public Agency Use to Contra Costa County Flood Control and Water Conservation District beginning October 22, 2020, for a term of 20 years, for habitat restoration, flood protection, and public access along Walnut and Pacheco Creeks, as described in Exhibit A and shown on Exhibit B (for reference purposes only), attached and by this reference made a part hereof; consideration being the public use and benefit, with the State reserving the right at

any time to set a monetary rent if the Commission finds such action to be in the State's best interests.

EXHIBIT A

LEASE 4743

LAND DESCRIPTION

Six parcels of State-owned lands lying in Contra Costa County, State of California, more particularly described as follows:

PARCEL 1

A portion of Parcel K as described in Title Settlement Agreement AD 238, filed in Document 96-46532, Official Records, Contra Costa County, State of California, more particularly described as follows:

BEGINNING at the True Point of Beginning of said Parcel K; thence along the first course of said Parcel K N 72˚06'00" E 495.00 feet; thence leaving said first course N 18˚00'12" W 110.00 feet; thence S 72˚06'00" W 495.00 feet to a point on the westerly line of said Parcel K; thence along said westerly line S 18˚00'12" E 110.00 feet to the POINT OF BEGINNING.

PARCEL 2

Parcel H as described in Title Settlement Agreement AD 238, filed in Document 96-46532, Official Records, Contra Costa County, State of California.

PARCEL 3

Parcel G as described in Title Settlement Agreement AD 238, filed in Document 96-46532, Official Records, Contra Costa County, State of California.

PARCEL 4

Parcel F as described in Title Settlement Agreement AD 238, filed in Document 96-46532, Official Records, Contra Costa County, State of California.

PARCEL 5

Parcel A as described in Exhibit A of Public Agency Permit W 8922, PRC 4743.9 on file with the California State Lands Commission as Calendar Item 6 at State Lands Commission meeting dated 2/26/1976.

PARCEL 6

Parcel B as described in Exhibit A of Public Agency Permit W 8922, PRC 4743.9 on file with the California State Lands Commission as Calendar Item 6 at State Lands Commission meeting dated 2/26/1976.

PARCEL 7

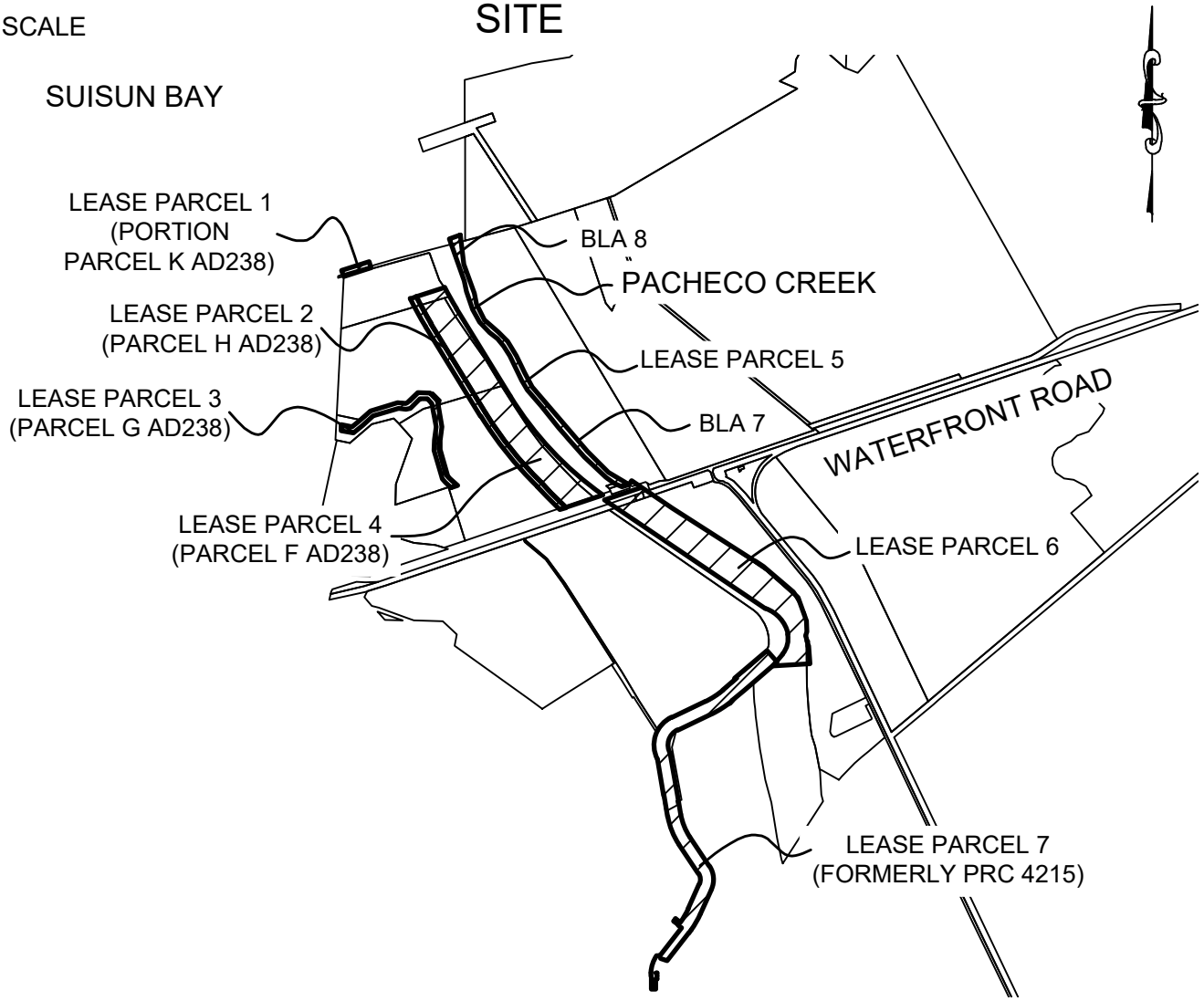
All those parcels described in Exhibit A of Public Agency Permit PRC 4215.9 on file with the California State Lands Commission as Calendar Item 4 at State Lands Commission meeting dated 5/29/1969.

END OF DESCRIPTION

Prepared 9/16/2020 by the California State Lands Commission Boundary Unit.

