

EXHIBIT D: MITIGATION MONITORING AND REPORTING PROGRAM**DUTCH SLOUGH TIDAL MARSH RESTORATION PROJECT EIR**

The *California Environmental Quality Act* (CEQA) requires the adoption of feasible mitigation measures to reduce the severity and magnitude of potentially significant environmental impacts associated with project development. The Final EIR for the Dutch Slough project includes mitigation measures to reduce the potential environmental effects of the proposed project.

Monitoring of the implementation of adopted mitigation measures is required by Public Resources Code §21081.6. Following certification of the Final EIR and approval of this Mitigation Monitoring and Reporting Program (MMRP) by the Department, the mitigation measures included in the Final EIR will be implemented for each impact.

All project-specific mitigation measures included in the Final EIR will be monitored in conjunction with this MMRP. The following MMRP Matrix includes all of the applicable mitigation and monitoring information for the proposed project.

<i>Mitigation</i>	<i>Implementing Responsibility</i>	<i>Monitoring Responsibility</i>	<i>Mitigation Timing</i>
3.1 HYDROLOGY AND GEOMORPHOLOGY			
Mitigation 3.1.1-1.1 Erosion/Sedimentation Design and Performance Standards The final design of the restoration projects shall include design periods, performance standards, and adaptive management contingencies for site evolution and development.	DWR will assure that design contractor incorporates erosion and sedimentation design and performance standards into the final project design.	DWR Project Manager	Design contractor—during design phase. DWR—upon approval of final design.
Mitigation 3.1.1-1.2 Erosion Monitoring and Adaptive Management Continual monitoring of erosion in the terminal sloughs shall be conducted by the Project for at	DWR or its contractor will conduct monitoring of erosion in the	DWR Project Manager	Ten years post-breaching.

Mitigation	Implementing Responsibility	Monitoring Responsibility	Mitigation Timing
least 10 years post-construction. This will not only provide useful scientific data, but also will allow for adaptive management of the Restoration Project site. If erosion is so great that it causes water quality impairments (see Section 3.2), improvements such as channel armoring shall be implemented to manage and reduce erosion.	terminal sloughs.		
Mitigation 3.1.1-2.2: Design Marsh Creek to Convey 100-Year Design Flow Any channels built to route Marsh Creek shall be designed and constructed to have adequate capacity convey the creek's 100-year design flow rate, as determined by the CCFCD.	DWR or its contractor(s) will coordinate with CCRCD and DWR will assure that design contractor will design and construction contractor will construct any new creek channel to convey 100-year flows.	DWR Project Manager	Design and construction phases.
Mitigation 3.1.1-5: Breach Project Upon Completion of Canal Encasement Project To avoid potential negative impacts to water quality within the Contra Costa Canal from groundwater intrusion, breaching of the Dutch Slough project site will not commence until encasement of the Canal south of the site is complete.	DWR will ensure that no breaches are constructed until after the CCWD canal, where it is adjacent to the Project, has been encased.	DWR Project Manager	Pre-breach.
Mitigation 3.1.1-6.1: Groundwater Intrusion Protection: West and North of Dutch Slough Restoration Project Site WEST OF DUTCH SLOUGH SITE ISD is implementing treatment alternatives that will eliminate use of the parcels adjacent to the Dutch Slough Restoration Project for treated wastewater irrigation. If the Dutch Slough Restoration Project proceeds before the Ironhouse Sanitary District (ISD) discontinues irrigation			

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of its fields near its treatment plant (immediately west of the Ironhouse Project site) and if irrigation is expected to continue after Dutch Slough implementation, then the following mitigation measure shall be implemented: CONTINUED GROUNDWATER MONITORING The ISD currently monitors the groundwater levels in its irrigation fields manually once a month using a grid of 19 wells. The water level in the Contra Costa Canal adjacent to the Oakley treatment plant is also recorded at the time of the monthly monitoring by surveying the water surface elevation from a nearby benchmark. This monitoring program shall continue after the implementation of the Dutch Slough Restoration Project. In addition to the existing monitoring plan, the water level in Marsh Creek shall be surveyed during each monitoring event. Water level monitoring at Marsh Creek shall begin at least a year before restoration activities begin. The Dutch Slough Restoration Project shall coordinate with the ISD to review pre- and postrestoration groundwater monitoring data to determine whether restoration activities at Dutch Slough are leading to increased groundwater levels and reduced groundwater storage capacity on the Ironhouse irrigation fields. If there is an increase in groundwater levels at the Ironhouse irrigation fields that can be attributed to the Dutch Slough Restoration Project following the restoration activities and the increased groundwater levels cause a significant loss of groundwater storage capacity resulting in the loss of the use of the site for treated wastewater irrigation by ISD, the following additional mitigation measure shall be implemented. DEVELOP COMPENSATORY PROGRAM WITH THE ISD The DWR shall coordinate with the ISD to determine the costs incurred to pump additional water to the District's Jersey Island lands as a result of restoration activities. One way in which this could be accomplished is by determining the volume of groundwater storage capacity that is lost following restoration and paying for the disposal of this volume of water. The exact formula for determining this volume, and the appropriate disposal costs shall be determined jointly by	DWR will coordinate with ISD to assess the results of the monitoring and decide if mitigation is necessary DWR will coordinate with ISD.	DWR Project Manager	Pre- and post-breaching. Post-breaching Post-breaching

Mitigation	Implementing Responsibility	Monitoring Responsibility	Mitigation Timing
DWR and the ISD. NORTH OF DUTCH SLOUGH SITE GROUNDWATER MONITORING AND COMPENSATORY PROGRAM WITH ISD DWR shall develop a groundwater-monitoring program in conjunction with RD 830 that will monitor both pre and post-restoration groundwater elevations on Jersey Island. If this monitoring reveals that implementation of the Dutch Slough project is causing a significant impact to pumping and/or farming operations on Jersey Island, then DWR shall implement a compensatory program with ISD similar to that described above to mitigate for increased pumping of groundwater off of Jersey Island.	DWR or its contractor will coordinate with ISD.	DWR Project Manager	Pre- and post-breaching
Mitigation 3.1.1-6.2: Groundwater Intrusion Protection – East of Site The Dutch Slough project shall participate in a joint study with the adjacent landowners to the east to quantify the relative contributions of all possible sources of groundwater intrusion into the parcels east of the restoration site, thereby quantifying the relative role of the Dutch Slough restoration project in contributing to groundwater pumping needs. This study shall include field monitoring to measure actual flux into the eastern parcel. If this study determines a significant contribution from the project that would adversely affect hydrologic conditions east of the site that cannot be addressed with existing or planned groundwater management systems, then the technical and economic feasibility of constructing an effective means of reducing flux into the parcels shall be evaluated. Measures may include a groundwater cutoff wall, toe drain, or financial contribution to the operations and maintenance of groundwater collection systems currently in place or anticipated to be in place with new residential development, at levels commensurate with the documented percent contribution of the Dutch Slough project to increased groundwater levels and volumes to the south requiring abatement.	DWR or its contractor will coordinate with landowners of properties east of the Project.	DWR Project Manager	Pre- and post-breaching
Mitigation 3.1.1-6.3: Delay Dutch Slough Restoration Project Until Cessation of Irrigation on Ironhouse Parcels and Construction of Jersey Island Road Levee			

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As an alternative to Mitigations 3.1.1-6.1 and 3.1.1-6.2 above, to prevent the loss of irrigation capacity at the Ironhouse parcels and the potential for groundwater intrusion onto the Hotchkiss Tract, to the east of the Dutch Slough Restoration Project site, implementation of the Dutch Slough Restoration Project shall be delayed until the ISD no longer uses lands west of the Dutch Slough site for wastewater irrigation and the Jersey Island Road levee/groundwater collection system is constructed.	DWR will coordinate with ISD.	DWR Project Manager	Post-breaching
Mitigation 3.1.1-7: Breach Project Upon Completion Of Canal Encasement Project To avoid potential negative impacts to water quality within the Contra Costa Canal from overtopping, breaching of the Dutch Slough project site will not commence until encasement of the Canal south of the site is complete. As part of the encasement project, the height of the berm along the Canal's north side will be reduced in some locations to elevations below the 100-year flood elevation. As part of the final design process, DWR will coordinate with CCWD to design a berm or a levee along the southern boundary of the Dutch Slough project site that will protect the Canal right-of-way from 100-year tidal flooding once the Dutch Slough site is breached.	DWR will coordinate with CCWD, and ensure that breaching does not occur until adjacent Canal is encased.	DWR Project Manager	Pre-breaching
Mitigation 3.1.1-9: Channel Design The invert elevation of any channels meant to persist as open-water habitat shall be designed to be at least 20 cm below MLLW. This depth would prevent emergent vegetation from filling in the channels. It should be noted that depths significantly greater may present adverse conditions for target fish species; see Chapter 3.5, <i>Aquatic Biology</i>, for information on appropriate maximum depths.	DWR will ensure design contractor designs channels to proper invert elevation.	DWR Project Manager	Upon approval of final design
3.2 WATER QUALITY			
Mitigation 3.2.1-1.1: Storm Water Pollution Prevention Plan A Stormwater Pollution Prevention Plan (SWPPP) shall be prepared prior to any construction on any portion of the Project, and implemented during construction. Individual SWPPPs may be	DWR will ensure that SWPPP is incorporated into	DWR Project	Upon approval of final design

