

Proposed Mitigated Negative Declaration
for the
Decker Island Levee Repair
Demonstration Project

Prepared by: California Department of Water
Resources

March 2016

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Proposed Mitigated Negative Declaration Decker Island Levee Repair Demonstration Project

Lead Agency

California Department of Water Resources
1416 Ninth St.
Sacramento CA 95814

Availability of Documents

The Initial Study for this Proposed Mitigated Negative Declaration is available for review for 30 days from March 14, 2016. Questions and comments should be submitted no later than 5 p.m. on April 13, 2016 to:

Department of Water Resources
Attn: Steven Garcia
1416 Ninth St., Room 1601
Sacramento CA 95814
(916) 651-0844

The document is available for review at the following locations:

- DWR, Room 1601, 1416 Ninth St., Sacramento CA 95814
- Online at http://water.ca.gov/floodsafe/fessro/environmental/dee/docs/Decker_Demo_IS.pdf

Project Location

The proposed project is located on the northeastern edge of Decker Island in Solano County, California, in the Lower Sacramento River watershed. The proposed project is within Section 13, Township 3 North, Range 2 East of the Mount Diablo Meridian, in the “Jersey Island, CA” 7.5 minute U.S. Geological Survey (USGS) topographic quadrangle (quad) (Latitude 38.1002, Longitude -121.7094). Elevation on the site ranges from approximately 12 feet above mean sea level (msl) along the top of the bank to approximately 3 feet above msl near the water’s edge (figures 1 and 2).

Project Description

This demonstration project is to determine if the “gripper system” from Mavericks Solutions is a viable alternative to using riprap at an erosion repair site on a river bank or a levee. The

interlocked, soil-filled bags with vegetation interspaced among the bags have been successfully used on river sites in the Pacific Northwest and South Korea. This project is to explore use of this system in the Sacramento-San Joaquin Delta as a practical and cost effective alternative to riprap while maintaining structural integrity and providing quality habitat.

The Decker Island Habitat Restoration site is a collaborative project between DWR and CDFW, constructed 1999-2002 at the Northern tip of Decker on 32 acres owned by CDFW. The completed project included mixed upland riparian habitat, wetlands and channels that provide shallow water habitat and water to the interior of the project site for riparian vegetation.

An erosion site exists on the east side of Decker Island about 500 feet south of the breach to the habitat restoration site on the north side of the Island and 300 feet north of the fence line on the south side of the property (figures 1 and 2). The erosion site is located on an 8 foot high berm and stretches about 210 feet. To repair this erosion site CDFW and DWR would like to divide the site into two linear parts:

1. The northern 110 feet of the site will use Maverick Solutions LLC's gripper system (figure 3). The gripper system is comprised of non-woven geo-textile fabric bags that are filled with soil, and interlocked using plastic grippers. It is an environmentally friendly alternative to riprap that allows tree cuttings and planting plugs to be placed between bags and provides a foundation for successful establishment. This creates a highly resilient erosion control wall while providing vegetation along the channel's edge.
2. The southern 100 feet will utilize a vegetative riprap system. Vegetated riprap is riprap that is placed by hand, avoiding existing vegetation, or by planting between riprap.

Both systems will have similar topographic designs that include high and low habitat benches that will be inundated at different channel stages.

An excavator and other heavy machinery will be needed for the repair of this site and will need to be brought over by barge. A coffer dam will be constructed and the project site will be dewatered prior to the start of work just outside of low tide. 1) A trench will be cut the entire length of the erosion site (parallel to the waterside berm) and will go below the ordinary high water line to create a foundation. Gripper bags that have been filled with soil will be placed in the trench, such that they will be perpendicular to the berm, and interlocked with grippers to create a solid foundation for the erosion protection system. 2) The bags will also be placed in a manner to create benches at different elevations that will be periodically inundated and will be a platform for planting tule. 3) The area from the foundation to the scoured berm will be back-filled and compacted as more bags are stacked (perpendicular to the berm) and locked into the system. The bags will be stacked in such a way as to create a slope to match the existing berm. 4) A geo-fabric will be used to tie the gripper system in with the newly created slope to ensure a stable structure. 5) The vegetated riprap portion of the project will be constructed in a similar fashion, but will not include a buried foundation.

Once the gripper system and vegetated riprap have been completed, an assortment of small scrub shrub and tule plugs will be planted. It is recommended to apply native grasses directly on the gripper system by hydroseeding. To ensure proper establishment of the seedlings from hydroseeding, guidelines for hydroseeding on levees developed by DWR environmental staff will be used. Temporary drip irrigation may be needed.

Findings

The Initial Study has been prepared to determine if the project could have a significant effect on the environment. Based on the Initial Study, it has been determined that the proposed project would not have any significant effects on the environment after implementation of mitigation measures. The avoidance measures identified in the Initial Study will be adopted to ensure that no significant impact will occur through this project. This conclusion is supported by the following findings:

- The proposed project would result in **no impacts** to aesthetics, agricultural resources, air quality, cultural resources, geology and soils, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation and traffic, and utilities and service systems.
- With **implementation of mitigation measures**, the proposed project would have **less-than-significant impacts**, on biological resources, greenhouse gas emissions, hazards and hazardous materials, and hydrology and water quality.

Mitigation Measures

The following mitigation measures will be implemented by the Department of Water Resources to avoid or minimize potential environmental impacts. Implementation of these mitigation measures would reduce the potential environmental impacts of the proposed project to a less-than-significant level.

Mitigation Measures for Biological Resources

BIO 1. Pre-construction Survey. Pre-construction surveys for protected species will be performed no more than 48 hours prior to the mobilization of equipment to the site. The surveyor will look for special status species, evaluate the likelihood of occurrence in the habitat, and determine if additional biological monitoring is needed during work activities to ensure no individuals are harmed.

BIO 2. Protection of Listed Species. If a fully protected or listed animal species is encountered while performing work, all work shall be suspended until the fully protected or listed animal species has left the work area. The appropriate agencies shall be notified of all confirmed observations of any fully protected or listed species in or adjacent to any work area for the project. If a non-listed special status species is encountered during

construction activities, the trained personnel will notify the biologist and CDFW and USFWS immediately to determine the appropriate procedures related to the avoidance or collection and relocation of the animal. The biologist will be required to report any take of listed species to the CDFW and USFWS immediately by telephone and by electronic mail or written letter within one (1) working day of the incident.

BIO 3. Environmental Awareness Training. A Worker Environmental Awareness Training Program for personnel shall be conducted by a qualified biologist for all workers on the construction site, including subcontractors, prior to the commencement of the project's construction activities. The program shall consist of a presentation made by a qualified biologist that includes information about the distribution and habitat needs of any special status species that may be present, legal protections for those species, penalties for violations and project-specific protective measures included in this document.

BIO 4. Native Habitat Areas Avoidance. Crews will avoid passing through (impacting) upland native habitat areas by using established roads, trails, entry points to the work areas. The work area, including access and staging areas, shall be limited to the smallest possible area. Movement of personnel and equipment shall be limited to designated work zones, staging areas, and access roads. Staging areas shall be located in degraded areas and/or where the soil is already compacted, preferably near access points when site conditions allow. Access points shall be located at existing docks, riprapped area, gates, or in areas that are already degraded. The project will minimize disturbance of vegetation near and on permanent and seasonal marshes and shorelines with extensive emergent vegetation and/or weedy vegetation.

Mitigation Measures for Plants

BIO 5. Native Plant Avoidance. A botanist will conduct pre-restoration surveys for rare plants prior to restoration activities. If any are identified, the areas will be flagged. Plants will be avoided as much as possible. Those plants that may be impacted by project activities will be moved to an alternate site along the bank. Non-native plant control methods will be used that minimize impacts to non-target native vegetation. These methods include preparing target plants for herbicide application by separating them from native vegetation, using highly qualified personnel who have experience treating non-native plants in sensitive riparian habitat, and using herbicides that are approved for use which have no significant impacts on wildlife species.

Mitigation Measures for Fish

BIO 6. Work Windows. Soil disturbing activities will take place between August 1 and November 30, designated by CDFW as a time period when Delta smelt, Central Valley steelhead, winter-run Chinook salmon, and spring-run Chinook salmon are least vulnerable to impacts from in-channel activities (USFWS 2004, CDFG 2005).

Mitigation Measures for Amphibians and Reptiles

BIO 7. Erosion and Sedimentation. Best Management Practices (BMPs) will be implemented to minimize the potential for erosion and sedimentation into nearby water

bodies. Before construction begins to prepare the site for installation of the “gripper bags,” a coffer dam will be constructed to prevent soil and sediment from being washed into the waterway. The coffer dam will be removed once construction has been completed and the area stabilized.

BIO 8. Western Pond Turtle Avoidance. A pre-construction survey for Western Pond Turtles will be conducted immediately prior to construction. If a Western Pond Turtle is identified within the work zone, work will not proceed until the turtle has moved, on its own, out of the work zone.

BIO 9. Giant Garter Snake Avoidance. Pre-construction surveys will be conducted for the presence of Giant Garter Snakes (GGS) by a qualified biologist prior to the mobilization of equipment to the site. The biologist will inspect construction-related activities within the project area to assure that mitigation measures are being performed as required. The biologist will train the construction crew on the identification and avoidance measures while working in GGS habitat. If GGS are encountered during construction activities, the trained personnel will notify the biologist and USFWS immediately to determine the appropriate procedures related to the collection and relocation of the snake if the snake has not moved away on its own. A report will be submitted, including date(s), location(s), habitat description, and any corrective measures taken to protect the snake, within one (1) business day. The biologist will be required to report any take of listed species to the USFWS immediately by telephone and by electronic mail or written letter within one (1) working day of the incident.

BIO 10. Active Season Work Window. Ground disturbing activities will be initiated within GGS’s active season of May 1 through October 1; however, work will continue into the snake’s inactive season. Work will be initiated prior to September 15, and ongoing activities are likely to deter snakes from using locations within the project area as brumation sites (brumation can be loosely equated to hibernation among mammals).

Mitigation Measures for Mammals

BIO 11. If pre-construction surveys find natal roost sites for bats within the work area, work shall be avoided between March 1 and August 15 at specific sites if such work could disturb potential roosting sites for bats. Trees to be trimmed will be limited to the minimum extent feasible to gain access to the erosion site. Mitigation measures will be established and implemented in coordination with California Department of Fish and Wildlife (CDFW) to avoid impacts to habitat. Mitigation measures may include, but are not limited to, pre-construction surveys by a qualified biologist to determine potential for roosting bats, avoidance of tree removal during the non-volant period to avoid impacts to lactating females and young bats that are unable to fly on their own, and implementation of a staged disturbance strategy to allow roosting bats opportunity to move before a potential roost site is removed.

Mitigation Measures for Birds

BIO 12. If construction takes place during the active nesting season (April 1 through August 31), a qualified biologist will conduct pre-construction surveys prior to the start of construction to locate all active nests of birds covered by Migratory Bird Treaty Act within 250 feet, active raptor nests within 500 feet and all active Swainson's Hawk nests within ¼ mile of construction areas. If nests are located, impacts shall be minimized by establishing appropriate non-disturbance buffer zones in consultation with CDFW and monitoring nests to ensure that nests are not jeopardized.

BIO 13. If Swainson's Hawks are found nesting within ¼ mile of the proposed project, a qualified biologist will conduct a risk assessment and consult CDFW to develop and implement appropriate avoidance and minimization measures. This may include monitoring of nests by a qualified biologist and suspension of work if Swainson's Hawk nests are at risk of disturbance.

Mitigation Measures to Reduce Greenhouse Gas Emissions

Pre-Construction and Final Design BMPs

Pre-construction and Final Design BMPs are designed to ensure that individual projects are evaluated and their unique characteristics taken into consideration when determining if specific equipment, procedures, or material requirements are feasible and efficacious for reducing GHG emissions from the project. While all projects will be evaluated to determine if these BMPs are applicable, not all BMPs will be appropriate for this project.

GHG 1. Evaluate project characteristics, including location, project work flow, site conditions, and equipment performance requirements, to determine whether specifications of the use of equipment with repowered engines, electric drive trains, or other high efficiency technologies are appropriate and feasible for the project or specific elements of the project.

GHG 2. Evaluate the feasibility and efficacy of performing on-site material hauling with trucks equipped with on-road engines.

GHG 3. Ensure that all feasible avenues have been explored for providing an electrical service drop to the construction site for temporary construction power. When generators must be used, use alternative fuels, such as propane or solar, to power generators to the maximum extent feasible.

GHG 4. Evaluate the feasibility and efficacy of producing concrete on-site and specify that batch plants be set up on-site or as close to the site as possible.

GHG 5. Evaluate the performance requirements for concrete used on the project and specify concrete mix designs that minimize GHG emissions from cement production and curing while preserving all required performance characteristics.

GHG 6. Limit deliveries of materials and equipment to the site to off peak traffic congestion hours. Construction BMPs apply to all construction and maintenance projects that DWR completes or for which DWR issues contracts. All projects are expected to implement all Construction BMPs unless a variance is granted by the Division of Engineering Chief, Division of Operation and Maintenance Chief, or Division of Flood Management Chief (as applicable) and the variance is approved by the DWR CEQA Climate 18 Change Committee. Variances will be granted when specific project conditions or characteristics make implementation of the BMP infeasible and where omitting the BMP will not be detrimental to the project's consistency with the Greenhouse Gas Emissions Reduction Plan.

Construction BMPs

Construction BMPs apply to all construction and maintenance projects that DWR completes or for which DWR issues contracts. All projects are expected to implement all Construction BMPs unless a variance is granted by the Division of Engineering Chief, Division of Operation and Maintenance Chief, or Division of Flood Management Chief (as applicable) and the variance is approved by the DWR CEQA Climate 18 Change Committee. Variances will be granted when specific project conditions or characteristics make implementation of the BMP infeasible and where omitting the BMP will not be detrimental to the project's consistency with the Greenhouse Gas Emissions Reduction Plan.

GHG 7. Minimize idling time by requiring that equipment be shut down after five minutes when not in use (as required by the State airborne toxics control measure Cal. Code of Regs., tit. 13, §2485). Provide clear signage that posts this requirement for workers at the entrances to the site and provide a plan for the enforcement of this requirement.

GHG 8. Maintain all construction equipment in proper working condition and perform all preventative maintenance. Required maintenance includes compliance with all manufacturer's recommendations, proper upkeep and replacement of filters and mufflers, and maintenance of all engine and emissions systems in proper operating condition. Maintenance schedules shall be detailed in an Air Quality Control Plan prior to commencement of construction.

GHG 9. Implement a tire inflation program on the jobsite to ensure that equipment tires are correctly inflated. Check tire inflation when equipment arrives on-site and every two weeks for equipment that remains on-site. Check vehicles used for hauling materials offsite weekly for correct tire inflation. Procedures for the tire inflation program shall be documented in an Air Quality Management Plan prior to commencement of construction.

GHG 10. Develop a project specific ride share program to encourage carpools, shuttle vans, transit passes and/or secure bicycle parking for construction worker commutes.

GHG 11. Reduce electricity use in temporary construction offices by using high efficiency lighting and requiring that heating and cooling units be Energy Star compliant. Require that all contractors develop and implement procedures for turning off computers, lights, air conditioners, heaters, and other equipment each day at close of business.

GHG 12. For deliveries to project sites where the haul distance exceeds 100 miles and a heavy duty class 7 or class 8 semi-truck or 53-foot or longer box type trailer is used for hauling, a SmartWay2 certified truck will be used to the maximum extent feasible.

GHG 13. Minimize the amount of cement in concrete by specifying higher levels of cementitious material alternatives, larger aggregate, longer final set times, or lower maximum strength where appropriate.

GHG 14. Develop a project specific construction debris recycling and diversion program to achieve a documented 50% diversion of construction waste.

GHG 15. Evaluate the feasibility of restricting all material hauling on public roadways to off-peak traffic congestion hours. During construction scheduling and execution minimize, to the extent possible, uses of public roadways that would increase traffic congestion.

Mitigation Measures for Hazards and Hazardous Materials

HAZ 1. During project activities, contractor shall prevent oil, grease, fuels, and other petroleum products, toxic chemicals, and any other substances that could be deleterious to aquatic life from contaminating the soil and/or entering waters of the state. The contractor shall immediately remove such substances from any place where they could enter waters of the state and/or adversely affect fish and wildlife resources. The contractor shall attempt to contain any releases or spills of such substances, and shall report any significant spills as soon as possible to the California Emergency Management Agency. In the event of a significant spill, work will cease immediately and workers will employ containment methods if it is safe to do so. The DWR will make notifications to the appropriate agencies within the regulatory time frames.

HAZ 2. No materials will be staged or stored on the work site in excess of one work day.

Mitigation Measures for Hydrology/Water Quality

WQ1. Before construction begins to prepare the site for installation of the “gripper bags,” a coffer dam will be constructed to prevent soil and sediment from being washed into the waterway. The coffer dam will be removed once construction has been completed and the area stabilized.

Determination

In accordance with section 21082.1 of the California Environmental Quality Act, the Department of Water Resources has independently reviewed and analyzed the Initial Study and proposed Mitigated Negative Declaration for the proposed project. On the basis of this Initial Study, I find that the proposed Project will not have a significant effect on the environment, and that this Mitigated Negative Declaration has been drafted in accordance with the California Environmental Quality Act.

Charles Tyson, Delta Ecosystem Enhancement
Department of Water Resources

_____, 2016
Date

Initial Study for the Decker Island Levee Repair Demonstration Project

1 Introduction

1.1 Background

This document is an Initial Study that provides an analysis of the Decker Island Levee Repair Demonstration Project. This document has been prepared in accordance with California Environmental Quality Act (CEQA), Public Resources Code §2100 et seq., and the State CEQA Guidelines, Title 14 California Code of Regulations (CCR) Section 15000 et seq. The purpose of this Initial Study is to 1) determine whether project implementation would result in potential significant or significant effects to the environment, and 2) incorporate mitigation measures into the project design, as necessary, to eliminate the project’s potential significant or significant effects or reduce them to a less-than-significant level.

1.2 Lead Agency

As specified in CEQA Guidelines Section 15367, the lead agency for CEQA compliance is the public agency that has the principal responsibilities for carrying out or approving the project. The California Department of Water Resources has principal responsibility for carrying out the proposed project and is therefore the CEQA lead agency for this Initial Study.

1.3 Supporting Environmental Studies

Environmental studies conducted for the project include 1) a wetlands delineation (DWR, Appendix A), and 2) an archaeological survey (DWR, Appendix B). These environmental reports are also available upon request during normal operating hours at the Department of Water Resources, 1416 Ninth St. Rm 1601, Sacramento Ca 942836 or by contacting Steven Garcia at steven.garcia@water.ca.gov or 916.651.0844.

2 Project Description

2.1 Project Location:

The proposed project is located on the northeastern edge of Decker Island in Solano County, California, in the Lower Sacramento River watershed (figures 1 and 2). The proposed project is within Section 13, Township 3 North, Range 2 East of the Mount Diablo Meridian, in the “Jersey Island, CA” 7.5 minute U.S. Geological Survey (USGS) topographic

quadrangle (quad) (Latitude 38.1002, Longitude -121.7094). Elevation on the site ranges from approximately 12 feet above mean sea level (msl) along the top of the bank to approximately 3 feet above msl near the water's edge (figures 1 and 2).

2.2 Description of the Project:

This demonstration project is to determine if the “gripper system” from Mavericks Solutions is a viable alternative to using riprap at an erosion repair site on a river bank or a levee. The interlocked, soil-filled bags with vegetation interspaced among the bags have been successfully used on river sites in the Pacific Northwest and South Korea. This project is to explore use of this system in the Sacramento-San Joaquin Delta as a practical and cost effective alternative to riprap while maintaining structural integrity and providing quality habitat.