NO SCALE

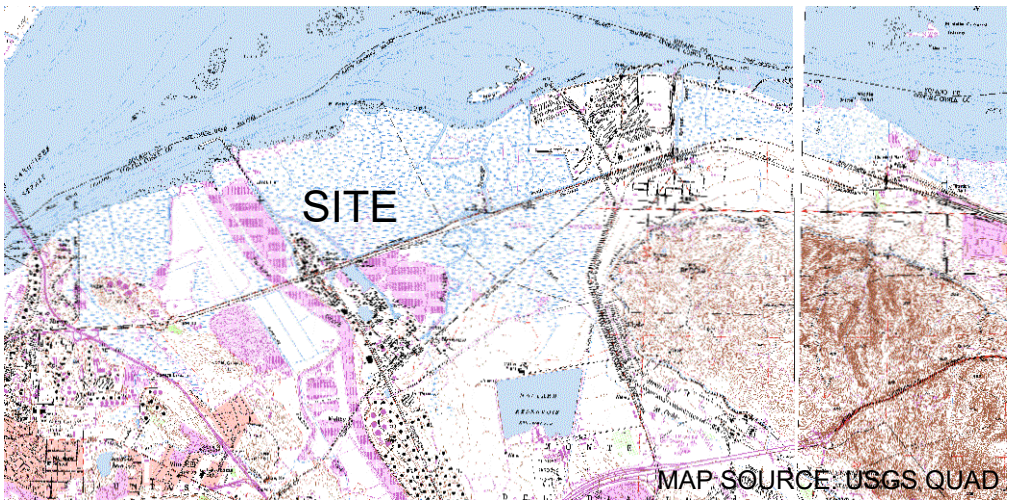
SITE



WALNUT / PACHECO CREEK, MARTINEZ

NO SCALE

LOCATION



THIS EXHIBIT IS SOLELY FOR PURPOSES OF GENERALLY DEFINING THE LEASE PREMISES, IS BASED ON UNVERIFIED INFORMATION PROVIDED BY THE LESSEE OR OTHER PARTIES AND IS NOT INTENDED TO BE, NOR SHALL IT BE CONSTRUED AS, A WAIVER OR LIMITATION OF ANY STATE INTEREST IN THE SUBJECT OR ANY OTHER PROPERTY.

EXHIBIT B

LEASE 4743
CONTRA COSTA COUNTY
FLOOD CONTROL & WATER
CONSERVATION DISTRICT
GENERAL LEASE -
PUBLIC AGENCY USE
CONTRA COSTA COUNTY

DJF 9/11/2020

EXHIBIT C
CALIFORNIA STATE LANDS COMMISSION
MITIGATION MONITORING PROGRAM

LOWER WALNUT CREEK RESTORATION PROJECT
(A2688, State Clearinghouse No. 2019099043)

The California State Lands Commission (Commission or CSLC) is a responsible agency under the California Environmental Quality Act (CEQA) for the Lower Walnut Creek Restoration Project (Project). The CEQA lead agency for the Project is the Contra Costa County Flood Control and Water Conservation District (District).

In conjunction with approval of this Project, the Commission adopts this Mitigation Monitoring Program (MMP) for the implementation of mitigation measures for the portion(s) of the Project located on Commission lands. The purpose of a MMP is to impose feasible measures to avoid or substantially reduce the significant environmental impacts from a project identified in an Environmental Impact Report (EIR) or a Mitigated Negative Declaration (MND). State CEQA Guidelines section 15097, subdivision (a), states in part:[1]

> *In order to ensure that the mitigation measures and project revisions identified in the EIR or negative declaration are implemented, the public agency shall adopt a program for monitoring or reporting on the revisions which it has required in the project and the measures it has imposed to mitigate or avoid significant environmental effects. A public agency may delegate reporting or monitoring responsibilities to another public agency or to a private entity which accepts the delegation; however, until mitigation measures have been completed the lead agency remains responsible for ensuring that implementation of the mitigation measures occurs in accordance with the program.*

The lead agency adopted an MND, State Clearinghouse No. 2019099043, adopted a Mitigation Monitoring and Reporting Program (MMRP) for the whole of the Project (see Exhibit C, Attachment C-1), and remains responsible for ensuring that implementation of the mitigation measures occurs in accordance with its program. The Commission's action and authority as a responsible agency apply only to the mitigation measures listed in Table C-1 below. The full text of each mitigation measure, as set forth in the MMRP prepared by the CEQA lead agency and provided in Attachment C-1, is incorporated by reference in this Exhibit C. Any mitigation measures adopted by the Commission that differ substantially from those adopted by the lead agency are shown as follows:

- Additions to the text of the mitigation measure are <u>underlined</u>; and
- Deletions of the text of the mitigation measure are shown as ~~strikeout~~ or as otherwise noted.

[1] The State CEQA Guidelines are found at California Code of Regulations, title 14, section 15000 et seq.

Table C-1. Project Impacts and Applicable Mitigation Measures

Potential Impact[2]	Mitigation Measure (MM)[3]	Difference Between CSLC MMP and Lead Agency MMP
AQ-1: The project would result in vehicle emissions and fugitive dust during construction.	**MM AQ-1:** Implement BAAQMD Basic Construction Mitigation Measures	None
BIO-1: The project would result in potential impacts on western pond turtle.	**MM BIO-1:** General Construction-related Mitigation Measures **MM BIO-2:** Avoidance and Minimization Measures for Western Pond Turtle	None
BIO-2: The project would result in potential impacts on special-status birds.	**MM BIO-1, MM BIO-3:** Avoid and Minimize Impacts to Nesting Birds, Except Rails (see Mitigation Measure BIO-4 for rails)	None
BIO-3: The project would result in potential impacts on California black rail and Ridgway's rail.	**MM BIO-1, MM BIO-4:** Avoid and Minimize Impacts to California Black Rail and Ridgway's Rail	None
BIO-4: The project would result in potential impacts on salt marsh harvest mouse and Suisun shrew.	**MM BIO-1, MM BIO-5:** Avoid and Minimize Impacts to Salt Marsh Harvest Mouse and Suisun shrew	None
BIO-5: The project would result in potential impacts on special-status plants.	**MM BIO-6:** Special-Status Plant Protection	None
BIO-6: The project would result in potential impacts on special-status fish.	**MM BIO-7:** Construction Work Window for Special-Status Fish **MM BIO-8:** Protect Water Quality for Fish Habitat **MM BIO-9:** Fish and Marine Mammal Protection During Pile Driving	None
BIO-7: The project would result in potential impacts on sensitive natural communities.	**MM BIO-1, MM BIO-8, MM BIO-10:** General Measures to Avoid and Minimize Impacts to Sensitive Natural Communities, Wetlands, and Waters, **MM BIO-11:** Develop and Implement a Restoration Monitoring and Adaptive Management Program,	None

[2] Impact numbering corresponds to the Environmental Checklist questions in the MND.
[3] See Attachment C-1 for the full text of each MM taken from the MMRP prepared by the CEQA lead agency.