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prepared for various construction components or phases (e.g., demolition of existing site structures, grading of one parcel, etc.). The SWPPP(s) shall be prepared according to requirements of the State's Construction Activities Storm Water Permit (Construction Permit; State Board Order No. 99-08-DWQ, NPDES Permit CAS000002), following guidance contained in Section A of that permit, and it shall include all appropriate best management practices (BMPs) for minimizing stormwater runoff and the potential pollution it may cause. Coverage shall be obtained under the Construction Permit by filing a Notice of Intent and fee prior to construction of any project component.	final design of the Project.	Manager	
Mitigation 3.2.1-1.2: Dewatering Restriction Ponded storm or groundwater in construction areas shall not be dewatered directly into adjacent surface waters or to areas where they may flow to surface waters unless authorized by a permit from the CVRWQCB. In the absence of a discharge permit, ponded water (or other water removed for construction purposes), shall be pumped into baker tanks or other receptacles, characterized by water quality analysis, and remediated and/or disposed of appropriately based on results of analysis. If determined to be of suitable quality, some of this water may be used on-site for dust control purposes.	DWR will ensure these instructions are given to the construction contractor, and a DWR construction monitor (or designated contractor) will ensure it is carried out.	DWR Project Manager	Upon approval of final design, and during construction
Mitigation 3.2.1-1.3: Contractor Training For Protection Of Water Quality All contractors that will be performing demolition, construction, grading, road building, or other work that could cause increased water pollution conditions at the site (e.g., dispersal of contaminated soils, oiling of access roads) will receive training regarding the environmental sensitivity of the site and need to minimize impacts. Contractors will also be trained in implementation of stormwater BMPs for protection of water quality.	DWR (or its contractor) will conduct worker environmental training, and that construction monitors ensure that BMPs are implemented	DWR Project Manager	During construction
Mitigation 3.2.1-1.4: Minimize Potential Pollution Caused By Inundation Of Site Sites shall not be inundated (connected to tidal water sources) until surface soil conditions have been stabilized, all construction debris removed, and all surface soils containing chemicals in excess of the Sediment Screening Criteria for "surface material" have been remediated or	DWR will ensure these instructions are given to the construction contractor, and a DWR construction monitor (or	DWR Project Manager	

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removed from the site.	designated contractor) will ensure it is carried out.		
Mitigation 3.2.1-2.1: Refine Model for Export and Transport of TOC and DOC Prior to Initiating Tidal Flow More precise estimates of marsh and open water areas and tidal flow volumes and transport to the Rock Slough intakes would be developed as the project design proceeds. These improved values shall be used to better estimate the potential TOC and DOC export from the site (using the Jassby and Cloern and Reddy models or others). During this time the monitoring program will also get underway, and TOC and DOC concentrations in the sloughs adjacent to the site, at the entrance to Rock Slough, and at the CCWD intakes will be measured. The refined export estimates shall be compared to the measured TOC and DOC values at the monitored points and these loads can be converted to concentrations by considering diurnal tide, with flushing from tidal marsh channels to Dutch Slough. If the predicted concentrations are at or below levels observed at the CCC intake, it can be stated that no significant impact from DOC is expected. If concentrations are at or above levels observed at the CCC intake, then hydrodynamic modeling would be employed to evaluate transport from the site to the CCC intake to determine dilution between project and intake.	DWR or its contractor will ensure that transport modeling is conducted	DWR Project Manager	Pre-and post-construction
Mitigation 3.2.1-2.2: Phase Restoration of Parcels If the estimates from mitigation 3.2.1-2.1, above, show a potential significant impact, restoration of tidal flows to parcels shall be phased over several years to reduce the amount of DOC exported from the project to a level that will not adversely impact water quality at the Rock Slough intake.	DWR will ensure project timing is based (in part) upon organic carbon transport modeling results	DWR Project Manager	Design phase, pre-construction
Mitigation 3.2.1-3: Dredge Little Dutch Slough As described in Section 3.1, any channel erosion is expected to occur over time and should not	DWR or its contractor will dredge Little Dutch Slough	DWR Project	Post-breaching, and after two or more

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greatly increase turbidity. Dredging to enlarge southern Little Dutch Slough could reduce sediment input from scour that would occur otherwise. Mitigation measures for Impact 3.1-1.1 also would apply to this impact.	based on results of channel erosion monitoring.	Manager	years of channel erosion monitoring
Mitigation 3.2.1-4: Potential Prohibition of Diversion of Marsh Creek onto Ironhouse Parcel Should the monitoring program study find that mercury levels are outside the acceptable range, diverting Marsh Creek onto the Ironhouse Parcel may be prohibited.	DWR will make decision about diverting Marsh Creek based upon mercury monitoring results	DWR Project Manager	Decision made one to two years after commencement of mercury monitoring program
Mitigation 3.2.1-7: Marsh Creek Water Quality Testing and Evaluate Feasibility of Marsh Creek Relocation Based On Water Quality Considerations If and when the RWQCB establishes criteria for EDCs of concern, the Marsh Creek water-quality testing program described in Mitigation 3.2.1-4 shall be expanded to include these compounds. Marsh Creek shall not be relocated if EDC levels exceed acceptable criteria.	DWR will make decision to incorporate EDCs into water quality monitoring program based upon RWQCB decision, and whether to divert Marsh Creek, based upon results of monitoring	DWR Project Manager	After RWQCB establishes criteria for EDCs
3.3 GEOLOGY AND SOILS			
Mitigation 3.3.1-2: Conduct Site Specific Geotechnical Investigations To Identify And Implement Appropriate Remediation Actions (e.g., Subgrade Densification). Site-specific geotechnical investigations shall be conducted to determine most appropriate remediation actions for new levees and structures and upgrades or repairs to existing levees and structures. Potential mitigation measures include dynamic deep compaction to densify subgrade soils to reduce impact to less than significant.	DWR or its contractor	DWR Project Manager	Pre-construction
Mitigation 3.3.1-3: Conduct Site-Specific Geotechnical Investigations To Identify And Implement Appropriate Remediation Actions (e.g., Subgrade Densification).	DWR or its contractor		

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Site-specific geotechnical investigations shall be conducted at Dutch Slough to characterization site conditions. Pre-design and design-level geotechnical field investigations (soil borings, Cone Penetration Tests), laboratory analyses, groundwater analyses would better enable assessing site conditions and constructability of proposed levees and structures on the Dutch Slough Restoration Project site and the City Community Park. These investigations would provide a basis for appropriate Site design for any new and/or improvements to exiting levees and structures on the Dutch Slough Restoration Project site and the City Community Park. Potential methods include treatment such as deep dynamic compaction to densify subgrade soils. These investigations shall supplement recent work presented in Kleinfelder (2006).		DWR Project Manager	Pre-construction
Mitigation 3.3.1-5: Implementing Erosion Control BMPs During Construction Temporary erosion control measures (e.g., silt fences, straw bales, detention basins, check dams, sandbag dikes, geo-fabric, and ground cover) shall be implemented during construction per required BMPs and SWPPP.	DWR will ensure that construction monitor will require that all BMPS and SWPPP actions are done	DWR Project Manager	During construction
Mitigation 3.3.1-6: Implement Design, Remediation, And Construction Measures Pre-design and design-level geotechnical field investigations (soil borings, Cone Penetration Tests) and laboratory analyses shall be conducted to determine soil characteristic and strength to enable an assessment of site conditions and constructability. Field investigations and laboratory results shall be included in geotechnical reports and form the basis for appropriate site design. Potential methods to address liquefaction include deep dynamic compaction to densify subgrade soils. A geotechnical engineer shall monitor and provide oversight of field construction activities including excavation, fill placement, and materials removed from and deposited at the site. As recommended in the Hultgren-Tillis (2005) Levee and Seepage report, the new proposed levee along the eastern boundary of the Burroughs parcel shall be constructed of lean clay. Where necessary, areas of peat would need to be excavated from beneath the proposed levee to	DWR or its contractor will conduct oversight of construction activities DWR or its construction monitor will l investigate soils and ensure lean clay is used to construct levee	DWR Project Manager	During design phase During construction

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expose underlying sand or stiff clay soils. Levee design shall include a wide berm to maintain stability and aid in controlling levee settlement induced by lateral creep. To minimize potential for differential settlement and risk of internal piping (seepage) a core should be installed into levees segments as needed. If Marsh Creek is relocated, site-specific soils investigations shall be conducted at the selected diversion point, and any improvements identified implemented as necessary.		DWR Project Manager	Prior to relocation of Marsh Creek
Mitigation 3.3.1-7: Remove and/or Remediate Unstable or Expansive Soils Design level geotechnical investigations shall be conducted to assess presence of expansive soils and identify most appropriate remediation measures for the restoration site and the proposed community park. In the event that unstable or expansive geologic units or soils are encountered during the geotechnical investigations and are deemed unsuitable for construction, remedial measures shall be implemented, including removing soils and backfill with engineered fill or imported offsite material, re-grading with non-expansive soils, soil lime treatment, or otherwise treating soils to decrease shrink/swell potential and otherwise satisfy the required specifications for compaction and shear strength. All structures shall adhere to building codes; this would reduce risk to life or property and reduce impacts to less than significant levels.	DWR or its contractor	DWR Project Manager	Pre-construction
Mitigation 3.3.1-8.1: Levee Design and Maintenance Levees shall include vegetation cover and biotechnical and/or physical buffering and feature gently graded slopes. Levees planted with marsh and riparian vegetation in and feature flatter slopes provide a wave-damping wetland bench will dissipate wave energy and minimize erosion as well as support habitat objectives. Periodic levee inspections and maintenance shall be specified as part of the project design. Anticipated levee maintenance activities include levee inspections and patrolling, grading, engineering, vegetation and rodent control, debris removal, drainage cleaning, seepage control, underwater surveys, and slope protection.	DWR or its contractor will inspect and maintain levees. DWR will ensure levee design, construction, and maintenance follow these guidelines	DWR Project Manager	During design and construction phases, and post-construction
Mitigation 3.3.1-8.2: Repair Unintended Levee Breaches	DWR will repair unintended	DWR Project Manager	