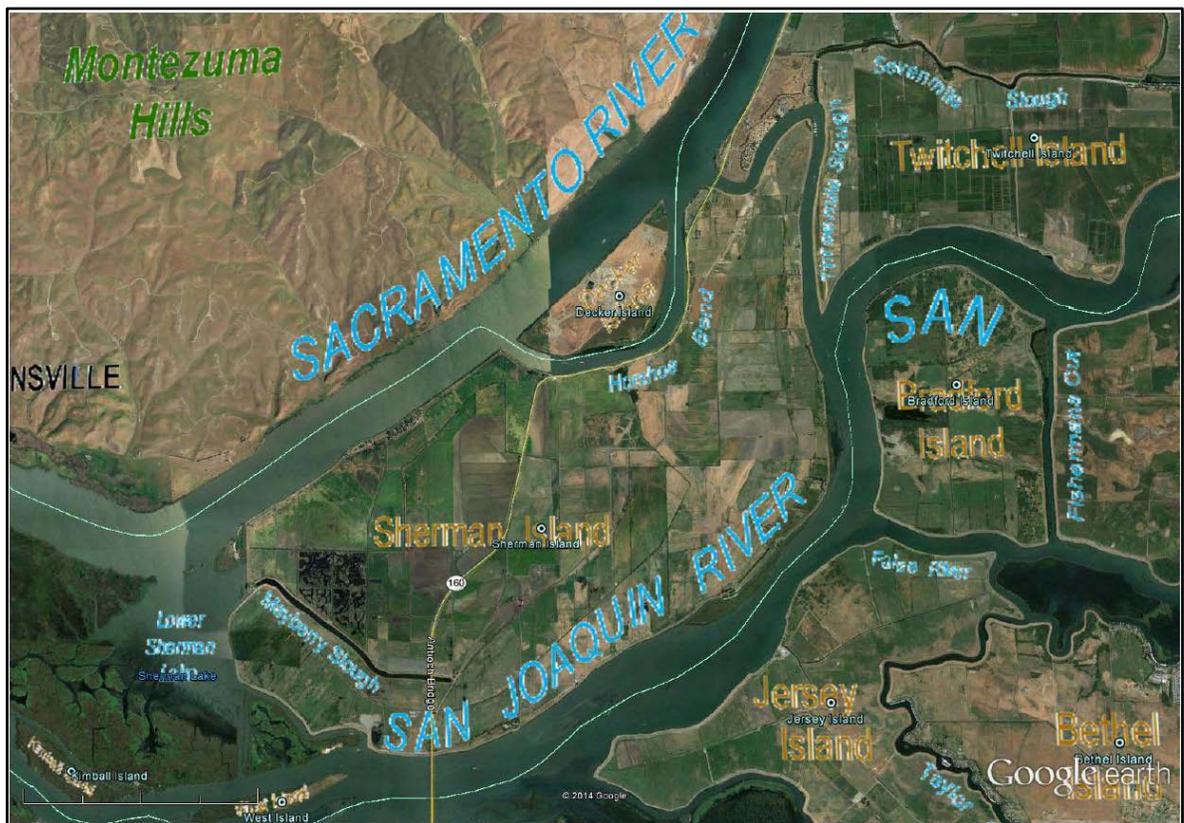


Figure 1: Region of Project

The Decker Island Levee Maintenance and Demonstration Project is a collaborative project between DWR and CDFW, constructed 1999-2002 at the Northern tip of Decker on 32 acres owned by CDFW. The completed project included mixed upland riparian habitat, wetlands and channels that provide shallow water habitat and water to the interior of the project site for riparian vegetation.

An erosion site exists on the east side of Decker Island about 500 feet south of the breach to the habitat restoration site on the north side of the Island and 300 feet north of the fence line on the south side of the property (figures 1 and 2). The erosion site is located on an 8 foot high berm and stretches about 210 feet. To repair this erosion site CDFW and DWR would like to divide the site into two linear parts:

1. The northern 110 feet of the site will use Maverick Solutions LLC's gripper system (figure 3). The gripper system is comprised of non-woven geo-textile fabric bags that are filled with soil, and interlocked using plastic grippers. It is an environmentally friendly alternative to riprap that allows tree cuttings and planting plugs to be placed between bags and provides a foundation for successful establishment. This creates a highly resilient erosion control wall while providing vegetation along the channel's edge.
2. The southern 100 feet will utilize a vegetative riprap system. Vegetated riprap is riprap that is placed by hand, avoiding existing vegetation, or by planting between riprap.



Figure 2: Location of Erosion Site

Both systems will have similar topographic designs that include high and low habitat benches that will be inundated at different channel stages.

An excavator and other heavy machinery will be needed for the repair of this site and will need to be brought over by barge. A coffer dam will be constructed and the project site will be dewatered prior to the start of work just outside of low tide. 1) A trench will be cut the entire length of the erosion site (parallel to the waterside berm) and will go below the ordinary high water line to create a foundation. Gripper bags that have been filled with soil will be placed in the trench, such that they will be perpendicular to the berm, and interlocked with grippers to create a solid foundation for the erosion protection system. 2) The bags will also be placed in a manner to create benches at different elevations that will be periodically inundated and will be a platform for planting tule. 3) The area from the foundation to the scoured berm will be back-filled and compacted as more bags are stacked (perpendicular to the berm) and locked into the system. The bags will be stacked in such a way as to create a slope to match the existing berm. 4) A geo-fabric will be used to tie the gripper system in with the newly created slope to ensure a stable structure. 5) The vegetated riprap portion of the project will be constructed in a similar fashion, but will not include a buried foundation.

Once the gripper system and vegetated riprap have been completed, an assortment of small scrub shrub and tule plugs will be planted. It is recommended to apply native grasses directly on the gripper system by hydroseeding. To ensure proper establishment of the seedlings from hydroseeding, guidelines for hydroseeding on levees developed by DWR environmental staff will be used. Temporary drip irrigation may be needed.

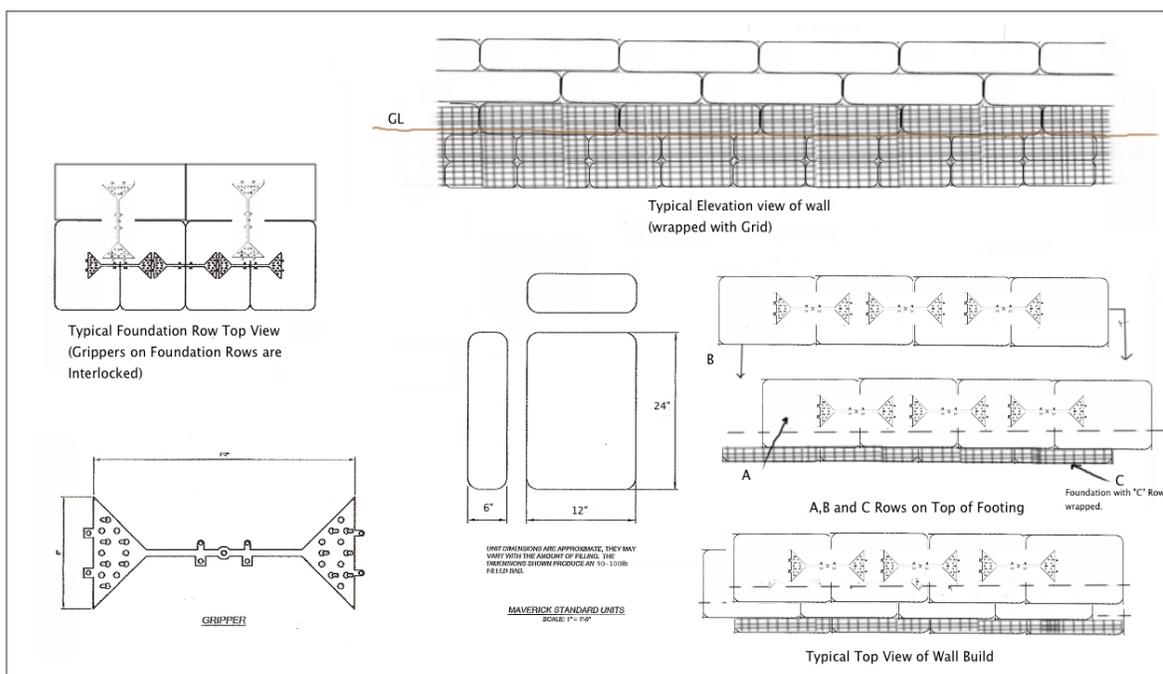


Figure 3: Detail of Gripper System

Monitoring and Reporting

Monitoring of the sites will be necessary for reporting to CDFW and DWR management. An engineer and plant biologist will visit the site no less than once every two months and after major storm events. Key items to monitor will be erosion, vegetation establishment, gripper bag performance, and ease of construction and maintenance. A draft report will be prepared each year to serve as an update to management and a final report to management will be prepared after three years of monitoring.

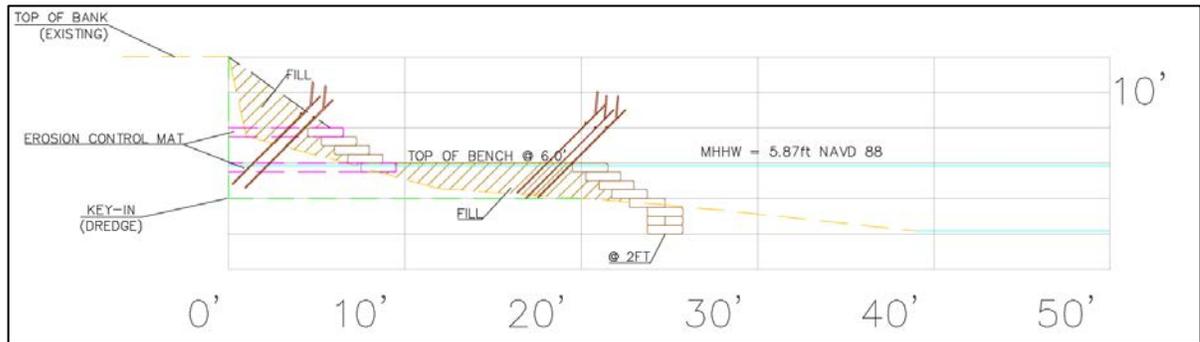


Figure 4: Conceptual Cross-section at Erosion Site

2.3 Surrounding land uses and setting

The Project Site is located on the northeastern edge of Decker Island. The site is surrounded on three sides by grass, scrub shrub and riparian habitats that were planted in 2000 and 2005 as part of the Decker Island Habitat Improvement Project. To the northeast of the Project Site is Sacramento River water running through Horseshoe Bend with intermittent patches of emergent vegetation.

The Decker Island Habitat Improvement Project is a 32-acre site on the northeastern end of the approximately 700-acre Decker Island. To the northeast of the habitat project is Horseshoe Bend, to the northwest is the Sacramento River. To the south and southwest of the habitat project is the remainder of Decker Island, comprised of sandy soils being excavated as part of a mining operation.

2.4 Project sponsor's name and address:

California Department of Water Resources
Delta Ecosystem Enhancement Section
Division of Integrated Regional Water Management
1416 Ninth Street, Room 1601
Sacramento CA 95814

2.5 Required Permits and Approvals

Approving Agency	Required Permits and Applications
Federal Agencies	
U.S. Army Corps of Engineers (Corps)	Nationwide Section 404 Discharge Permit (Clean Water Act, 33 USC 1341)
U.S. Fish and Wildlife Service (USFWS)	Section 7 Consultation
State Agencies	
State Water Resources Control Board, Regional Water Quality Control Board	Water Quality Certification (Clean Water Act) Section 401
Department of Fish and Wildlife	Environmental Review and Approval Streambed Alteration Section 1600

3 Resources and Environmental Analysis

3.1 Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a “Potentially Significant Impact” as indicated by the checklist on the following pages.

- | | | |
|--|---|---|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture and Forestry Resources | <input type="checkbox"/> Air Quality |
| <input checked="" type="checkbox"/> Biological Resources | <input type="checkbox"/> Cultural Resources | <input type="checkbox"/> Geology and Soils |
| <input checked="" type="checkbox"/> Greenhouse Gas Emissions | <input checked="" type="checkbox"/> Hazards and Hazardous Materials | <input checked="" type="checkbox"/> Hydrology and Water Quality |
| <input type="checkbox"/> Land Use and Planning | <input type="checkbox"/> Mineral Resources | <input type="checkbox"/> Noise |
| <input type="checkbox"/> Population and Housing | <input type="checkbox"/> Public Services | <input type="checkbox"/> Recreation |
| <input type="checkbox"/> Transportation and Traffic | <input type="checkbox"/> Utilities and Service Systems | Mandatory Findings of Significance |

3.2 Determination

On the basis of this initial evaluation:

- I find the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- I find that the proposed project MAY have a significant effect on the environment, and ENVIRONMENTAL IMPACT REPORT is required.
- I find that the proposed project MAY have a “potentially significant impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

 Charles Tyson, Delta Ecosystem Enhancement
 Department of Water Resources

_____, 2016
 Date

3.3 Aesthetics	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
Would the project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

Visual resources consist of the natural and manmade features that give a particular environment its aesthetic qualities. The primary areas of concern generally are associated with changes to prominent topographic features, changes in the character of an area with high visual sensitivity, removal of vegetation, or blockage of public views of a visually sensitive landscape.

The potential project site is along 210 feet of 10-15 foot high eroded bank on Decker Island. The scenic character of the project area is defined mostly by riparian habitat along the bank of the island that is visible from Horseshoe Bend and Highway 160 across Horseshoe Bend. There are no State-designated visual resources within or near the potential project sites.

Discussion

- a. The Project Site is located along 210 feet from water elevation approximately 10-25 feet up the bank on the water side of the bank on Decker Island. Elevation at the Project Site is at sea level and is only visible from the top of the bank or the immediate surrounding area. The Project Site is currently eroded riparian vegetation and will be planted with riparian vegetation after the eroded area is repaired. There will be little or no visible difference of the Project Site and the existing habitat on the adjacent bank section. **No impact would occur.**

- b. The nearest state designated scenic highway is Highway 160, which is located more than 700 feet to the east of the Project Site. The Project Site is only sporadically visible through existing riparian vegetation while driving on the highway. The small section of eroded bank that will be repaired and vegetated will appear the same as adjacent bank sections and no loss of scenic values could reasonably be expected. **No impact would occur.**
- c. The Project Site will not substantially degrade the existing visual character or quality of the site or its surroundings because the site will be revegetated with native plants upon completion of erosion repairs. **No impact would occur.**
- d. No lighting is included in the proposed Project. **No impact would occur.**

3.4 Agriculture Resources	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

While agricultural lands can be found throughout the Sacramento-San Joaquin Delta, no agricultural activity exists on Decker Island. Dredge spoils were placed on the island in the early 1900s and present activity currently is the excavation of this sand for use as fill material off island. The northeastern tip of the island where the Project Site is located is a 30-acre habitat enhancement site owned by the California Department of Fish and Wildlife (CDFW). The project activities will not conflict with any existing zoning or involve changes in the existing environment.

Discussion

- a. There is no farming on Decker Island. Most of the island is owned by Delta Aggregate Inc. and is being excavated for sand to use as fill material off island. The northeastern tip of the island where the Project Site is located is a 32-acre habitat enhancement site owned by

CDFW planted with riparian and scrub shrub habitat. The proposed Project would have no impact on agricultural resources. **No impact would occur.**

- b. The Project Site is on a 32-acre habitat enhancement project owned by the Department of Fish and Wildlife and is not under a Williamson Act contract. The proposed activities would not be incompatible with the agricultural or open space uses, as fish and wildlife enhancement and preservation are a compatible land use. Decker Island is currently zoned AG-160(F) under the Solano County Zoning Ordinance and wildlife habitat is an allowable land use under the AG-160 zoning designation. Furthermore, as a State agency, CDFW is exempt from local regulation under the doctrine of sovereign immunity. **No impact would occur.**
- c. The Project Site and its adjacent areas are not farmed and haven't been since the island was first created from dredged spoils. No farming activities will be changed and **no impact would occur.**

3.5 Air Quality	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

The project area is within Solano County, and under the jurisdiction of Bay Area Air Quality Management District (BAAQMD). However, BAAQMD is currently in litigation concerning their thresholds of significance for criteria pollutants of concern. For this reason Yolo-Solano Air Quality Management District’s (YSAQMD) thresholds of significance will be used. This section has been prepared using methods and assumptions recommended in the “Handbook for Assessing and Mitigating Air Quality Impacts of the Yolo-Solano Air Quality Management District” (Yolo-Solano Air Quality Management District 2007) to provide guidance for analyzing and mitigating project-specific air quality impacts. Because YSAQMD was designated as “non-attainment” for both federal

and state ozone standard and state PM10 Standard, ozone precursors and particulate matters (PM10 and PM2.5) are pollutants of greatest concern at YSAQMD.

Discussion

YSAQMD established project-level thresholds for several pollutants as shown in Table 1. The pollutants of concern include particulate matter less than 2.5 micrometers in diameter (PM2.5), particulate matter less than 10 micrometers in diameter (PM10), carbon monoxide (CO), and the precursors to ozone, which are reactive organic gases (ROG) and nitrogen oxides (NOx). The thresholds apply to both construction and operational impacts. Moreover, YSAQMD also adopted thresholds for air toxics, odors, and cumulative impacts.

Table 1. Thresholds of Significance for Criteria Pollutants of Concern

Pollutant	Threshold of Significance
ROG	10 tons/year
NOx	10 tons/year
PM ₁₀	80 lbs/day
CO	Violation of a state ambient air quality standard for CO

The major emissions from this project would include:

- Fugitive dusts (PM10 and PM2.5) primarily from earth-moving activities such as soil preparation for planting
- Combustion emissions of criteria air pollutants (ROG, NOx, carbon monoxide, carbon dioxide, PM10, and PM2.5) primarily from operation of tractors and worker commute trips.

The emissions from the project were estimated using EPA emission factors and are presented in Table 2. The emission levels of the criteria pollutants of concern are well below significant thresholds set by YSAQMD.

Table 2. Air Pollutant Emissions for the Project

	ROG	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
Yearly Emissions (tons/year)	.00320	4.54399	1.29559	0.30678	7.30524	2.43248

- a. Work proposed in this Project is not in conflict with or would not obstruct implementation of any applicable air quality plan for the Sacramento Valley or the adjacent other Air Basins. The construction is planned to last ten days and while construction equipment emits ozone precursors, such emissions are included in the emission inventory that is the basis for regional air quality plans. Therefore, construction emissions are not expected to impede attainment or maintenance of ozone standards in the area. To avoid any significant impacts, a strict no-idle of heavy equipment policy will be enforced. Additionally, if wind is forecasted to be greater than 30 miles per hour on a given day, construction work

will be postponed in order to avoid the creation of substantial dust (PM10). **No impact would occur.**

b-e. The brief usage of heavy equipment, which operates routinely as part of the mining operation on Decker Island southwest of the habitat enhancement area and the Project Site under most normal circumstances, is not expected to create any additional discernible pollutants or odors. **No impact would occur.**

3.6 Biological Resources	Potentially Significant <u>Impact</u>	Less than Significant with <u>Mitigation Incorporation</u>	Less than Significant <u>Impact</u>	No <u>Impact</u>
Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

The proposed project is located on the northeastern edge of Decker Island in Solano County, California, in the Lower Sacramento River watershed adjacent to the Sacramento River. Elevation on the site ranges from approximately 12 feet above mean sea level (msl) along the top of the bank to approximately 3 feet above msl near the water's edge. The regional climate is generally Mediterranean in nature with warm, dry summers and rainy winters. The Sacramento Valley Subregion is typically wetter and cooler than other areas of the central valley due to influences from the coastal weather patterns moving up the Sacramento-San Joaquin River Delta. The annual temperatures in this area range from approximately 35 degrees Fahrenheit in January to approximately 88 degrees Fahrenheit in July. The average annual precipitation is approximately 15.44 inches per year (WRCC 2013).

Dominant habitat types within the project area include annual grassland, riparian, tidal marsh, and riverine. Each of these habitat types is described further below. A list of all plant species observed onsite is included in table 4 below.

The dominant terrestrial habitat type within the project area is riparian woodland with an understory of annual grassland. The interior of the island, along with the bank, have been replanted with riparian trees and shrubs as part of a past habitat enhancement project. This habitat type consists of an overstory of valley oak (*Quercus lobata*; FACU), California black walnut (*Juglans hindsii*; FAC), cottonwood (*Populus fremontii*; FAC), California sycamore (*Platanus racemosa*; FAC), and several types of willow (*Salix goodingii* and *S. lasiandra*; FACW). Shrub species noted in this habitat consist of coyote brush (*Baccharis pilularis*) and elderberry (*Sambucus nigra*; FAC). The understory is comprised primarily of grass species such as soft chess (*Bromus hordeaceus*; FACU), ripgut brome (*Bromus diandrus*; UPL), and blue wild rye (*Elymus tritichoides*; FAC). The proposed staging area is comprised almost entirely of annual grassland with little shrub and tree cover.

Aquatic habitats within the project area consist of tidal freshwater emergent wetland and riverine. Several areas below the top of the eroded bank, just above the MHW mark and below the HTL, are dominated by wetland species such as yellow flag iris (*Iris pseudoacorus*; OBL), Santa Barbara sedge (*Carex barbaeae*; FAC), Indian hemp (*Apocynum cannabinum*; FAC), lady's thumb (*Persicaria maculosa*; FACW), and tule (*Schoenoplectus californica*; OBL).

Riverine habitat consists of a mud flat area that provides habitat for hydrophytic, emergent species such as tule, water hyacinth (*Eichhornia crassipes*; OBL), Mason's lilaopsis (*Lilaeopsis masonii*; OBL), and Dallisgrass (*Paspalum dilatum*; FAC). Open water habitat is beyond this shelf of shallow, tidally influenced marsh and is devoid of emergent vegetation.

Decker Island was created in the early 1900's by dredging the river channel and by stockpiling of dredged materials. The entirety of the Study Area is comprised of Tujunga fine sandy soils. This soil type is somewhat excessively drained and forms naturally from alluvium weathered primarily from granitic sources upstream in the Sacramento River watershed (NRCS 2014). Tujunga fine sandy soil is considered a hydric soil.