	MM BIO-12: Protection of Submerged Aquatic Vegetation Fish Habitat	
BIO-8: The project would result in potential impacts on wetlands and other waters.	**MM BIO-1**	None
BIO-9: The project would result in potential construction-related impacts on movement of native resident or migratory fish species or established native resident or migratory wildlife corridors.	**MM BIO-1, MM BIO-3, MM BIO-4, MM BIO-7, MM BIO-8**	None
CUL-1: The project would result in potential impacts on archaeological resources.	**MM CUL-1:** Cultural Resources Training and Inadvertent Discovery of Archaeological Resources or Tribal Cultural Resources	None
CUL-2: The project would result in potential impacts on archaeological resources.	**MM CUL-2:** Inadvertent Discovery of Human Remains	See addition below to **MM CUL-2**
HAZ-1: The project would result in potential impacts exposure of public and workers to hazardous materials.	**MM HAZ-1:** Prepare and Implement a Hazardous Materials Dewatering and Management Plan	None
TCR-1: The project would result in potential impacts on tribal cultural resources.	**MM CUL-1**	None

Additions to existing **MM CUL-2:** Inadvertent Discovery of Human Remains

If human remains are encountered by construction personnel during project implementation, all construction activities within 100 feet shall halt and the contractor shall notify the District. The District shall contact the Contra Costa County Coroner. The Native American Heritage Commission (NAHC) will be contacted within 24 hours if the Coroner determines that the remains are Native American. The NAHC will then identify the person or persons it believes to be the most likely descendant from the deceased Native American, who in turn would make recommendations to the District for the appropriate means of treating the human remains and any associated funerary objects. <u>California State Lands Commission staff shall be notified of any human remains discovered on lands under the jurisdiction of the Commission so that the Commission may fulfill its responsibilities as the landowner.</u>

ATTACHMENT C-1

Mitigation Monitoring Program Adopted by the

Contra Costa County Flood Control and

Water Conservation District

MITIGATION MONITORING AND REPORTING PROGRAM

The following Mitigation Monitoring and Reporting Program (MMRP) identifies the Mitigation Measures that will be implemented as part of the Lower Walnut Creek Restoration Project. The Contra Costa County Flood Control and Water Conservation District (District) or its Contractors under the supervision of the District will be responsible for implementing the following measures. The District will be responsible for monitoring to ensure the following measures are effectively implemented to reduce impacts to less-than-significant levels.

TABLE D-1
MITIGATION MONITORING AND REPORTING PROGRAM

Impact	Mitigation, Avoidance, and Minimization Measures	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
Air Quality					
Impact AQ-1: The project would result in vehicle emissions and fugitive dust during construction.	**Mitigation Measure AQ-1: Implement BAAQMD Basic Construction Mitigation Measures** The following applicable Bay Area Air Quality Management District (BAAQMD) Basic Construction Mitigation Measures shall be implemented by construction contractors to reduce emissions of fugitive dust and equipment exhaust: • All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day. • All haul trucks transporting soil, sand, or other loose material off site shall be covered. • All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited. • All vehicle speeds on unpaved roads shall be limited to 15 mph within the project area. • All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used. • Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points. • All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation. • Post a publicly visible sign with the telephone number and person to contact at the District (or its designee) regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.	Prior to and during construction	Contra Costa County Flood Control & Water Conservation District (District); Construction Contractor	BAAQMD and District	

TABLE D-1 (CONTINUED)
MITIGATION MONITORING AND REPORTING PROGRAM

Impact	Mitigation, Avoidance, and Minimization Measures	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
Biological Resources					
Impact BIO-1: The project would result in potential impacts on western pond turtle.	**Mitigation Measure BIO-1: General Construction-related Mitigation Measures** • A qualified biologist will provide Worker Environmental Awareness Training (WEAT) to field management and construction personnel. Communication efforts and training will take place during preconstruction meetings so that construction personnel are aware of their responsibilities and the importance of compliance. WEAT will identify the types of sensitive resources located in the project area and the measures required to avoid impacts on these resources. Materials covered in the training program will include environmental rules and regulations for the specific project and requirements for limiting activities to the construction right-of-way and avoiding demarcated sensitive resource areas.	Prior to construction	District and Qualified Biologist	District	
	• If new construction personnel are added to the project, the contractor will ensure the new personnel receive WEAT before starting work. A sign-in sheet of those contractor individuals who have received the training will be maintained by the project proponent. A representative will be appointed during the WEAT to be the contact for any employee or contractor who might inadvertently kill or injure a listed species or who finds a dead, injured, or entrapped individual. The representative's name and telephone number will be provided to the U.S. Fish and Wildlife Service (USFWS) before the initiation of ground disturbance.	Prior to and during construction	District and Construction Contractor	District and USFWS	
	• If individuals of listed wildlife species may be present and subject to potential injury or mortality from construction activities, a qualified biologist will conduct preconstruction surveys. If a listed wildlife species is discovered, construction activities will not begin in the immediate vicinity of the individual until USFWS and/or CDFW is contacted and the individual has been allowed to leave the construction area. • Minimum qualifications for a qualified biologist will be a four-year college degree in biology or related field and demonstrated experience with the species of concern. • Any special-status species observed during surveys will be reported to the USFWS and CDFW so the observations can be added to the CNDDB.	Prior to construction	District and Qualified Biologist	District, USFWS, and CDFW	
	• All vehicle operators will limit speed to 15 mph within the project area.	Prior to and during construction	District, Construction Contractor, and Qualified Biologist	District	

TABLE D-1 (CONTINUED)
MITIGATION MONITORING AND REPORTING PROGRAM

Impact	Mitigation, Avoidance, and Minimization Measures	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
Biological Resources (cont.)					
Impact BIO-1: cont.	• Because the work area is larger than 1 acre, the project proponent would be required to prepare a Stormwater Pollution Prevention Plan (SWPPP) for construction activities according to the National Pollutant Discharge Elimination System (NPDES) Construction General Permit requirements (State Water Resources Control Board Order 2009-0009-DWQ). The objectives of the SWPPP will be to (1) identify pollutant sources associated with construction activity and project operations that may affect the quality of stormwater and (2) identify, construct, and implement stormwater pollution prevention measures to reduce pollutants in stormwater discharges during and after construction. The project proponents and/or their contractor(s) will develop and implement a spill prevention and control plan as part of the SWPPP to minimize effects of spills of hazardous, toxic, or petroleum substances during construction of the project. Implementation of this measure will comply with state and federal water quality regulations. The SWPPP will be kept on site during construction activity and during operation of the project and will be made available upon request to representatives of the Regional Water Quality Control Board (Regional Water Board). The SWPPP will include but is not limited to: a) A description of potential pollutants to stormwater from erosion. b) Management of dredged sediments and hazardous materials present on site during construction (including vehicle and equipment fuels). c) Details of how the sediment and erosion control practices comply with state and federal water quality regulations. d) A description of potential pollutants to stormwater resulting from operation of the project. • The SWPPP will include a hazardous materials management plan (HMMP). The plan will describe the actions that will be taken in the event of a spill. The plan also will incorporate preventive measures to be implemented (such as vehicle and equipment staging, cleaning, maintenance, and refueling) and contaminant (including fuel) management and storage. In the event of a contaminant spill, work at the site immediately will cease until the contractor has contained and mitigated the spill. The contractor will immediately prevent further contamination, notify appropriate authorities, and mitigate damage as appropriate. Adequate spill containment materials, such as oil diapers	Prior to and during construction	District and Construction Contractor	District and Regional Water Board	