Mitigation	Implementing Responsibility	Monitoring Responsibility	Mitigation Timing
To prevent channel erosion and potential damage to the levee systems, unintended levee breaches at Dutch Slough that are not consistent with the restoration option shall be repaired by the project sponsors.	breaches that are not consistent with Project objectives		Post-breaching
Mitigation 3.3.1-8.3: Maintain Levee Along Dutch Slough Levees along Dutch Slough shall be maintained to prevent increase in wind-wave fetch that could lead to greater erosion and scour of Jersey Island levees.	DWR will maintain levee along Dutch Slough	DWR Project Manager	Post-breaching
Mitigation 3.3.1-8.4: Jersey Island Road Levee Shall Account for Increased Wave Run Up Due to greater fetch and potential wave run-up due to greater surface water area post-breach, the design height of the new Jersey Island Road levee shall be adequate to prevent account for increased water heights due to wave run-up.	DWR will ensure that the height of the new Jersey Island Road is adequate	DWR Project Manager	During final design approval
Mitigation 3.3.1-9: Appropriate Levee Design, Construction, Monitoring and Maintenance The project design shall comply with HTA and Kleinfelder design criteria and geotechnical investigations and shall incorporate consultation with the USACE, Reclamation District 799 and Reclamation District 830, and appropriate design and construction. The seepage potential of the selected Open Water Management option shall be evaluated as part of geotechnical investigations and consultations.	DWR or its contractor will coordinate levee design and geotech investigations with USACE and neighboring RDs	DWR Project Manager	During final design approval
3.4 TERRESTRIAL AND WETLAND BIOLOGICAL RESOURCES			
Mitigation 3.4.1-1.1: Avoid And Minimize Effects Of Loss Of Irrigated Pasture And Ruderal Habitats Through Project Timing And Phasing Although mitigation for loss of irrigated pasture and ruderal habitats is not required, per se, this loss does impact Swainson's hawk and other special status species. Off site mitigation is			

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proposed for those species in Mitigation 3.4.1-8.1. Effects on resident wildlife shall be minimized through project timing and phasing. • Earthmoving shall be minimized during the breeding season (March through August). If earthmoving must be done during this time, those areas shall be de-vegetated prior to the breeding season to discourage nesting and denning. • The project shall be phased so that impacts to terrestrial habitats do not occur throughout the project area all in the same year.	DWR will ensure that project design includes measures to protect breeding wildlife and to phase construction to prevent simultaneous impacts to all habitat areas	DWR Project Manager	During final design approval and during construction
Mitigation 3.4.1-1.2: Habitat Enhancement To Offset Habitat Loss And Disturbance On Terrestrial Habitats Associated With Recreation Alternative 1 includes terrestrial habitat that would be retained and restored as terrestrial grassland. In addition, the project would restore riparian woodland habitats and low upland islands within restored freshwater tidal marshes. These internal terrestrial habitat restoration features would offset some, but not most, of the wildlife impact of terrestrial-marsh habitat conversion. Because groundwater elevations of terrestrial habitats are expected to adjust to sea level after tidal restoration, the character of terrestrial grassland in much of the area may be alluvial grassland with dense perennial vegetation. This may further reduce the availability of relatively arid, sparse grassland and ruderal wildlife habitat. As part of the final Dutch Slough Restoration Project restoration plans, a terrestrial wildlife habitat enhancement and phasing plan shall be prepared and implemented by DWR according to the following criteria for on-site actions to offset the impacts to wildlife dependent on irrigated pastures (including seasonal wetlands) and ruderal terrestrial habitat: DWR shall modify the terrestrial habitat restoration component of the phased proposed Dutch Slough project by incorporating the following habitat enhancement elements to emulate and	DWR will ensure design incorporates these features	DWR Project Manager	During final design approval

<i>Mitigation</i>	<i>Implementing Responsibility</i>	<i>Monitoring Responsibility</i>	<i>Mitigation Timing</i>
sustain equivalent habitat functions of moist pasture and ruderal vegetation: (i) distribute enhanced natural or naturalistic cover features (brush piles, coarse and fine woody debris) in scattered patches throughout most terrestrial habitat; (ii) retain the maximum number of native on-site native riparian (levee) and upland trees, and retain some snags of killed trees scheduled for eradication; (iii) salvage and relocate large snags and logs removed from wetland restoration parcels to install within restored or enhanced terrestrial habitats; and (iv) restore or manage terrestrial grasslands to include diverse grassland types, including perennial sod-forming stands (such as creeping wildrye/saltgrass grassland near wetland edges), regionally native forb-dominated stands (such as annual tarweed, spikeweed, lupine, goosefoot family annual forbs, etc.) and regionally native scrub and forb vegetation adapted to sandy soils.			
Mitigation 3.4.1-2.1a: Increase Acreage Of Tidal Freshwater Marsh In the long-term, the project is expected to “self-mitigate” many short-term significant impacts to existing tidal freshwater marsh wildlife on site, and avoid long-term significant impacts. This would occur through increases in acreage of tidal freshwater marsh, with a significant net increase in the extent of freshwater marsh habitat overall to support an increased diversity of wetland wildlife species. The extent to which this occurs would depend on many final design options of the restoration, and their consequences for wildlife.	DWR will ensure project design incorporates adequate acreage of affected habitats	DWR Project Manager	During final design approval
Mitigation 3.4.1-2.1b: Avoid Channel Widening And Dredge Non-Native SAV Beds. If existing tidal source sloughs are dredged to increase tidal flows into restored marsh, dredging plans shall avoid widening channels (direct excavation of marsh), or over-steepening banks so that significantly increased rates of marsh bank slumping occur. If dredging of existing invasive non-native SAV beds is feasible and consistent with dredging needs, non-	DWR will ensure that dredging plans follow these guidelines	DWR Project Manager	During final design approval and during

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native SAV beds shall be dredged and deepened. In addition, implementation of Mitigation measures 3.4.1-1a would minimize impacts to wildlife in tidal freshwater marsh habitats. Effects on resident wildlife shall be minimized through project timing: all efforts shall be made to minimize dredging during the breeding season (March through August).			construction
Mitigation 3.4.1-2.2: Habitat Enhancement To Offset Habitat Loss And Disturbance Around The Marsh Edge Associated With Recreation The final Dutch Slough and related Ironhouse Project restoration plans shall include the following specifications for implementation: • Final designs for constructed tidal marsh shall include selective placement of large woody debris in constructed tidal sloughs and marsh ponds to provide wildlife cover, basking sites, and roosting sites for wildlife dependent on freshwater marsh bordering shallow open water habitats. Final designs for large woody debris placement shall be reviewed and approved by the DFG and USFWS. • To protect the integrity of tidal marsh-riparian woodland edge habitat functions, placement of rock slope protection shall be minimized on outer levee slopes. If rock placement is unavoidable to prevent erosion that jeopardizes levee stability, rock-armored levee segments shall be capped with soil and revegetated with native marsh and riparian woodland vegetation. Soil-filled gaps in rock arrangement shall be included in rock-armored levee segments to provide rooting continuity with underlying levee or marsh soils and to maximize feasibility of native riparian tree and shrub planting. • Revegetated native riparian shrub cover (primarily California blackberry and willow thicket) along existing or restored tidal marsh edges shall be made as continuous as possible along public levee trails to screen tidal marsh wildlife from visual exposure to passing human visitors. • Timing of dredging shall avoid nesting season (March-August) to reduce impacts on	DWR will ensure design incorporates these features, and that they are included in construction	DWR Project Manager	During final design approval and during construction

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breeding birds. The following measures shall be incorporated as part of the public access components of both the Dutch Slough Restoration Project and the City Park: - To minimize artificial attraction of predators along public access trails bordering tidal marsh wildlife habitats, food and garbage shall be prohibited on marsh levee trails. Sanitation shall be rigorously maintained in the county park to minimize attraction of scavenger/predator wildlife species. - If rookeries or other tidal marsh bird nest sites are detected along levee trails, seasonal trail closures shall be evaluated and implemented upon consultation with USFWS and DFG.			
Mitigation 3.4.1-2.3: Minimize Disturbance (Direct And Indirect) Associated With Maintenance Of Exterior Levee In planning the project, rock placement on portions of levee with high habitat value shall be minimized. When rock placement in such areas is necessary, work will occur in the smallest possible area and construction shall be timed to avoid nesting periods of sensitive species.	DWR will ensure design incorporates these features, and that they are included in construction	DWR Project Manager	During final design approval and during construction
Mitigation 3.4.1-3: Design Restoration Plans To Minimize Impacts To Nontidal Freshwater Marsh And Riparian Woodland/Scrub And Associated Wildlife Species The final restoration plans for the Dutch Slough Restoration and related Ironhouse projects shall include the following specifications for implementation: On-site borrow sources of fill shall be located outside of existing freshwater non-tidal marshes on site, so that existing freshwater marsh habitats and their wetland-dependent wildlife persist as long as feasible and may disperse into restored or constructed marsh habitats during project phasing. Management for “pre-vegetation”	DWR will ensure design incorporates these features, and that they are included in construction	DWR Project Manager	During final design approval and during construction

