MMRP

San Francisco Planning

MITIGATION MONITORING AND REPORTING PROGRAM

Case No.:	2019-020115ENV	*Block/Lot:*	7281/006, 007, 009, 010 7282/008, 009
Project Title:	Ocean Beach Climate Change Adaptation Project		
BPA Nos:	Not Applicable	*Lot Size:*	Various
Zoning:	P (Public) and RH-1D (Residential House, One Family Detached) Zoning Districts, OS (Open Space) Height and Bulk District Western Shoreline Area Plan	*Project Sponsor:*	San Francisco Public Utilities Commission and San Francisco Recreation and Parks Department
		Lead Agency:	San Francisco Planning Department
		Staff Contact:	Julie Moore – (628) 652 -7566

The table below indicates when compliance with each mitigation measure must occur. Some mitigation measures span multiple phases. Substantive descriptions of each mitigation measure's requirements are provided on the following pages in the Mitigation Monitoring and Reporting Program.

Adopted Mitigation Measure	Period of Compliance			Compliance with MM completed?
	Prior to the start of Construction*	During Construction**	Post-Construction or Operational***	
Mitigation Measure M-NO-3: Noise Monitoring and Traffic Re-Distribution Noise Reduction Plan	X	X	X	
Mitigation Measure M-C-NO-1: Cumulative Construction Noise Control Measures	X	X		
Mitigation Measure M-BI-2a: Nesting Bank Swallow Protection Measures	X	X	X	
Mitigation Measure M-BI-2b: Worker Environmental Awareness Program Training	X	X	X	
Mitigation Measure M-BI-2c: Bank Swallow Signage and Protective Fencing	X	X		
Mitigation Measure M-BI-2d: Public Engagement Specialist	X	X	X	
Mitigation Measure M-BI-2e: Bank Swallow Movement, Population Dynamics, and Coastal Habitat Use Research	X	X	X	
Mitigation Measure M-BI-2f: Blufftop Foraging Habitat Restoration	X	X	X	
Mitigation Measure M-BI-2g: Bank Swallow Habitat Enhancement	X	X		
Mitigation Measure M-BI-2h: Bank Swallow Artificial Habitat Creation	X	X	X	
Mitigation Measure M-BI-9: Avoidance and Minimization Measures for Special-Status Bats and Maternity Roosts	X	X		

Adopted Mitigation Measure	Period of Compliance			Compliance with MM completed?
	Prior to the start of Construction*	During Construction**	Post-Construction or Operational***	
Mitigation Measure M-AQ-2: Construction Emissions Minimization	X	X		
Mitigation Measure M-GE-5: Paleontological Resources Monitoring and Mitigation Program	X	X		

NOTES:

* Prior to any ground-disturbing activities at the project site, including during the design phase.

** Construction is broadly defined to include any physical activities associated with construction of a development project including, but not limited to: site preparation, clearing, demolition, excavation, shoring, foundation installation, and building construction.

*** Post-construction is used for a reporting action that has a discrete end after construction (i.e., five years of surveys). Operational refers to ongoing beach nourishment and dune restoration activities over the life of the project.

In addition to the mitigation measures in this Mitigation Monitoring and Reporting Program, the SFPUC's standard construction measures are required to be implemented for work undertaken by the SFPUC. The standard construction measures would also be required to apply as part of any funding agreement.

MITIGATION MONITORING AND REPORTING PROGRAM

Adopted Mitigation Measure	MONITORING AND REPORTING PROGRAM[1]			
	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
NOISE AND VIBRATION				
Mitigation Measure M-NO-3: Noise Monitoring and Traffic Re-Distribution Noise Reduction Plan To reduce roadside noise increases attributable to rerouted traffic resulting from the project, prior to the project's closure of the Great Highway, the SFPUC shall prepare, and the city shall implement, a Noise Monitoring and Traffic Re-Distribution Noise Reduction Plan for Sloat and Skyline boulevards, as described further below. The goal of the Noise Monitoring and Traffic Re-Distribution Noise Reduction Plan is to reduce roadway noise level increases sufficient to achieve a performance standard of a less than 3 dBA increase over existing ambient traffic noise levels along: a) Sloat Boulevard between Great Highway and 47th Avenue; b) Sloat Boulevard between 47th Avenue and Skyline Boulevard; and c) Skyline Boulevard between Sloat Boulevard and Harding Road. The Noise Monitoring and Traffic Re-Distribution Noise Reduction Plan shall include the following elements: ***Part I – Noise Monitoring*** • Noise monitoring shall be conducted along the three segments of Sloat Boulevard and Skyline Boulevard listed above prior to and after intersection closure to empirically verify the amount of noise reduction required to meet the performance standard of less than 3dBA increase over existing ambient traffic noise. Noise monitoring shall consist of one-week-long 24-hour measurements collected prior to closure of the Great Highway between Sloat and Skyline boulevards, and three, six, and nine months after the roadway	1. SFPUC EMG (qualified noise consultant)	1. Pre-construction	1. SFPUC EMG, ERO	1. Prepare noise monitoring plan and submit for ERO review and approval to conduct monitoring prior to any nearby transportation improvements.
	2. SFPUC EMG (qualified noise consultant)	2. Pre-construction, Construction	2. SFPUC EMG, ERO	2. Conduct noise monitoring prior to and 3, 6, and 9 months after Great Highway closure. Submit monitoring results to ERO.
	3. SFPUC EMG (qualified noise consultant), Public Works, SFMTA, Caltrans	3. Construction	3. SFPUC EMG, ERO	3. If post-closure noise levels increase by 3 dBA or greater, prepare a traffic redistribution noise reduction plan in coordination with SFMTA, Public Works, and Caltrans, as appropriate. Submit plan to ERO for review and approval within 12 months following completion of noise monitoring.
	4. SFPUC PMB, SFPUC EMG (qualified noise consultant), SFMTA, Public Works	4. Construction	4. SFPUC EMG	4. Coordinate with Caltrans, SFMTA, and Public Works, as appropriate, on the design of the noise reduction measures. Implement measures within 24 months of ERO's plan approval.
	5. SFPUC EMG (qualified noise consultant)	5. Post Construction	5. SFPUC EMG, ERO	5. Demonstrate noise level reduction achieved (via modelling or measurements) within 6 months of noise reduction measure implementation.