Determination of Special-Status Species in the Project Site

Data from the California Natural Diversity Database (CNDDDB), California Department of Fish and Wildlife (DFW), California Native Plant Society (CNPS), USFWS, and field surveys by DWR biologists in fall 2014 were used to determine special-status plant species that could occur or were observed in the Project Site. Field surveys were conducted to determine whether habitat for special-status animal species identified in the file data is present in the Project Site. Special-status plant and animal species for which suitable habitat is present in the Project Site are listed in Tables 3 and 4. Special-status fishes are included in this evaluation because the project occurs below the mean high water mark.

Table 3. Special-status species for which suitable habitat occurs in or adjacent to the Project Site

Special-Status Species	Common Name	Federal Status & other codes ^{a, b}	State Status ^a & other codes ^b	Source ^c	Habitat Present? ^d / Species Observed?
Fish					
<i>Acipenser medirostris</i>	Green sturgeon	T, CH	SSC	1	See text.
<i>Hypomesus transpacificus</i>	Delta smelt	T, CH	E	1, 2	See text.
<i>Spirinchus thaleichthys</i>	Longfin smelt	--	T	2	See text.
<i>Oncorhynchus mykiss</i>	Central Valley steelhead Distinct Population Segment (DPS)	T, CH	--	1	See text.
<i>Oncorhynchus tshawytscha</i>	Central Valley spring-run Chinook salmon ESU	T, CH	T	1	See text.
<i>Oncorhynchus tshawytscha</i>	Sacramento River Winter-run Chinook salmon ESU	E, CH	E	1	See text.
<i>Pogonichthys macrolepidotus</i>	Sacramento splittail	--/ --	SSC	2	See text.
Reptiles					
<i>Actinemys marmorata</i>	Western pond turtle	--	SSC	2,3	Yes/ Yes
<i>Thamnophis gigas</i>	Giant garter snake	T	T	1,2	Yes/ No
Birds					
<i>Buteo swainsoni</i>	Swainson's hawk	MBTA	T	2,3	Yes ¹ / No
<i>Elanus leucurus</i>	White-tailed kite	MBTA	FP	3	Yes ¹ / Yes
<i>Circus cyaneus</i>	Northern harrier	MBTA	SSC	2,3	Yes ¹ /No
<i>Lanius ludovicianus</i>	Loggerhead shrike	--	SSC	2,3	Yes/ Yes ²
<i>Melospiza melodia mailliardi</i>	Modesto song sparrow	--	SSC	2	Yes/No
Migratory Birds & Birds of Prey	Various	MBTA	--	3	Yes/ Yes

^a **Listing Status** Federal status determined from USFWS species list (2013). State status determined from DFW (2011a; 2013 b,c). Codes used in table are: E = Endangered; T = Threatened; P = Proposed; C = Candidate; R = California Rare; * = Possibly extinct.

^b **Other Codes** Other codes determined from USFWS species list; DFW (2011a,b; 2012 a,b; 2013 a,b) and CNPS (2012, 2013). Codes used in table are as follows: SSC = DFW Species of Special Concern; FP = DFW Fully Protected; Prot = DFW Protected; CH = Critical habitat designated; MBTA = protected by Migratory Bird Treaty Act

CNPS List (plants only): 1A = Presumed Extinct in CA; 1B = Rare or Endangered (R/E) in CA and elsewhere; 2B = R/E in CA and more common elsewhere

CNPS List Decimal Extensions: .1 = Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat); .2 = Fairly endangered in CA (20-80% of occurrences threatened); .3 = Not very endangered in CA (< 20% of occurrences threatened or no current threats known).

^c Sources 1 = From USFWS letter. 2 = From CNDDDB. 3 = Observed by DWR biologists. 4 = CNPS

^d Habitat types/Species Observed 1 = Project Site has foraging habitat, but no nesting habitat; 2 = Observed only during surveys

Table 4. List of plant species observed

List of Plant Species Observed

Decker Island Levee Repair Project – September 5, 2014

Family	Scientific Name	Common Name	Native? Y/N	Indicator Status
Adoxaceae	<i>Sambucus nigra</i>	Black elderberry	Y	FAC
Apicaceae	<i>Conium maculatum</i>	Poison hemlock	N	FACW
	<i>Lilaeopsis masonii</i>	Mason’s lilaeopsis	Y	OBL
Apocynaceae	<i>Apocynum cannabinum</i>	Indian hemp	Y	FAC
Asteraceae	<i>Baccharis pilularis</i> L	Coyote brush	Y	UP
	<i>Bidens frondosa</i>	Devil’s beggartick	Y	OBL
	<i>Erigeron canadensis</i>	Horseweed	Y	UPL
	<i>Lactuca serriola</i>	Prickly lettuce	N	FACU
	<i>Pseudognaphalium luteoalbum</i>	Jersey cudweed	N	FAC
	<i>Sonchus oleraceus</i>	Common sowthistle	N	UPL
Betulaceae	<i>Alnus rhombifolia</i>	White alder	Y	FACW
Brassicaceae	<i>Brassica nigra</i>	Black mustard	N	UPL
	<i>Lepidium latifolium</i>	Broadleaved pepperweed	N	FAC
	<i>Raphanus sativus</i>	Wild radish	N	UPL
Chenopodiaceae	<i>Atriplex prostrata</i>	Fat-hen	N	FACW
Convolvulaceae	<i>Calystegia sepium</i> ssp. <i>limnophila</i>	Morning glory	Y	FAC
Cyperaceae	<i>Carex barbarea</i>	Santa Barbara sedge	Y	FAC
	<i>Schoenoplectus acutus</i>	Hardstem bulrush	Y	OBL
	<i>Schoenoplectus californicus</i>	California bulrush	Y	OBL
Equisetaceae	<i>Equisetum hyemale</i>	Horsetail	Y	FACW
Fabaceae	<i>Acmispon americanus</i>	Spanish lotus	Y	UPL
	<i>Lathyrus jepsonii</i> var. <i>californicus</i>	California tule pea	Y	OBL
	<i>Vicia sativa</i> Spring	vetch	N	FACU
Fagaceae	<i>Quercus lobata</i>	Valley oak	Y	UPL
Iridaceae	<i>Iris pseudacorus</i>	Paleyellow iris	N	OBL
Juglandaceae	<i>Juglans hindsii</i>	California black walnut	Y	FAC
Juncaceae	<i>Juncus xyphioides</i>	Iris-leaved rush	Y	OBL
Onagraceae	<i>Epilobium ciliatum</i>	Slender willowherb	Y	FACW
Platanaceae	<i>Platanus racemosa</i>	California sycamore	Y	FAC
Poaceae	<i>Avena barbata</i>	Slender oat	N	UPL
	<i>Bromus diandrus</i>	Ripgut brome	N	UPL
	<i>Bromus hordeaceus</i>	Soft chess	N	FACU
	<i>Cynodon dactylon</i>	Bermuda grass	N	FACU
	<i>Echinochloa crus-gali</i>	Barnyardgrass	N	FACW
	<i>Elymus (Leymus) tritichoides</i>	Bearded lyme grass	Y	FAC
	<i>Paspalum dilatatum</i>	Dallis grass	N	FAC
	<i>Sorghum halepense</i>	Johnsongrass	N	FACU

Family	Scientific Name	Common Name	Native? Y/N	Indicator Status
Polygonaceae	<i>Persicaria maculosa</i>	Spotted ladythumb	N	FACW
	<i>Rumex pulcher</i>	Fiddle dock	N	FAC
Pontederiaceae	<i>Eichhornia crassipes</i>	Water hyacinth	N	OBL
Rosaceae	<i>Rubus armeniacus</i>	Himalayan blackberry	N	FACU
	<i>Rubus ursinus</i>	California blackberry	Y	FAC
Salicaceae	<i>Populus fremontii (deltoides)</i>	Fremont's cottonwood	Y	FAC
	<i>Salix goodingii</i>	Gooding's black willow	Y	FACW
	<i>Salix laevigata</i>	Red willow	Y	FACW
Sapindaceae	<i>Acer negundo</i>	Boxelder	Y	FACW

Bold: California Rare Plant Ranked species

Wetland Indicator Status:

- UPL – Upland
- FACU – Facultative Upland
- FAC – Facultative
- FACW – Facultative Wetland
- OBL - Obligate

Biological Resources Impact Discussion:

- a. The project will not have a substantial adverse effect on any sensitive species. Mitigation measures described at the end of this section have been proposed to bring impacts to less than significant. **Less than Significant with Mitigation Incorporation.**
- b. The project will restore riparian habitat to what is now an eroded bank. Through the plantings within the rows of the “gripper bags” and the hydroseeding of the retaining wall, riparian habitat will be increased in the project area and restore plants that were planted by DWR and CDFW. **No Impact would occur.**
- c. The project will involve placing a coffer dam in the mudflats and excavation to produce a foundation for the retaining walls of “gripper bags” and riprap. The 94.4 linear feet (0.057 acres) identified as jurisdictional waters of the U.S. will be impacted during construction, but the impacts will be temporary and vegetation will re-establish without the disturbance of the eroding bank. **Less than Significant Impact would occur.**
- d. Impacts to fish or wildlife species are not anticipated and the project has been designed to avoid potential impacts and will also implement specific mitigation measures to avoid and minimize potential impacts to wildlife species. Project activities that can have potential impact have been scheduled to occur when fish and wildlife species are less likely to occur in the project area. Potential impacts due to the project were assessed and mitigation measures are provided at the end of this section. **Less than Significant Impact would occur.**

- e. The project activities will not conflict with any local policies or ordinances protecting biological resources. **No Impact would occur.**
- f. The proposed project would not conflict with the provisions of any adopted Habitat Conservation Plan, Natural Communities Conservation Plan, other approved local, regional or state habitat conservation plan or any other local policies or ordinances that protect biological resources. The project would support/enact elements found in local and regional plans as the project is enhancing riparian habitat and protecting natural resources. **No Impact would occur.**

Mitigation Measures

The following mitigation measures will be implemented by the Department of Water Resources to avoid or minimize potential environmental impacts. Implementation of these mitigation measures would reduce the potential environmental impacts of the proposed project to a less-than-significant level.

Mitigation Measures for Biological Resources

BIO 1. Pre-construction Survey. Pre-construction surveys for protected species will be performed no more than 48 hours prior to the mobilization of equipment to the site. The surveyor will look for special status species, evaluate the likelihood of occurrence in the habitat, and determine if additional biological monitoring is needed during work activities to ensure no individuals are harmed.

BIO 2. Protection of Listed Species. If a fully protected or listed animal species is encountered while performing work, all work shall be suspended until the fully protected or listed animal species has left the work area. The appropriate agencies shall be notified of all confirmed observations of any fully protected or listed species in or adjacent to any work area for the project. If a non-listed special status species is encountered during construction activities, the trained personnel will notify the biologist and CDFW and USFWS immediately to determine the appropriate procedures related to the avoidance or collection and relocation of the animal. The biologist will be required to report any take of listed species to the CDFW and USFWS immediately by telephone and by electronic mail or written letter within one (1) working day of the incident.

BIO 3. Environmental Awareness Training. A Worker Environmental Awareness Training Program for personnel shall be conducted by a qualified biologist for all workers on the construction site, including subcontractors, prior to the commencement of the project's construction activities. The program shall consist of a presentation made by a qualified biologist that includes information about the distribution and habitat needs of any special status species that may be present, legal protections for those species, penalties for violations and project-specific protective measures included in this document.

BIO 4. Native Habitat Areas Avoidance. Crews will avoid passing through (impacting) upland native habitat areas by using established roads, trails, entry points to the work areas. The work area, including access and staging areas, shall be limited to the smallest possible area. Movement of personnel and equipment shall be limited to designated work zones, staging areas, and access roads. Staging areas shall be located in degraded areas and/or where the soil is already compacted, preferably near access points when site conditions allow. Access points shall be located at existing docks, ripped area, gates, or in areas that are already degraded. The project will minimize disturbance of vegetation near and on permanent and seasonal marshes and shorelines with extensive emergent vegetation and/or weedy vegetation.

Mitigation Measures for Plants

BIO 5. Native Plant Avoidance. A botanist will conduct pre-restoration surveys for rare plants prior to restoration activities. If any are identified, the areas will be flagged. Plants will be avoided as much as possible. Those plants that may be impacted by project activities will be moved to an alternate site along the bank. Non-native plant control methods will be used that minimize impacts to non-target native vegetation. These methods include preparing target plants for herbicide application by separating them from native vegetation, using highly qualified personnel who have experience treating non-native plants in sensitive riparian habitat, and using herbicides that are approved for use which have no significant impacts on wildlife species.

Mitigation Measures for Fish

BIO 6. Work Windows. Soil disturbing activities will take place between August 1 and November 30, designated by CDFW as a time period when Delta smelt, Central Valley steelhead, winter-run Chinook salmon, and spring-run Chinook salmon are least vulnerable to impacts from in-channel activities (USFWS 2004, CDFG 2005).

Mitigation Measures for Amphibians and Reptiles

BIO 7. Erosion and Sedimentation. Best Management Practices (BMPs) will be implemented to minimize the potential for erosion and sedimentation into nearby water bodies. Before construction begins to prepare the site for installation of the “gripper bags,” a coffer dam will be constructed to prevent soil and sediment from being washed into the waterway. The coffer dam will be removed once construction has been completed and the area stabilized.

BIO 8. Western Pond Turtle Avoidance. A pre-construction survey for Western Pond Turtles will be conducted immediately prior to construction. If a Western Pond Turtle is identified within the work zone, work will not proceed until the turtle has moved, on its own, out of the work zone.

BIO 9. Giant Garter Snake Avoidance. Pre-construction surveys will be conducted for the presence of Giant Garter Snakes (GGS) by a qualified biologist prior to the mobilization of equipment to the site. The biologist will inspect construction-related activities within the

project area to assure that mitigation measures are being performed as required. The biologist will train the construction crew on the identification and avoidance measures while working in GGS habitat. If GGS are encountered during construction activities, the trained personnel will notify the biologist and USFWS immediately to determine the appropriate procedures related to the collection and relocation of the snake if the snake has not moved away on its own. A report will be submitted, including date(s), location(s), habitat description, and any corrective measures taken to protect the snake, within one (1) business day. The biologist will be required to report any take of listed species to the USFWS immediately by telephone and by electronic mail or written letter within one (1) working day of the incident.

BIO 10. Active Season Work Window. Ground disturbing activities will be initiated within GGS's active season of May 1 through October 1; however, work will continue into the snake's inactive season. Work will be initiated prior to September 15, and ongoing activities are likely to deter snakes from using locations within the project area as brumation sites (brumation can be loosely equated to hibernation among mammals)

Mitigation Measures for Mammals

BIO 11. If pre-construction surveys find natal roost sites for bats within the work area, work shall be avoided between March 1 and August 15 at specific sites if such work could disturb potential roosting sites for bats. Trees to be trimmed will be limited to the minimum extent feasible to gain access to the erosion site. Mitigation measures will be established and implemented in coordination with California Department of Fish and Wildlife (CDFW) to avoid impacts to habitat. Mitigation measures may include, but are not limited to, pre-construction surveys by a qualified biologist to determine potential for roosting bats, avoidance of tree removal during the non-volant period to avoid impacts to lactating females and young bats that are unable to fly on their own, and implementation of a staged disturbance strategy to allow roosting bats opportunity to move before a potential roost site is removed.

Mitigation Measures for Birds

BIO 12. If construction takes place during the active nesting season (April 1 through August 31), a qualified biologist will conduct pre-construction surveys prior to the start of construction to locate all active nests of birds covered by Migratory Bird Treaty Act within 250 feet, active raptor nests within 500 feet and all active Swainson's Hawk nests within ¼ mile of construction areas. If nests are located, impacts shall be minimized by establishing appropriate non-disturbance buffer zones in consultation with CDFW and monitoring nests to ensure that nests are not jeopardized.

BIO 13. If Swainson's Hawks are found nesting within ¼ mile of the proposed project, a qualified biologist will conduct a risk assessment and consult CDFW to develop and implement appropriate avoidance and minimization measures. This may include monitoring of nests by a qualified biologist and suspension of work if Swainson's Hawk nests are at risk of disturbance.

3.7 Cultural Resources	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resources pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

Decker Island is approximately 20 feet above sea level because of the spoils that were deposited on the island when the Sacramento River was dredged between 1917 and 1937. The dry island was not farmed or inhabited and habitat has mainly consisted of exotic weeds and grasses. DWR conducted and prepared an “Archaeological Survey Report” to comply with Section 106 of the National Historic Preservation Act (NHPA) of 1966 as amended and to satisfy the requirements of the California Environmental Quality Act (CEQA) and is attached as Appendix B. The results of the report are outlined in the discussion below.

Discussion

- a. There are no historical resources as defined in CEQA Guidelines Section 15064.5 in the project area. **No impact would occur.**
- b. There are no archeological resources as defined in CEQA Guidelines Section 15064.5 in the project area. **No impact would occur.**
- c. Because of its geologic history, the project area is considered an unlikely environment for the presence of paleontological resources and for unique geologic features. **No impact would occur.**

- d. Because the Site was created from dredge spoils from the Sacramento River between 1917 and 1937, it is highly unlikely that the site was used for interment by natives or early settlers. The potential for disturbance to human remains is considered less than significant. If any historical or cultural resources are discovered during the construction process, all construction shall cease until a qualified professional evaluates the resource. **No impact would occur.**

3.8 Geology and Soils	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) 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 off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

The Delta collects all the freshwater runoff from the Central Valley, which is subject to constant interaction with ocean tidal forces and salt water, and then discharges it toward San Francisco Bay and the Pacific Ocean. The complexity of the Delta is primarily the result of its geologic evolution and a long history of basin subsidence, sediment deposition, biotic activity, and interactions with sea-level changes over the past several million years. At times, the Delta was predominately a freshwater body receiving abundant sediment generated from active glaciations and outwash from the Sierra Nevada; during other periods, mineral sedimentation was limited, and land- and soil-forming processes were dominated by profuse marsh vegetation growth and development of peat soils (EDAW 2007).

Discussion

- a. The project is repair of a small bank erosion site where no structures exist and people are only on this part of the island intermittingly for habitat maintenance. There is no risk of loss, injury, or death involving rupture of seismic faults, earthquakes or landslide. The Site is not in an area susceptible to landslides. **No impact would occur.**
- b. The proposed Project involves the repair of an existing erosion site with the “gripper bags” and establishment of native riparian vegetation to prevent future erosion. During the estimated ten days of construction material will be imported from a permitted mining operation adjacent to the habitat enhancement site that the project is in. The “gripper bags” will form a planted retaining wall that will prevent erosion of topsoil or material into the Sacramento River. **No impact would occur.**
- c. The proposed Project is not on a geologically unstable soil and does not include structural development. Furthermore, it has been designed to repair an erosion site and increase the stability of the bank. **No impact would occur.**
- d. The proposed Project is not located on expansive soils and no structures would be constructed. **No impact would occur.**
- e. No septic tanks or waste water systems are proposed or would be required for the proposed Project. **No impact would occur.**

3.9 Greenhouse Gas Emissions	Potentially Significant <u>Impact</u>	Less than Significant with Mitigation <u>Incorporation</u>	Less than Significant <u>Impact</u>	No <u>Impact</u>
Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulations adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

GHG Emissions Analysis

In May 2012, DWR adopted the DWR Climate Action Plan-Phase I: Greenhouse Gas Emissions Reduction Plan (GGERP), which details DWR’s efforts to reduce its greenhouse gas (GHG) emissions consistent with Executive Order S-3-05 and the Global Warming Solutions Act of 2006 (Assembly Bill (AB) 32). DWR also adopted the Initial Study/Negative Declaration prepared for the GGERP in accordance with the CEQA Guidelines review and public process. Both the GGERP and Initial Study/Negative Declaration are incorporated herein by reference and are available at: <http://www.water.ca.gov/climatechange/CAP.cfm>. The GGERP provides estimates of historical (back to 1990), current, and future GHG emissions related to operations, construction, maintenance, and business practices (e.g. building-related energy use). The GGERP specifies aggressive 2020 and 2050 emission reduction goals and identifies a list of GHG emissions reduction measures to achieve these goals.

DWR specifically prepared its GGERP as a “Plan for the Reduction of Greenhouse Gas Emissions” for purposes of CEQA Guidelines section 15183.5. That section provides that such a document, which must meet certain 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 CEQA Guidelines, § 15064, subd. (h)(3).)

More specifically, “[l]ater project-specific environmental documents may tier from and/or incorporate by reference” the “programmatic review” conducted for the GHG emissions reduction plan. “An environmental document that relies on a greenhouse gas reduction plan for a cumulative impacts analysis must identify those requirements specified in the plan that apply to the project, and, if those requirements are not otherwise binding and enforceable, incorporate

those requirements as mitigation measures applicable to the project.” (CEQA Guidelines § 15183.5, subd. (b)(2).)

Section 12 of the GGERP outlines the steps that each DWR project will take to demonstrate consistency with the GGERP. These steps include: 1) analysis of GHG emissions from construction of the proposed project , 2) determination that the construction emissions from the project do not exceed the levels of construction emissions analyzed in the GGERP, 3) incorporation into the design of the project DWR’s project level GHG emissions reduction strategies, 4) determination 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, and 5) determination that the project would not add electricity demands to the State Water Project (SWP) 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 attached documenting that the project has met each of the required elements.