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in areas of existing nontidal freshwater marsh shall be implemented by flooding the areas gradually rather than abruptly. • Sand or other imported fill materials that may excessively restrict primary production of freshwater marsh vegetation shall be avoided as a foundation for the upper 30 cm of constructed tidal marsh substrate. If sand is used as a foundation for marsh within 30 cm of the surface, it shall be mitigated by either (a) mixing with sufficient proportions of slurried clay and fine silt or organic muck, and deposited hydraulically so that clay-silt concentrates in surface layers; or (b) capping the surface and channel banks with clay or clay-peat substrates with earthmoving equipment or a subsequent deposit of slurried clay-silt. • Design elevations for low intertidal marsh and middle intertidal marsh zones shall anticipate sea level rise within at least a 20-year period. Design elevations shall be established on sloping surfaces rather than flat plains at uniform elevations, so that marsh transgression results in a gradual and well-buffered distribution of marsh zones for wildlife habitats as sea level rises. Wide, gradual gradients between middle and high intertidal freshwater marsh zones are particularly important for many resident marsh wildlife species requiring access to emergent nesting habitat or flood escape habitat. • Impacts associated with short-term loss of resident wetland-dependent wildlife and their habitats shall be reduced by replacing and enhancing habitat with high levels of structural habitat diversity (large woody debris, high channel bank construction) within constructed tidal marsh channels and ponds. Naturalistic large woody debris (snags, basking logs, debris jams, flood escape habitat, roosts for wildlife) shall be embedded within constructed marsh channel banks at selected locations in the restored marsh and tidal channel complex, as in mitigation measure 3.4.1-2. Large woody debris sources that exist on-site as mature windbreak tree plantings (subject to mortality due to tidal flooding in marsh restoration) shall be salvaged and redistributed selectively within marsh, pond, and channel habitats, as large woody debris. The final plans for salvage and placement of large woody debris shall be coordinated with the DFG and the USFWS.			

<i>Mitigation</i>	<i>Implementing Responsibility</i>	<i>Monitoring Responsibility</i>	<i>Mitigation Timing</i>
- During project construction, existing nontidal freshwater marsh/riparian edge vegetation and their hydrology shall be protected to the greatest extent feasible to retain viability of established wetland-dependent wildlife populations. If protection of existing freshwater marsh/riparian edges is not feasible, restoration designs for subsidence reversal shall be modified to enhance edge habitat of riparian scrub/woodland, shallow open water, and freshwater marsh, and diversify marsh habitat structure. - High quality marsh edge (ecotone) edge habitat shall be maintained along the new flood control levee at the east shore of Burroughs parcel by including long (total length at least 1:1 minimum (linear) replacement ratio for existing freshwater marsh/riparian or marsh/upland perimeter) segments of “habitat levee” design features (wide, gently sloping marsh bench and riparian woodland plantings) in flood control levee design. In addition, implementation of Mitigation measures 3.4.1-1a and 3.4.1-2a, above would minimize impacts to wildlife in freshwater marsh habitats.			
Mitigation 3.4.1-4: Recreate Habitat Features To Reduce Potential Impacts To Wildlife Of Alkali Meadow And Seasonal Wetland Flats Seasonal wetland flats shall be recreated in upland areas of undisturbed suitable soils by creating shallow depressions, which shall be compacted when wet to minimize permeability.	DWR or construction contractor.	DWR Project Manager	Prior to completion of site grading.

<i>Mitigation</i>	<i>Implementing Responsibility</i>	<i>Monitoring Responsibility</i>	<i>Mitigation Timing</i>
Mitigation 3.4.1-5.1: Minimize, Avoid, And Compensate For Impacts Common To All Sensitive Plants Mitigation for special status plant species is addressed collectively for all species, with modifications noted for individual species. Significant impacts to special-status plant species present or likely to be present onsite shall be minimized, avoided, and contingently compensated by complying with the following: • Pre-construction surveys: Potential habitat for special-status plant species shall be surveyed in appropriate seasons for optimal species-specific detection prior to project excavation/dredging, fill, drainage, or flooding activities associated with project construction. Survey methods shall comply with CNPS/CDFG rare plant survey protocols, and shall be performed by qualified field botanists. Surveys shall be modified to include detection of juvenile (pre-flowering) colonies of perennial species when necessary. Any populations of special status plant species that are detected shall be mapped. • If special-status plant populations are detected where construction would have unavoidable impacts, a compensatory mitigation plan shall be prepared and implemented in coordination with USFWS or DFG. Such plans may include salvage, propagation, on-site reintroduction in restored habitats, and monitoring. • If USFWS or DFG require propagation or transplantation, scientifically sound genetic management guidelines and protocols for rare plants shall be applied to propagation and transplant plans, possibly including the following: • maintain some reserve clonal stock of perennial special-status plant populations during the monitoring period to offset the risk of failure in establishing populations in the wild, • set aside surplus reserve seed of annual special-status plants from impacted populations • conduct long-term monitoring to determine the fate of managed special-status plant populations.	DWR or its biological contractors. DWR will consult with DFG and/or USFWS.	DWR Project Manager	Initial surveys have been completed. Additional surveys will be conducted prior to construction Pre-construction
• No special-status plant species shall be introduced to the site beyond their known historic geographic range unless such introduction is recommended in a final recovery plan or conservation plan prepared and adopted by the USFWS or the CDFG, in formal			18

<i>Mitigation</i>	<i>Implementing Responsibility</i>	<i>Monitoring Responsibility</i>	<i>Mitigation Timing</i>
Mitigation 3.4.1-5.2: Minimize, Avoid, And Compensate For Impacts To Sensitive Species Of Tidal Marsh Plants Impacts to tidal marsh plants (Suisun aster, Mason's lilaeopsis, delta mudwort) in existing tidal habitat shall be avoided to the greatest extent feasible. If avoidance is infeasible, a compensatory mitigation plan for salvage, propagation, on-site reintroduction in restored habitats, and monitoring shall be prepared and implemented in coordination with USFWS and DFG, and subject to their approval, as for special-status plants in diked, nontidal habitats. Also implement Mitigation measure 3.4.1-5.1, minimize, avoid, and compensate for impacts common to all sensitive plants.	DWR will monitor construction in areas where tidal marsh plants exist, and will consult with DFG and USFWS if they are impacted	DWR Project Manager	During construction
Mitigation 3.4.1-6: Minimization and Compensation for Potential Impacts to Special-status Bat Species Pre-construction (or pre-building-demolition) surveys for roosting bats shall be conducted by a qualified biologist within 30 days prior to any removal of trees or buildings. If active roosts are not found, no further action would be warranted. If bats are detected, project plans shall specify that some derelict buildings shall be retained as long as possible, and replaced with functionally equivalent or superior artificial bat roost or nursery structures that are more compatible with adjacent park and human visitors. Monitor surrogate artificial habitats to determine their effectiveness as alternative bat habitats for all species impacted. If an active maternity roost is located, in a building or tree that cannot be preserved, demolition or removal can only take place before maternity colonies form (prior to March 1) or after young have left the colony (after July 31). If a hibernaculum is found, demolition or removal can only take place after hibernation has terminated (typically between April and September). Disturbance-free buffer zones as determined by a qualified biologist in consultation with DFG will be observed during the maternity season (March 1 to July 31) or hibernation season (October 1 to April 30). Bats may be evicted from other roost sites, under the direction of a qualified biologist, by opening the roost to introduce airflow, or by installing one-way structures	DWR will ensure that any occupied trees or structures are removed only when bats are absent or least likely to be affected	DWR Project Manager	Pre-construction Pre-construction or demolition

Mitigation	Implementing Responsibility	Monitoring Responsibility	Mitigation Timing
to allow the bats to leave the roost but not to re-enter it. Removal or demolition of trees or structures will occur only after it is established by a qualified biologist that bats are no longer present.			
Mitigation 3.4.1-7: Minimization, Avoidance, and Tree Replacement for Potential Impacts to Cooper's Hawk Nesting trees are the most important habitat component for Cooper's hawks in the project area. Focused annual surveys shall be conducted, beginning in 2008, to estimate the level of use and local population size of Cooper's hawks (and other nesting birds) prior to commencement of any construction activity that would affect nesting Cooper's hawks. Focused surveys shall be used to prioritize the sequence of habitat retention and disturbance during project construction phasing. If nesting Cooper's hawks are observed on site during the pre-construction surveys, DFG will be consulted regarding appropriate avoidance and mitigation measures to meet the specific needs of the nesting birds. Measures may include establishing a buffer zone around occupied trees, adapting restoration plans or timing to preserve nesting trees, or delay of construction disturbance until after young have fledged. Short-term impacts cannot be mitigated because existing tree habitats lie mostly below sea level. Long-term impacts shall be mitigated by riparian woodland restoration and enhancement design of the restoration project. Native coast live oak woodland groves, and individual oaks shall be included in terrestrial habitat restoration to enhance efficacy of mitigation for raptor habitat. Mature existing trees shall be retained in the community park, including decadent trees and non-invasive non-native ornamental/shade/windbreak trees. No trees will be removed during the nesting season. In addition, implementation of Mitigation measures 3.4.1-1 and 3.4.1-11 would minimize impacts to Cooper's hawks.	DWR will ensure the project is designed and constructed with minimal impacts to Cooper's hawks nesting trees. If necessary, DWR will consult with DFG.	DWR Project Manager	Pre-construction Pre-construction
Mitigation 3.4.1-8.1: Mitigation For Loss Of Swainson's Hawk Foraging And Nesting Habitat DWR shall acquire and protect off-site mitigation lands through one (or more) of the following	DWR shall consult with DFG to		Pre-