TABLE D-1 (CONTINUED)
MITIGATION MONITORING AND REPORTING PROGRAM

Impact	Mitigation, Avoidance, and Minimization Measures	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
Biological Resources (cont.)					
Impact BIO-1: cont.	and hydrocarbon cleanup kits, will be available on site at all times. Containers for storage, transportation, and disposal of contaminated absorbent materials will be provided on the project site. • Do not use any hazardous material in excess of reportable quantities, as specified in Title 40 Code of Federal Regulations (CFR) Part 355, Subpart J, Section 355.50, unless approved in advance by the Office of Emergency Services (OES), and will provide to the OES in the annual compliance report a list of hazardous materials contained at a project site in reportable quantities.	Prior to and during construction	District and Construction Contractor	District	
	Mitigation Measure BIO-2: Avoidance and Minimization Measures for Western Pond Turtle • Preconstruction surveys for western pond turtle shall be conducted by a qualified biologist prior to clearing and grubbing, equipment staging, excavation or other construction-related activity or vegetation management activities requiring the use of heavy equipment (e.g., bobcat), within 150 feet of Walnut Creek and Pacheco Creek, as specified below: o Prior to conducting preconstruction surveys, the qualified biologist shall prepare a relocation plan that describes the appropriate survey and handling methods for western pond turtle and identify nearby relocation sites where individuals would be relocated if found during the preconstruction surveys. The relocation plan shall be submitted to CDFW for review prior to the start of construction activities. The animal shall be relocated to equivalent or better western pond turtle habitat relative to where it was found. o Preconstruction surveys shall be conducted within 5 days prior to, and again immediately prior to activities described in the first bullet, above, to identify any presence of western pond turtle. o The qualified biologist shall monitor areas described in the first bullet above, to identify and relocate western pond turtle as necessary. If western pond turtle is observed within the construction area, the qualified biologist shall relocate the individual according to the relocation plan above.	Prior to construction	District and Qualified Biologist	District	

TABLE D-1 (CONTINUED)
MITIGATION MONITORING AND REPORTING PROGRAM

Impact	Mitigation, Avoidance, and Minimization Measures	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
Biological Resources (cont.)					
Impact BIO-2: The project would result in potential impacts on special-status birds.	See Mitigation Measure BIO-1: General Construction-related Mitigation Measures above.				
	Mitigation Measure BIO-3: Avoid and Minimize Impacts to Nesting Birds, Except Rails (see Mitigation Measure BIO-4 for rails) Project staging, project construction, vegetation removal (e.g., clearing and grubbing), vegetation management activities requiring heavy equipment, or tree trimming shall be performed outside of the bird nesting season (February 1st through August 31st) to avoid impacts to nesting birds; if these activities must be performed during the nesting bird season, a qualified biologist shall be retained to conduct a pre-construction survey in the project construction and staging areas for nesting birds and verify the presence or absence of nesting birds no more than 14 calendar days prior to construction activities or after any construction breaks of 14 calendar days or more. Surveys shall be performed for the project construction and staging areas and suitable habitat within 250 feet of the project construction and staging areas in order to locate any active passerine (perching bird) nests and within 500 feet of the project construction and staging areas to locate any active raptor (birds of prey) nest. If nesting birds and raptors do not occur within 250 and 500 feet of the Project area, respectively, then no further action is required if construction begins within 14 calendar days. If active nests are located during the pre-construction bird nesting surveys, no-disturbance buffer zones shall be established around nests, with a buffer size established by the qualified biologist. Typically, these buffer distances are between 50 feet and 250 feet for passerines and between 300 feet and 500 feet for raptors. These distances may be adjusted depending on the level of surrounding ambient activity and if an obstruction, such as a building or structure, is within line-of-sight between the nest and construction. Reduced buffers may be allowed if a full-time qualified biologist is present to monitor the nest and has authority to halt construction if bird behavior indicates continued activities could lead to nest failure. Buffered zones shall be avoided during construction-related activities until young have fledged or the nest is otherwise abandoned.	Prior to and during construction	District and Qualified Biologist	District	

TABLE D-1 (CONTINUED)
MITIGATION MONITORING AND REPORTING PROGRAM

Impact	Mitigation, Avoidance, and Minimization Measures	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
Biological Resources (cont.)					
Impact BIO-3: The project would result in potential impacts on California black rail and Ridgway's rail.	See Mitigation Measure BIO-1: General Construction-related Mitigation Measures above.				
	Mitigation Measure BIO-4: Avoid and Minimize Impacts to California Black Rail and Ridgway's Rail • To minimize or avoid the loss of individual California black rail and Ridgway's rail, construction activities, including vegetation management activities requiring heavy equipment, adjacent to tidal marsh areas (within 500 feet [150 meters] or a distance determined in coordination with U.S. Fish and Wildlife (USFWS) or the California Department of Fish and Wildlife (CDFW), shall be avoided during the breeding season from February 1 through August 31.	Prior to and during construction	District and Construction Contractor	District, USFWS, and CDFW	
	• If areas within or adjacent to rail habitat cannot be avoided during the breeding season (February 1 through August 31), protocol-level surveys shall be conducted to determine rail nesting locations. The surveys will focus on potential habitat that could be disturbed by construction activities during the breeding season to ensure that rails are not breeding in these locations. Survey methods for rails will follow the *Site-Specific Protocol for Monitoring Marsh Birds*, which was developed for use by USFWS and partners to improve bay-wide monitoring accuracy by standardizing surveys and increasing the ability to share data (Wood et al. 2017). Surveys are concentrated during the approximate period of peak detectability, January 15 to March 25 and are structured to efficiently sample an area in three rounds of surveys by broadcasting calls of target species during specific periods of each survey round. Call broadcast increase the probability of detection compared to passive surveys when no call broadcasting is employed. This protocol has since been adopted by Invasive Spartina Project (ISP) and Point Blue Conservation Science to survey Ridgway's rails at sites throughout San Francisco Bay Estuary. The survey protocol for Ridgway's rail is summarized below. o Previously used survey locations (points) should be used when available to maintain consistency with past survey results. Adjacent points should be at least 200 meters apart along transects in or adjacent to areas representative of the marsh. Points should be located to minimize disturbances to marsh vegetation. Up to 8 points can be located on a transect.	Prior to and during construction	District and Qualified Biologist	District, USFWS	

TABLE D-1 (CONTINUED)
MITIGATION MONITORING AND REPORTING PROGRAM

Impact	Mitigation, Avoidance, and Minimization Measures	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
Biological Resources (cont.)					
Impact BIO-3: cont.	○ At each transect, three surveys (rounds) are to be conducted, with the first round of surveys initiated between January 15 and February 6, the second round performed February 7 to February 28, and the third round March 1 to March 25. Surveys should be spaced at least one week apart and the period between March 25 to April 15 can be used to complete surveys delayed by logistical or weather issues. A Federal Endangered Species Act Section 10(a)(1)(A) permit is required to conduct active surveys. ○ Each point on a transect will be surveyed for 10 minutes each round. A recording of calls available from USFWS is broadcast at each point. The recording consists of 5 minutes of silence, followed by a 30-second recording of Ridgway's rail vocalizations, followed by 30 seconds of silence, followed by a 30-second recording of California black rail, followed by 3.5 minutes of silence. • If no breeding Ridgway's rails or black rails are detected during surveys, or if their breeding territories can be avoided by 500 feet (150 meters), then project activities may proceed at that location.				
	• If protocol surveys determine that breeding Ridgway's rails or black rails are present in the project area, the following measures would apply to project activities conducted during their breeding season (February 1- August 31): ○ A USFWS- and CDFW-approved biologist with experience recognizing Ridgway's rail and black rail vocalizations will be on site during construction activities occurring within 500 feet (150 meters) of suitable rail breeding habitat. ○ All biologists accessing the tidal marsh will be trained in Ridgway's rail and black rail biology and vocalizations, and will be familiar with both species of rail and their nests.	Prior to and during construction	District, Qualified Biologist, USFWS- and CDFW-approved biologist	District, USFWS, and CDFW	
	○ If a Ridgway's rail or black rail vocalizes or flushes within 10 meters, it is possible that a nest or young are nearby. If an alarmed bird or nest is detected, work will be stopped, and workers will leave the immediate area carefully and quickly. An alternate route will be selected that avoids this area, and the location of the sighting will be recorded to inform future activities in the area. ○ All crews working in the marsh during rail breeding season will be trained and supervised by a USFWS- and CDFW-approved rail biologist.	During construction	District, Construction Contractor, USFWS- and CDFW-approved rail biologist	District, USFWS, and CDFW	