Adopted Mitigation Measure	MONITORING AND REPORTING PROGRAM[1]			
	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
NOISE AND VIBRATION (CONT.)				
closure. A noise monitoring plan shall be approved by the Environmental Review Officer (ERO), or its designee, prior to noise monitoring. ***Part II - Noise Reduction*** • If noise monitoring indicates that the project has resulted in a persistent increase of traffic noise levels of 3 dBA or greater relative to pre-closure conditions, within the three, six, or nine months after post-closure noise monitoring completion, the city, in consultation with a qualified noise consultant, shall identify measures that would achieve the required performance standard (a noise level increase less than 3 dBA) on the affected roadway segments. The proposed traffic noise reduction measures must be described in a Traffic Re-Distribution Noise Reduction Plan that shall be submitted to the ERO for review and approval within 12 months from the completion of noise monitoring. The noise reduction measures may include, but are not limited to: speed limit reductions, installation of new traffic signals, and street redesign (e.g., lane reduction, speed tables, or other traffic calming features). • The city shall confer with Caltrans with respect to elements of the Traffic Re-Distribution Noise Reduction Plan that may require implementation on Skyline Boulevard, which is outside the jurisdiction of the city. • With the exception of measures within Caltrans' jurisdiction whose implementation is beyond the city's control, the city shall implement noise reduction measures identified in the Traffic Re-Distribution Noise Reduction Plan within 24 months of ERO approval of the Plan. This timeline may be extended, with ERO approval, if the city identifies separate projects or other circumstances that may reduce traffic noise levels on the affected roadway segments (such as other changes to the transportation network or implementation of other traffic calming measures in the vicinity).				

Adopted Mitigation Measure	MONITORING AND REPORTING PROGRAM[1]			
	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
NOISE AND VIBRATION (CONT.)				
• Within 6 months of noise reduction measure implementation, the SFPUC shall: (1) demonstrate to the ERO that implementation of the noise reduction measures has achieved the required performance standard; or (2) in consultation with Caltrans and city departments with jurisdiction over the streets, identify adjustments or alternative measures proposed to achieve the standard, along with an implementation and monitoring schedule.				
Mitigation Measure M-C-NO-1: Cumulative Construction Noise Control Measures If exterior construction of the northern end of the buried wall for the proposed project is determined to overlap with that of nearby adjacent project(s) (2700 Sloat Boulevard Project, the Westside Pump Station Reliability Improvements Project, or the Westside Force Main Reliability Project), the SFPUC or contractor shall submit a project-specific construction noise control plan to the ERO or the ERO's designee for approval. Exterior construction for purposes of the proposed project and the nearby cumulative projects includes construction including the following activities; heavy-duty construction equipment for excavation, grading, foundation and shoring, and construction of building shells. The construction noise control plan shall be prepared by a qualified acoustical engineer, with input from the construction contractor, and include all feasible measures to reduce construction noise. The construction noise control plan shall identify noise control measures to meet a performance target of construction activities not resulting in a noise level greater than 10 dBA above the ambient noise level at noise sensitive receptors (daytime ambient noise levels at the time construction begins + 10 dBA performance target). The SFPUC shall ensure that requirements of the construction noise control plan are included in contract specifications. If nighttime construction is required, the plan shall include specific measures to reduce nighttime construction noise. The plan shall also include measures for notifying the public of construction activities, complaint procedures, and a plan	1. SFPUC EMB 2. SFPUC CM Team (qualified acoustical engineer) 3. SFPUC CM Team 4. SFPUC CM Team 5. SFPUC CM Team 6. SFPUC CM Team 7. SFPUC CM Team 8. SFPUC CM Team	1. Design 2. Pre-construction, Construction 3. Construction 4. Pre-construction, Construction 5. Construction 6. Construction 7. Construction 8. Construction	1. SFPUC EMG 2. SFPUC EMG, ERO 3. SFPUC EMG 4. SFPUC EMG 5. SFPUC EMG 6. SFPUC EMG 7. SFPUC EMG 8. SFPUC EMG	1. Ensure contract documents include preparation and implementation of Construction Noise Control Plan, if project construction of the northern end of the buried wall overlaps with identified cumulative projects. 2. Prepare Construction Noise Control Plan, submit for ERO review and approval. 3. Monitor to ensure that the contractor implements the Construction Noise Control Plan. Report noncompliance and ensure corrective action. 4. Designate on-site construction noise manager. 5. Notify neighboring noise sensitive receptors at least 30 days in advance of high-intensity noise activities (10 dBA above ambient). 6. Post sign specifying construction timing and noise complaint procedures. 7. Ensure appropriate staffing of noise complaint hotline number. 8. Develop measures to respond and track construction noise complaints.