<i>Mitigation</i>	<i>Implementing Responsibility</i>	<i>Monitoring Responsibility</i>	<i>Mitigation Timing</i>
methods: • acquire and permanently protect lands • purchase conservation easements to permanently protect lands • participation in an in-lieu fee program • purchase of the required acreage in an approved mitigation bank • participation in an approved Habitat Conservation Plan. Such mitigation lands should be near the project site and contain stands of mature trees with irrigated pasture, ruderal seasonal wetland, or alfalfa hay crop cover. For maximum benefit to Swainson's hawks, the first priority would be for alfalfa or irrigated and mowed pasture. The acreage of protected habitat shall be established in consultation with DFG and based on the following: • number of Swainson's hawks using the project site for nesting and foraging as determined by annual bird surveys to be begun in 2008, • ecological assessment of the acreage of habitats used by Swainson's hawk and the quality of those habitats for Swainson's hawk, and • use of Swainson's hawk as an "umbrella" species for other sensitive species occupying terrestrial pasture/ruderal wildlife habitat at Dutch Slough. To the extent feasible, the conservation easement or other acquisition of habitat shall be implemented before commencement of grading in irrigated pasture on the project site. If habitat is acquired and preserved, a Mitigation and Monitoring Plan describing the mitigation and monitoring requirements and performance standards shall be prepared and submitted to DFG	determine amount and location of off-site mitigation land, and DWR will purchase and protect said lands.	DWR Project Manager	construction

<i>Mitigation</i>	<i>Implementing Responsibility</i>	<i>Monitoring Responsibility</i>	<i>Mitigation Timing</i>
for approval within six months of acquisition. In addition, implementation of Mitigation measures 3.4.1-1.1, 3.4.1-1.2, and 3.4.1-11 would minimize impacts to Swainson's hawks. To the extent feasible, the levee breaches will be constructed after local Swainson's hawks have fledged their young, and possibly after birds have migrated south for the winter. This would prevent abrupt disruptions to local resident birds. If final project designs preserve sufficient upland habitat on the project site, these lands, to the extent compatible with the restoration, will be managed as Swainson's hawk foraging habitat.			
Mitigation 3.4.1-8.2: Avoid And Minimize Loss Of Swainson's Hawk Nesting Trees Annual surveys shall be conducted starting in 2008 to identify trees on the Dutch Slough site that are used by Swainson's hawks. To the extent feasible, regularly used nesting trees will be protected from long- and short-term project impacts. In addition, implement Mitigation measure 3.4.1-7.	DWR will incorporate tree protection in its design; project construction supervisors will be informed of tree protection measures.	DWR Project Manager	Current and on-going
Mitigation 3.4.1-9: Minimize and Compensate for Potential Impacts to Burrowing Owls Annual surveys will be conducted starting in 2008 to determine foraging and nesting status, and population size. . In addition, surveys will be conducted within 30 days of commencement of earth-moving activities, or other construction activities, such as placement of fill. Pre-construction surveys must be repeated if more than 30 days pass between survey dates and construction activities. Presence or sign of burrowing owl and all potentially occupied burrows will be recorded and monitored according to DFG guidelines. If burrowing owls are not detected by sign or direct observation, construction may proceed. If burrowing owls are present during surveys conducted between February 1 and August 31, grading will not be allowed within 250 feet of any burrow, unless approved by DFG. A compensatory mitigation plan shall be prepared and implemented if burrowing owls are	DWR or its biological consultants will conduct surveys.	DWR Project Manager	Current and on-going Pre-construction Pre-

Mitigation	Implementing Responsibility	Monitoring Responsibility	Mitigation Timing
confirmed to occur on site. Compensatory mitigation shall comply with guidelines accepted by DFG. Mitigation may include placement of exclusion doors on occupied burrows (passive relocation), establishment of artificial burrows on or near the project site, or monitoring of burrows. If burrowing owls are detected on the project site, foraging habitat with natural or artificial burrows will be acquired and permanently protected to compensate for the habitat loss. The protected lands shall be occupied burrowing owl habitat, or created habitat, in an area acceptable to DFG. First priority would be to preserve habitat on the project site; second priority would be to off-site locations near (within approximately a 5 mile radius of) the project site; third priority would be to off-site location further from the project site that is acceptable to DFG. Habitat will be acquired, permanently protected, and enhanced through management, for the benefit of the burrowing owl. If lands are purchased and managed, a Mitigation and Monitoring Plan describing the mitigation and monitoring requirements and performance standards will be prepared. Alternatively, the required mitigation can be met by purchase of credits in an accepted mitigation bank, in-lieu fee program, or approved Habitat Conservation Plan If acceptable to DFG, Mitigation 3.4.1-8.1 (purchase of off-site mitigation area primarily for Swainson's hawk) may also be applied to this impact to compensate for significant loss of suitable habitat because the degree to which restored grasslands on the project site (which, under the influence of higher groundwater elevations adjacent to restored tidal marsh, may naturally develop lowland grassland characteristics less suited to burrowing owl) compensate for habitat losses is doubtful.	If burrowing owls are confirmed, DWR will mitigate as determined in consultation with DFG.		construction
Mitigation 3.4.1-10: Mitigation for Potential Impacts to White-tailed Kite and Northern Harrier Implementation of Mitigation measures 3.4.1-1.1, 3.4.1-1.2, and 3.4.1-11 would minimize impacts to these raptor species. If off site mitigation lands are acquired as per Mitigation 3.4.1-8.1, these lands would also mitigate for impacts to white-tailed kites and northern harriers.	DWR shall consult with DFG to determine amount and location of off-site mitigation land, and DWR will purchase and protect said lands	DWR Project Manager	Pre-construction

<i>Mitigation</i>	<i>Implementing Responsibility</i>	<i>Monitoring Responsibility</i>	<i>Mitigation Timing</i>
Mitigation 3.4.1-11: Mitigation for Potential Impacts to Nesting Birds Earth moving activities and removal of buildings or trees shall occur from September 1 through February 28, outside the normal nesting season. If earth moving must occur during the nesting season, vegetation shall be removed from September 1 to February 28, to discourage nesting in the construction area. If removal of structures, trees or other vegetation, or construction begins between March 1 and August 31, a nesting bird survey shall be performed by a qualified biologist within 14 days prior to the disturbance. The biologist shall inspect for nests in all potential habitats (trees, shrubs, structures, grasslands, pastures, emergent wetland vegetation, etc.) in and immediately adjacent to the impact area, as well as watch for adult birds displaying reproductive behaviors such as carrying nest materials or food items. If active nests are found, appropriate non-disturbance buffer zones shall be established around the nest site. The size of the buffer zone will be determined by a qualified biologist in consultation with DFG, and will depend upon the species involved, site conditions, and type of work to be conducted in the area. Active nests shall be monitored by a qualified biologist to determine when young have fledged and are no longer using the nest site. The biologist and DFG shall determine when construction activities may resume in the buffer zone.	DWR or its consulting biologists will conduct surveys and ensure that construction timing and methods do not disturb nesting birds.	DWR Project Manager	Pre-construction and during construction
Mitigation 3.4.1-12: Mitigation for Potential Impacts to Tricolor Blackbirds If off-site mitigation lands are acquired as per Mitigation 3.4.1-8.1, they would mitigate for loss of foraging habitat for tricolored blackbirds. If final project designs maintain significant acreage of terrestrial habitat, this would reduce impacts to tricolored blackbirds. Increases in acreage of tidal marsh may provide nesting habitat for the species in the long term.	DWR shall consult with DFG to determine amount and location of off-site mitigation land, and DWR will purchase and protect said lands	DWR Project Manager	Pre-construction
Mitigation 3.4.1-13: Mitigation for Potential Impacts to California Horned Larks If off-site mitigation lands are acquired as per Mitigation 3.4.1-8.1 this impact would be mitigated. If final project designs maintain significant acreage of terrestrial habitat, this would	DWR will consult with DFG to determine amount and location of off-site mitigation	DWR Project Manager	Pre-construction

Mitigation	Implementing Responsibility	Monitoring Responsibility	Mitigation Timing
reduce impacts to horned larks. In addition, implementation of Mitigation Measures 3.4.1-1.1, 3.4.1-1.2, and 3.4.1-11 would minimize impacts to horned larks.	land, and DWR will purchase and protect said lands		
Mitigation 3.4.1-14: Mitigation for Potential Impacts to Loggerhead Shrikes If off-site mitigation lands are acquired as per Mitigation 3.4.1-8.1 this impact would be mitigated. If final project designs maintain significant acreage of terrestrial habitat, this would reduce impacts to loggerhead shrikes.	DWR shall consult with DFG to determine amount and location of off-site mitigation land, and DWR will purchase and protect said lands	DWR Project Manager	Pre-construction
Mitigation 3.4.1-15: Mitigation for Potential Impacts to Yellow-Breasted Chats and other Songbirds Mitigation 3.4.1-3 applies to this impact. Annual bird surveys will be conducted, beginning in 2008, which will assess use of the site by yellow-breasted chats and other special status marsh songbirds. If those surveys have documented nesting by any special status marsh songbirds prior to construction, applicants shall conduct additional surveys for yellow-breasted chats and avoid disturbance of high-use habitats during the nesting season. This would reduce impacts to chats and other riparian songbirds to less than significant levels. In addition, implementation of Mitigation measure 3.4.1-1.1 would minimize impacts to yellow-breasted chats.	DWR will ensure that construction timing and methods do not disturb nesting birds.	DWR Project Manager	Current and ongoing
Mitigation 3.4.1-16: Mitigation for Special-Status Wading Birds Because the restoration would increase marsh habitats, wading birds are expected to benefit from the project (mitigation 3.4.1-2.1). Mitigation 3.4.1-1.2 includes large woody debris that will provide riparian roosting habitat in the interim before restored riparian woodland develops mature or decadent roosting or nesting structures, also applies to this impact.	DWR will ensure the final project design includes large woody debris, and that riparian woodland is established.	DWR Project Manager	During final design approval, and during construction
Mitigation 3.4.1-17: Mitigation for Potential Impacts to California Black Rail			