TABLE D-1 (CONTINUED)
MITIGATION MONITORING AND REPORTING PROGRAM

Impact	Mitigation, Avoidance, and Minimization Measures	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
Biological Resources (cont.)					
Impact BIO-3: cont.	○ If any activities will be conducted during the rail breeding season in Ridgway's rail- or black rail-occupied marshes, biologists will have maps or GPS locations of the most current occurrences on the site and will proceed cautiously and minimize time spent in areas where rails were detected.	Prior to and during construction	District and Qualified Biologist	District	
	○ All personnel walking in the marsh will be required to limit time spent within 50 meters of an identified Ridgway's rail or black rail calling center to half an hour or less.	Prior to, during, and post-construction	District, Construction Contractor, and qualified biologist	District	
	• For vegetation management activities in suitable habitat for Ridgway's rail or black rail, the following measures will be implemented: ○ Only herbicides to be used will be EPA-certified for use in/adjacent to aquatic environments. ○ Vegetation management activities will be limited to areas outside of tidal marsh and non-tidal pickleweed marsh habitats.	Prior to, during, and post-construction	District and Vegetation Management Contractor	District	
Impact BIO-4: The project would result in potential impacts on salt marsh harvest mouse and Suisun shrew.	See Mitigation Measure BIO-1 above.				
	Mitigation Measure BIO-5: Avoid and Minimize Impacts to Salt Marsh Harvest Mouse and Suisun shrew • A USFWS and CDFW-approved biologist, with knowledge and experience with salt marsh harvest mouse habitat requirements, will conduct pre-construction surveys for the species and identify and mark suitable salt marsh harvest mouse marsh habitat prior to project initiation.	Prior to construction	District, USFWS- and CDFW-approved biologist	District, USFWS, and CDFW	
	• Ground disturbance to suitable salt marsh harvest mouse habitat (including, but not limited to pickleweed, and emergent salt marsh vegetation including bulrush and cattails) will be avoided to the extent feasible. Where salt marsh harvest mouse habitat cannot be avoided - such as for channel excavation, access routes and grading, or anywhere else that vegetation could be trampled or crushed by work activities - vegetation will be removed from the ground disturbance work area plus a 10-foot buffer around the area, as well as any access routes within salt marsh harvest mouse habitat, utilizing mechanized hand tools or by another method approved by the USFWS and CDFW. Vegetation height shall be maintained at or below 5 inches above ground. Vegetation removal in salt marsh harvest mouse habitat will be conducted under the supervision of the USFWS- and CDFW-approved biologist.	Prior to construction	District, USFWS- and CDFW-approved biologist	District, USFWS, and CDFW	

TABLE D-1 (CONTINUED)
MITIGATION MONITORING AND REPORTING PROGRAM

Impact	Mitigation, Avoidance, and Minimization Measures	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
Biological Resources (cont.)					
Impact BIO-4: cont.	• To protect salt marsh harvest mouse from construction-related traffic, access roads, haul routes, and staging areas within 200 feet of salt marsh harvest mouse habitat will be bordered by temporary exclusion fencing. The fence should be made of a smooth material that does not allow salt marsh harvest mouse to climb or pass through, of a minimum above-ground height of 30 inches, and the bottom should be buried to a depth of at least 6 inches so that mice cannot crawl under the fence. Any supports for the salt marsh harvest mouse exclusion fencing (e.g., t-posts) will be placed on the inside of the project area. The last 5 feet of the fence shall be angled away from the road to direct wildlife away from the road. A USFWS- and CDFW-approved biologist with previous salt marsh harvest mouse experience will be on site during fence installation and will check the fence alignment prior to vegetation clearing and fence installation to ensure no salt marsh harvest mice are present. • Salt marsh harvest mouse marsh habitat that must be accessed by mini-excavators or other vehicles to complete project construction (e.g., excavating connector channels to Lower Walnut Creek) will be protected through use of low ground pressure (LGP) equipment, wooden or PVC marsh mats, or other method approved by USFWS and CDFW following vegetation removal (see 3rd bullet, above).	Prior to and during construction	District, Construction Contractor, USFWS- and CDFW-approved biologist with previous salt marsh harvest mouse experience	District, USFWS, and CDFW	
	• Construction activities related to restoration and recreational infrastructure, as well as ongoing Operations and Maintenance activities will be scheduled to avoid extreme high tides when there is potential for salt marsh harvest mouse to move to higher, drier grounds, such as ruderal and grassland habitats. Extreme high tides would be in excess of six feet as predicted for the nearest tide gauge, Point Chicago tide gauge. • All construction equipment and materials will be staged on existing roadways and away from suitable wetland habitats when not in use.	Prior to and during construction; During Operations and Maintenance	District, Construction Contractor	District	
	• Vegetation shall be removed from all non-marsh areas of disturbance (driving roads, grading and stockpiling areas) to discourage presence of salt marsh harvest mouse.	Prior to and during construction	District, Construction contractor	District	

TABLE D-1 (CONTINUED)
MITIGATION MONITORING AND REPORTING PROGRAM

Impact	Mitigation, Avoidance, and Minimization Measures	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
Biological Resources (cont.)					
Impact BIO-4: cont.	• A USFWS- and CDFW-approved biologist with previous salt marsh harvest mouse monitoring and/or surveying experience will be on site during construction activities occurring in suitable habitat. The biologist will document compliance with the project permit conditions and avoidance and conservation measures. The USFWS- and CDFW-approved biologist has the authority to stop project activities if any of the requirements associated with these measures is not being fulfilled. If salt marsh harvest mouse is observed in the work area, construction activities will cease in the immediate vicinity of the salt marsh harvest mouse. The individual will be allowed to leave the area before work is resumed. If the individual does not move on its own volition, the USFWS-approved biologist would contact USFWS (and CDFW if appropriate) for further guidance on how to proceed.	During Construction	District, USFWS- and CDFW-approved biologist with previous salt marsh harvest mouse monitoring and/or surveying experience	District, USFWS, and CDFW	
	• If the USFWS- and CDFW-approved biologist has requested work stoppage because of take of any of the listed species, or if a dead or injured salt marsh harvest mouse is observed, the USFWS and CDFW will be notified within one day by email or telephone.	During Construction	District, USFWS- and CDFW-approved biologist with previous salt marsh harvest mouse monitoring and/or surveying experience	District, USFW, and CDFW	
	• For vegetation management activities in suitable habitat for salt marsh harvest mouse and Suisun shrew, the following measures shall be implemented: o Only herbicides to be used will be EPA certified for use in/adjacent to aquatic environments. o Work in upland habitat within 100 feet of salt marsh harvest mouse and Suisun shrew habitat will be scheduled to avoid extreme high tides when there is potential for salt marsh harvest mouse and Suisun shrew to move to higher, drier grounds, such as ruderal and grassland habitats. Extreme high tides would be in excess of six feet as predicted for the nearest tide gauge, Port Chicago tide gauge.	Prior to, during, and after construction	District, and Vegetation Management Contractor; Construction contractor	District	

