Mitigation Monitoring Program
Bayfront Levee Improvements South of San Mateo Creek

Table 1. **Mitigation Monitoring Program – Biological Resources**

Impact	Mitigation Measure	Location	Monitoring / Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
BIO-1: Potential impacts to northern coastal salt marsh habitat due to project construction. Construction activities such as trampling, scraping, crushing, vegetation removal, or soil compaction could occur to this habitat. Invasive marsh weeds may proliferate in impacted or restored areas. Weed infestations can severely degrade habitat values and functions for native plants and wildlife species, or even prevent full site recovery following construction.	**BIO-1a:** Restoration of Impacted Habitat. Inspect to determine whether an impact has occurred within northern coastal salt mash habitat that requires restoration. Recommend soil restoration actions such as minor grading, light ripping and soil amendments to facilitate recolonization by northern coastal salt marsh vegetation.	Detroit Drive East Levee Seal Slough Mitigation Site	Inspection by qualified restoration ecologist	Potential for recolonization by northern coastal salt marsh vegetation	CSM, USACE, RWQCB, BCDC, USFWS	During and after construction
	BIO-1b: Control Weeds. All marsh areas impacted by vegetation removal shall be surveyed by a qualified wetland ecologist within one year of project completion, including restoration activities. The City will implement the ecologists recommended weed control measures, if any.	Detroit Drive East Levee Seal Slough Mitigation Site	Survey and identify invasive weed infestations. Recommend and implement actions for weed control	Native vegetation quickly provides a thick, native-dominated marsh cover	CSM	After construction
	BIO-1c: Northern Coastal Salt Marsh Habitat Restoration. Determine if the surface area and quality of native marsh shrubs and statured native salt marsh species have been impacted by construction activities. If more than 10% of the survey area is adversely affected, the area shall be revegetated by a combination of active planting of coast gumweed and big saltbush as well as seeding with native salt marsh grasses.	Detroit Drive	Inspection by qualified wetland ecologist and preparation of revegetation plan as required	Surface area and quality of northern coastal salt marsh are not impacted by more than 10%	CSM	Before and after construction
BIO-2: The loss of 0.03 acre of tidal salt marsh habitat. The placement of project fill will impact 0.03 acre of tidal salt marsh habitat at the Seal Slough site.	**BIO-2:** Provide compensatory mitigation comprising of the restoration of at least 0.08 acre of new tidal salt marsh habitat and enhance approximately 0.08 acre of upland habitat along the adjacent levee slope. This plan will be reviewed by NOAA NMFS, USFW and CSLC personnel prior to implementation.	Seal Slough	Submit plan to agencies approval, inspect during construction	Creation of suitable tidal salt marsh habitat	CSM, CSLC, USACE, RWQCB, BCDC, USFW and NOAA NMFS	During and after construction

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Impact	Mitigation Measure	Location	Monitoring / Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
BIO-3: Potential impacts to water quality. Project activities including grading, installation of floodwalls, levee reconstruction, and fill placement could indirectly degrade water quality of San Mateo Creek and adjacent aquatic habitat at Seal Slough, or other aquatic habitat within the Bay.	**Bio-3a:** Contractor shall implement BMPs designed to protect water quality in San Mateo Creek, Seal Slough, and San Francisco Bay, by accessing all construction areas from top-of-bank, and from above San Mateo Creek from the deck of the pedestrian bridge. No debris, soil, silt, sand, bark, slash, sawdust, cement, concrete, washings, petroleum products or other organic or earthen material shall be allowed to enter into or be placed where it may be washed by rainfall or runoff into waters of the U.S. Erosion control and slope stabilization measures shall be required for work performed in an area where erosion could lead to sedimentation of a water body. Machinery shall be refueled at least 60 feet from any aquatic habitat, and a spill prevention and response plan implemented.	San Mateo Creek Seal Slough Mitigation Site San Francisco Bay	Observe activities for compliance	Eliminate non storm-water discharges to receiving waters	CSM, RWQCB	During construction
	Bio-3b: Seed upland fill areas. Fill surfaces above the ordinary high water shall be seeded with a mix of native grasses and forbs that originate from San Francisco Bay ecotypes to the extent that they are commercially available.	San Mateo Creek Seal Slough Mitigation Site	Construction inspection	Growth of grasses and forbs	CSM	During construction
BIO-4: Potential impacts to federally endangered plant species. Proposed project could result in direct or indirect impacts to the federally endangered plant species California seablite, and the CNPS list 1B plant species Congdon's tarplant, pappose tarplant, Point Reyes	**BIO-4a:** Protocol-level survey. Determine whether any populations of these species occur within or adjacent to project impact areas and whether these populations could potentially be impacted.	All sites	Survey by qualified plant ecologist	Determine whether populations of endangered plant species exist at project sites.	CSM	Before construction during blooming periods