Determination

Based on the analysis provided in the GGERP and the demonstration that the proposed project is consistent with the GGERP (as shown in the attached Consistency Determination Checklist), DWR as the lead agency has determined that the proposed project’s incremental contribution to the cumulative impact of increasing atmospheric levels of GHGs is less than cumulatively considerable and, therefore, less than significant.

DWR GHG Emissions Reduction Plan Consistency Determination Form For Projects Using Contractors or Other Outside Labor



California Department of Water Resources
1416 9th Street
Sacramento, CA
95814

dwrclimatechange.water.ca.gov
www.water.ca.gov/climatechange

This form is to be used by DWR project managers to document a DWR CEQA project's consistency with the DWR Greenhouse Gas Emissions Reduction Plan. This form is to be used only when DWR is the Lead Agency and when contractors or outside labor and equipment are used to implement the project.

Additional Guidance on filling out this form can be found at:
dwrclimatechange.water.ca.gov/guidance_resources.cfm

The DWR Greenhouse Gas Emissions Reduction Plan can be accessed at:
<http://www.water.ca.gov/climatechange/CAP.cfm>

Project Name:	Decker Island Levee Repair Demonstration Project
Environmental Document type:	Mitigated Negative Declaration
Manager's Name:	Charles Tyson
Manager's email:	charles.tyson@water.ca.gov
Division:	Integrated Regional Water Management
Office, Branch, or Field Division	Delta Ecosystem Enhancement

Short Project Description:

The project will repair 210 feet of eroded bank in the habitat restoration area of Decker Island, across Horseshoe Bend from the Threemile Slough Bridge. The project will compare the viability of the "gripper system" from Maverick Solutions to riprap that is traditionally used for erosion repairs in the Delta. The gripper system utilizes interlocked, non-woven geotextile bags filled with soil and vegetation interspaced among the bags to create a highly resilient erosion control wall while providing vegetation along the channel's edge.

An excavator and a backhoe will be used for the repair of this site and will need to be brought over by barge. Fill material for the bags and backfill behind the wall will be supplied by Delta Aggregates, a mining operation on Decker Island, and placed approximately 300 feet from the project site. A coffer dam will be constructed and the project site will be dewatered prior to the start of work just outside of low tide. Gripper bags that have been filled with soil will be placed and interlocked with grippers to create a solid foundation for the erosion protection system and placed to create benches at different elevations.

Once the gripper system and vegetated riprap have been completed, an assortment of small scrub shrub and tule plugs will be planted and the gripper bags hydroseeded with native grasses.

Project GHG Emissions Summary

Total Construction Emissions mtCO₂e

Maximum Annual Construction Emissions mtCO₂e

All other emissions from the project not accounted for above will occur as ongoing operational, maintenance, or business activity emissions and therefore have already been accounted for and analyzed in the GGERP.

Extraordinary Construction Project Determination

Do total project construction emissions exceed 25,000 mtCO₂e for the entire construction phase or exceed 12,500 mtCO₂e in any single year of construction.

- Yes - Additional analysis is required, consult with C4
- No - Additional analysis not required

Project GHG Reduction Plan Checklist

All Project Level GHG Emissions Reduction Measures have been incorporated into the design or implementation plan for the project. ([Project Level GHG Emissions Reduction Measures](#))

Or

All feasible Project Level GHG Emissions Reduction Measures have been incorporated into the design or implementation plan for the project and Measures not incorporated have been listed and determined not be apply to the proposed project (include as an attachment)

Project does not conflict with any of the Specific Action GHG Emissions Reduction Measures ([Specific Action GHG Emissions Reduction Measures](#))

Would implementation of the project result in additional energy demands on the SWP system of 15 GWh/yr or greater?

Yes No

If you answered Yes, attach a Renewable Power Procurement Plan update approval letter from the DWR SWP Power and Risk Office.

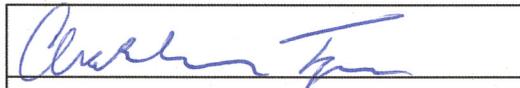
Is there substantial evidence that the effects of the proposed project may be cumulatively considerable notwithstanding the proposed project's compliance with the requirements of the DWR GHG Reduction Plan?

Yes No

If you answered Yes, the project is not eligible for streamlined analysis of GHG emissions using the DWR GHG Emissions Reduction Plan. (See CEQA Guidelines, section 15183.5, subdivision (b)(2).)

Based on the information provided above and information provided in associated environmental documentation completed pursuant to the above referenced project, the DWR CEQA Climate Change Committee has determined that the proposed project is consistent with the DWR Greenhouse Gas Reduction Plan and the greenhouse gasses emitted by the project are covered by the plan's analysis.

Project Manager
Signature:



Date: 3/9/16

C4 Approval
Signature:



Date: 3/11/16

Attachments:

- GHG Emissions Inventory
- List and Explanation of excluded Project Level GHG Emissions Reduction Measures
- Plan to update Renewable Energy Procurement Plan from DWR SWP Power and Risk Office

Decker Island Levee repair Demonstration Project - Inventory and Calculation of Greenhouse Gas Emissions

Emissions from Construction Equipment							
Type of Equipment	Maximum Number per Day	Total Operation Days	Total Operation Hours ¹	Fuel Consumption Per Hour ²	Total Fuel Consumption (gal. diesel)	CO ₂ e/gal diesel ³	Total CO ₂ Equivalent Emissions (metric tons)
Backhoe	1	10	80	7.78	622	0.010	6
Excavator	1	10	80	10.60	848	0.010	9
Haul Truck	1	1	8	12.35	99	0.010	1
Barge	1	2	16	11.51	184	0.010	2
			0		-	0.010	-
TOTAL					1,753		18

¹ An 8-hour work day is assumed.

² California Air Resource Board Offroad 2007 Emissions Inventory fuel consumption factors

³ World Resources Institute-Mobile combustion CO₂ emissions tool, June 2003 Version 1.2

Emissions from Transportation of Construction Workforce							
Average Number of Workers per Day	Total Number of Workdays	Average Distance Travelled (round trip)	Total Miles Travelled	Average Passenger Vehicle Fuel Efficiency ⁴	Total Fuel Consumption (gal. gasoline)	CO ₂ e/gal Gasoline ³	Total CO ₂ Equivalent Emissions (metric tons)
12	10	20	2400	20.8	115.4	0.009	1

⁴ United States Environmental Protection Agency. 2008. Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2008. [EPA420-R-08-015]

Emissions from Transportation of Construction Materials							
Trip Type	Total Number of Trips	Average Trip Distance	Total Miles Travelled	Average Semi-truck Fuel Efficiency	Total Fuel Consumption (gal. diesel)	CO ₂ e/gal Diesel ³	Total CO ₂ Equivalent Emissions (metric tons)
Delivery			0	6	0	0.010	0
Spoils			0	6	0	0.010	0
TOTAL							0

Construction Electricity Emissions			
	MWh of electricity	mtCO ₂ e/MWh ⁵	CO ₂ e emissions
Electricity Needed	0	0.277	0

⁵ eGRID2010 Version 1.0 CAMX-WECC sub-region.

Total Construction Activity Emissions	19.3	(from lines 25, 32, 39, and 43)
Total Years of Construction	1	
Expected Start Date of Construction	October-16	

Estimated Project Useful life	30	Years
Average Annual Total GHG Emissions⁷	0.6419813	MT CO ₂ equivalents
Max. Year Construction GHG Emissions⁸	19.3	MT CO ₂ equivalents

⁷short-term construction emissions amortized over life of project

⁸Emissions total from single year of construction when emissions peak (for multi-year construction projects)

NOTE: the Average Annual Total GHG Emissions is NOT the same value as the "Maximum Annual Emissions" (MAE) value that is required on the DWR GGERP Consistency Form form for Projects Using Outside Labor and Equipment; The MAE is calculated to ensure that the project does not emit more than 12,500 mtCO₂e in any given year

Best Management Practices to Reduce Greenhouse Gas Emissions

The following measures are considered best management practices (BMPs) for DWR construction and maintenance activities. Implementation of these practices will reduce greenhouse gas (GHG) emissions from construction projects by minimizing fuel usage by construction equipment, reducing fuel consumption for transportation of construction materials, reducing the amount of landfill material, and reducing emissions from the production of cement.

Pre-Construction and Final Design BMPs

Pre-construction and Final Design BMPs are designed to ensure that individual projects are evaluated and their unique characteristics taken into consideration when determining if specific equipment, procedures, or material requirements are feasible and efficacious for reducing GHG emissions from the project. While all projects will be evaluated to determine if these BMPs are applicable, not all BMPs will be appropriate for this project.

- GHG 1.** Evaluate project characteristics, including location, project work flow, site conditions, and equipment performance requirements, to determine whether specifications of the use of equipment with repowered engines, electric drive trains, or other high efficiency technologies are appropriate and feasible for the project or specific elements of the project.
- GHG 2.** Evaluate the feasibility and efficacy of performing on-site material hauling with trucks equipped with on-road engines.
- GHG 3.** Ensure that all feasible avenues have been explored for providing an electrical service drop to the construction site for temporary construction power. When generators must be used, use alternative fuels, such as propane or solar, to power generators to the maximum extent feasible.
- GHG 4.** Evaluate the feasibility and efficacy of producing concrete on-site and specify that batch plants be set up on-site or as close to the site as possible.
- GHG 5.** Evaluate the performance requirements for concrete used on the project and specify concrete mix designs that minimize GHG emissions from cement production and curing while preserving all required performance characteristics.
- GHG 6.** Limit deliveries of materials and equipment to the site to off peak traffic congestion hours. Construction BMPs apply to all construction and maintenance projects that DWR completes or for which DWR issues contracts. All projects are expected to implement all Construction BMPs unless a variance is granted by the Division of Engineering Chief, Division of Operation and Maintenance Chief, or Division of Flood Management Chief (as applicable) and the variance is approved by the DWR CEQA Climate 18 Change Committee. Variances will be granted when specific project conditions or characteristics make implementation of the BMP

infeasible and where omitting the BMP will not be detrimental to the project's consistency with the Greenhouse Gas Emissions Reduction Plan.

Construction BMPs

Construction BMPs apply to all construction and maintenance projects that DWR completes or for which DWR issues contracts. All projects are expected to implement all Construction BMPs unless a variance is granted by the Division of Engineering Chief, Division of Operation and Maintenance Chief, or Division of Flood Management Chief (as applicable) and the variance is approved by the DWR CEQA Climate 18 Change Committee. Variances will be granted when specific project conditions or characteristics make implementation of the BMP infeasible and where omitting the BMP will not be detrimental to the project's consistency with the Greenhouse Gas Emissions Reduction Plan.

- GHG 7.** Minimize idling time by requiring that equipment be shut down after five minutes when not in use (as required by the State airborne toxics control measure Cal. Code of Regs., tit. 13, §2485). Provide clear signage that posts this requirement for workers at the entrances to the site and provide a plan for the enforcement of this requirement.
- GHG 8.** Maintain all construction equipment in proper working condition and perform all preventative maintenance. Required maintenance includes compliance with all manufacturer's recommendations, proper upkeep and replacement of filters and mufflers, and maintenance of all engine and emissions systems in proper operating condition. Maintenance schedules shall be detailed in an Air Quality Control Plan prior to commencement of construction.
- GHG 9.** Implement a tire inflation program on the jobsite to ensure that equipment tires are correctly inflated. Check tire inflation when equipment arrives on-site and every two weeks for equipment that remains on-site. Check vehicles used for hauling materials offsite weekly for correct tire inflation. Procedures for the tire inflation program shall be documented in an Air Quality Management Plan prior to commencement of construction.
- GHG 10.** Develop a project specific ride share program to encourage carpools, shuttle vans, transit passes and/or secure bicycle parking for construction worker commutes.
- GHG 11.** Reduce electricity use in temporary construction offices by using high efficiency lighting and requiring that heating and cooling units be Energy Star compliant. Require that all contractors develop and implement procedures for turning off computers, lights, air conditioners, heaters, and other equipment each day at close of business.

- GHG 12.** For deliveries to project sites where the haul distance exceeds 100 miles and a heavy duty class 7 or class 8 semi-truck or 53-foot or longer box type trailer is used for hauling, a SmartWay2 certified truck will be used to the maximum extent feasible.
- GHG 13.** Minimize the amount of cement in concrete by specifying higher levels of cementitious material alternatives, larger aggregate, longer final set times, or lower maximum strength where appropriate.
- GHG 14.** Develop a project specific construction debris recycling and diversion program to achieve a documented 50% diversion of construction waste.
- GHG 15.** Evaluate the feasibility of restricting all material hauling on public roadways to off-peak traffic congestion hours. During construction scheduling and execution minimize, to the extent possible, uses of public roadways that would increase traffic congestion.

All the BMPs have been evaluated though some will not be applicable to this project. The following BMPs will not be utilized unless conditions change, in which case they will be implemented when appropriate:

- GHG 11.** There will be no electricity used on the project site.
- GHG 12.** There are no long hauls involved in this project
- GHG 13.** No cement will be used for this project.
- GHG 15.** No material will be hauled on public roadways.

3.10 Hazards and Hazardous Materials	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) 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 for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

Hazardous materials are defined in Section 66260.20, Title 22 of the California code of Regulations as a substance or combination of substances which, because of its quantity, concentration, or physical, chemical or infectious characteristics may either (1) cause or significantly contribute to an increase in mortality or an increase in serious, irreversible, or incapacitating reversible, illness, or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported, or disposed of or otherwise managed.

Discussion

- a. Except for diesel and oil used by the excavator during construction, no hazardous materials will be used as part of this project. Best management practices will be in place to store and use the petroleum products. In the unlikely event of a fuel spill, all measures will be taken to ensure minimal impact to the surrounding environment. **Less than significant impact would occur.**
- b. Except for diesel and oil used by the excavator during construction, no hazardous materials will be used as part of this project. Best management practices will be in place to store and use the petroleum products. In the unlikely event of a fuel spill, all measures will be taken to ensure minimal impact to the surrounding environment. **Less than significant impact would occur.**
- c. There are no existing or proposed schools located within one-quarter mile of the Site. **No impact would occur.**
- d. The Project Site is not listed as having hazardous material sites within its boundaries (Department of Toxic Substance Control 2008). **No impact would occur.**
- e. The Project Site is not located within an airport land use plan or within 2 miles of a public airport or public use airport. The closest airport is located approximately 6.5 miles from the Site. **No impact would occur.**
- f. No private airstrips are within 2 miles of the Project Site. **No impact would occur.**

- g. Decker Island is separated from Solano County by the Sacramento River and from Sacramento County by Horseshoe Bend and activities would not impair implementation of or physically interfere with any emergency response or evacuation plans. **No impact would occur.**
- h. There are no people or structures within the 30 acres of habitat surrounding the Project Site. The rest of the island is mostly bare sand being excavated and fire will not spread to the equipment that is part of the mining operation. **No impact would occur.**

Best Management Practices for Hazards and Hazardous Materials

HAZ 1. During project activities, contractor shall prevent oil, grease, fuels, and other petroleum products, toxic chemicals, and any other substances that could be deleterious to aquatic life from contaminating the soil and/or entering waters of the state. The contractor shall immediately remove such substances from any place where they could enter waters of the state and/or adversely affect fish and wildlife resources. The contractor shall attempt to contain any releases or spills of such substances, and shall report any significant spills as soon as possible to the California Emergency Management Agency. In the event of a significant spill, work will cease immediately and workers will employ containment methods if it is safe to do so. The DWR will make notifications to the appropriate agencies within the regulatory time frames.

HAZ 2. No materials will be staged or stored on the work site in excess of one work day.

3.11 Hydrology and Water Quality	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
Would the project:				
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) [Expose people or structures to] inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

The Central Valley Regional Water Quality Control Board (CVRWQCB) has federal- and State-mandated regulatory jurisdiction for control of water quality in the project area. The Water Quality Control (Basin) Plan for the Central Valley (CVRWQCB 2011) outlines water quality standards to be protected. Water quality standards are beneficial uses of water, water quality objectives, and the State anti-degradation policy.

Decker Island is bound on all sides by the Sacramento River and Horseshoe Bend, and is within the Lower Sacramento River watershed. This area is subject to tidal influence from the San Francisco Bay and the Pacific Ocean beyond that. The Project Site consists of a narrow band of shoreline along the deteriorated bank of the east side of Decker Island. Hydrology within the Project Site consists of riverine habitat with a narrow band of tidal marsh that extends to the base of the eroded bank.

Discussion

- a. The proposed Project seeks 401 and 404 permits from CVRWQCD and the U.S. Army Corps of Engineers. Avoidance measures required will be followed. Before construction begins to prepare the site for installation of the “gripper bags,” a coffer dam will be constructed to prevent soil and sediment from being washed into the waterway. The coffer dam will be removed once construction has been completed and the area stabilized. No significant decrease or degradation of water quality will occur. **Less than significant impact would occur.**
- b. The proposed Project would not affect groundwater supplies or interfere with groundwater recharge because the Project will not withdraw groundwater. The Project will not need any water. **No impact would occur.**

- c. The existing drainage pattern through the site will not be substantially altered since only the erosion site is being repaired. **No impact would occur.**
- d. The existing drainage pattern through the site will not be substantially altered, and the surrounding area is above sea level so no flooding can occur. **No impact would occur.**
- e. The Project would not increase runoff volumes or add substantial pollutants to stormwater flows to the Delta. **No impact would occur.**
- f. The Project is designed to repair a small erosion site at sea level and replant the area with riparian and emergent vegetation. During construction, a coffer dam will be created to contain sediment within the construction area. No significant decrease or degradation of water quality will occur. **Less than significant impact would occur.**
- g. No housing is proposed as part of the Proposed Project. **No impact would occur.**
- h. No structures will be constructed or placed as part of this project. **No impact would occur.**
- i. The erosion site is at sea level and the rest of the island is up to 15 feet above mean sea level. There is no levee there to fail. **No impact would occur.**
- j. The proposed Project does not increase potentials for inundation by seiche, tsunami, or mudflow. **No impact would occur.**

Mitigation Measures for Hydrology/Water Quality

WQ1. Before construction begins to prepare the site for installation of the “gripper bags,” a coffer dam will be constructed to prevent soil and sediment from being washed into the waterway. The coffer dam will be removed once construction has been completed and the area stabilized.

3.12 Land Use and Planning	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
Would the project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

The Project is located on an uninhabited island in eastern Solano County. Sacramento County is located across the Horseshoe Bend to the east. Land uses in the immediate vicinity of the site include habitat enhancement and a quarry for excavation of sand.

Discussion

- a. The proposed Project would not physically divide an established community as none occur in or immediately adjacent to the Site. **No impact would occur.**
- b. The Project Site is within an established habitat enhancement site owned by the Department of Fish and Wildlife. The Project will not alter the land use, but rather preserve the area by arresting erosion on the bank. **No impact would occur.**
- c. There is no applicable habitat conservation plan or natural community conservation plan currently in place. The project will protect the established enhanced habitat on Decker Island. **No impact would occur.**

3.13 Mineral Resources	Potentially Significant <u>Impact</u>	Less than Significant with <u>Mitigation Incorporation</u>	Less than Significant <u>Impact</u>	No <u>Impact</u>
Would the project:				
a) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

Mineral resources in Solano County include natural gas, petroleum, sand, gravel, clay, gold, silver, peat, topsoil, and lignite. Sand is currently being excavated from the majority of Decker Island, though the habitat area is protected from mineral extraction through the title and mineral rights held by the California Department of Fish and Wildlife.

Discussion

- a. The Project would not compromise the availability of any known mineral resources. There is no mineral extraction presently in the CDFW’s property and none is expected in the future. The Project would only repair the erosion site and has no effect on land use in the adjacent area or the rest of Decker Island. **No impact would occur.**

- b. The Project will have no effect upon mineral extraction or any other planned use for the mineral resources located in or immediately adjacent to the Site. **No impact would occur.**

3.14 Noise	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) 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 expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

Noise- and vibration-sensitive land uses generally include those uses where exposure would result in adverse effects (e.g., sleep disturbance, annoyance), as well as uses where quiet is an essential element of their intended purpose. Residences are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Other

sensitive land uses include hospitals, convalescent facilities, parks, hotels, churches, libraries, and other uses where low interior noise levels are essential. The Project is located on Decker Island in a rural area of Solano County and the noise environment surrounding the Project is typical of a rural environment. There are no sensitive noise receptors within one mile of the Project.