TABLE D-1 (CONTINUED)
MITIGATION MONITORING AND REPORTING PROGRAM

Impact	Mitigation, Avoidance, and Minimization Measures	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
Biological Resources (cont.)					
Impact BIO-5: The project would result in potential impacts on special-status plants.	**Mitigation Measure BIO-6: Special-Status Plant Protection** To ensure protection of special-status plants, the following measures will be implemented. • Prior to the start of construction, a qualified biologist shall conduct a properly-timed special-status plant survey for Suisun marsh aster, delta tule pea, soft bird's beak, Mason's lilaeopsis, Bolander's water hemlock, delta mudwort, Congdon's tarplant, pappose tarplant, Marin knotweed, San Joaquin spearscale, Santa Cruz tarplant, Contra Costa goldfields and long-styled sand spurrey within the species' suitable habitat within the un-surveyed portions within the project work limits. This includes portions of the State Lands Commission parcel and the Suisun Properties parcel in the North Reach, the Acme landfill parcel in the Middle Reach, and the Conco parcel in the South Reach. The survey will follow the CDFW *Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities*. • If special-status plant species occur within the project work limits, then the biologist will establish an adequate buffer area for each plant population to exclude activities that directly remove or alter the habitat of, or result in indirect adverse impacts on, the special-status plant species. • A qualified biologist will oversee installation of a temporary, plastic mesh-type construction fence (Tensor Polygrid or equivalent) at least 4 feet (1.2 meters) tall around any established buffer areas to prevent encroachment by construction vehicles and personnel. The qualified biologist will determine the exact location of the fencing. The fencing will be strung tightly on posts set at maximum intervals of 10 feet (3 meters) and will be checked and maintained weekly until all construction is complete. The buffer zone established by the fencing will be marked by a sign stating: ○ "This is habitat of [list rare plant(s)], and must not be disturbed. This species is protected by [the ESA of 1973, as amended/CESA/California Native Plant Protection Act]."	Prior to construction	District and Qualified Biologist	District	
	• No construction activity, including grading, shall be allowed until condition number 3 is satisfied.	Prior to construction	District and Qualified Biologist	District	

TABLE D-1 (CONTINUED)
MITIGATION MONITORING AND REPORTING PROGRAM

Impact	Mitigation, Avoidance, and Minimization Measures	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
Biological Resources (cont.)					
Impact BIO-5: cont.	• If direct impacts cannot be avoided, the District shall prepare a plan for minimizing the impacts by one or more of the following methods: 1) salvage and replant plants at the same location following construction; 2) salvage and relocate the plants to a suitable off-site location with long-term assurance of site protection; 3) collect seeds or other propagules for reintroduction at the site or elsewhere; or 4) payment of fees in lieu of preservation of individual plants, to be used for conservation efforts elsewhere.	Prior to construction	District and Qualified Biologist	District	
	• If indirect impacts to special-status plants due to restoration-related introduction of tidal hydrology to non-tidal areas cannot be avoided, the District shall prepare a plan for minimizing the impacts by one or more of the following methods: 1) if the special-status plant population is likely to survive the hydrologic modification (based on an assessment by the District's biologist), monitor the at-risk special-status plant population over 5 years after the hydrologic modification, along with a reference population, to verify that there have been no adverse indirect impacts to the population. If at any point within the 5-years of monitoring, the population is determined to be at risk from project impacts based on monitoring results, then implement (2); 2) if the special-status plant population is not likely to survive the hydrologic modification, then: 1) salvage and relocate the plants to a suitable location on site; or 2) salvage and relocate the plants to a suitable off-site location with long-term assurance of site protection; or 3) collect seeds or other propagules for reintroduction at the site or elsewhere; or, 4) payment of fees in lieu of preservation of individual plants, to be used for conservation efforts elsewhere.	Prior to construction	District and Qualified Biologist	District	
	• The success criterion for any seeded, planted, and/or relocated plants shall be full replacement at a 1:1 ratio after five years. Monitoring surveys of the seeded, planted, or transplanted individuals shall be conducted for a minimum of five years, to ensure that the success criterion can be achieved at year 5. If it appears the success criterion would not be met after five years, contingency measures may be applied. Such measures shall include, but not be limited to: additional seeding and planting; altering or implementing weed management activities; or, introducing or altering other management activities.	Post-construction	District and Vegetation Management Contractor	District	
	• Any special-status plant species observed during surveys will be reported to the USFWS and CDFW and submitted to the CNDDB.	Prior to construction	District and Qualified Biologist	District, USFWS, and CDFW	

TABLE D-1 (CONTINUED)
MITIGATION MONITORING AND REPORTING PROGRAM

Impact	Mitigation, Avoidance, and Minimization Measures	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
Biological Resources (cont.)					
Impact BIO-6: The project would result in potential impacts on special-status fish.	**Mitigation Measure BIO-7: Construction Work Window for Special-Status Fish** To minimize or avoid the loss of individual special-status fish species, in water work shall be limited to September 1 – November 30. If in water work cannot be avoided during this period, measures outlined in Mitigation Measures BIO-8 and BIO-9 shall also be implemented.	During construction	District and Construction Contractor	District	
	Mitigation Measure BIO-8: Protect Water Quality for Fish Habitat Prior to the start of construction of the tidal connector channels, the District shall isolate the work area from Lower Walnut and Pacheco Creeks using a silt curtain with a floating boom installed at the confluence of the new tidal channels and the creeks. Installation of the silt curtain shall contain turbidity and sediment resulting from construction activity, exclude fish from access to the active construction area, and allow water to pass between the connector channels and the creeks with the tides. The curtain shall span the width of the connector channel and shall be at least 6 feet tall to maintain a fish barrier at high tide. The curtain will consist of permeable filter fabric supported by a line of floats on the water surface and a line of weights on the channel bottom. The curtain shall be monitored and maintained regularly.	Prior to construction	District and Construction Contractor	District	
	Mitigation Measure BIO-9: Fish and Marine Mammal Protection During Pile Driving Prior to the start of any in-water construction that would require pile driving, the project sponsor shall prepare a National Marine Fisheries Service (NMFS)-approved sound attenuation monitoring plan to protect fish and marine mammals, and the approved plan shall be implemented during construction. This plan shall provide detail on the sound attenuation system, detail methods used to monitor and verify sound levels during pile driving activities (if required based on projected in-water noise levels), and describe best management practices to reduce impact pile-driving in the aquatic environment to an intensity level less than 183 dB (sound exposure level, SEL) impulse noise level for fish at a distance of 33 feet, and 160 dB (root mean square pressure level, RMS) impulse noise level or 120 dB (RMS) continuous noise level for marine mammals at a distance of 1,640 feet. The plan shall incorporate, but not be limited to, the following best management practices: • All in-water construction shall be conducted within the established environmental work window between June 1 and November 30, designed to avoid potential impacts to fish species.	Prior to and during construction	District and Construction contractor	District, NMFS	