Adopted Mitigation Measure	MONITORING AND REPORTING PROGRAM[1]			
	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
NOISE AND VIBRATION (CONT.)				
for monitoring construction noise levels in the event complaints are received. The construction noise control plan shall include the following measures to the degree feasible, or other effective measures, to reduce construction noise levels: • Use construction equipment that is in good working order, and inspect mufflers for proper functionality • Select "quiet" construction methods and equipment (e.g., improved mufflers, use of intake silencers, engine enclosures) • Use construction equipment with lower noise emission ratings whenever possible, particularly for air compressors • Prohibit the idling of inactive construction equipment to no more than five minutes • Locate stationary noise sources (such as compressors) as far from nearby noise sensitive receptors as possible, muffle such noise sources, and/or construct barriers around such sources and/or the construction site • Avoid placing stationary noise-generating equipment (e.g., generators, compressors) within noise-sensitive buffer areas (as determined by the acoustical engineer) immediately adjacent to neighbors or other noise-sensitive properties • Enclose or shield stationary noise sources from neighboring noise-sensitive properties with noise barriers to the extent feasible. To further reduce noise, locate stationary equipment in pit areas or excavated areas, if feasible • Install temporary barriers, barrier-backed sound curtains and/or acoustical panels around working powered impact equipment and, if necessary, around the project site perimeter. When temporary barrier units are joined together, the mating surfaces shall be flush with each other. Gaps between barrier units, and between the bottom edge of the barrier panels and the ground, shall be closed with material that completely closes the gaps, and dense enough to attenuate noise	9. SFPUC CM Team (qualified noise consultant) 10. SFPUC CM Team	9. Construction 10. Construction	9. SFPUC EMG 10. SFPUC EMG	9. Monitor noise prior to and at beginning of major construction phases and during high-intensity activities. If necessary, implement additional noise control measures. 10. Maintain documentation of complaints received and construction noise levels monitored during construction.

Adopted Mitigation Measure	MONITORING AND REPORTING PROGRAM[1]			
	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
NOISE AND VIBRATION (CONT.)				
The construction noise control plan shall include the following measures for notifying the public of construction activities, complaint procedures and monitoring of construction noise levels: • Designation of an on-site construction noise manager for the project • Notification to neighboring noise sensitive receptors within 300 feet of the project construction area at least 30 days in advance of high-intensity noise-generating activities (e.g., pier drilling, pile driving, and other activities that may generate noise levels greater than 10 dBA above the ambient noise level at noise sensitive receptors) about the estimated duration of the activity • A sign posted on-site describing noise complaint procedures and a complaint hotline number that shall always be answered during construction • A procedure for notifying the planning department of any noise complaints within one week of receiving a complaint • A list of measures for responding to and tracking complaints pertaining to construction noise. Such measures may include the evaluation and implementation of additional noise controls at sensitive receptors (residences, hospitals, convalescent homes, schools, churches, hotels and motels, and sensitive wildlife habitat) • Conduct noise monitoring (measurements) at the beginning of major construction phases (e.g., demolition, grading, excavation) and during high-intensity construction activities to determine the effectiveness of noise attenuation measures and, if necessary, implement additional noise control measures				

Adopted Mitigation Measure	MONITORING AND REPORTING PROGRAM[1]			
	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
BIOLOGICAL RESOURCES				
Mitigation Measure M-BI-2a: Nesting Bank Swallow Protection Measures This measure applies to construction activities and small sand placements. Nesting bank swallows, their eggs and their nests, and their young shall be protected during construction and during sand placement events through the implementation of the following measures: a. If construction or beach nourishment activities within 650 feet of the bluffs used by the Fort Funston bank swallow colony are conducted during bank swallow nesting season (nesting is from April 1 to August 1), a qualified wildlife biologist shall conduct preconstruction surveys for nesting bank swallow within seven days prior to the start of construction, beach nourishment activities, and prior to reinitiating construction at this location after any construction breaks of 14 days or more. b. If active bank swallow nest sites are located during the preconstruction nesting surveys, a 650-foot no-disturbance buffer shall be established around the burrow nest site and all project work shall halt within the buffer until a qualified biologist determines the nest is no longer in use.	1. SFPUC EMB 2. SFPUC CM Team (qualified biologist) 3. SFPUC CM Team (qualified biologist)	1. Design, Operation 2. Construction, Operation 3. Construction, Operation	1. SFPUC EMG 2. SFPUC EMG 3. SFPUC EMG	1. Ensure contract documents include protection measures for nesting bank swallow, including providing advance notification to SFPUC EMG of construction activities to allow SFPUC EMG to perform surveys if construction or sand placement activities are planned to occur during bank swallow nesting season. 2. Conduct surveys within seven days prior to project activities and after any work break of 14 days or more if activities occur within 650 feet of habitat and during bank swallow nesting season. 3. If active nests found, establish 650-foot no-disturbance buffer. Halt project work until qualified biologist indicates the nest is inactive and work may resume. Monitor to ensure compliance. Report noncompliance and ensure corrective action.
Mitigation Measure M-BI-2b: Worker Environmental Awareness Program Training This measure applies to construction activities and small sand placements. A project-specific Worker Environmental Awareness Program training shall be developed by a qualified biologist for the project and attended by all construction personnel prior to beginning on-site work. As part of the training, brochures may be given to provide reference material to contractors. The training may be provided by the qualified biologist or by designated SFPUC staff trained by the biologist to provide this training, using the materials developed by the qualified biologist, and may be administered via a video-recorded	1. SFPUC EMB 2. SFPUC CM Team (qualified biologist)	1. Pre-construction 2. Pre-construction	1. SFPUC EMG 2. SFPUC EMG	1. Ensure contract documents include requirements for all construction personnel to attend Worker Environmental Awareness Program training. 2. Prepare a project-specific biological-resources awareness training program. Include documentation of qualifications of the biologist developing the training program (e.g., resume). Refer to mitigation measure for specific worker environmental training requirements.