<i>Mitigation</i>	<i>Implementing Responsibility</i>	<i>Monitoring Responsibility</i>	<i>Mitigation Timing</i>
Annual bird surveys will be conducted, beginning in 2008, which will assess use of the site by black rails. If those surveys have documented presence of black rails, DWR shall conduct pre-construction surveys for rails in potential dredging or construction sites in or adjacent to fringing tidal marshes. If California black rails are detected within 500 feet of proposed dredging or construction sites, DWR shall consult with DFG to modify construction timing and location to minimize or avoid impacts. In addition, Mitigations 3.4.1-2.1, 3.4.1-2.2, and 3.4.1-2.3 also would apply to this impact. If black rails continue to inhabit the project site, at least a year prior to construction activities that would disturb the habitat, water management will be used to create conditions that would discourage use of the area by black rails. These actions will be taken outside of the nesting period. Prior to construction, surveys will be conducted to assure that black rails are not using the site. No construction will be allowed until rails are no longer present.	DWR will conduct surveys and consult with DFG to minimize or avoid impacts DWR will manage water to discourage habitat use by black rails prior to habitat inundation or ground disturbance	DWR Project Manager	Pre-construction Pre-construction
Mitigation 3.4.1-18 Mitigation for Potential Impacts to California Tiger Salamanders DWR, through the federal lead permit agency, shall conduct early informal consultation with the USFWS to determine whether or how surveys for the California tiger salamander shall be performed in suitable pools at the Dutch Slough project site. Avoidance of impacts to local populations and habitats would be infeasible because of the subsided (below sea level) position of existing potential habitats. If California tiger salamanders are detected on site, DWR shall consult with USFWS and DFG. Three possible mitigation strategies may be applicable: (a) construction of suitable alternative seasonal wetland habitat within the overall wetland restoration project, followed by translocation of captured tiger salamander adults to receptive, suitable habitat; (b) off-site protection and enhancement of existing, established tiger salamander populations; or (c) a combination of (b) and (c). Otherwise, impacts would be significant and unmitigated in the unlikely event that populations do occur on site. Any plans to construct surrogate habitat and translocate California tiger salamanders shall be coordinated and approved by USFWS and DFG.	DWR will conduct surveys and consult with USFWS to determine whether or how surveys are to be performed	DWR Project Manager	Pre-construction

<i>Mitigation</i>	<i>Implementing Responsibility</i>	<i>Monitoring Responsibility</i>	<i>Mitigation Timing</i>
Mitigation 3.4.1-19: Mitigation for Potential Impacts to California Red-legged Frogs DWR, through the federal lead permit agency, shall conduct early informal consultation with USFWS to determine whether or how surveys for the California red-legged frog shall be performed at the Dutch Slough project site. If this species is detected, develop and incorporate habitat restoration and relocation plans for any populations detected at the Dutch Slough project site, in context of formal consultation with the USFWS. Suitable restored habitats to mitigate losses of occupied on-site habitats may include relatively isolated depressional freshwater marshes and ponds near the landward edge of the restored tidal marsh. These shall be in areas where seasonal evaporation (drawdown, concentration of brackish salinity (2-3 ppt) to moist soil in late summer may restrict the life-cycle of predatory non-native bullfrogs (tadpoles normally requiring maturation in continuously flooded nonsaline habitats 2 years), and facilitate maintenance of relatively viable, persistent local California red-legged frog populations.	DWR will consult with USFWS to determine whether or how surveys are to be performed, perform any necessary surveys, and, if the species is found, appropriate mitigation measures will be developed and incorporated into the project specifications.	DWR Project Manager	Pre-construction
Mitigation 3.4.1-20: Mitigation for Potential Impacts to Northwestern Pond Turtles Apply Mitigation measures 3.4.1-2.1-3. A detailed habitat assessment of the Dutch Slough and City Park project sites shall be done by a qualified biologist to determine locations of potential nesting habitat, and how tidal action may affect those areas. USFWS and DFG will be consulted to determine optimal timing of the levee breaches to minimize the potential inundation of turtle nests (also considering effects on other special-status species). In addition, earth-moving activities of the project shall be phased to protect existing western pond turtle habitats and populations at least until suitable replacement freshwater marsh and shallow open water habitats have been restored on-site. DWR shall consult with the USFWS and DFG to determine the need for active translocation of northwestern pond turtles from existing marsh/pond habitats to constructed suitable pond turtle habitats. The amount, type, and location of large woody debris suitable as cover and basking habitat for northwestern pond turtle shall be modified to enhance habitat value for northwestern pond turtles along constructed tidal sloughs. In consultation with DFG and USFWS, nesting habitat features may be incorporated into the final Dutch Slough	DWR will conduct habitat assessment, consult with USFWS and DFG, assure project phasing is appropriate, and assure that large woody debris are placed	DWR Project Manager	Pre-construction and during construction

<i>Mitigation</i>	<i>Implementing Responsibility</i>	<i>Monitoring Responsibility</i>	<i>Mitigation Timing</i>
project design.			
Mitigation 3.4.1-21: Mitigation for Potential Impacts to Giant Garter Snakes On-site mitigation measures for impacts to northwestern pond turtles (Mitigation 3.4.1-20) as well as Mitigation 3.4.1-2.1-3 would substantially mitigate significant impacts to any extant on-site giant garter snake population, if it exists. In addition, DWR shall: • Conduct early informal consultation with the USFWS to determine whether or how surveys for the giant garter snake shall be performed in suitable, relatively isolated freshwater marsh habitat patches at the Dutch Slough project site. • Perform pre-construction surveys for giant garter snakes if required by USFWS. • If this species is detected, develop and incorporate habitat restoration and relocation plans for any populations detected, in context of formal consultation with the USFWS.	DWR will consult with USFWS to determine whether or how surveys are to be performed, conduct any necessary surveys, and if species is detected, develop restoration and relocation plans	DWR Project Manager	Pre-construction
Mitigation 3.4.1-22: Mitigation for Potential Impacts to Silvery Legless Lizard Because potential habitat on the Dutch Slough site is highly disturbed and therefore unlikely to be occupied by the silvery legless lizard, and because the species is difficult to detect, surveys for the species are not proposed. However, a number of cover boards were placed around the vineyard on Emerson parcel in spring 2009. These were lifted and examined approximately every three weeks from March through May, 2009, during each visit a number of areas were also excavated by hand; these informal surveys will continue in 2010. No legless lizards were detected in 2009. To mitigate for potential impacts, where feasible, the restoration plan will include habitat improvements to the sandy areas that will remain uninundated after tidal restoration to benefit the silvery legless lizard.	DWR will assure that design includes habitat improvements, if feasible	DWR Project Manager	Pre-construction and during final design approval
Mitigation 3.4.1-23: Mitigation for Potential Impacts to Vernal Pool Fairy Shrimp and other Special-Status Vernal Pool Invertebrates A qualified biologist shall conduct wet season surveys on the Dutch Slough project site for		DWR Project	Current and ongoing

<i>Mitigation</i>	<i>Implementing Responsibility</i>	<i>Monitoring Responsibility</i>	<i>Mitigation Timing</i>
vernal pool invertebrates for one winter survey period according to USFWS protocol. If special-status species are not found during the wet season survey and it is deemed necessary by the qualified biologist to continue surveys, one additional wet season survey will be conducted. If special-status species are not detected after completion of the second survey, no further mitigation will be required. If any special-status branchiopod is detected, suitable replacement habitat (with proper hydroperiod and depth) should be constructed at a 2:1 ratio on appropriate soils on-site. The habitat shall be permanently protected, enhanced, and managed for the benefit of the species. Original areas occupied by special-status vernal pool species shall be excavated in such a way to preserve the uppermost layer of soil, which may contain cysts of special-status species and seeds of native plants. This soil shall be placed in newly-created habitat as inoculum. A Mitigation and Monitoring plan describing the habitat replacement/translocation plan, mitigation and monitoring requirements, and performance standards shall be prepared if habitat is developed for special status vernal pool species. This Plan will be reviewed for approval by the UFWS and DFG. If it is deemed infeasible to create habitat on-site, habitat will be replaced, created, or preserved at a location approved by USFWS. The habitat in the amount specified by USFWS shall be acquired, permanently protected, and enhanced for the benefit of the species. Alternatively, DWR may provide the required acreage in an approved mitigation bank or Habitat Conservation Plan.	DWR will conduct surveys. If species is detected, DWR will ensure that design includes replacement habitat, or that off site mitigation is obtained	Manager	During final design approval
Mitigation 3.4-1.24: Mitigation for Potential Impacts to Valley Elderberry Longhorn Beetle A stem count and measurement of the elderberry shrubs will be conducted 60 days prior to construction activity that would disturb the plants. Based on number and size of stems, USFWS guidelines for replacement and mitigation will be followed. If feasible, the shrub will be salvaged and planted elsewhere on the Dutch Slough project site. Additional elderberry shrubs, as determined by USFWS guidelines will also be planted on-site, or possibly at an off-site mitigation area or bank approved by USFWS.	DWR or its contractor will move shrub or plant replacements	DWR Project Manager	Pre-construction