TABLE D-1 (CONTINUED)
MITIGATION MONITORING AND REPORTING PROGRAM

Impact	Mitigation, Avoidance, and Minimization Measures	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
Biological Resources (cont.)					
Impact BIO-6: cont.	• To the extent feasible vibratory pile drivers shall be used for the installation of all support piles. Vibratory pile driving shall be conducted following the U.S. Army Corps of Engineers "Proposed Procedures for Permitting Projects that will Not Adversely Affect Selected Listed Species in California." USFWS and NMFS completed Section 7 consultation on this document, which establishes general procedures for minimizing impacts to natural resources associated with projects in or adjacent to jurisdictional waters. • A soft start technique to impact hammer pile driving shall be implemented, at the start of each work day or after a break in impact hammer driving of 30 minutes or more, to give fish and marine mammals an opportunity to vacate the area. • If during the use of an impact hammer, established NMFS pile driving thresholds are exceeded, a bubble curtain or other sound attenuation method as described in the NMFS-approved sound attenuation monitoring plan shall be utilized to reduce sound levels below the criteria described above. If NMFS sound level criteria are still exceeded with the use of attenuation methods, a NMFS-approved biological monitor shall be available to conduct surveys before and during pile driving to inspect the work zone and adjacent waters for marine mammals. The monitor shall be present as specified by the NMFS during impact pile driving and ensure that: o The safety zones established in the sound monitoring plan for the protection of marine mammals are maintained. o Work activities are halted when a marine mammal enters a safety zone and resumed only after the animal has been gone from the area for a minimum of 15 minutes				
Impact BIO-7: The project would result in potential impacts on sensitive natural communities.	See Mitigation Measure BIO-1: General Mitigation Measures above.				
	See Mitigation Measure BIO-8: Protect Water Quality for Fish Habitat above.				
	Mitigation Measure BIO-10: General Measures to Avoid and Minimize Impacts to Sensitive Natural Communities, Wetlands, and Waters • The District's construction contractor(s) shall implement the following general avoidance and minimization measures to protect sensitive natural communities, wetlands, and waters during construction:	Prior to and during construction	District and Construction Contractor	District	

TABLE D-1 (CONTINUED)
MITIGATION MONITORING AND REPORTING PROGRAM

Impact	Mitigation, Avoidance, and Minimization Measures	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
Biological Resources (cont.)					
Impact BIO-7: cont.	• Work areas shall be delineated with stakes and flagging prior to construction to avoid sensitive natural resources outside of the project area. Any construction-related disturbance outside of these boundaries, including driving, parking, temporary access, sampling or testing, or storage of materials, shall be prohibited without explicit approval of the District and biologist. • The introduction of exotic plant species shall be avoided through physical or chemical removal and prevention. Measures to prevent the introduction of exotic plants into the project site via vehicular sources shall include vehicle cleaning for vehicles coming to the site and leaving the site. Earthmoving equipment shall be cleaned prior to transport to the project area. Weed-free rice straw or other certified weed-free straw shall be used for erosion control. • Construction equipment shall not be stored in sensitive natural communities, wetlands, or waters. • Only herbicides to be used will be USEPA certified for use in/adjacent to aquatic environments.				
	Mitigation Measure BIO-11: Develop and Implement a Restoration Monitoring and Adaptive Management Program The District will develop and submit a Monitoring and Adaptive Management Plan to be implemented during the monitoring period to assure desired outcomes. The plan will be submitted to the CDFW, Regional Water Quality Control Board, U.S. Army Corps of Engineers, and BCDC prior to the start of construction. Elements of this plan shall be based upon final project design and construction documents. The plan shall include description of protocols for monitoring vegetation and geomorphology to evaluate project performance, monitoring schedule, performance criteria and thresholds that would trigger adaptive management actions, and reporting. An annual report shall be prepared and provided to the above-listed regulatory agencies in each year that post-construction monitoring is conducted.	Prior to and post-construction	District	District, BCDC, Regional Water Board, U.S. Army Corps of Engineers, and CDFW	

TABLE D-1 (CONTINUED)
MITIGATION MONITORING AND REPORTING PROGRAM

Impact	Mitigation, Avoidance, and Minimization Measures	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
Biological Resources (cont.)					
Impact BIO-7: cont.	**Mitigation Measure BIO-12: Protection of Submerged Aquatic Vegetation Fish Habitat** Prior to the start of construction or other habitat restoration and conversion activities, a USFWS-approved biologist shall conduct a pre-construction survey for submerged aquatic vegetation (SAV) (e.g., sago pondweed) at the shoreline of the North Reach. Locations of SAV shall be mapped in GIS, and the biologist shall establish an adequate buffer area to exclude activities that would directly remove or alter the habitat of, or result in indirect adverse impacts on, the SAV. Buffers shall be shown on maps and construction drawings to ensure avoidance. If construction work cannot avoid the SAV buffers, a biologist will be on site during in-water work to ensure that the SAV is avoided. No construction activity, including grading, will be allowed until the above steps are completed. If direct impacts cannot be avoided, the District shall consult with the CDFW to devise a plan for minimizing the impacts by one or more of the following methods: 1) salvage and replant native SAV at the same location following construction; 2) salvage and relocate the native SAV to a suitable off-site location with long-term assurance of site protection; 3) collect seeds or other propagules of native SAV for reintroduction at the site or elsewhere; or 4) payment of fees in lieu of preservation of individual native SAV plants, to be used for conservation efforts elsewhere. In the event that non-native species of SAV are impacted during construction, impacts would be offset using native species such as sago pondweed (*Stuckenia pectinata*). Any native SAV observed during surveys will be reported to the USFWS and CDFW.	Prior to construction	District and USFWS-approved biologist	District, USFWS, and CDFW	
Impact BIO-8: The project would result in potential impacts on wetlands and other waters.	See Mitigation Measure BIO-1: General Mitigation Measures and BIO-10: General Measures to Avoid and Minimize Impacts to Sensitive Natural Communities, Wetlands, and Waters above.				
Impact BIO-9: The project would result in potential construction-related impacts on movement of native resident or migratory fish species or established native resident or migratory wildlife corridors.	See Mitigation Measures BIO-1: General Mitigation Measures, BIO-3: Avoid and Minimize Impacts to Nesting Birds, Except Rails, BIO-4: Avoid and Minimize Impacts to California Black Rail and Ridgway's Rail, BIO-7: Construction Work Window for Special Status Fish , and BIO-8: Protect Water Quality for Fish Habitat above.				