Adopted Mitigation Measure	MONITORING AND REPORTING PROGRAM[1]			
	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
BIOLOGICAL RESOURCES (CONT.)				
training produced specifically for the project by a qualified biologist. A more in-depth environmental training may be developed and provided for contractor supervisors in leadership roles. The environmental training shall generally include but not be limited to education about the following: a. Applicable state and federal laws, environmental regulations, project permit conditions, and penalties for non-compliance; b. Special-status species with potential to occur on or in the vicinity of the project sites, avoidance measures, and a protocol for encountering such species including a communication chain; c. Preconstruction surveys and biological monitoring requirements associated with each phase of work and at each project site as biological resources and protection measures will vary depending on project component location and the corresponding land managers (see f, below); d. Known sensitive resource areas in the project vicinity that are to be avoided and/or protected, as well as approved project work areas, access roads, and staging areas; e. Best management practices and their location at various project sites for erosion control and species exclusion, in addition to general housekeeping requirements; and f. Specific requirements sanctioned by the National Park Service (NPS) that the project must comply with while working on NPS-managed lands.	3. SFPUC CM Team (qualified biologist)	3. Construction	3. SFPUC EMG	3. Monitor to ensure that all personnel attend training prior to beginning work, and sign training sign-in sheet. Maintain file of sign-in sheets in project record. Report noncompliance and ensure corrective action.

Adopted Mitigation Measure	MONITORING AND REPORTING PROGRAM[1]			
	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
BIOLOGICAL RESOURCES (CONT.)				
Mitigation Measure M-BI-2c: Bank Swallow Signage and Protective Fencing During the construction period and prior to project completion, the SFPUC, with the oversight of the planning department, shall implement the following: a. Educational Kiosk or Signs. Develop and produce one, permanent educational kiosk or signage to be installed in the Skyline coastal parking lot or along the multi-use trail. Educational content, sign design and structure shall be coordinated with the San Francisco Recreation and Parks Department and the National Park Service (NPS). b. Sensitive Habitat Signs. Develop and produce removable sensitive habitat signs that shall be installed on NPS property along bluff top access points at Fort Funston and within the conservation easement with the Olympic Club above Phillip Burton Memorial beach near the bank swallow nesting locations to alert the public of the sensitive nesting areas. The SFPUC and NPS shall enter into an agreement for the one-time development and production of the removable signs that the NPS shall install at its discretion as long as the bank swallow are listed as special-status and nesting within NPS-managed lands or within the boundaries of its conservation easement. c. Sensitive Habitat Fencing. Install removable fencing at a setback from the bluff edge above suitable nesting habitat to restrict public access above sensitive nesting areas. The SFPUC and NPS shall enter into an agreement for the one-time development and production of the removable fencing that the NPS shall design and install at its discretion as long as the bank swallow are listed as special-status and nesting within NPS-managed lands or within the boundaries of its conservation easement with the Olympic Club.	1. SFPUC EMB, RPD/SFMTA, NPS	1. Design	1. SFPUC EMG, ERO	1. Ensure contract documents include development and installation of the permanent educational kiosk or signage at Skyline parking lot or along multi-use trail.
	2. SFPUC PMB, NPS and RPD/SFMTA	2. Construction	2. SFPUC EMG, ERO	2. Establish an agreement with NPS and RPD/SFMTA for the one-time development and installation of educational kiosk or signage at Skyline parking lot or along multi-use trail.
	3. SFPUC EMB, SFPUC EMG, RPD/SFMTA and NPS	3. Construction	3. SFPUC EMG, ERO	3. Develop and produce educational kiosk or signage (Skyline coastal parking lot or multi-use trail) in coordination with RPD/SFMTA and NPS.
	4. SFPUC CM Team, RPD/SFMTA and NPS	4. Construction	4. SFPUC EMG	4. Install educational kiosk or signage (Skyline coastal parking lot or multi-use trail) in coordination with RPD/SFMTA and NPS.
	5. SFPUC PMB, SFPUC EMG, and NPS	5. Pre-construction	5. SFPUC PMB, SFPUC EMG, ERO	5. Enter into an agreement for the one-time development and production of the removable sensitive habitat signs and fencing (bluff top access points near nesting locations) that NPS shall install on an annual basis at their discretion.
	6. SFPUC EMG, SFPUC EMB, and NPS	6. Construction	6. SFPUC EMG, ERO	6. Develop and produce removable sensitive habitat signs and fencing (bluff top access points near nesting locations) that NPS shall install at their discretion.
	7. NPS	7. Construction	7. SFPUC EMG	7. Install removable sensitive habitat signs and fencing (bluff top access points near nesting locations)