<i>Mitigation</i>	<i>Implementing Responsibility</i>	<i>Monitoring Responsibility</i>	<i>Mitigation Timing</i>
Mitigation 3.4-1.25: Mitigation for Potential Impacts to Protected Trees Once design plans for the Dutch Slough Restoration and the City Park are finalized, an assessment will be made to determine which trees will be removed or killed by the projects. A certified arborist will be hired to examine the trees and determine whether they are protected by the tree ordinance. All protected trees will be mitigated for as outlined in the ordinance. DWR will consult with the City of Oakley when determining the number and species of trees to be planted on the Dutch Slough project site.	DWR or its contractor will assess existing trees, hire arborist, and consult with City of Oakley.	DWR Project Manager	Pre-construction
3.5 BIOLOGICAL RESOURCES – AQUATIC RESOURCES			
Mitigation 3.5.1-1.1: Develop a Storm Water Pollution Prevention Plan (SWPPP) Through the RWQCB Prior to construction DWR shall obtain authorization from the RWQCB. As part of this application process, DWR shall develop a SWPPP and identify Best Management Practices (BMPs) for controlling soil erosion and the discharge of construction-related contaminants. BMPs shall be monitored as specified in the SWPP for successful implementation. This mitigation measure shall apply to all portions of the Dutch Slough Restoration and Related Projects that involve construction activities.	DWR or its construction contractor will ensure project design includes an SWPPP, and that its recommendations are followed.	DWR Project Manager	During final design approval and during construction
Mitigation 3.5.1-1.2: Limit Construction to the Dry Weather Season (April – November) Construction activities involving earth-moving on any of the sites in an area where material may enter or be transferred to a slough shall be limited to the April 15-October 15 dry season. This will reduce the amount of sediment and contaminants washed into the Delta from the Dutch Slough Restoration and Related Projects site by rains. Construction activities involving earth-moving on any of the sites shall be limited to the April 15-October 15 dry season. This will reduce the amount of sediment and contaminants washed	DWR, or its construction monitor, will assure that construction in areas where material may enter a slough is limited to the dry-weather season	DWR Project Manager	During construction

Mitigation	Implementing Responsibility	Monitoring Responsibility	Mitigation Timing
into the Delta from the Dutch Slough Restoration and Related Projects site by rains.			
Mitigation 3.5.1-1.3: Install Cofferdams Prior to levee breaching, coffer dams shall be installed around areas where the levees are to be breached to allow construction equipment to operate on both sides of the levee while greatly reducing the amount of sediments and construction contaminants reaching the Delta.	DWR, or its construction monitor, will assure that coffer dams are installed in breach areas	DWR Project Manager	Pre-breach
Mitigation 3.5.1-2.1: Release On-Site Water Gradually Water from the Dutch Slough Restoration Project area shall be released gradually to reduce the impact of low DO and high temperature water on the surrounding water body. This would allow the plume of degraded water to dissipate without harmful affects to aquatic life.	DWR, or its construction monitor, will assure that water is released gradually	DWR Project Manager	Pre-construction
Mitigation 3.5.1-2.2: Limit Operation During Migration Periods of Sensitive Species Water level management activities shall be limited during migration periods for sensitive species such as salmon to reduce the potential impacts upon these species.	DWR, or its contractor, will manage water to protect sensitive fish species	DWR Project Manager	After open water management is initiated
Mitigation 3.5.1-2.3: Maintain Short Residence Time Residence time of water shall be limited to reduce the opportunity for adverse water quality conditions to develop. Residence time is controlled by the rate at which water is exchanged between the managed area and its adjacent tidal source. The Dutch Slough Restoration Project shall utilize appropriate water control structures that allow flexibility in management to provide adaptive management capacity.	DWR, or its contractor, will manage water to protect sensitive fish species	DWR Project Manager	After open water management is initiated
Mitigation 3.5.1-3: Develop Measures to Minimize Entrainment Under Incidental Take Permit Implementation of the Dutch Slough Restoration Project would require the application for an	DWR will obtain incidental take permit and implement all	DWR Project	

Mitigation	Implementing Responsibility	Monitoring Responsibility	Mitigation Timing
incidental take permit through the California DFG. This permit shall require monitoring for entrainment during periods of potential presence of listed species. The mitigation plan shall require the identification of measures to avoid and minimize the take of listed species. Potential measures shall include the installation of fish screens on water intake structures based on the criteria of NMFS, USFWS, and DFG, or restricting the operation of such structures during migration periods of listed species.	associated measures.	Manager	Post-breach
Mitigation 3.5.1-6: Enhance Tidal Exchange In the event that non-native vegetation and fish predators become dominant in the Dutch Slough Restoration site, constructing additional levee breaches and other measures to facilitate a greater tidal exchange in the open water areas and subtidal channels to promote habitat favorable to the establishment of native SAV and native fish will be investigated and implemented accordingly.	DWR will assess monitoring data and if necessary, construct additional breaches or take other action to increase tidal exchange	DWR Project Manager	Post-breach
3.6 AIR QUALITY			
Mitigation 3.6.1-2: Enhanced Dust-Control Program Because the proposed project is more than 4.0 acres, implementation of an enhanced dust control program during construction is recommended to achieve a less-than-significant dust nuisance impact. Suggested PM-10 mitigation measures are: Basic Control Measures (Required); the following control measures will be implemented: • Water all active construction areas at least twice daily. • Cover all trucks hauling soil, sand, and other loose materials or require all truck to maintain at least 2 feet of freeboard. • Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites. • Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent	DWR, or its construction monitor will assure that all BCMs are followed	DWR Project Manager	During construction

Mitigation	Implementing Responsibility	Monitoring Responsibility	Mitigation Timing
public streets. Enhanced Control Measures (Recommended because large scale of grading); The following additional measures are recommended to be implemented at this construction site: • Enclose, cover, water twice daily or apply (non-toxic) soil binders to exposed stockpiles (dirt, sand, etc.). • Limit traffic speeds on unpaved surfaces to 15 mph. • Install sandbags or other erosion control measures to prevent silt runoff to public roadways. • Replant vegetation in disturbed areas as quickly as possible.			
Mitigation 3.6.1-3.1: Best Management Practices to Reduce Greenhouse Gas Emissions Construction crews will be required to follow BMPs for reduction of emissions, such as limits on idling, keeping engines in tune, and possibly retrofits to increase fuel efficiency. These BMPs will be included in worker environmental education sessions. All measures in the CARB "Heavy-Duty Vehicle Greenhouse Gas Emission Reduction Measures" will also be adhered to if the measures have been instituted by the time construction starts.	DWR, or its construction monitor, will assure that all BMPs are followed	DWR Project Manager	During construction
Mitigation 3.6.1-3.2: Open Water Areas Managed for Carbon Sequestration If future research (prior to project implementation) shows that the restored wetlands are likely to sequester significantly less carbon than current estimates, the open water areas will be designed to be managed for maximum carbon sequestration.	DWR will assess monitoring data and adjust project design accordingly	DWR Project Manager	Pre construction
3.7 NOISE			

Mitigation	Implementing Responsibility	Monitoring Responsibility	Mitigation Timing
Mitigation 3.7.1-1: Noise from Hauling of Soils Hauling of fill from off-site borrow sites or off-hauling of any contaminated site soils shall minimize passing any substantial collection of noise-sensitive land uses (i.e. occupied houses, schools, hospitals), and shall be limited to less than 250 loads per day.	DWR, or its construction monitor, will take noise sensitive land uses into account when establishing haul routes	DWR Project Manager	Pre-construction
3.8 AESTHETICS			
No mitigations required.			
3.9 LAND USE			
No mitigations required.			
3.10 AGRICULTURAL RESOURCES			
No mitigations required.			
3.11 RECREATION			
Mitigation 3.11.1-1: Watercraft Restrictions To minimize conflicts between motorized and non-motorized watercraft, 5 mile-per-hour speed limit signs (no wake zone) should be posted in Emerson and Little Dutch sloughs. In addition, signs should be posted at the entry points to the new open water areas indicating that no motorized watercraft are allowed. A mutual aid agreement with the Contra Costa Sheriff's Department Marine Unit and the California Department of Boating and Waterways would provide enforcement oversight as well as provide for public safety.	DWR, in coordination with the City of Oakley, will install signs. DWR will coordinate with the Sheriff and DBW.	DWR Project Manager	During construction or post-construction
Mitigation 3.11.1-2: Temporary Effects on Recreational Access During Project Construction Construction activities shall be phased and coordinated to minimize the amount of time that Marsh Creek Trail access would be restricted. Public notices with information on restricted access conditions and timeframes shall be posted on site and provided to any recreation users	DWR will provide notification on site and to interested users.	DWR Project Manager	During construction

Mitigation	Implementing Responsibility	Monitoring Responsibility	Mitigation Timing
who have requested notification.			
Mitigation 3.11.1-3: Provide Signage and Education on Trail Rules and Etiquette Signs shall be posted displaying the proper protocol and pamphlets shall be provided at the park and at all trailheads. In addition, outside of the dog run area, dogs must be on leashes no longer than 10 feet. There shall be a limit of 3 dogs per person in the City Community Park and Dutch Slough Restoration Project public access areas.	DWR, in coordination with the City of Oakley, will install signs.	DWR Project Manager	Post-construction
3.12 CULTURAL RESOURCES			
Mitigation Measure 3.12.1-1: Cease Work and Conduct Assessment If archaeological materials (including, but not limited to, flaked stone tools and chipping debris, ground stone tools, human skeletal remains, historic bottles, structure foundations, etc.) be uncovered while conducting activities associated with the proposed project sites, all work shall temporarily cease in the vicinity of the finds until they can be assessed by a qualified archaeologist and an appropriate course of action can be determined in consultation with the State Historic Preservation Officer. Furthermore, if human remains are discovered during project-related activities, the requirements of section 7050.5 of California's Health and Safety Code shall be followed. This includes stopping work within proximity of the finds and contacting the County coroner for an evaluation of the remains. If the remains are determined to be ancestral Native American, the coroner shall contact the Native American Heritage Commission within 24 hours.	DWR, or its construction monitor, will include cultural resource protection measures in educational sessions, and ensure that this measure is followed.	DWR Project Manager	During construction
Mitigation Measure 3.12.1-2.1: Relocate Historic Structure Buildings The historic structures, which are those buildings that meet the "Criterion 3" as defined above, include the main Gilbert House and the main Burroughs House. Both structures shall be offered to be moved to other locations in the Dutch Slough area. If a building is moved from its original location, the new location must be appropriate to the historic character of the building, i.e. rural location similar to its historic location. Project impacts would be reduced further the closer the	DWR will seek out interested parties to move structures	DWR Project Manager	Pre-construction