Discussion

- a. Temporary increases in noise levels from existing conditions would result from heavy equipment during the five days of construction. The Solano County performance standards are based on the type of receptor that would hear the noise. Because no sensitive noise receptors occur within one mile of the Project, **no impact would occur.**
- b. Construction activities will not create excessive groundborne vibrations or groundborne noise levels. Because no sensitive noise receptors occur in or within one mile of the Project, **no impact would occur.**
- c. After construction, periodic monitoring and maintenance activities would be conducted. These activities would not result in a substantial permanent increase in ambient noise levels above existing noise levels. **No impact would occur.**
- d. After construction, periodic monitoring and maintenance activities would be conducted. These activities would not result in a substantial permanent increase in ambient noise levels above existing noise levels. **No impact would occur.**
- e. The proposed Project is not located within an airport land use plan area or in an area where a plan is being contemplated. The closest airport is 6.25 miles from the Site. **No impact would occur.**
- f. The proposed Project would not be located within the vicinity of a private airstrip. **No impact would occur.**

3.15 Population and Housing	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

The Site is located on Decker Island in a rural area of Solano County. There are no residences on the island.

Discussion

- a. The proposed Project does not involve construction of any new homes, businesses, roads, or other growth inducing infrastructure. **No impact would occur.**
- b. No demolition of housing would occur as a result of project activities. The Project is located on a habitat enhancement site of an uninhabited island. Therefore, displacement of housing would not occur. Indirect impacts on residential areas elsewhere would not be expected to occur. **No impact would occur.**
- c. The proposed Project area is located in an area where no housing is currently present. Thus, the Project could not be reasonably expected to displace people or require the construction of housing elsewhere. **No impact would occur.**

3.16 Public Services	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable services ratios, response times or other performance objectives for any of the public services:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

The Site is located on an uninhabited island in a rural area of Solano County with no public services.

Discussion

The proposed Project would not require additional fire protection. The Project would not require police services. No schools are located in the vicinity of the Site. The Project would not lead to population increases in numbers of students. The Project is not located near recreational facilities. The activities associated with the Project would not adversely affect public facilities because of the small number of persons and vehicles undertaking these activities and the short time for construction. **No impact would occur** under any of the above circumstances.

3.17 Recreation	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
a) Would the project 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

Recreational facilities in the vicinity of the Site provide a variety of activities. Recreational demand in the Delta has resulted in development of parks, marinas, launching ramps, and fishing piers. Brannan Island State Park is across Horseshoe Bend and approximately 1 mile up Three-Mile Slough and a marina is a half mile past the Park's boat ramps. The habitat area on Decker Island is closed to the public.

Discussion

- a. The proposed Project will not affect park use at any neighborhood, regional or other recreational facilities. **No impact would occur.**

- b. The proposed Project is within the Decker Island Habitat Area and is closed to the public and no recreational facilities exist on the island, nor will any be constructed as part of this project. **No impact would occur.**

3.18 Transportation Traffic	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
Would the project:				
a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

The Site is located on an uninhabited island removed from any ground transportation or roads.

Discussion

- a. The proposed Project would not result in any increase in traffic nor have the potential to result in a substantial increase in the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections. While during construction various pieces of heavy

equipment will be moved onto the Site, the mobilization and demobilization of this type of heavy equipment is common in the area and would not be expected to result in any increase in traffic relative to the amount of traffic experienced during agricultural operations. **No impact would occur.**

- b. The proposed Project would generate negligible traffic and as such would not exceed a level of service standard, either individually or cumulatively. **No impact would occur.**
- c. The proposed Project will not result in any change in air traffic. **No impact would occur.**
- d. The proposed Project would not result in any new road construction and therefore would not present hazards due to a design feature or incompatible uses. **No impact would occur.**
- e. The proposed Project would not have the potential to affect emergency access. **No impact would occur.**
- f. The proposed Project would not affect policies with respect to alternative transportation. **No impact would occur.**

3.19 Utilities and Service Systems	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in a determination by the wastewater treatment provider which services or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

The Site is located on an uninhabited island and has no urban utilities or services.

Discussion

- a. The proposed Project does not require waste water treatment capabilities. **No impact would occur.**
- b. The proposed Project does not include structural development that would require water delivery or would generate wastewater. **No impact would occur.**
- c. No development requiring storm drainage facilities would occur as a result of the proposed Project. **No impact would occur.**
- d. The proposed Project will use no water nor affect any other water uses in the habitat area or mining operation. **No impact would occur.**
- e. The proposed Project does not require wastewater treatment services. **No impact would occur.**
- f. The proposed Project will not generate solid waste. **No impact would occur.**
- g. The proposed Project will not generate solid waste. **No impact would occur.**

3.20 Mandatory Findings of Significance	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

This Initial Study was prepared to assess the proposed project’s potential effects on the environment and significance of those effects. Based on the Initial Study, it has been determined that the proposed project would not have any significant environmental effects or cumulative impacts. The potential, short-term adverse environmental effects related to the repair the erosion site would be minimized or avoided through the implementation of environmental commitments that have been incorporated into the project description.

- a. The purpose of the proposed Project is to repair a two hundred foot section of the bank that is eroding. By this action, habitat will be protected and the action will also include planting of riparian and emergent native vegetation. The project does have the potential to degrade the quality of the environment, but will not substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or reduce the number of or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory. Mitigation measures have been proposed to reduce impacts to less-than-significant levels and are described in full detail starting on page 3 and after each resource discussion.

No special status species will likely be significantly impacted during project activities due to seasonal constraints on the project (i.e., project activities will take place outside of the active season for most species). Mitigation measures will be implemented to bring environmental impacts of the proposed activities to less-than-significant levels within the project area. Specifically, potential impacts to biological resources, greenhouse gas emissions, hazards and hazardous materials, and hydrology/water quality will be mitigated to less than significant levels. **Less than Significant Impact with Mitigation would occur.**

- b. The proposed project would not result in cumulatively considerable impacts. **No Impact would occur.**
- c. The proposed project would not result in substantial adverse effects on human beings. **No Impact would occur.**

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**APPENDIX A: Wetland Delineation Report and Preliminary Jurisdictional
Determination Report**

Wetland Delineation Report and Preliminary Jurisdictional Determination



Decker Island Levee Repair Demonstration Project December 2014



Prepared for:

Sacramento District of the U.S. Army Corps of Engineers
1325 J Street – Room 1513
Sacramento, CA 95814



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1 Introduction

This report presents the findings of a formal delineation of waters of the United States (U.S.), including wetlands, within the boundaries of the Decker Island Levee Repair Demonstration Project (proposed project) that may be regulated by the U.S. Army Corps of Engineers (USACE) under the Clean Water Act (CWA) Section 404 and/or Section 10 of the Rivers and Harbors Act (RHA). The proposed project includes repair of an eroded levee of Decker Island along the Sacramento River in Solano County, California. Project details are discussed further in Section 1.4.

For the purposes of this evaluation, the Study Area is defined as all components of the proposed project within the approximately 0.23-acre project site, including the levee repair area, the access route, and potential staging areas (Appendix A – Figure 1). The results of this delineation are preliminary and, therefore, subject to verification by the Sacramento District of the USACE.

1.1 Project Location

The proposed project is located on the northeastern edge of Decker Island in Solano County, California, in the Lower Sacramento River watershed. The proposed project is within Section 13, Township 3 North, Range 2 East of the Mount Diablo Meridian, in the “Jersey Island, CA” 7.5 minute U.S. Geological Survey (USGS) topographic quadrangle (quad) (Latitude 38.1002, Longitude -121.7094). Elevation on the site ranges from approximately 12 feet above mean sea level (msl) along the top of the levee to approximately 3 feet above msl near the water’s edge.

1.2 Directions to the Study Area

Decker Island can only be reached by boat. The nearest boat launch site is located at the Brannan Island Recreation Area. To reach Brannan Island from Sacramento, take I-5 south for 21 miles, exit toward Rio Vista and CA-12 West. Continue on CA-12 for 16 miles then turn left on CA-160 South. The entrance to Brannan Island State Recreation Area is located on the left, approximately 2.5 miles south of the intersection of CA-12 and CA-160. From the boat launch at Brannan Island, travel southwest along Threemile Slough to the Sacramento River, head south along the Sacramento River and the Study Area is located at the northern tip of Decker Island, approximately 1.8 miles from Brannan Island.

1.3 Applicant/Owner Information

Applicant/Agent	Owner/Permittee
California Department of Water Resources Contact: Steven Garcia 1416 9 th Street Room 1601 Sacramento, California 95814 916-651-0844	Department of Fish and Wildlife Contact: Mark Philipp 2109 Arch-Airport Road, Suite 100 Stockton, CA 95206 916-409-9295

1.4 Project Summary

The California Department of Water Resources (DWR), as part of the Delta Levees Program, proposes to implement erosion repair along an approximately 100-foot section of the eastern levee of Decker Island. The repair would utilize Maverick Solutions LLC’s “gripper system”. The system is comprised of non-woven geo-textile fabric bags that are filled with soil, and interlocked using plastic grippers. It is an

environmentally friendly alternative to riprap that allows tree cuttings and planting plugs to be placed between bags and provides a foundation for successful establishment. This creates a highly resilient erosion control wall while providing vegetation along the channel's edge (Exhibit 1).

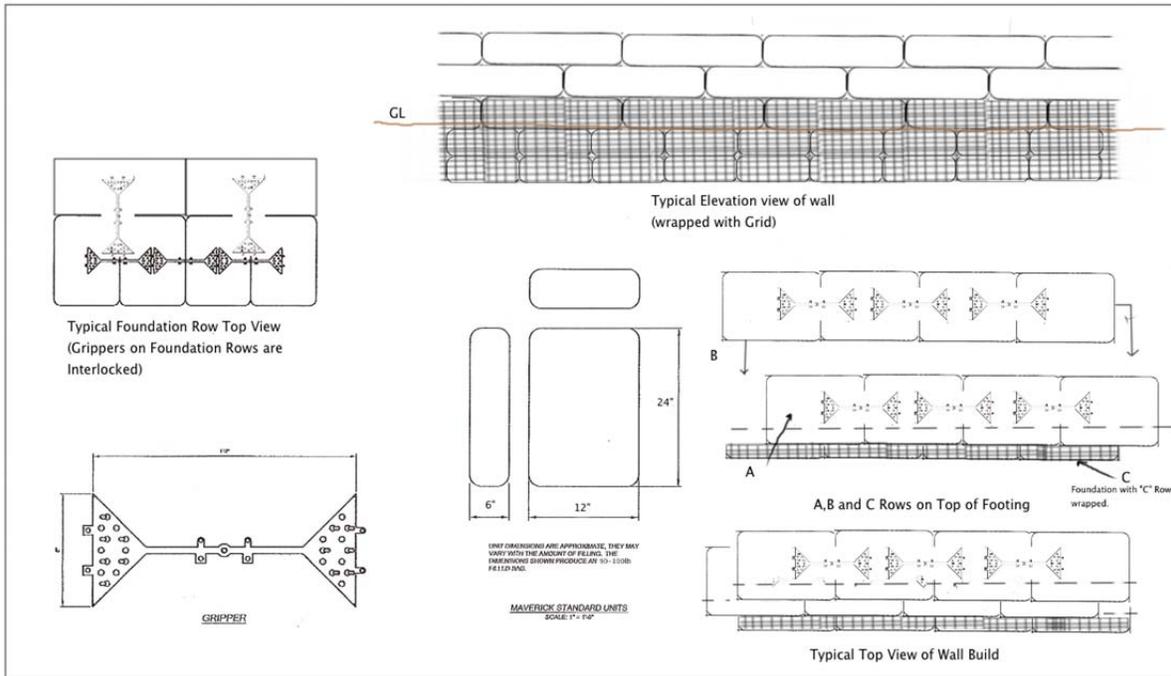


Exhibit 1: Diagram of the gripper system.

Equipment anticipated to be utilized will include an excavator brought to the site via barge. A coffer dam will be constructed and the project site dewatered prior to the start of work just outside of low tide. The erosion site will be contoured and a trench excavated to create a stable foundation at the base of the slope prior to installation of the gripper bags. The bags will be placed to create a slope to match the existing berm to the north and south of the eroded area. As shown in Exhibit 2, below, the bags will also be placed to create a habitat bench that will be inundated during high tide. After the gripper system has been completed, an assortment of small scrub shrub and tule plugs will be placed between the bags to promote re-establishment of appropriate native vegetation at the erosion repair site.



Exhibit 2: Conceptual cross-section of the proposed project.

2 Methods

2.1 Background Research

Prior to conducting the field delineation of the Study Area, the following resources were evaluated:

- Custom Soil Resources Report for Solano County, California (NRCS 2014);
- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (USFWS 2014);
- 1987 Corps of Engineers Wetlands Delineation Manual (USACE 1987); and
- The Arid West Regional Supplement to the Wetland Delineation Manual (USACE 2008).

2.2 Field Investigation

Department of Water Resources (DWR) Environmental Scientists Laura Burris and Gina Radieue conducted a site visit of the Study Area on September 5, 2014 to identify potential wetlands and other Waters of the U.S. The field assessment was conducted in accordance with the 1987 Corps of Engineers Wetlands Delineation Manual (USACE 1987) and the Arid West Supplement (USACE 2008).

A routine onsite inspection was conducted (as defined in the Wetland Delineation Manual), evaluating three parameters that identify and delineate the boundaries of jurisdictional wetlands, including (1) the dominance of wetland vegetation; (2) the presence of hydric soils; and (3) hydrologic conditions that result in periods of inundation or saturation on the surface from flooding or ponding. The 2014 National List of Plant Species That Occur in Wetlands (Lichvar, et.al. 2014): California (Region 0) was used to determine the wetland indicator status of plants observed in the Study Area. Plant species identification and nomenclature follows *The Jepson Manual; Vascular Plants of California* (Baldwin, ed. 2012). Relevant sample points and boundaries of potential wetlands and other Waters of the U.S. were recorded in the field using a hand-held Trimble Geo XT Global Positioning System (GPS) device capable of sub-meter accuracy.

In addition, the high tide line and the mean high water mark were delineated during the site visit. Under the CWA, Corps jurisdiction in tidal areas extends up to the "high tide line" ("HTL") (33 CFR 328.4). Waters within the Study Area therefore include all tidally influenced areas, both vegetated and unvegetated, up to the HTL. Areas with hydrophytic vegetation are separately defined as "wetlands" and are a subset of jurisdictional waters.

Corps RHA jurisdiction applies to any "navigable waters of the United States". In tidally influenced areas, the upper limit of "navigable waters" has been defined as "mean high water" (MHW) (FR Doc 86-25301, 329.12.b). Corps of Engineers RHA jurisdiction includes tidal areas below MHW. The MHW was determined utilizing: 1) observable phenomena along the shore (e.g. water stains, vegetation matting and litter, and the change in vegetation); 2) available tide data from the gage station located in the Sacramento on the western shore of Decker Island; and, 3) elevational survey data collected by a survey crew at the Study Area.

3 Existing Conditions within the Study Area

3.1 Regional Climate

Decker Island is located in southeastern Solano County, within the Sacramento Valley Subregion of the Great Central Valley Geographic region of California (Baldwin, ed. 2012). The regional climate is generally Mediterranean in nature with warm, dry summers and rainy winters. The Sacramento Valley Subregion is typically wetter and cooler than other areas of the central valley due to influences from the coastal weather patterns moving up the Sacramento-San Joaquin River Delta. The annual temperatures in this area range from approximately 35 degrees Fahrenheit in January to approximately 88 degrees Fahrenheit in July. The average annual precipitation is approximately 15.44 inches per year (WRCC 2013).

3.2 Hydrology

Decker Island is bound on all sides by the Sacramento River, and is within the Lower Sacramento River watershed. This area is subject to tidal influence from the San Francisco Bay and the Pacific Ocean beyond that. The Study Area consists of a narrow band of shoreline along the deteriorated levee of the east side of Decker Island. Hydrology within the Study Area consists of riverine habitat with a narrow band of tidal marsh that extends to the base of the eroded bank.

3.3 Habitat Types

Dominant habitat types within the Study Area include annual grassland, riparian, tidal marsh, and riverine (refer to Appendix B for representative photographs). Each of these habitat types is described further below. A list of all plant species observed onsite is included in Appendix C.

3.3.1 Terrestrial Habitats

The dominant terrestrial habitat type within the Study Area is riparian woodland with an understory of annual grassland. The interior of the island, along with the levee, have been replanted with riparian trees and shrubs as part of a past restoration project. This habitat type consists of an overstory of valley oak (*Quercus lobata*; FACU), California black walnut (*Juglans hindsii*; FAC), cottonwood (*Populus fremontii*; FAC), California sycamore (*Platanus racemosa*; FAC), and several types of willow (*Salix goodingii* and *S. lasiandra*; FACW). Shrub species noted in this habitat consist of coyote brush (*Baccharis pilularis*) and elderberry (*Sambucus nigra*; FAC). The understory is comprised primarily of grass species such as soft chess (*Bromus hordeaceus*; FACU), ripgut brome (*Bromus diandrus*; UPL), and blue wild rye (*Elymus tritichoides*; FAC). The proposed staging area is comprised almost entirely of annual grassland with little shrub and tree cover (Appendix B, Photo 3).

3.3.2 Aquatic Habitats

Aquatic habitats within the Study Area consist of tidal freshwater emergent wetland and riverine. Several areas below the top of the eroded levee bank, just above the MHW mark and below the HTL, are dominated by wetland species such as yellow flag iris (*Iris pseudoacorus*; OBL), Santa Barbara sedge (*Carex barbarae*; FAC), Indian hemp (*Apocynum cannabinum*; FAC), lady's thumb (*Persicaria maculosa*; FACW), and tule (*Schoenoplectus californica*; OBL).

Riverine habitat consists of a mud flat area that provides habitat for hydrophytic, emergent species such as tule, water hyacinth (*Eichhornia crassipes*; OBL), Mason's lilaepsis (*Lilaeopsis masonii*; OBL), and Dallisgrass (*Paspalum dilitatum*; FAC). Open water habitat is beyond this shelf of shallow, tidally-influenced marsh and is devoid of emergent vegetation.

3.4 Soils

Decker Island was created in the early 1900's by dredging the river channel and by stockpiling of dredged materials. The entirety of the Study Area is comprised of Tujunga fine sandy soils (Map Unit Symbol Tu; NRCS 2014; Appendix A, Figure 2). This soil type is somewhat excessively drained and forms naturally from alluvium weathered primarily from granitic sources upstream in the Sacramento River watershed (NRCS 2014). Tujunga fine sandy soil is considered a hydric soil.

4 Results and Discussion

Methodologies described in Section 2 resulted in the delineation of 0.005 acres of wetlands and 0.052 acres (94.34 linear feet) of other waters of the U.S. within the Study Area (Appendix A – Figure 3). Potential wetlands and other Waters of the U.S. are shown in Table 1 and discussed further below. Potential jurisdiction of these water features is discussed in Section 5.

Table 1: Potential Wetlands and Other Waters of the U.S. within the Study Area

	Acres	Linear Feet
Wetlands		
Tidal Freshwater Emergent Wetland	0.005	-
Subtotal	0.005	-
Other Waters of the US		
Riverine	0.052	94.34
Subtotal	0.052	
Total	0.057	94.34

4.1 Wetlands

4.1.1 Tidal Freshwater Emergent Marsh

There were several areas where wetland occurred between the MHW and the HTL where the bank was not as severely eroded. These areas were dominated by wetland vegetation such as tule, lady's thumb, Santa Barbara sedge, and yellow flag iris. A soil point was not collected in this area due to the prevalence of obligate and facultative wet plant species, and because it was below the top of bank of the Sacramento River. Thus, this area coincides with the tidal freshwater emergent wetland classification and may be jurisdictional under Section 404 of the CWA.

4.2 Other Waters of the United States

4.2.1 Riverine

Riverine habitat was delineated along the Sacramento River. This habitat is inundated based on tidal influences that cause the water level to rise and fall on a daily and seasonal basis. Much of the area along this portion of the levee is severely eroded with an undercut bank.

Portions of the Study Area within the Sacramento River potentially fall under the jurisdiction of the RHA. Section 10 jurisdiction in these areas extends to the MHW, which was determined to be 5.87 feet above msl (NAVD88 datum) within the Study Area. The mean low tide is approximately 1.91 feet above msl. The high HTL in the Study Area was determined from physical characteristics on the bank, and from past gauge data, to be approximately 1 foot above the MHW mark.

5 Preliminary Jurisdictional Determination

This preliminary jurisdictional determination has been prepared in keeping with the guidance in the *U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook* (JD Guidebook). As stated previously, all determinations in this report are considered preliminary pending verification by the Sacramento District of the USACE.

Based on guidance, and the discussion presented in this report, the following water features may be considered jurisdictional waters of the U.S. and/or wetlands under Section 404 of the CWA and/or Section 10 of the RHA: tidal freshwater emergent marsh and riverine. A total of 0.057 acres (94.34 linear feet) of potentially jurisdictional waters of the U.S., including wetlands, were identified within the Study Area (Appendix D). Of this total, 0.005 acres are wetlands (tidal freshwater emergent marsh) and 0.052 acres (94.34 linear feet) are other waters of the U.S. (riverine).