Adopted Mitigation Measure	MONITORING AND REPORTING PROGRAM[1]			
	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
BIOLOGICAL RESOURCES (CONT.)				
Mitigation Measure M-BI-2d: Public Engagement Specialist The SFPUC shall enter an agreement with NPS requiring SFPUC to fund bank swallow public engagement work by a seasonal, part-time, public engagement specialist for five bank swallow nesting seasons (April 1 to August 1). The role of the public engagement specialist shall be determined by NPS, and may include visual monitoring of the public's compliance with physical deterrents, supporting ongoing NPS bank swallow monitoring, development of educational materials, and public engagement and education related to bank swallow and their nesting habitat. The public engagement specialist shall prepare a final report for submission to NPS and the ERO at the end of the five nesting seasons documenting lessons learned and recommendations for future habitat protection and management actions.	1. SFPUC PMB, NPS 2. SFPUC CM Team and NPS/ERO (Public engagement specialist)	1. Pre-construction 2. Post Construction	1. SFPUC EMG, NPS 2. SFPUC EMG, NPS	1. Enter into funding agreement with NPS. 2. Prepare final report at the end of five nesting seasons.
Mitigation Measure M-BI-2e: Bank Swallow Movement, Population Dynamics, and Coastal Habitat Use Research The SFPUC shall fund up to five years of research related to bank swallow movement, population dynamics, and coastal habitat selection. The research scope shall be developed in coordination with NPS and approved by the ERO, and research shall be conducted by a qualified biologist with relevant expertise. Research supported by this measure would augment existing NPS monitoring data to quantify survivorship and movement patterns of bank swallows in coastal California, specifically the Fort Funston population, to better understand the populations' habitat selection, and identify its key threats. The funding agreement shall stipulate that the findings of the research funded under this measure shall be documented in a final report and made publicly available, to increase the body of knowledge around the species' habitat conservation and management.	1. SFPUC PMB, NPS 2. SFPUC EMG, NPS, qualified research team	1. Pre-construction 2. Post Construction	1. SFPUC EMG, NPS 2. SFPUC EMG, NPS	1. Identify research team, enter into funding agreement. 2. Prepare and publish final report and make publicly available.

Adopted Mitigation Measure	MONITORING AND REPORTING PROGRAM[1]			
	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
BIOLOGICAL RESOURCES (CONT.)				
Mitigation Measure M-BI-2f: Blufftop Foraging Habitat Restoration Prior to construction, the SFPUC shall submit to the NPS and the Environmental Review Officer (ERO), a detailed restoration plan and schedule for implementing this measure. The schedule shall provide for completion of the restoration prior to completion of project construction. If any element of the restoration plan cannot be completed prior to completion of project construction, the SFPUC shall provide an explanation and an alternative completion date. The plan shall also include a proposed monitoring and reporting schedule. Upon completion of the work described in this measure, the SFPUC shall prepare and submit to NPS and the ERO a final report describing the types, dates, and locations of work performed. The SFPUC, with oversight from the planning department and in coordination with the NPS, shall implement or fund restoration of: 1) approximately 2 acres of bluff-top foraging habitat within the approximately 8-acre portion of Fort Funston identified for habitat restoration in Figure 4.6-3a; and 2) an additional approximately 200 linear feet of blufftop dune habitat at locations above active nesting habitat identified and mapped in the bank swallow habitat assessment memorandum where safe and effective at limiting human disturbance (ESA, 2023. Memorandum: Fort Funston Bank Swallow Habitat Assessment, Revised January 11, 2023). Restoration activities may include removing non-native and/or invasive vegetation and planting native dune plants using hand tools, an NPS-approved herbicide, and mechanical equipment (e.g., small backhoe or excavator), or combination thereof, and in combination with installation of sensitive habitat signage and removable fencing provided in M-BI-2c. All work shall be performed in accordance with the requirements of SFPUC's Standard Construction Measures, as applicable.	1. SFPUC EMB (qualified biologist) 2. SFPUC PMB, NPS 3. SFPUC EMB (qualified biologist), SFPUC CM Team (qualified biologist) 4. SFPUC EMG or NPS	1. Pre-construction 2. Pre-construction, Construction 3. Construction, Post Construction 4. Post Construction	1. SFPUC EMG, NPS, ERO 2. SFPUC EMG, NPS, ERO 3. SFPUC EMG, NPS, ERO 4. SFPUC EMG or NPS, ERO	1. Prepare Blufftop Foraging Habitat Restoration Plan and implementation schedule 2. Fund NPS restoration or implement restoration. 3. Implement restoration and prepare final "as-built" report. 4. Monitor restoration for five years or until the sites meet the success criteria determined in the plan and prepare final monitoring report.

Adopted Mitigation Measure	MONITORING AND REPORTING PROGRAM[1]			
	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
BIOLOGICAL RESOURCES (CONT.)				
The SFPUC shall prepare and implement or fund a bank swallow foraging habitat revegetation and restoration plan which sets forth the basis of restoration design, planting plan, and monitoring and reporting requirements for the restoration areas. The plan shall be coordinated with and approved by NPS and shall inform restoration design plans developed by the SFPUC in coordination with NPS. The restoration monitoring plan shall be prepared by a qualified restoration ecologist and shall include or provide for the following: • Restoration methods for selected areas, including site preparation, such as removal of existing vegetation and soil preparation, seed material and application, vegetative plant material harvest (if any), and plant specimen sourcing and planting methods; • Schedule to guide seed and/or vegetative material collection/harvest or procurement, and seeding and/or planting within the restoration areas; • Quantitative monitoring methods to evaluate performance of restored areas, including characterizing species richness, vegetative composition and cover; • Identification of appropriate reference sites to implement monitoring methods and compare results with restoration areas regarding species richness, vegetative composition and cover; • Photo points located at each restoration site and reference area(s) to document conditions during the monitoring period; • Performance criteria and measures to control/remove target invasive plants according to NPS policies. Control species shall include those ranked by Cal-IPC as high or moderately invasive. The performance standard for target invasive weeds shall be no more than 10 percent absolute cover during the five-year performance period;				