Mitigation	Implementing Responsibility	Monitoring Responsibility	Mitigation Timing
moved site is to a building's historic site. The feasibility of moving the buildings has not been determined, and is beyond of the scope of this analysis. The feasibility of moving the building can only be determined by a contractor or engineer experienced in moving historic buildings. Although most wood-frame buildings can usually be moved without difficulty, the structural condition needs to be evaluated to determine if it can be moved and not significantly damaged. The dairy barns and other buildings are too large to be moved.			
Mitigation 3.12.1-2.2: Salvage Materials and Features This mitigation measure shall apply only to those buildings that meet "Criterion 1" as defined and listed above, except for those buildings that are covered under "Criterion 3" and subject to Mitigation 3.12.1-2.1. For the contributing buildings that are not retained or moved, salvaging materials and features of the buildings shall be done to reduce project impacts. The salvaged materials could be incorporated into buildings on the project site or on other sites in the area. Preserving features and materials of the buildings at their historic location would reduce project impacts more than moving these features and materials to a new site. Representatives of the East Contra Costa County Historical Society, the Contra Costa County Historical Society, the City of Oakley and other interested parties shall be contacted and given the opportunity to examine the buildings and provide suggestions for salvaging various features. The project impacts would be reduced commensurate with the percentage of the existing structures that can be salvaged or otherwise preserved. The preservation of one or more of the significant interior and exterior features from the buildings as part of a new building would reduce projects impacts, but not to a less-than-significant level since most of the structure would still be demolished.	DWR will seek out interested parties to salvage and preserve materials	DWR Project Manager	Pre-construction
Mitigation Measure 3.12.1-2.3: Historic Documentation Prior to the demolition, salvage or moving of the contributing Dutch Slough buildings and related landscape features, they shall be photographically documented according to the Historic American Building Survey (HABS) <i>Photographic Specifications</i> published by the Great Pacific	DWR will coordinate with the SHPO on photo	DWR Project	Pre-demolition

Mitigation	Implementing Responsibility	Monitoring Responsibility	Mitigation Timing
Basin Office of the National Park Service, Oakland, California. This documentation shall include archival quality, large format (minimum 4 by 5 inch) photographs of the exterior and interior of the buildings. The documentation shall focus on the individual buildings and structures, related landscape and surrounding pastures/crop lands used as part of the dairy operations. Written documentation shall include a narrative report according to the instructions in the <i>Historic American Building Survey Guidelines for Preparing Written Historical and Descriptive Data</i> published by the Cultural Resources division of the Pacific Great Basin Support Office of the National Park Service, Oakland. The documentation should include oral histories with appropriate members of the Emerson and Burroughs families regarding the histories of the Dutch Slough dairies. In addition to photographs, the documentation shall include historic maps and aerials. A copy of the documentation, with original photo negatives, prints and plans, should be donated to an historical archive accessible to the public and with facilities for storing archival photographs, such as the East Contra Costa County Historical Society, Oakley or the Contra Costa County Historical Society, Martinez.	documentation and comply with their requirements	Manager	
3.13 TRANSPORTATION/TRAFFIC			
No mitigations required.			
3.14 PUBLIC SERVICES, UTILITIES AND SERVICE SYSTEMS			
No mitigations applicable to DWR project			
3.15 HAZARDS AND HAZARDOUS MATERIALS			
Mitigation 3.15.1-1: Effects of Dutch Slough Parcel Soils Contamination			
A. The Dutch Slough Restoration Project shall comply with the ESA recommendations regarding the natural gas well sites. Specifically, the remaining appurtenances at the plugged and abandoned wells shall be removed, mercury impacted soils at Well Site #7 shall be excavated and removed for disposal and hazardous materials management practices at active Well Site #5 shall be reviewed: Petroleum impacted soils should be	DWR will ensure that remaining appurtenances at plugged and abandoned wells are removed	DWR Project Manager	Pre construction

Mitigation	Implementing Responsibility	Monitoring Responsibility	Mitigation Timing
excavated and removed for disposal. The status of the remaining idle well sites (#3, #8, #11, #16) shall be determined and if they are not to be retained for future operation they shall be properly plugged and abandoned. B. Prior to development of the Dutch Slough Restoration Project, a Phase II ESA shall be performed to identify any hazardous materials issues associated with natural gas wells on the Gilbert parcel, and any remediation recommendations in that report shall be implemented. C. Prior to development of the City Community Park, Phase II ESA shall be performed to identify any hazardous materials issues associated with the former cattle waster pit on the Emerson parcel, and any remediation recommendations in that report shall be implemented.	DWR will conduct a Phase II ESA City of Oakley		Pre-construction
Mitigation 3.15.1-2: Health Risks Associated with Demolition Activities All structures proposed for demolition shall be assessed for asbestos and lead-based paints, and all recommendations of those evaluations shall be implemented. Details of these evaluations for the City Community Park property shall be included in the subsequent CEQA documentation for the park .	DWR will assess all structures on its project site.	DWR Project Manager	Pre-demolition
Mitigation 3.15.1-4.1: Adapt and Apply Regional (Central Valley/Suisun) Best Management Practices (BMPs) for Managed Marshes to Tidal Marshes Adapt BMPs for managed marsh to be compatible with basic ecological restoration objectives of freshwater tidal marsh restoration in the western Delta, following applicable precedents from San Pablo Bay (Petaluma, Napa-Sonoma) and Suisun and Grizzly Bay marshes, in consultation with Contra Costa, Solano, and Marin-Sonoma MVCDs, the California Department of Fish and Game, and the U.S. Fish and Wildlife Service. Add tidal marsh MVCD activities to regional permits for MVCD activities in wetlands in the Central Valley.	DWR will adopt and apply BMPs for managed marsh as compatible with restoration objectives.	DWR Project Manager	During final design approval, and during construction
Mitigation 3.15.1-4.2: Adapt and Apply Regional (Central Valley/Suisun) Best Management Practices (BMPs) for managed Managed Marshes to Open Water Marshes			

<i>Mitigation</i>	<i>Implementing Responsibility</i>	<i>Monitoring Responsibility</i>	<i>Mitigation Timing</i>
BMPs are habitat-based strategies that can be implemented when needed for mosquito control in managed wetlands. These strategies represent a range of practices that wetland managers can incorporate into existing habitat management plans or in the design of new wetland restoration or enhancement projects. Ideally, BMPs can be used to decrease the production of mosquitoes and reduce the need for chemical treatment without significantly disrupting the ecological character, habitat function, or wildlife use in managed wetlands. Not all BMPs would be appropriate for a given wetland location or set of circumstances. • Timing of managed marsh flooding and drawdown (nontidal managed open water options). Timing of flooding and drawdown shall be coordinated with local MVCD, adapted to current-year temperature, rainfall patterns, and mosquito vector risks, to minimize mosquito production and vector risks. • Rapid flooding and drawdown of managed marsh. Marshes shall be flooded and drawn down (emerged bed) as quickly as operational controls allow. • Water control. Once wetlands have been flooded, water surface elevations shall minimally fluctuate prior to drawdown, except during winter periods of low mosquito production. Minimal fluctuation is based on the need to circulate water (maximize turnover). Marsh submergence depths shall be managed to maximize areas with minimal initial flooding depths of two feet (twenty four inches). • Wetland design features to reduce mosquito production. Managed wetland edges shall be constructed to enable efficient access by MCVD field crews for monitoring and treatment. Edge slopes of managed nontidal marsh areas shall be steeper than to 4:1 (horizontal:vertical). Open water areas with sufficient fetch and wind-wave turbulence to minimize mosquito production shall be interspersed within managed marsh, at least 20% of total area. Floating aquatic vegetation shall be actively suppressed in open water areas within managed marsh.	DWR will adopt and apply BMPs for managed marsh as compatible with restoration objectives.	DWR Project Manager	During final design approval, and during construction

<i>Mitigation</i>	<i>Implementing Responsibility</i>	<i>Monitoring Responsibility</i>	<i>Mitigation Timing</i>
Mitigation 3.15.2-4: Health Effects From Mosquitoes Same as for Alternative 1, but with the following additions: (a) minimize or eliminate artificial berms within middle or high marsh plains; replace their drainage divide functions with temporary structures that restrict fish movement without impounding water on the marsh surface, such as mesh or geotextile fabric fences; (b) adaptively modify marsh plain drainage patterns with amphibious excavation/dredging equipment to expose poorly drained backwater marsh areas to adequate tidal circulation and mosquito predator fish access; (c) Orient the Marsh Creek delta so that flood sediment deposition does not obstruct, occlude, or cut off tidal flows from channels and create standing water mosquito habitat.	DWR will ensure that project designs and implementation minimize features that may increase mosquitoes	DWR Project Manager	During final design approval and during construction