6 References

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Appendices

Appendix A: Figures

Appendix B: Representative Site Photographs

Appendix C: List of Plant Species Observed within the Study Area

Appendix D: Aquatic Resources Spreadsheet

Appendix A: Figures

Figure 1: Project Overview

Figure 2: Soil Map

Figure 3: Wetland Delineation Results

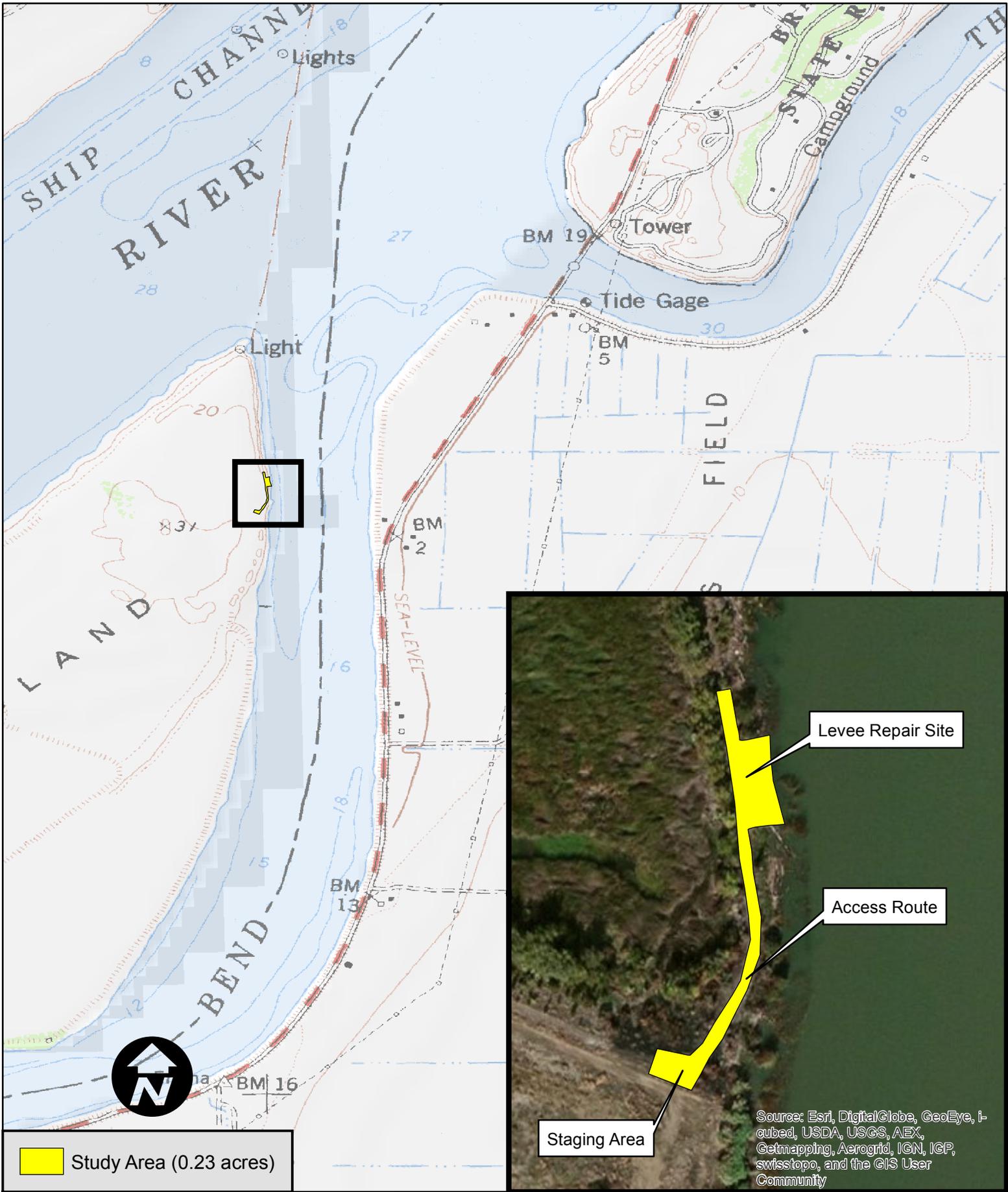


Figure 1: Study Area Overview

1 inch = 0.25 miles UTM DWR 10.5
 0 0.125 0.25 0.5 Miles

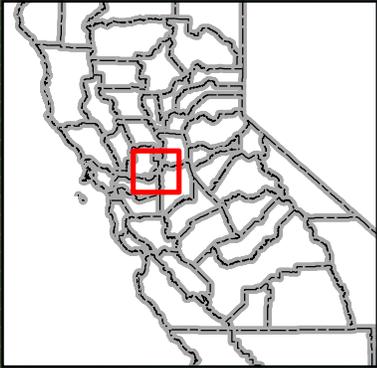
Decker Island Levee Repair Project
 Wetland Delineation Report

Data Source: SPC Unit
 Wetland Delineation Study 2014
 Design: L Burris

nasdes\DES001\Figure1_DeckerIsland.mxd



**Division of
 Environmental Services**
 Environmental Compliance
 and Evaluation Branch



 Study Area (0.23 acres)
Soil Types
Map Unit Name
 TUJUNGA FINE SAND
 WATER

Source: Esri, DigitalGlobe, GeoEye, I-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



Division of Environmental Services
 Environmental Compliance and Evaluation Branch

Figure 2: Soil Map
 1:600 UTM DWR 10.5
 Feet
 0 25 50 100

Decker Island Levee Repair Project
 Wetland Delineation Report
 Data Source: SPC Unit
 Wetland Delineation Study 2014
 Design: L Burris
 nasdes\DES001\Figure2_DeckerIsland.mxd



 Study Area (0.23 acres)

Contours

 Mean High Water (5.87 feet)

 Contour

Wetlands

 Riverine (0.052 acres)

 Tidal Freshwater Emergent Wetland (0.005 acres)



Source: Esri, DigitalGlobe, GeoEye, I-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



Division of Environmental Services
Environmental Compliance and Evaluation Branch

Figure 3: Delineation Results

1 inch = 50 feet UTM DWR 10.5



Decker Island Levee Repair Project
Wetland Delineation Report
Data Source: SPC Unit
Wetland Delineation Study 2014
Design: L Burris

nasdes\DES001\Figure3_DeckerIsland.mxd

Appendix B: Representative Site Photographs

Photo 1 – Typical view of the Study Area (levee repair section), facing south.



Photo 2 – View of the top of the levee and access route, facing south.



Photo 3 – View of the proposed staging area, facing west.



Photo 4 – View of the access route, facing northeast.



Appendix C: List of Plant Species Observed within the Study Area

List of Plant Species Observed

Decker Island Levee Repair Project – September 5, 2014

Family	Scientific Name	Common Name	Native? Y/N	Indicator Status
Adoxaceae	<i>Sambucus nigra</i>	Black elderberry	Y	FAC
Apicaceae	<i>Conium maculatum</i>	Poison hemlock	N	FACW
	<i>Lilaeopsis masonii</i>	Mason's lilaeopsis	Y	OBL
Apocynaceae	<i>Apocynum cannabinum</i>	Indian hemp	Y	FAC
Asteraceae	<i>Baccharis pilularis</i>	Coyote brush	Y	UPL
	<i>Bidens frondosa</i>	Devil's beggartick	Y	OBL
	<i>Erigeron canadensis</i>	Horseweed	Y	UPL
	<i>Lactuca serriola</i>	Prickly lettuce	N	FACU
	<i>Pseudognaphalium luteoalbum</i>	Jersey cudweed	N	FAC
	<i>Sonchus oleraceus</i>	Common sowthistle	N	UPL
Betulaceae	<i>Alnus rhombifolia</i>	White alder	Y	FACW
Brassicaceae	<i>Brassica nigra</i>	Black mustard	N	UPL
	<i>Lepidium latifolium</i>	Broadleaved pepperweed	N	FAC
	<i>Raphanus sativus</i>	Wild radish	N	UPL
Chenopodiaceae	<i>Atriplex prostrata</i>	Fat-hen	N	FACW
Convolvulaceae	<i>Calystegia sepium</i> ssp. <i>limnophila</i>	Morning glory	Y	FAC
Cyperaceae	<i>Carex barbarea</i>	Santa Barbara sedge	Y	FAC
	<i>Schoenoplectus acutus</i>	Hardstem bulrush	Y	OBL
	<i>Schoenoplectus californicus</i>	California bulrush	Y	OBL
Equisetaceae	<i>Equisetum hyemale</i>	Horsetail	Y	FACW
Fabaceae	<i>Acmispon americanus</i>	Spanish lotus	Y	UPL
	<i>Lathyrus jepsonii</i> var. <i>californicus</i>	California tule pea	Y	OBL
	<i>Vicia sativa</i>	Spring vetch	N	FACU
Fagaceae	<i>Quercus lobata</i>	Valley oak	Y	UPL
Iridaceae	<i>Iris pseudacorus</i>	Paleyellow iris	N	OBL
Juglandaceae	<i>Juglans hindsii</i>	California black walnut	Y	FAC
Juncaceae	<i>Juncus xyphioides</i>	Iris-leaved rush	Y	OBL
Onagraceae	<i>Epilobium ciliatum</i>	Slender willowherb	Y	FACW
Platanaceae	<i>Platanus racemosa</i>	California sycamore	Y	FAC
Poaceae	<i>Avena barbata</i>	Slender oat	N	UPL
	<i>Bromus diandrus</i>	Ripgut brome	N	UPL
	<i>Bromus hordeaceus</i>	Soft chess	N	FACU
	<i>Cynodon dactylon</i>	Bermuda grass	N	FACU
	<i>Echinochloa crus-gali</i>	Barnyardgrass	N	FACW
	<i>Elymus (Leymus) tritichoides</i>	Bearded lyme grass	Y	FAC
	<i>Paspalum dilatatum</i>	Dallis grass	N	FAC
	<i>Sorghum halepense</i>	Johnsongrass	N	FACU
Polygonaceae	<i>Persicaria maculosa</i>	Spotted ladysthumb	N	FACW
	<i>Rumex pulcher</i>	Fiddle dock	N	FAC
Pontederiaceae	<i>Eichhornia crassipes</i>	Water hyacinth	N	OBL

Family	Scientific Name	Common Name	Native? Y/N	Indicator Status
Rosaceae	<i>Rubus armeniacus</i>	Himalayan blackberry	N	FACU
	<i>Rubus ursinus</i>	California blackberry	Y	FAC
Salicaceae	<i>Populus fremontii (deltoides)</i>	Fremont's cottonwood	Y	FAC
	<i>Salix goodingii</i>	Gooding's black willow	Y	FACW
	<i>Salix laevigata</i>	Red willow	Y	FACW
Sapindaceae	<i>Acer negundo</i>	Boxelder	Y	FACW

Bold: California Rare Plant Ranked species

Wetland Indicator Status:

UPL – Upland

FACU – Facultative Upland

FAC – Facultative

FACW – Facultative Wetland

OBL - Obligate

Appendix D: Aquatic Resources Spreadsheet

Waters_Name	Cowadin_Code	HGM_Code	Measurement_Type	Amount	Units	Waters_Types	Latitude	Longitude	Local_Waterway
Tidal Freshwater Emergent Wetland	R1US5	RIVERINE	Area	0.005000	ACRE	TNWW	38.10023500	-121.70938500	
Riverine	R1US3	RIVERINE	Area	0.052000	ACRE	TNW	38.10023500	-121.70938500	

APPENDIX B: Archaeological Survey Report

Department of Water Resources
Archaeological Survey Report



Decker Island Levee Demonstration Project
Solano County, California



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June 17, 2015

Abstract

DWR, as part of the Delta Levees Program, proposes to implement erosion repair along an approximately 200-foot section of the eastern bank of Decker Island. The erosion repair is called a demonstration because it is testing a new system of levee repair. The demonstration would utilize Maverick Solutions LLC's "gripper system" which is comprised of non-woven geo-textile fabric bags that are filled with soil, and interlocked using plastic grippers. It is an environmentally friendly alternative to riprap that allows tree cuttings and planting plugs to be placed between bags and provides a foundation for successful establishment. Equipment anticipated to be utilized will include an excavator brought to the site via barge. A coffer dam will be constructed and the project site dewatered prior to the start of work just outside of low tide. The erosion site will be contoured and a trench excavated to create a stable foundation at the base of the slope prior to installation of the gripper bags.

The proposed project is located on the northeastern edge of Decker Island in Solano County, California, in the Lower Sacramento River watershed. The proposed project is within Section 13, Township 3 North, Range 2 East of the Mount Diablo Meridian, in the "Jersey Island, CA" 7.5 minute U.S. Geological Survey (USGS) topographic quadrangle (Figure 1).

Because the project would affect waters of the United States, the project proponent must meet requirements of Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act, and therefore, is seeking a permit from the U.S. Army Corps of Engineers, Sacramento District. This report has been prepared in order to comply with Section 106 of the National Historic Preservation Act (NHPA) of 1966 as amended. It is also been prepared to satisfy the requirements of the California Environmental Quality Act (CEQA).

A records search for the APE was conducted on February 3, 2015 by the staff of the Northwest Information Center (NWIC) of the California Historical Resources Information System (CHRIS) at Sonoma State University (Attachment 1). The search encompassed a ¼-mile radius around the project area. The record search reported no cultural resources in the APE or within a quarter mile of the APE. The search also reported two cultural resource surveys have covered the entire project area (Derr 1994, Seldomridge and Smith-Madsen 1976).

A pedestrian survey including the eroded bank, staging, and access road areas was conducted by DWR archaeologist Wendy Pierce, on February 19, 2015 and no cultural resources were discovered. Based on the literature review and survey results, DWR finds the Project will have no impact to historical, archaeological, Tribal Cultural Resources, or paleontological resources under CEQA and DWR recommends a finding of No Historic Properties Affected (36 CFR 800.4 [d] [1]) under Section 106 of NHPA.

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Figure 2- Detailed Aerial Map of APE

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Attachment 1- NCIC Record Search File # 14-0841

Attachment 2- Native American Correspondence

Attachment 3- Historical Society Correspondence

Project Purpose and Description

The California Department of Water Resources (DWR), as part of the Delta Levees Program, proposes to implement erosion repair along an approximately 200-foot section of the eastern bank of Decker Island. The erosion repair is called a demonstration because it is testing a new system of levee repair. The demonstration would utilize Maverick Solutions LLC's "gripper system" which is comprised of non-woven geo-textile fabric bags that are filled with soil, and interlocked using plastic grippers. It is an environmentally friendly alternative to riprap that allows tree cuttings and planting plugs to be placed between bags and provides a foundation for successful establishment. Equipment anticipated to be utilized will include an excavator brought to the site via barge, a bobcat, and a "jumping jack" hand compactor. A coffer dam will be constructed and the project site dewatered prior to the start of work just outside of low tide. The erosion site will be contoured and a trench excavated to create a stable foundation at the base of the slope prior to installation of the gripper bags.

An excavator will be needed for the repair of this site and it will be brought over by barge. A two foot wide by two foot deep trench will be cut the entire length of the erosion site (parallel to the waterside berm) and will go below the ordinary high water line to create a foundation. Gripper bags that have been filled with soil will be placed in the trench, such that they will be perpendicular to the berm, and interlocked with grippers to create a solid foundation for the erosion protection system. The bags will also be placed in a manner to create a bench that will be inundated monthly and will provide a platform for planting tule. The area from the foundation to the scoured berm will be backfilled and compacted as more bags are stacked (perpendicular to the berm) and locked into the system. The bags will be stacked in such a way as to create a slope to match the existing berm. Once the gripper system has been completed an assortment of small scrub shrub and tule plugs will be placed between the bags. The approximate area of impact is 0.03 acres.

Project Location

The proposed project is located on the northeastern edge of Decker Island in Solano County, California, in the Lower Sacramento River watershed. The proposed project is within Section 13, Township 3 North, Range 2 East of the Mount Diablo Meridian, in the "Jersey Island, CA" 7.5 minute U.S. Geological Survey (USGS) topographic quadrangle (Figure 1).

Undertaking

Because the project would affect waters of the United States, the project proponent must meet requirements of Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act, and therefore, is seeking a permit from the U.S. Army Corps of Engineers, Sacramento District. This report has been prepared in order to comply with Section 106 of the National Historic Preservation Act (NHPA) of 1966 as amended. It is also been prepared to satisfy the requirements of the California Environmental Quality Act (CEQA).

Area of Potential Effect (APE)/Permit Area

The APE/Permit Area for the project includes the staging area, access road, and erosion repair location (Figure 2). The erosion repair area will be excavated 2 feet wide by 2 feet deep along the approximately 210 foot long erosion area. The indirect APE includes the viewshed of the proposed erosion repair areas.

The erosion repair area is situated on an island in the Delta in the Decker Island Habitat Restoration Site. The site is across Horseshoe bend from two farm houses and farm fields on the northern tip of Sherman Island. The viewshed is limited to boaters on Horseshoe Bend and the residences and farms across the river.

Literature Review

Records Search

A records search for the APE was conducted on February 3, 2015 by the staff of the Northwest Information Center (NWIC) of the California Historical Resources Information System (CHRIS) at Sonoma State University (Attachment 1). The search encompassed a ¼-mile radius around the project area. The record search reported no cultural resources in the APE or within a quarter mile of the APE. The search also reported two cultural resource surveys have covered the entire project area (Derr 1994, Seldomridge and Smith-Madsen 1976).

In addition to the archaeological site location maps maintained at the NWIC, the following documents were reviewed:

- *National Register of Historic Places – Listed Properties and Determined Eligible Properties* (Computer Listings through October 2012 by National Park Service)
- *California Register of Historical Resources* (2012a)
- *California Inventory of Historic Resources* (1976)
- *California Points of Historical Interest* (2012b)
- *California Historical Landmarks* (2012c)
- *Caltrans Local Bridge Survey* (2000)
- *Handbook of North American Indians Volume 8, California* (1978)
- *Historic Spots in California* (2002)
- *Directory of properties in the Historic Property Data File for Sutter County* (2012d)

Other Literature

In addition to the CHRIS search, DWR archaeologist Wendy Pierce also reviewed the USGS Historical Topographic Map Collection (<http://geonames.usgs.gov/apex/f?p=262:1:0>), an 1890 Official Map of Solano County from the Library of Congress (Eager 1890), an 1877 Map of Solano County (Thompson and West 1877), and the California Digital Newspaper Collection (CDNC) for information on Decker Island.

Background

Plains Miwok

The project area falls mainly in the traditional Plains Miwok (also Me-wuk) territory (Levy 1978), but may overlap on its western extent into traditional Patwin territory (Johnson 1978). The eastern Miwok, and more specifically the Plains Miwok, inhabited the lower reaches of the Mokelumne and Cosumnes Rivers, and the banks of the Sacramento River from Rio Vista to Freeport (Levy 1978:398). The Plains Miwok village comprised various structures including houses constructed of poles arranged in a conical

framework with a thatch of brush, grasses, or tule matting. Semi-subterranean, earth-covered dwellings served as winter homes. Also within the Miwok settlement were assembly houses, sweatshops, acorn granaries, menstrual huts, and conical grinding huts over bedrock mortars (Levy 1978:408–409).

Subsistence relied on hunting, gathering, and fishing for wild foods. Fishing was very important for the Plains Miwok and salmon was the most important fish. Sturgeon and lampreys were also important meat sources ethnographically. Elk, antelope, and rabbits were important resources; although, beavers, grey squirrels, ground squirrels, and woodrats were also eaten. Plant foods, especially acorns, were dietary staples, and smaller seeds from plants such as various species in the aster family, grasses, red maids, farewell to spring, and buttercup. Corms, bulbs, and roots and tubers were also consumed although these are not specifically reported for the Plains Miwok.

The Plains Miwok were organized politically into tribelets. The tribelet represented an independent, sovereign nation that defined and defended a territory. The tribelet chief, usually a hereditary position, served as the voice of legal and political authority in the tribelet (Levy 1978:410). One of these tribelets, known as Anizumne, is a Plains Miwok ethnographic village mentioned in early mission records and other sources. It was reportedly located on the western side of the Sacramento River just north of Rio Vista (Levy 1978 Figure 1).

Prehistory

Evidence of occupation in the Sacramento Valley is rare prior to approximately 3,500 years ago. Early finds in the Sacramento Valley include an isolated chipped stone crescent (an artifact characteristic of early Holocene age sites) found near Orland, and a deeply buried prehistoric occupation site dated to between 5,600 and 9,000 years ago that was uncovered 12 to 22 feet below the streets of Sacramento (Lopez 2012; Rosenthal et al. 2007:151). White's (2003) recent work near Colusa also revealed dates of up to 4,385 years before present. The extremely sparse evidence for very early dates of occupation is likely due to the frequent flooding the valley endures and the resulting sedimentation (Elsasser 1978; Moratto 2004; Wallace 1978).

Distinctive lowland and upland adaptive patterns emerge after 4,500 cal BP (Rosenthal et al. 2007). The Central Valley was characterized by a complex socio-economic strategy focused on riverine and marsh resources and on an elaborate material culture. Notable attributes include dart points (large, square-stemmed, and contracting-stemmed forms); mortars and pestles; use of acorns and pine nuts; new fishing technologies (gorges, composite bone hooks, and spears); numerous fish remains; basketry and cordage; ceramic items; diverse personal accoutrements of stone, bone and shell; and large burial areas.