Adopted Mitigation Measure	MONITORING AND REPORTING PROGRAM[1]			
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BIOLOGICAL RESOURCES (CONT.)				
• Performance criteria for native plantings, appropriate for species and quantities planted at the 2-acre restoration site and the blufftop restoration sites (criteria may differ depending on site design); • Adaptive management schedule and actions (maintenance weeding or replanting) to address underperformance throughout the monitoring period; • Restoration areas shall be monitored to assess plant establishment for five years or until the sites meet the success criteria determined in the plan. At a minimum, total native vegetation cover, composition, and species richness in the restored areas shall be monitored and maintained until comparable with suitable reference sites.				
Mitigation Measure M-BI-2g: Bank Swallow Habitat Enhancement The SFPUC shall implement or fund ice plant removal from the bluff face within suitable nesting habitat areas (i.e., active and historic nest sites), as identified in the bank swallow habitat assessment memorandum (ESA, 2023. Memorandum: Fort Funston Bank Swallow Habitat Assessment, Revised January 11, 2023). The ice plant removal shall be completed prior to completion of project construction. If the removal work cannot be completed prior to project completion, the SFPUC shall provide the NPS and the ERO an explanation and an alternative completion date. Upon completion of the work described in this measure, the SFPUC shall prepare and submit to the NPS and the ERO a report describing the types, dates, and locations of work performed.	1. SFPUC PMB, NPS 2. SFPUC CM Team (qualified biologist or NPS 3. SFPUC CM Team (qualified biologist) or NPS	1. Pre-construction 2. Construction 3. Construction	1. SFPUC EMG, NPS 2. SFPUC EMG or NPS 3. SFPUC EMG, or NPS, ERO	1. Fund the implementation of the Bank Swallow Habitat Enhancement (ice plant removal). 2. Remove ice plant. 3. Prepare and submit report describing types, dates, and locations of habitat enhancement.

Adopted Mitigation Measure	MONITORING AND REPORTING PROGRAM[1]			
	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
BIOLOGICAL RESOURCES (CONT.)				
Mitigation Measure M-BI-2h: Bank Swallow Artificial Habitat Creation Prior to construction, the SFPUC shall submit to the NPS and the ERO a detailed plan and schedule for implementing this measure. The schedule shall provide for completion of the feasibility study described in paragraph 1, below, prior to completion of project construction and installation of the pilot project described in paragraph 2, below, prior to the first nesting season that follows project removal of bank swallow habitat. If any element of the plan cannot be completed on schedule, the SFPUC shall provide an explanation and an alternative completion date. Upon completion of the work described in this measure, the SFPUC shall prepare and submit to the ERO a final report as described in paragraph 2(c) of this mitigation measure. 1. **Feasibility Study.** The SFPUC shall fund development and implementation of a study to explore the feasibility, efficacy, and logistics of installing artificial habitat creation concepts within the project vicinity to support the local nesting bank swallow population. These concepts may include drilling artificial burrows into the bluff face, or installing wooden nest box "bank" habitats along the bluff top, among other concepts that have documented success supporting other nesting bank swallow populations and would not conflict with Coastal Act or other applicable laws or policies. The feasibility study shall be developed in coordination with NPS and analyze how each concept would be implemented along the Fort Funston blufftop or other nearby locations, including design, siting and other locational considerations, and geotechnical considerations. Feasible artificial habitat creation shall avoid disrupting scenic resources, cultural resources, or sensitive habitat. The feasibility study shall be completed in time to ensure the pilot project would be installed prior to the first nesting season after	1. SFPUC EMG, NPS 2. SFPUC EMG, NPS 3. SFPUC PMB, NPS 4. SFPUC CM Team (qualified biologist), NPS 5. SFPUC EMG, NPS 6. SFPUC EMG, NPS	1. Pre-construction 2. Pre-construction 3. Pre-construction 4. Construction 5. Post Construction 6. Post Construction	1. SFPUC EMG, NPS, ERO 2. SFPUC EMG, NPS, ERO 3. SFPUC EMG, NPS, ERO 4. SFPUC EMG, NPS, ERO 5. SFPUC EMG, NPS, ERO 6. SFPUC EMG, NPS, ERO	1. Prepare plan and schedule for implementing this measure. 2. Prepare feasibility study. 3. Fund implementation, monitoring, and reporting for pilot study 4. Install artificial habitat. 5. Prepare annual monitoring reports for pilot project for five years. 6. Prepare final report upon completion of the five-year monitoring period.

Adopted Mitigation Measure	MONITORING AND REPORTING PROGRAM[1]			
	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
BIOLOGICAL RESOURCES (CONT.)				
habitat removal by the project and identify at least one concept for implementation as an artificial habitat pilot project, though multiple concepts may be determined feasible and incorporated into the pilot project. 2. **Pilot Project**. The SFPUC shall fund development and implementation of an artificial habitat pilot project. The pilot project shall include implementing and monitoring the effectiveness of the selected experimental concept(s) identified in the feasibility study (e.g., drilling artificial burrows into the bluff face or installing several wooden nest box banks along the Fort Funston blufftop or other nearby locations). The artificial habitat should be constructed on a schedule that allows for bank swallow use ahead of the first nesting season following project removal of existing bluff habitat. a) Once installed, the artificial habitat(s) shall be surveyed for nesting activity monthly by a qualified biologist in April, and August, and twice a month in May, June, and July, for five consecutive years to document bank swallow use. b) An annual monitoring report shall be prepared that summarizes seasonal use observations at the artificial habitat(s). This report shall be provided to the NPS and the ERO within 90 days of the end of the annual monitoring period. The artificial habitat shall be considered successful if bank swallow nest or attempt to nest (repeatedly visit the habitat[s]) during the nesting season within the five-year monitoring period. c) Upon completion of the five-year monitoring period, a final report shall be prepared which compiles results of the artificial habitat pilot project. If the artificial habitat(s) was successful, the report shall include recommendations for potential funding mechanisms and partnerships for continued maintenance. This report shall be made publicly available.				