TABLE D-1 (CONTINUED)
MITIGATION MONITORING AND REPORTING PROGRAM

Impact	Mitigation, Avoidance, and Minimization Measures	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
Cultural Resources					
Impact CUL-1: The project would result in potential impacts on archaeological resources.	**Mitigation Measure CUL-1: Cultural Resources Training and Inadvertent Discovery of Archaeological Resources or Tribal Cultural Resources** Prior to authorization to proceed, a Secretary of the Interior-qualified archaeologist will conduct a training program for all construction and field workers involved in site disturbance. On-site personnel shall attend a mandatory pre-project training that will outline the general archaeological sensitivity of the area and the procedures to follow in the event an archaeological resource and/or human remains are inadvertently discovered.	Prior to construction	District and Secretary of the Interior-qualified archaeologist	District	
	If prehistoric or historic-era archaeological resources or tribal cultural resources are encountered by construction personnel during project implementation, all construction activities within 100 feet shall halt and the contractor shall notify the Contra Costa County Flood Control & Water Conservation District (District). Prehistoric archaeological materials might include obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil ("midden") containing heat-affected rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); battered stone tools, such as hammerstones and pitted stones. Historic-era materials might include stone, concrete, or adobe footings and walls; filled wells or privies; and deposits of metal, glass, and/or ceramic refuse. Should any cultural resources on state lands be discovered during construction of the proposed Project, the District shall consult with the Commission. The final disposition of archaeological, historical, and paleontological resources recovered on state lands under the jurisdiction of the California State Lands Commission must be approved by the California State Lands Commission.	During construction	District, Secretary of the Interior-qualified archaeologist, and Construction Contractor	District	
	The District shall retain a Secretary of the Interior-qualified archaeologist to inspect the findings within 24 hours of discovery. If it is determined that the project could damage a historical resource as defined by CEQA, construction shall cease in an area determined by the archaeologist until a mitigation plan has been prepared, approved by the District, and implemented to the satisfaction of the archaeologist (and Native American representative if the resource is prehistoric). In consultation with the District, the archaeologist (and Native American representative if the resources is prehistoric) shall determine when construction can commence.	During construction	District and Secretary of the Interior-qualified archaeologist	District, Native American representative	

TABLE D-1 (CONTINUED)
MITIGATION MONITORING AND REPORTING PROGRAM

Impact	Mitigation, Avoidance, and Minimization Measures	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
Cultural Resources (cont.)					
Impact CUL-1: cont.	The mitigation plan shall recommend preservation in place, as a preference, or, if preservation in place is not feasible, data recovery through excavation. If preservation in place is feasible, this may be accomplished through one of the following means: (1) modifying the construction plan to avoid the resource; (2) incorporating the resource within open space; (3) capping and covering the resource before building appropriate facilities on the resource site; or (4) deeding resource site into a permanent conservation easement. If preservation in place is not feasible, a qualified archaeologist shall prepare and implement a detailed treatment plan to recover the scientifically consequential information from and about the resource, which shall be reviewed and approved by the District (and Native American representative) prior to any excavation at the resource. Treatment for most resources would consist of (but would not necessarily be not limited to) sample excavation, artifact collection, site documentation, and historical research, with the aim to target the recovery of important scientific data contained in the portion(s) of the significant resource to be impacted by the project. The treatment plan shall include provisions for analysis of data in a regional context, reporting of results within a timely manner, curation of artifacts and data at an approved facility, and dissemination of reports to local and state repositories, libraries, and interested professionals.				
Impact CUL-2: The project would result in potential impacts on archaeological resources.	**Mitigation Measure CUL-2: Inadvertent Discovery of Human Remains** If human remains are encountered by construction personnel during project implementation, all construction activities within 100 feet shall halt and the contractor shall notify the District. The District shall contact the Contra Costa County Coroner. The Native American Heritage Commission (NAHC) will be contacted within 24 hours if the Coroner determines that the remains are Native American. The NAHC will then identify the person or persons it believes to be the most likely descendant from the deceased Native American, who in turn would make recommendations to the District for the appropriate means of treating the human remains and any associated funerary objects.	During construction	District and Construction contractor, Contra Costa County Coroner	District, Contra Costa County Coroner, and NAHC	

TABLE D-1 (CONTINUED)
MITIGATION MONITORING AND REPORTING PROGRAM

Impact	Mitigation, Avoidance, and Minimization Measures	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
Hazards and Hazardous Materials					
Impact HAZ-1: The project would result in potential impacts exposure of public and workers to hazardous materials.	**Mitigation Measure HAZ-1: Prepare and Implement a Hazardous Materials Dewatering and Management Plan** The project proponent or its contractor(s) shall develop and implement a Hazardous Materials Dewatering and Management Plan establishing procedures to manage potentially contaminated fluids encountered as part of the construction of the project to minimize potential impacts to the public or environment from hazardous materials. The Plan shall identify proper protocols to test and handle potentially hazardous materials. The Plan shall identify potential licensed disposal facilities and their acceptance criteria; the chemicals to be analyzed to comply with those acceptance criteria, which shall include at a minimum TPH as gasoline, diesel, and motor oil, and BTEX compounds. The Plan shall identify the proper protocols for the following three dewatering fluid disposal options: • Groundwater with petroleum hydrocarbons could be discharged to the CCCSD under their Special Discharge Permit, providing the contaminant concentrations are within the Special Discharge Permit acceptance criteria and coverage under this permit is acquired prior to the discharge. The detected levels of diesel and motor oil were within the acceptance criteria of 10,000 ug/L diesel or motor oil range petroleum hydrocarbons acceptance criteria of the Central Contra Costa Sanitary District (CCCSD) Special Discharge Permit (Special Limitations for Groundwater Remediation Projects). • Groundwater with petroleum hydrocarbons could be pumped into trucks or portable storage containers and transported to an off-site licensed disposal facility permitted to accept the waste. • Groundwater with petroleum hydrocarbons could be treated on site under the RWQCB's *General Waste Discharge Requirements for Discharge or Reclamation of Extracted and Treated Groundwater* (RWQCB Order No. R2-2017-0048, NPDES Permit No. CAG912002). The pumped groundwater would be pumped into a settling tank to drop the sediments out of solution, and pumped through a treatment system (e.g., granular activated carbon [GAC] to decrease the concentration of TPH as diesel to less than 50 ug/L and TPH as motor oil to less than 100 ug/L. The effluent would be analytically tested to verify that treatment has achieved the effluent limitations. Upon successful treatment, the water could be discharged to the ground.	Prior to and during construction	District, Central Contra Costa County Sanitary District, and Construction Contractor	District, Central Contra Costa County Sanitary District	

TABLE D-1 (CONTINUED)
MITIGATION MONITORING AND REPORTING PROGRAM

Impact	Mitigation, Avoidance, and Minimization Measures	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
Tribal Cultural Resources					
Impact TCR-1: The project would result in potential impacts on tribal cultural resources.	See Mitigation Measure CUL-1: Cultural Resources Training and Inadvertent Discovery of Archaeological Resources or Tribal Cultural Resources above.				