The earliest part of the late Holocene in the Delta is called the Windmill Pattern. It is associated with sophisticated material culture and westward oriented, extended burials and appeared within the Central Valley and during the Early Period of the San Francisco Bay-Delta region. Windmill sites are clearly concentrated on low rises or knolls within the floodplains of major perennial water courses. These occupations were quite sedentary and often included burials within formal cemeteries regularly accompanied by grave associated goods. The subsistence economy was focused on fishing, hunting, and gathering. Moratto (1984) suggests the Delta was used for winter villages and that Windmill groups traveled to the foothills for summer and that is why such a large percentage of burials at Delta sites

occurred in winter. Rosenthal et al. (2007:153) suggest the period witnessed increasing residential stability within the Central Valley along river corridors.

Berkeley Pattern sites are distributed more widely than Windmill sites. They are typified by deep midden deposits suggesting a further decrease in mobility and a more sedentary pattern than has been identified for the previous period. The shell midden/mounds dated to this period are located near fresh or salt water and indicate exploitation of a variety of aquatic resources was relatively intensive. Mortars and pestles are abundant indicating a strong reliance upon acorns as a staple food. Fishing technology is diversified and improved showing a greater emphasis on fish and possibly a broader range of targeted species. A well-developed bone industry, distinctive diagonal flaking of large concave base points, and certain bead and ornament types set the Berkeley Period apart from the earlier pattern. Burials are flexed and variable in orientation and some cremations are present. Grave goods are fewer.

The most recent pattern is the Augustine. It is characterized by a much larger number of sites spread widely over central California. It is distinguished by large populations that had well established trade networks, social stratification (as indicated by considerable variability in grave goods), elaborate ceremonialism, the mortuary practice of cremation, and the burning of offerings near flexed burials. Artifacts include shaped bowl mortars and pestles, bone awls for making coiled basketry, and small notched and sometimes serrated projectile points, markers of the bow and arrow transition.

History

Early Exploration and Settlement

The local project area was first influenced by the Spanish Missions which have baptism records for many Patwin and Plains Miwok. When the Spanish government fell to the Mexicans, large land grants were made in the interior regions of the Central Valley. In 1844, the Mexican government granted the Rancho Los Ulpinos, an area west of the Sacramento River around the vicinity of present day Rio Vista, to John Bidwell (DPR 2002). After the American conquest of California, Bidwell sold parts of the grant to several people.

Agriculture and Water

By 1848, when gold was discovered at Sutter's mill in Coloma, only a handful of people had settled in the Delta, but thousands of newcomers traveled Delta waterways on route to the foothill and mountain mines to the east. Some California newcomers decided that farming to feed the growing population of miners was a surer path to success. Farmers began to work land at the edge of the Delta along the natural levees of the major rivers. These early settlers built shoestring levees, by hand, atop the natural levees to withstand the highest tidal rises.

The Swampland Act of 1850 enabled groups of small landholders to establish districts to undertake Delta land reclamation. Speculative, large-scale land reclamation brought thousands of Chinese workers to the Delta. Their labor first enabled the construction of levees and then helped the islands created by such reclamation efforts yield abundant produce. (Garone 2011: 113; Thompson 1957: 198-202, 225.) From the 1860s through the 1880s, reclamation spread agriculture from alluvium lands upstream into the peat

lands of the central Delta. With water access to a growing urban market in San Francisco, Delta agriculture boomed and crops were diversified. Over time, dairies, Bartlett pear orchards, and asparagus became important components of the Delta economy (Lokke and Simmons 1980: 223-224; Thompson 1957:139-44).

Reclaimed lands required constant and expensive maintenance and repair. Levees frequently failed and islands flooded. Sacramento and San Joaquin River beds were raised and choked by tailings from hydraulic mining in the Sierra Nevada, which was outlawed in the mid-1880s but had a longer lasting impact on rivers. Technology helped landowners overcome some of these problems. The introduction of clamshell dredges in 1879 enabled the construction of increasingly larger and more secure levees. These dredges dug sediment from the river channel to build up the levees instead of digging up fertile topsoil from the islands as had been done previously. Modern pumps and the introduction of electricity allowed for more efficient and thorough draining of flooded islands. By the early twentieth century, the rise of industrial agriculture across the Delta increased pressure for state and federal action to protect and facilitate the region's agricultural economy through flood control efforts, transportation development, and large-scale water policy and development (Garone 2007: 155; Thompson 1957: 226-272).

Decker Island and Horseshoe Bend

Decker Island is not depicted on the 1862 General Land Office Survey Plat Map of Township 3 North, Range 2 East (USDI 1862). The land on both sides of the river is labeled "Swamp and Overflowed Land". There is also no island depicted in the Sacramento River on The Thompson and West Map of Solano County 1877, just a marshy border along the Solano County side of the River. In the 1890 version of the Official Map of Solano County, the area of Decker Island is depicted though not named and is adjacent to land owned by the "Heirs of Mrs. Lucie M. Glassell" (Eager 1890). A newspaper account from the San Francisco Call, "Decker Island is Awarded to Hansen" (San Francisco Call 1899) describes a land dispute over Decker Island. The article states that the island had been gradually forming in the river since 1855, and that it continued to grow west until it joined property on the west owned by Mr. Glassell, who occasionally grazed cattle on the land and had erected a few wire fences. The article reports that Decker Island was surveyed and sold that year to R. W. Hansen under the Swamp and Overflowed Land Act and that over four or five years Mr. Hansen, "regularly employed men to improve it". Mr. Hansen won the land dispute.

Decker became a larger Island after the U.S. government decided to cut off Horseshoe Bend in order to straighten the Sacramento River. In 1907 the California Debris Commission requested \$400,000 from Congress to buy two large dredges to cut across land to the west of Decker Island to accommodate 600,000 cfs for flood prevention (Kelly 1998). By 1919, two dredgers, the *Sacramento* and the *San Joaquin* dredged through the swampland west of the parcel owned by Hansen, creating the wide straight shipping lane (U.S. War Department 1919). The original Decker Island parcel owned by Hansen was left as it was, but the area to the northwest of it became a spoils easement of the Federal government. Spoils from dredging the cut were placed there creating additional above water parcels of Decker Island. The spoils on those parcels currently and historically have been mined for sand.

On the 1910 Jersey Island 7.5' USGS topographic quadrangle, the only built features include two small buildings on the southeastern point of Decker Island and a levee depicted on the northwestern side of the island. The 1952 Jersey Island quadrangle shows a levee along the southeastern edge of the island that curves back around leaving the northern portion of the island unleveed and a large structure in the general vicinity of the two smaller ones shown on the 1910 map. There is also a small structure depicted to the north east of the large structure on the 1952 map. Historic aerials from 1957 show these structures as well (www.historicaerials.com/). Structures are no longer depicted on the island in the 1978 edition of the Jersey Island quad sheet and none were seen during a 2014 DWR survey of the southern parcel for the "Decker Island Habitat Mitigation for Fish Restoration Phase 1 Environmental Site Assessment" (Pierce DWR Cultural Resources Memo 2014). The APE is situated in a portion of the island that has apparently never been leveed.

Current Land Uses

The project APE is within the Decker Island Wildlife Area (DIWA) which was a collaborative project between DWR and CDFW. The DIWA is about 26 acres and is owned by CDFW. It is composed of created channels for shallow-water fish habitat and for wetland and riparian vegetation. The area is only accessible by boat. The rest of the island is divided between the northwestern portion which is currently mined for sand and the southeastern parcel that has historically be used for cattle grazing and was being grazed by a single cow in 2014.

Field Methodology

A pedestrian survey including the eroded bank, staging, and access road areas was conducted by Wendy Pierce, a DWR archaeologist, on February 19, 2015 and no cultural resources were discovered. Because the APE is a very small area, the entire area was subject to pedestrian survey. The staging area, access road, and repair location were all inspected. Visibility was excellent in the bank, and poor on the island surface that was heavily vegetated.

Potential for Subsurface Archaeological Remains

There is no potential for subsurface archaeological remains. According to the preliminary Geologic Map of the Lodi 30'x60' Quadrangle, California (Dawson 2009), the entire project site is in "Artificial dredge fill (Historic) - Fill located adjacent to channels dredged for navigation". This is supported by old maps, government documents on dredging, and an 1899 newspaper account. The 1899 San Francisco Call article on the "Decker Island land dispute" stated the island began forming in the river in 1855 and had grown westward to the extent that it abutted the Montezuma hills. If the account is true, there would be no potential for any prehistoric archaeological remains on the island due to its recent origin. The southern parcel, which is the oldest portion of the island, is composed of peat and mud deposits according to Dawson (2009). The rest of the island including the APE was formed by historic-era dredging and spoiling on the island. The Sacramento River Channel was straightened and spoils were deposited on Decker according to the United States War Department report (1919).

The eroded bank was also examined and showed signs of historic earth moving activity with un-natural layers and clumps of mixed sediment types and wood and debris mixed in.

Native American Coordination

Steven Garcia, Water Resources Engineer with DWR's Floodsafe Environmental Stewardship and Statewide Resources Office sent a Sacred Lands File Search and Contact List Request to the Native American Heritage Commission (NAHC) on December 9, 2014. On February 13, 2015 the NAHC reported that no sacred sites were recorded in the project area and provided an updated list of knowledgeable individuals in Solano County. Letters of inquiry were sent on February 18, 2015 to individuals and tribes including the Members of the Yocha Dehe Wintun nation and the Cortina Band of Indians.

James Kinter, Tribal Secretary for the Yocha Dehe responded in a letter to DWR dated March 11th, 2015. He stated they knew of no cultural resources in the project area and requested we contact James Sarmiento, Cultural Resources Manager for the Yocha Dehe Wintun Nation if new information or cultural items were found. Follow-up emails with the original letter and map attached were sent on June 10, 2015 to the individuals who had not responded to the first letter. No replies have been received. Copies of all Native American correspondence can be found in Attachment 2.

Other Interested Party Coordination

The Solano County Historical Society was sent a letter of inquiry on January 8, 2015 soliciting information on any known historic-era resources within the project area. No response to the letter of inquiry sent on January 8, 2015 was received from the Solano County Historical Society. Copies of all correspondence can be found in Attachment 3.

Findings

No cultural resources have been identified within the APE. Based on the literature review and survey results, DWR finds the Project will have no impact to historical, archaeological, Tribal Cultural Resources, or paleontological resources under CEQA.

Unidentified Cultural Materials

If previously unidentified cultural materials are unearthed during construction, work will be halted in that area until a qualified archaeologist can assess the significance of the find. Additional archaeological survey will be needed if project limits are extended beyond the present survey limits. If human remains are uncovered, all work must stop immediately and the County coroner must be contacted pursuant to California Health and Human Safety Code 7050.5(b).

Recommendation of Effect

Based on the literature review and survey results, DWR recommends a finding of No Historic Properties Affected (36 CFR 800.4 [d] [1]) under Section 106 of NHPA.

Professional Qualifications

The fieldwork and report was prepared by Wendy Pierce, DWR Associate Environmental Planner (Archeology). Ms. Pierce holds a B.A. and M.A. in Anthropology (Archaeology concentration), and has 20 years of archaeological experience in California and the Great Basin. She has been a supervisor on

many projects in both field and laboratory settings, including principal investigator, field director, crew chief, lab coordinator, lab director and analyst. She meets and exceeds the Secretary of the Interior's Professional Qualifications for Archaeology (48 FR 44738-44739).

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- 2012c *California Historical Landmarks*, Annual Listing and Updates through 2012. California Department of Parks and Recreation, Sacramento.
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Solano County, California

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Solano County, California

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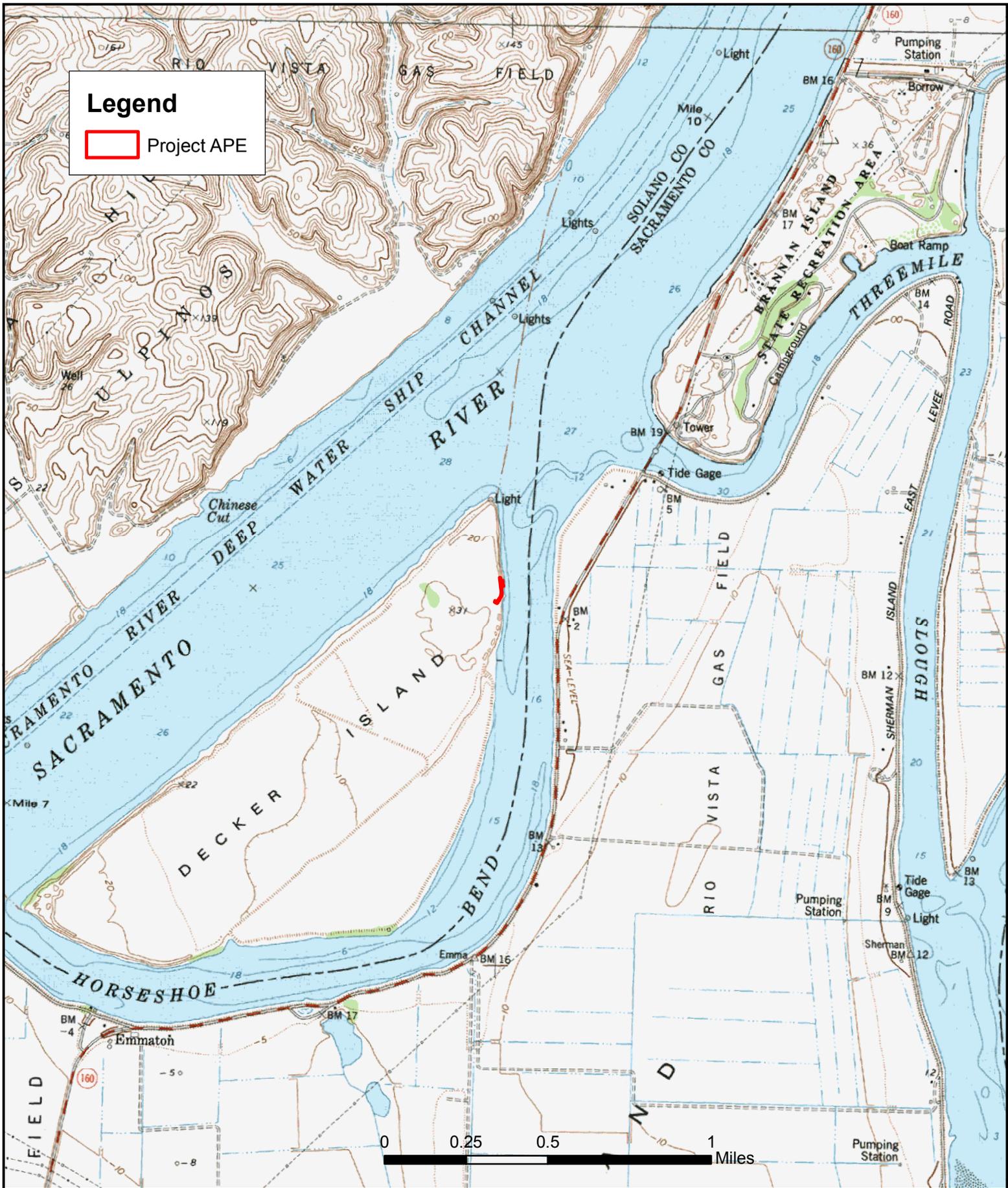
www.historicaerials.com/

Website accessed May 19, 2015.

FIGURES

Figure 1 -Project Vicinity Map

Figure 2-Detailed Aerial Map of APE



Legend
 Project APE

FIGURE #1
 PROJECT LOCATION MAP
 DECKER ISLAND LEVEE REPAIR DEMONSTRATION PROJECT
 JERSEY ISLAND 7.5' USGS TOPOGRAPHIC QUADRANGLE
 SOLANO COUNTY, CALIFORNIA



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 1:24,000

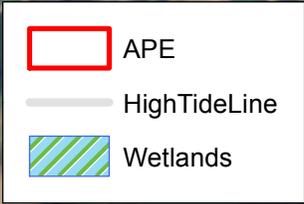


FIGURE #2
 DETAILED AERIAL MAP
 DECKER ISLAND LEVEE REPAIR DEMONSTRATION PROJECT
 SOLANO COUNTY, CALIFORNIA



1:2,400

Department of Water Resources
ARCHAEOLOGICAL INVENTORY REPORT

ATTACHMENT 1

RECORD SEARCH



2/3/2015

NWIC File No.: 14-0841

Wendy Pierce
California Department of Water Resources
3500 Industrial Boulevard
West Sacramento, CA 95691

re: Decker Island Levee Repair Demonstration Project

The Northwest Information Center received your record search request for the project area referenced above, located on the Jersey Island USGS 7.5' quad(s). The following reflects the results of the records search for the project area and a 0.25 mile radius:

Resources within project area:	None
Resources within 0.25 mile radius:	None
Reports within project area:	S-5055 & 17236.
Reports within 0.25 mile radius:	None
Other Reports within records search radius:	S-32596, 5208, 12790, 848, 33600, 9462, & 15529. These reports are classified as Other Reports; reports with little or no field work or missing maps. The electronic maps do not depict study areas for these reports. In addition, you have not been charged digitized shape fees for the studies.

- Resource Database Printout (list):** enclosed not requested nothing listed
- Resource Database Printout (details):** enclosed not requested nothing listed
- Resource Digital Database Records:** enclosed not requested nothing listed
- Report Database Printout (list):** enclosed not requested nothing listed
- Report Database Printout (details):** enclosed not requested nothing listed
- Report Digital Database Records:** enclosed not requested nothing listed
- Resource Record Copies:** enclosed not requested nothing listed
- Report Copies:** enclosed not requested nothing listed
- OHP Historic Properties Directory:** enclosed not requested nothing listed

Archaeological Determinations of Eligibility: enclosed not requested nothing listed

CA Inventory of Historic Resources (1976): enclosed not requested nothing listed

Caltrans Bridge Survey: enclosed not requested nothing listed

Ethnographic Information: enclosed not requested nothing listed

Historical Literature: enclosed not requested nothing listed

Historical Maps: enclosed not requested nothing listed

Local Inventories: enclosed not requested nothing listed

GLO and/or Rancho Plat Maps: enclosed not requested nothing listed

Shipwreck Inventory: enclosed not requested nothing listed

*Notes:

- Enclosed is a copy of S-17236.

Please forward a copy of any resulting reports from this project to the office as soon as possible. Due to the sensitive nature of archaeological site location data, we ask that you do not include resource location maps and resource location descriptions in your report if the report is for public distribution. If you have any questions regarding the results presented herein, please contact the office at the phone number listed above.

The provision of CHRIS Data via this records search response does not in any way constitute public disclosure of records otherwise exempt from disclosure under the California Public Records Act or any other law, including, but not limited to, records related to archeological site information maintained by or on behalf of, or in the possession of, the State of California, Department of Parks and Recreation, State Historic Preservation Officer, Office of Historic Preservation, or the State Historical Resources Commission.

Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area. Additionally, Native American tribes have historical resource information not in the CHRIS Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

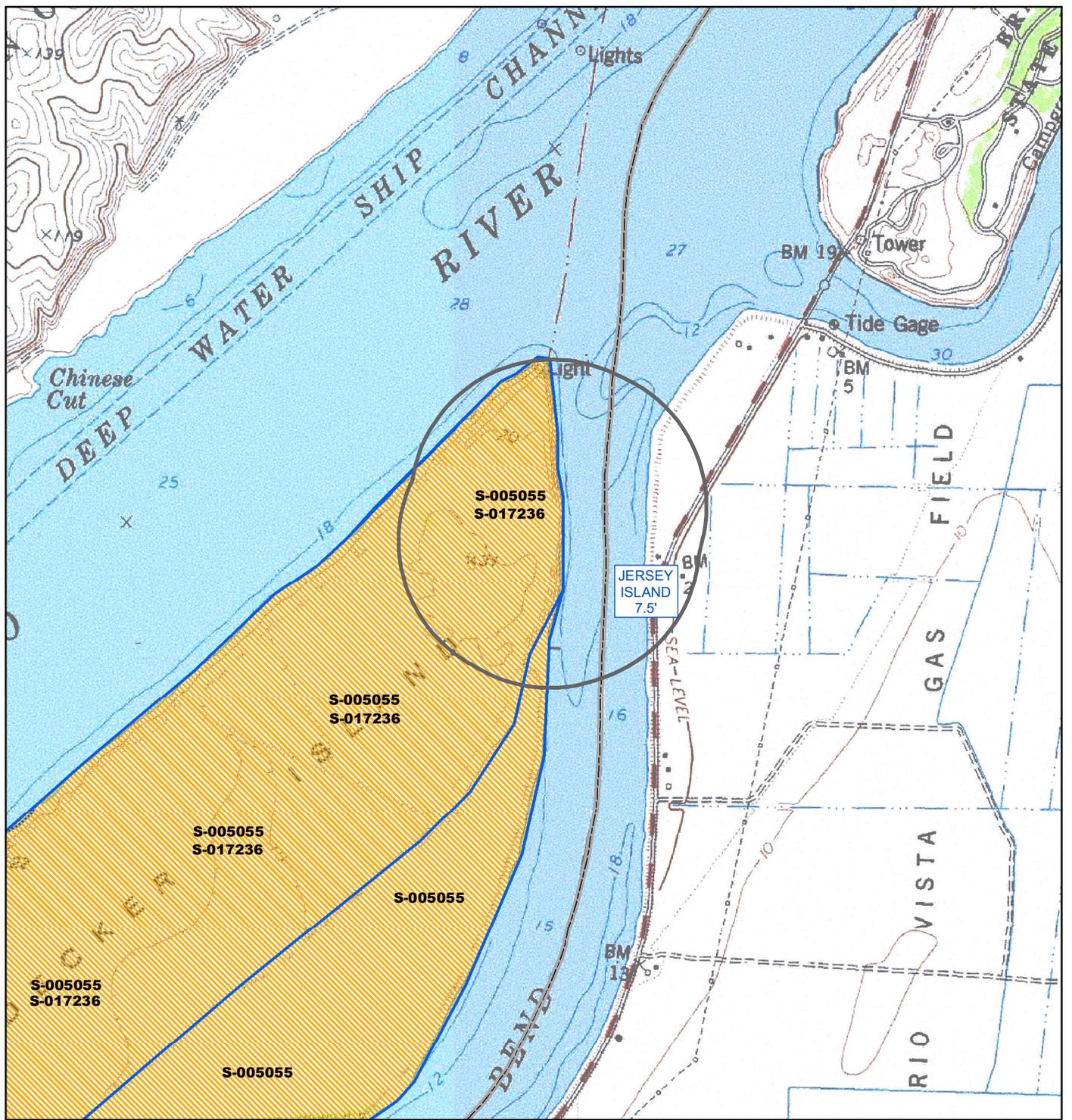
Should you require any additional information for the above referenced project, reference the record search number listed above when making inquiries. Requests made after initial invoicing will result in the preparation of a separate invoice.