Adopted Mitigation Measure	MONITORING AND REPORTING PROGRAM[1]			
	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
BIOLOGICAL RESOURCES (CONT.)				
All work shall be performed in accordance with the requirements of SFPUC's Standard Construction Measures, as applicable.				
Mitigation Measure M-BI-9: Avoidance and Minimization Measures for Special-Status Bats and Maternity Roosts A qualified biologist experienced in the identification of special-status bats shall conduct a preconstruction survey for special-status bat species habitat in advance of any tree trimming or removal to identify signs of potential bat habitat, including maternity colonies and any active roost sites. Identified bat maternity colonies shall be avoided, if possible. Should potential maternity colonies or active bat roosts be found in trees but cannot be avoided, SFPUC shall ensure the following measures are implemented: a. Trim trees or install bat exclusion devices when bats are active, approximately between the periods of March 1 to April 15 and August 15 to October 15; outside of the bat maternity roosting season (approximately April 15 to August 15) if a maternity roost is present, and outside the months of winter torpor (approximately October 15 to February 28, or as determined by a qualified biologist experienced in the identification of special-status bats). b. If tree trimming is not feasible during the periods when bats are active, and bat roosts being used for maternity or hibernation purposes are found on or in the immediate vicinity of the tree trimming, a qualified biologist shall delineate a no-disturbance buffer around these roost sites until they are no longer in use as maternity or hibernation roosts or the young are capable of flight. c. Based on the professional opinion of a qualified biologist, buffer distances may be adjusted around roosts depending on the level of surrounding ambient activity (e.g., if the subject tree is adjacent to a busy road) or if an obstruction, such as a large sand dune, is within the line-of-sight between the roost and construction.	1. SFPUC EMB 2. SFPUC CM Team (qualified biologist) 3. SFPUC CM Team (qualified biologist)	1. Design 2. Pre-construction (prior to tree trimming or removal) 3. Construction	1. SFPUC EMG 2. SFPUC EMG 3. SFPUC EMG	1. Ensure contract documents include avoidance and minimization measures for special-status bats and maternity roosts, and requirement for contractor to provide advance notification to SFPUC CM Team of construction activities to allow SFPUC CM Team to perform pre-construction surveys. 2. Conduct pre-construction special-status bat survey before tree trimming/removal. 3. If potential maternity colonies, roosting habitat, or active bat roosts are found in trees but cannot be avoided, implement measures specified in mitigation measure. Monitor to ensure that the contractor implements avoidance and minimization measures in contract documents. Report noncompliance and ensure corrective action.

Adopted Mitigation Measure	MONITORING AND REPORTING PROGRAM[1]			
	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
BIOLOGICAL RESOURCES (CONT.)				
d. A biologist experienced in the identification of special-status bats shall be present during tree trimming and removal if bat roosts are present. Project activities shall disturb trees with roosts only when no rain is occurring or is not forecast to occur for three days and when daytime temperatures are at least 50 degrees Fahrenheit. e. Under the supervision of the qualified biologist, trim trees containing or suspected to contain roost sites over two days. On the first day, branches and limbs not containing cavities or fissures in which bats could roost shall be cut using chainsaws. The following day, branches or limbs containing roost sites shall be trimmed with chainsaws, under the supervision of the biologist.				
AIR QUALITY				
Mitigation Measure M-AQ-2: Construction Emissions Minimization ***A. Engine Requirements.*** All off-road equipment greater than 125 horsepower and operating for more than 20 total hours over the entire duration of construction activities shall have engines that meet the USEPA or California Air Resources Board Tier 4 Final off-road emission standards in construction years 2 and 4 (2025 and 2027). ***B. Waivers.*** The Environmental Review Officer (ERO) may waive the equipment requirements of section A if: (1) engines that comply with Tier 4 Final off-road emission standards are not available, (2) use of a particular piece of off-road equipment is technically not feasible; (3) the equipment would not produce desired emissions reduction due to expected operating modes; or (4) there is a compelling emergency need to use other off-road equipment. If the SFPUC seeks a waiver from the requirements of section A, it shall submit documentation to the ERO of the following: 1) evidence that a waiver from the section A requirements meets the criteria set forth in	1. SFPUC EMB 2. SFPUC CM Team 3. SFPUC CM Team	1. Design 2. Construction 3. Construction	1. SFPUC EMG 2. SFPUC EMG 3. SFPUC EMG, ERO	1. Ensure contract documents include construction emissions minimization requirements. 2. Monitor to ensure the contractor complies with Tier 4 Final engine requirements or next cleanest off-road equipment, as required. Report noncompliance and ensure corrective action. 3. Obtain off-road equipment waiver as per mitigation measure, if needed. Maintain records in project file documenting compliance with equipment waiver requirements, including demonstrating non-exceedance of NOx significance threshold (54 pounds/day).