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bird's beak, and saline clover. These sensitive species could be adversely affected by erosion, root disturbance, loss of associate species, weed infestations, and increased wind-wave disturbance.	**BIO-4b:** Buffer Zones. Protect populations of special-status species by redesigning the project in consultation with a qualified plant ecologist to avoid and minimize impacts to the populations to the maximum extent feasible. A 15-foot minimum buffer zone shall from construction activities shall be provided in consultation with the plant ecologist. If California seablite is found on any project site, impacts to this species shall be formally assessed for the project and proscribed mitigation approved by USFWS.	All sites	Observe activities for compliance	Avoid impacts to special-status plant populations	CSM USFWS	During construction
BIO-5: Potential impacts on suitable foraging and breeding habitat for California clapper rails. The Bay Marshes Open Space immediately north of the East Levee contains fully tidal coastal salt marsh that is suitable foraging and breeding habitat for clapper rails and a population of clapper rails has been documented on the site. If unavoidable project-related impacts occur to any vegetation classified as northern coastal salt marsh, mitigation would be necessary.	**BIO-5:** Restoration of northern coastal salt mash. The City shall restore impacted salt marsh habitat at the East Levee site as described under **BIO-2** above.	East Levee Mitigation Site	Submit plan to agencies approval, inspect during construction	Creation of suitable tidal salt marsh habitat	CSM, CSLC, CDFG, USFW	During and after construction
BIO-6: Potential impacts of construction during high tide events on individual clapper rails. Construction during high tide events could cause disturbance to individual clapper rails attempting to use habitat areas adjacent to the East Levee site.	**BIO-6a:** Restrict construction activities during winter high tide events. Construction at the East Levee site shall not occur when San Francisco Bay tide levels exceed MHHW (7.6 feet on the MLLW datum) during the months of December, January, and February. Construction may occur during these periods, only if a qualified biologist inspects the site conditions and determines that adequate high tide foraging and refugia is available.	East Levee Mitigation Site	Observe activities for compliance	No disturbance to individual clapper rails	CSM	During construction

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	BIO-6b: No construction during breeding season. Construction at the East Levee site shall not occur during the California clapper rail breeding season (1 February – 1 August) unless pre-construction surveys described as BIO-6c are employed.	East Levee Mitigation Site	Observe activities for compliance	No disturbance to individual clapper rails	CSM	During construction
	BIO-6c: Preconstruction Surveys. No earlier than 14 days prior to construction, a survey for nests shall be completed by a qualified biologist to ensure that no nesting has taken place.	East Levee Mitigation Site	Submit surveys to CSM for approval	Deterrence of nesting on East Levee	CSM	Before construction
	BIO-6d: With Nests Present. In the event that an active nest is found during the preconstruction survey, a minimum buffer of 700 feet shall be required around the detection site for the remainder of the breeding season. Also bright lighting for nighttime construction shall not be allowed at the East Levee Site.	East Levee Mitigation Site	Work plan verification, observe activities for compliance	Avoidance of nesting birds unless approved by USFWS	CSM, CDFG, and USFWS	During construction

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BIO-7: Permanent loss of clapper rail foraging habitat. The salt marsh habitat at the Seal Slough site is suitable foraging habitat for California Clapper rails. The project will cause the permanent loss of foraging habitat.	**MM BIO-2**	Seal Slough	Submit plan to agencies approval, inspect during construction	Creation of suitable tidal salt marsh habitat	CSM, CSLC, USFW, CDFG, and NOAA NMFS	During and after construction
BIO-8: Exposure of Salt Marsh Biota to Elevated Contaminant Concentrations. Caltrans and San Mateo County Transportation Authority implemented the Foster City Tidal Wetland Mitigation Project just northeast of the off-site wetland mitigation site in 2006-07. This project encountered heavy metals (cadmium, chromium, nickel) and pesticides (DDT, chlordanes, dieldrin) that exceeded the RWQCB screening criteria for wetland creation. Excavation to restore tidal wetland and slough channel topography could expose salt marsh biota to elevated contaminant concentrations in the soils that are daylighted at the surface of the restored wetland. Exposure to such daylighted contaminants could significantly impact California clapper rails.	**BIO-8a:** Soil Contaminant Sampling and Testing. The City shall sample the upper 1.5 feet of soil and analyze samples for contaminants once the mitigation site has been initially excavated. Concentrations shall be compared to RWQCB criteria for wetland creation. At least 3 composite samples shall be collected and analyzed, with each composite sample consisting of five subsamples with each composite sampling area representing one third of the surface area of the mitigation site. If the average concentration for any contaminant of concern exceeds the RWQCB screening criteria, **MM BIO-8b** will be implemented.	Mitigation Site	Submit plan to agencies approval, inspect during construction	Creation of suitable tidal salt marsh habitat	CSM, CSLC, RWQCB	During construction
	BIO-8b: Replace Contaminated Soil with Clean Soil. Remove an additional 1.5 feet of soil below the design grade and replace with imported soil that meets the RWQCB screening criteria for wetland creation and is horticulturally suitable for the establishment of tidal salt marsh vegetation. (H.T. Harvey & Associates, 2009)	Mitigation Site	Submit plan to agencies approval, inspect during construction	Creation of suitable tidal salt marsh habitat	CSM, CSLC, RWQCB	During construction

Table 2. **Mitigation Monitoring Program – Hydrology and Water Quality**

Impact	Mitigation Measure	Location	Monitoring / Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
HYD-1: Discharges of waste material could degrade water quality. Project activities including grading, installation of floodwalls, levee reconstruction, and fill placement could indirectly degrade water quality of San Mateo Creek, the adjacent aquatic habitat at Seal Slough, or other aquatic habitat within San Francisco Bay.	**HYD-1:** Measures to protect water quality. The City shall obtain written approval of all proposed work plans and permits from the overseeing agencies including the RWQCB, ACOE, and the BCDC prior to commencement of construction activities. The work plans shall include secondary containment measures to prevent any hazardous materials or debris from entering San Francisco Bay. All work plans shall be in accordance with approved 401 Water Quality Certification Permit, section 404 Permit, and Administrative Permit from the BCDC and any comments from issuing agencies incorporated into project specifications.	San Mateo Creek Detroit Drive Seal Slough East Levee Mitigation Site	Submission of written approval for work plans and hazardous materials inventory to CSM	Minimizing of hazardous material or debris from entering San Francisco	CSM, NOAA NMFS, USACE, BCDC	Before construction
	MM BIO-3a and -3b	Affected sites	Submit hazardous materials inventory to CSM, observe construction activities	Minimizing of hazardous material or debris from entering San Francisco Bay	CSM	Before and during construction