Thank you for using the California Historical Resources Information System (CHRIS).

Sincerely,

Lisa C. Hagel
Researcher

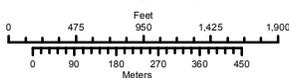
Decker Island Levee Repair Demonstration Project



Northwest Information Center

File #14-0841, 29 January 2015, L. Hagel

May depict confidential cultural resource locations.
Do not distribute.



Department of Water Resources
ARCHAEOLOGICAL INVENTORY REPORT

ATTACHMENT 2
NATIVE AMERICAN COROSPONDANCE

Sacred Lands File & Native American Contacts List Request

NATIVE AMERICAN HERITAGE COMMISSION

1550 Harbor Boulevard, Suite 100

West Sacramento, CA 95691

(916) 373-3710

(916) 373-5471 – Fax

nahc@nahc.ca.gov

Information Below is Required for a Sacred Lands File Search

Project: ___ Decker Island Demonstration Project _____

County: ___ Solano _____

USGS Quadrangle Name: _ Jersey Island _____

Township __3N__ Range __2E__ Section(s) __13__

Company/Firm/Agency: _____ California Department of Water Resources _____

Contact Person: ___ Steven Garcia _____

Street Address: ___ 1416 9th Street Room 1603 _____

City: ___ Sacramento _____ Zip: ___ 95814 _____

Phone: _____ (916) 651 – 0844 _____

Fax: _____

Email: _____ spgarcia@water.ca.gov _____

Project Description:

An erosion site exists on the East side of Decker Island about 500ft south of the breach to the habitat restoration site on the north side of the Island and 300ft north of the fence line on the south side of the property. The erosion site is located on an 8ft high berm and stretches about 100ft. To repair this erosion site CDFW and DWR would like to use Maverick Solutions LLC's gripper system. The system is comprised of non-woven geo-textile fabric bags that are filled with soil, and interlocked using plastic grippers. It is an environmentally friendly alternative to riprap that allows tree cuttings and planting plugs to be placed between bags and provides a foundation for successful establishment. This creates a highly resilient erosion control wall while providing vegetation along the channel's edge

Equipment anticipated to be utilized will include an excavator brought to the site via barge. A coffer dam will be constructed and the project site will be dewatered prior to the start of work just outside of low tide. The erosion site will be contoured and a trench excavated to create a stable foundation at the base of the slope prior to installation of the gripper bags. The bags will be placed to create a slope to match the existing berm to the north and south of the eroded area. The bags will also be placed to create habitat benches at different elevations such that one is inundated at high tide and the other at mean tide. After the gripper system has been completed, an assortment of small scrub shrub and tule plugs will be placed between the bags to promote re-establishment of appropriate native vegetation at the erosion repair site.

NATIVE AMERICAN HERITAGE COMMISSION

1550 Harbor Blvd.
West Sacramento, CA 95691
(916) 373-3710
Fax (916) 373-5471



February 13, 2015

Steven Garcia
CA DEPT OF WATER RESOURCES
1416 9th Street, Room 1603
Sacramento, CA 95814

Email – spgarcia@water.ca.gov

2 Pages

Decker Island project, Solano County

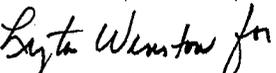
Mr. Garcia;

A record search of the sacred land file has failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the sacred lands file does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Enclosed is a list of Native Americans individuals/organizations who may have knowledge of cultural resources in the project area. The Commission makes no recommendation or preference of a single individual, or group over another. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe or group. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at (916) 373-3713.

Sincerely,


Debbie Pilas-Treadway
Environmental Specialist III

Native American Contacts
Solano County
February 11, 2015

Kesner Flores
P.O. Box 1047
Wheatland , CA 95692
calnagpra@hotmail.com
(925) 586-8919

Wintun / Patwin

Cortina Band of Indians
Charlie Wright, Chairperson
P.O. Box 1630
Williams , CA 95987
(530) 473-3274 Office
(530) 473-3301 Fax

Wintun / Patwin

Yocha Dehe Wintun Nation
Leland Kinter, Chairperson
P.O. Box 18
Brooks , CA 95606
lkinter@yochadehe-nsn.gov
(530) 796-3400
(530) 796-2143 Fax

Wintun (Patwin)

Yocha Dehe Wintun Nation
Native Cultural Renewal Committee
P.O. Box 18
Brooks , CA 95606
(530) 979-6346
(530) 796-3400 - office
(530) 796-2143 Fax

Wintun (Patwin)

Yocha Dehe Wintun Nation
Cynthia Clarke, Native Cultural Renewal Committee
P.O. Box 18
Brooks , CA 95606
(530) 796-3400 Office
(530) 796-2143 Fax

Wintun (Patwin)

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Decker Island project, Solano County.

DEPARTMENT OF WATER RESOURCES

DIVISION OF ENVIRONMENTAL SERVICES
3500 INDUSTRIAL BOULEVARD
WEST SACRAMENTO, CA 95691



February 17, 2015

Kesner Flores
P.O. Box 1047
Wheatland, CA 95692

Dear Mr. Flores,

The California Department of Water Resources (DWR) is proposing to repair erosion along an approximately 100-foot section of the eastern levee of Decker Island. The repair will use an environmentally friendly alternative to riprap composed of soil-filled fabric bags interlocked with plastic grippers. Equipment anticipated to be utilized includes an excavator brought to the site via barge. A coffer dam will be constructed and the project site will be dewatered prior to the start of work just outside of low tide. The erosion site will be contoured and a trench excavated to create a stable foundation at the base of the slope prior to placing the gripper bags. The bags will be positioned to create habitat benches at different elevations such that one is inundated at high tide and the other at mean tide. After the gripper system has been installed, an assortment of small scrub shrub and tule plugs will be placed between the bags to promote re-establishment of appropriate native vegetation at the erosion repair site.

The proposed project is located on the northeastern edge of Decker Island in Solano County, California. The proposed project is within Section 13, Township 3 North, Range 2 East of the Jersey Island 7.5 minute U.S. Geological Survey (USGS) topographic quadrangle (Figure 1).

This letter is a request for information that you would be willing to share regarding cultural resources that may exist within the project area. Your assistance in identifying such resources allows for them to be avoided and protected to the maximum extent possible. We understand that the location of these resources is sensitive. Resource locations will not be disclosed in public documents and will be kept confidential as provided for in California Government Code Section 6254.10. We welcome any recommendations regarding appropriate management or treatment of resources that occur within the project area.

If you have any questions or need additional information, you may contact Wendy Pierce at (916) 376-9792 or by email at Wendy.Pierce@water.ca.gov. Please also feel free to contact me directly at (916) 376-9777 or by email at jwait@water.ca.gov.

Sincerely,

A handwritten signature in blue ink that reads "Jacqueline Wait".

Jacqueline Wait
Senior Environmental Planner, Cultural, Recreation and Environmental Planning Section

DEPARTMENT OF WATER RESOURCES

DIVISION OF ENVIRONMENTAL SERVICES
3500 INDUSTRIAL BOULEVARD
WEST SACRAMENTO, CA 95691



February 17, 2015

Charlie Wright
Chairman, Cortina Band of Indians
P.O. Box 1630
Williams, CA 95987

Dear Chairman Wright,

The California Department of Water Resources (DWR) is proposing to repair erosion along an approximately 100-foot section of the eastern levee of Decker Island. The repair will use an environmentally friendly alternative to riprap composed of soil-filled fabric bags interlocked with plastic grippers. Equipment anticipated to be utilized includes an excavator brought to the site via barge. A coffer dam will be constructed and the project site will be dewatered prior to the start of work just outside of low tide. The erosion site will be contoured and a trench excavated to create a stable foundation at the base of the slope prior to placing the gripper bags. The bags will be positioned to create habitat benches at different elevations such that one is inundated at high tide and the other at mean tide. After the gripper system has been installed, an assortment of small scrub shrub and tule plugs will be placed between the bags to promote re-establishment of appropriate native vegetation at the erosion repair site.

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Sincerely,

A handwritten signature in blue ink that reads "Jacqueline Wait".

Jacqueline Wait
Senior Environmental Planner, Cultural, Recreation and Environmental Planning Section

DEPARTMENT OF WATER RESOURCES

DIVISION OF ENVIRONMENTAL SERVICES
the southwest corner of C
WEST SACRAMENTO, CA 95691



February 17, 2015

The Honorable Leland Kinter
Chairperson, Yocha Dehe Wintun Nation
P.O. Box 18
Brooks, CA 95606

Dear Chairperson Kinter,

The California Department of Water Resources (DWR) is proposing to repair erosion along an approximately 100-foot section of the eastern levee of Decker Island. The repair will use an environmentally friendly alternative to riprap composed of soil-filled fabric bags interlocked with plastic grippers. Equipment anticipated to be utilized includes an excavator brought to the site via barge. A coffer dam will be constructed and the project site will be dewatered prior to the start of work just outside of low tide. The erosion site will be contoured and a trench excavated to create a stable foundation at the base of the slope prior to placing the gripper bags. The bags will be positioned to create habitat benches at different elevations such that one is inundated at high tide and the other at mean tide. After the gripper system has been installed, an assortment of small scrub shrub and tule plugs will be placed between the bags to promote re-establishment of appropriate native vegetation at the erosion repair site.

The proposed project is located on the northeastern edge of Decker Island in Solano County, California. The proposed project is within Section 13, Township 3 North, Range 2 East of the Jersey Island 7.5 minute U.S. Geological Survey (USGS) topographic quadrangle (Figure 1).

This letter is a request for information that you would be willing to share regarding cultural resources that may exist within the project area. Your assistance in identifying such resources allows for them to be avoided and protected to the maximum extent possible. We understand that the location of these resources is sensitive. Resource locations will not be disclosed in public documents and will be kept confidential as provided for in California Government Code Section 6254.10. We welcome any recommendations regarding appropriate management or treatment of resources that occur within the project area.

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Sincerely,

A handwritten signature in blue ink that reads "Jacqueline Wait".

Jacqueline Wait
Senior Environmental Planner, Cultural, Recreation and Environmental Planning Section

DEPARTMENT OF WATER RESOURCES

DIVISION OF ENVIRONMENTAL SERVICES
3500 INDUSTRIAL BOULEVARD
WEST SACRAMENTO, CA 95691



February 17, 2015

Native Cultural Renewal Committee
Yocha Dehe Wintun Nation
P.O. Box 18
Brooks, CA 95606

Dear Native Cultural Renewal Committee Members,

The California Department of Water Resources (DWR) is proposing to repair erosion along an approximately 100-foot section of the eastern levee of Decker Island. The repair will use an environmentally friendly alternative to riprap composed of soil-filled fabric bags interlocked with plastic grippers. Equipment anticipated to be utilized includes an excavator brought to the site via barge. A coffer dam will be constructed and the project site will be dewatered prior to the start of work just outside of low tide. The erosion site will be contoured and a trench excavated to create a stable foundation at the base of the slope prior to placing the gripper bags. The bags will be positioned to create habitat benches at different elevations such that one is inundated at high tide and the other at mean tide. After the gripper system has been installed, an assortment of small scrub shrub and tule plugs will be placed between the bags to promote re-establishment of appropriate native vegetation at the erosion repair site.

The proposed project is located on the northeastern edge of Decker Island in Solano County, California. The proposed project is within Section 13, Township 3 North, Range 2 East of the Jersey Island 7.5 minute U.S. Geological Survey (USGS) topographic quadrangle (Figure 1).

This letter is a request for information that you would be willing to share regarding cultural resources that may exist within the project area. Your assistance in identifying such resources allows for them to be avoided and protected to the maximum extent possible. We understand that the location of these resources is sensitive. Resource locations will not be disclosed in public documents and will be kept confidential as provided for in California Government Code Section 6254.10. We welcome any recommendations regarding appropriate management or treatment of resources that occur within the project area.

If you have any questions or need additional information, you may contact Wendy Pierce at (916) 376-9792 or by email at Wendy.Pierce@water.ca.gov. Please also feel free to contact me directly at (916) 376-9777 or by email at jwait@water.ca.gov.

Sincerely,

A handwritten signature in blue ink that reads "Jacqueline Wait".

Jacqueline Wait
Senior Environmental Planner, Cultural, Recreation and Environmental Planning Section

DEPARTMENT OF WATER RESOURCES

DIVISION OF ENVIRONMENTAL SERVICES
3500 INDUSTRIAL BOULEVARD
WEST SACRAMENTO, CA 95691



February 17, 2015

Cynthia Clarke
Native Cultural Renewal Committee, Yocha Dehe Wintun Nation
P.O. Box 18
Brooks, CA 95606

Dear Ms. Clarke,

The California Department of Water Resources (DWR) is proposing to repair erosion along an approximately 100-foot section of the eastern levee of Decker Island. The repair will use an environmentally friendly alternative to riprap composed of soil-filled fabric bags interlocked with plastic grippers. Equipment anticipated to be utilized includes an excavator brought to the site via barge. A coffer dam will be constructed and the project site will be dewatered prior to the start of work just outside of low tide. The erosion site will be contoured and a trench excavated to create a stable foundation at the base of the slope prior to placing the gripper bags. The bags will be positioned to create habitat benches at different elevations such that one is inundated at high tide and the other at mean tide. After the gripper system has been installed, an assortment of small scrub shrub and tule plugs will be placed between the bags to promote re-establishment of appropriate native vegetation at the erosion repair site.

The proposed project is located on the northeastern edge of Decker Island in Solano County, California. The proposed project is within Section 13, Township 3 North, Range 2 East of the Jersey Island 7.5 minute U.S. Geological Survey (USGS) topographic quadrangle (Figure 1).

This letter is a request for information that you would be willing to share regarding cultural resources that may exist within the project area. Your assistance in identifying such resources allows for them to be avoided and protected to the maximum extent possible. We understand that the location of these resources is sensitive. Resource locations will not be disclosed in public documents and will be kept confidential as provided for in California Government Code Section 6254.10. We welcome any recommendations regarding appropriate management or treatment of resources that occur within the project area.

If you have any questions or need additional information, you may contact Wendy Pierce at (916) 376-9792 or by email at Wendy.Pierce@water.ca.gov. Please also feel free to contact me directly at (916) 376-9777 or by email at jwait@water.ca.gov.

Sincerely,

A handwritten signature in blue ink that reads "Jacqueline Wait".

Jacqueline Wait
Senior Environmental Planner, Cultural, Recreation and Environmental Planning Section



March 11th, 2015

Jacqueline Wait
Department of Water Resources
3500 Industrial Boulevard
West Sacramento, CA 95691

RE: Decker Island Levee Repair Project

Dear Ms. Wait:

Thank you for your project notification dated February 17, 2015 regarding cultural information on or near the proposed Decker Island Levee Repair Project, Solano County, CA. We appreciate your effort to contact us and wish to respond.

The Cultural Resources Department has reviewed the project and concluded that it is within the aboriginal territories of the Yocha Dehe Wintun Nation. Therefore, we have a cultural interest and authority in the proposed project area.

Based on the information provided, Yocha Dehe Wintun Nation is not aware of any known cultural resources near this project site and a Cultural Monitor is not needed. However, if any new information or cultural items are found, please contact the following individual:

Mr. James Sarmento
Cultural Resources Manager
Yocha Dehe Wintun Nation
Office: (530) 723-0452, Email: jsarmento@yochadehe-nsn.gov

Please refer to identification number YD – 02272015-03 in correspondences concerning this project.

Thank you for providing us the opportunity to comment.

Sincerely,

James Kinter
Tribal Secretary
Tribal Historic Preservation Officer

Yocha Dehe Wintun Nation

PO Box 18 Brooks, California 95606 p) 530.796.3400 f) 530.796.2143 www.yochadehe.org

Native American Consultation Log: Decker Island Levee Demonstration Project



County: Solano

Individual Contacted	Affiliation	Position	Number/Email	Date	Response	Follow-up	Response	Comments
Kesner Flores	none listed	none listed	925-586-8919/ calnagpra@hotmail.com	letter sent 2/18/2015	none	email sent 6/10/15	email returned undeliverable	
Charlie Wright	Cortina Band of Indians	Chairman	cww281@gmail.com	letter sent 2/18/2015	none	email sent 6/10/15	none	
Leland Kinter	Yoche Dehe Wintun Nation	Chairman	530-796-3400/ lkinter@yochadehe-nsn.gov	letter sent 2/18/2015	3-11-15 ltr from Tribe			Please contact James Sarmento if new information or cultural items are found.
Cynthia Clarke	Yoche Dehe Wintun Nation	none listed	530-796-3400	letter sent 2/18/2015	See Kinter comments		See Kinter comments	
Native Cultural Renewal Committee	Yoche Dehe Wintun Nation	none listed	530-796-3400	letter sent 2/18/2015	See Kinter comments		See Kinter comments	

Department of Water Resources
ARCHAEOLOGICAL INVENTORY REPORT

ATTACHMENT 3
HISTORICAL SOCIETY COROSPONDANCE

DEPARTMENT OF WATER RESOURCES

DIVISION OF ENVIRONMENTAL SERVICES
3500 INDUSTRIAL BOULEVARD
WEST SACRAMENTO, CA 95691



January 8, 2015

Solano County Historical Society
P. O. Box 3009
Fairfield, California 94533-0309

Dear Historical Society Members:

DWR, as part of the Delta Levees Program, proposes to implement erosion repair along an approximately 100-foot section of the eastern levee of Decker Island. The repair would utilize Maverick Solutions LLC's "gripper system" which is comprised of non-woven geo-textile fabric bags that are filled with soil, and interlocked using plastic grippers. It is an environmentally friendly alternative to riprap that allows tree cuttings and planting plugs to be placed between bags and provides a foundation for successful establishment. Equipment anticipated to be utilized will include an excavator brought to the site via barge. A coffer dam will be constructed and the project site dewatered prior to the start of work just outside of low tide. The erosion site will be contoured and a trench excavated to create a stable foundation at the base of the slope prior to installation of the gripper bags.

The proposed project is located on the northeastern edge of Decker Island in Solano County, California, in the Lower Sacramento River watershed. The proposed project is within Section 13, Township 3 North, Range 2 East of the Mount Diablo Meridian, in the "Jersey Island, CA" 7.5 minute U.S. Geological Survey (USGS) topographic quadrangle (Figure 1).

As part of the environmental compliance for the project, we are conducting a cultural resources study in the project area. You are being consulted to determine if any historic or cultural resources may be affected by the proposed project. Please notify me if there are any historic-era resources (ranches, farmsteads, mines, railroad lines, trails etc.) within or in close proximity to the defined project area. It would also be helpful to know if you have any written local histories that may contain information pertinent to the project vicinity. Your participation in the early identification of historic-era resources will ensure their consideration during the project planning phase.

Your response may be sent to me at the address provided above or email me at Wendy.Pierce@water.ca.gov. Please email me or contact me at (916) 376-9792 if you have any questions regarding this request. If we do not receive a response to this inquiry within 30 days, it will be assumed that you are not aware of any historic-era resources within the project area. All comments and letters received from historical organizations will be included in the reports generated by this study.

Sincerely,

A handwritten signature in blue ink, appearing to read "Wendy Pierce".

Wendy Pierce
Associate Environmental Planner-Archeology

Enclosures (1)