<table>
<tr><th rowspan="2">Adopted Mitigation Measure</th><th colspan="4">MONITORING AND REPORTING PROGRAM[1]</th></tr>
<tr><th>Implementation Responsibility</th><th>Mitigation Schedule</th><th>Monitoring / Reporting Responsibility</th><th>Monitoring Actions / Completion Criteria</th></tr>
<tr><td colspan="5">AIR QUALITY (CONT.)</td></tr>
<tr><td>section B; 2) identification of the compliance alternative in Table M-AQ-2-1 to be implemented (or other compliance alternative that yield sufficient emissions reductions); and 3) analysis demonstrating that with the compliance alternative the project would not exceed the significance threshold for NOx of an average of 54 pounds/day. The SFPUC shall maintain records concerning its efforts to comply with this requirement.
TABLE M-AQ-2-1 OFF-ROAD EQUIPMENT COMPLIANCE STEP-DOWN SCHEDULE
<table><tr><th>Compliance Alternative</th><th>Engine Emission Standard</th></tr><tr><td>1</td><td>Tier 4 interim</td></tr><tr><td>2</td><td>Tier 3</td></tr><tr><td>3</td><td>Tier 2</td></tr></table>How to use the table: If the Tier 4 Final emissions standards cannot be met for a specific piece of off-road equipment, then the SFPUC would need to meet Compliance Alternative 1. Should the SFPUC not be able to supply off-road equipment meeting Compliance Alternative 1, then Compliance Alternative 2 would need to be met. Should the SFPUC not be able to supply off-road equipment meeting Compliance Alternative 2, then Compliance Alternative 3 would need to be met.</td><td></td><td></td><td></td></tr>
<tr><td colspan="5">GEOLOGY AND SOILS</td></tr>
<tr><td>Mitigation Measure M-GE-5: Paleontological Resources Monitoring and Mitigation Program
The SFPUC shall engage a qualified paleontologist meeting standards recommended by the Society for Vertebrate Paleontology (SVP) to develop a site-specific monitoring plan prior to commencing soil-disturbing activities at the project site. The Paleontological Monitoring Plan would determine project construction activities requiring paleontological monitoring based on those activities that may affect sediments with moderate or greater sensitivity for paleontological resources. Prior to any ground-disturbing activities, the SFPUC shall submit the Paleontological Monitoring Plan to the Environmental Review Officer (ERO) for approval.</td><td>1. SFPUC EMB</td><td>1. Design</td><td>1. SFPUC EMG</td><td>1. Ensure contract documents include requirements for paleontological resources monitoring and mitigation program, and requirement for contractor to provide advance notification to SFPUC CM Team of construction activities to allow SFPUC CM Team to monitor work.</td></tr>
</table>

Adopted Mitigation Measure	MONITORING AND REPORTING PROGRAM[1]			
	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
GEOLOGY AND SOILS (CONT.)				
At a minimum, the plan shall include: a. Project Description b. Regulatory Environment – outline applicable federal, state, and local regulations c. Summary of Sensitivity Classification(s) d. Research Methods, including but not limited to: • Field studies conducted by the qualified paleontologist to check for fossils at the surface and assess the exposed sediments. • Literature Review to include an examination of geologic maps and a review of relevant geological and paleontological literature to determine the nature of geologic units in the project area. Locality Search to include outreach to the University of California Museum of Paleontology in Berkeley. a. Results: to include a summary of literature review and finding of potential site sensitivity for paleontological resources; and depth of potential resources if known. b. Recommendations for any additional measures that could be necessary to avoid or reduce any adverse impacts to recorded and/or inadvertently discovered paleontological resources of scientific importance. Such measures could include: • Avoidance: If a known fossil locality appears to contain critical scientific information that should be left undisturbed for subsequent scientific evaluation. • Fossil Recovery: If isolated small, medium- or large-sized fossils are discovered during field surveys or construction monitoring, and they are determined to be scientifically significant, they should be recovered. Fossil recovery may involve collecting a fully exposed fossil from the ground surface, or may involve a systematic excavation, depending upon the size and complexity of the fossil discovery.	2. SFPUC CM Team (qualified paleontologist)	2. Pre-construction	2. SFPUC EMG, ERO	2. Develop site-specific Paleontological Monitoring Plan as specified in the mitigation measure and submit plan to ERO for approval prior to any soil-disturbing activities.
	3. SFPUC CM Team (qualified paleontologist)	3. Construction	3. SFPUC EMG, ERO	3. Implement Paleontological Monitoring Plan recommendations (if any) for additional measures to avoid/reduce impacts to paleontological resources of scientific importance.
	4. SFPUC CM Team (qualified paleontologist)	4. Construction	4. SFPUC EMG	4. Monitor to ensure that the contractor implements measures in contract documents, report noncompliance, and ensure corrective action. Document monitoring inspections, and data recovery for significant paleontological resource finds (if any). Maintain reports in project file documenting compliance with the Paleontological Monitoring Plan.
	5. SFPUC EMG (qualified paleontologist	5. Construction	5. SFPUC EMG, CM Team	5. If data recovery is anticipated, submit Paleontological Data Recovery Plan to ERO
	6. SFPUC EMG (qualified paleontologist	6. Construction	6. SFPUC EMG, CM Team	6. Implement Paleontological Data Recovery Plan
	7. SFPUC CM Team (qualified paleontologist	7. Construction	7. SFPUC EMG, ERO	7. Prepare and submit final monitoring and data recovery reports to ERO for review and approval. Provide approved report(s) to RPD if paleontological resources are found on property managed by RPD.

Adopted Mitigation Measure	MONITORING AND REPORTING PROGRAM[1]			
	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
GEOLOGY AND SOILS (CONT.)				
• Monitoring: Monitoring involves systematic inspections of graded cut slopes, trench sidewalls, spoils piles, and other types of construction excavations for the presence of fossils, and the fossil recovery and documentation of these fossils before they are destroyed by further ground disturbing actions. Monitoring could identify the need for test sampling. • Data recovery and reporting: Fossil and associated data discovered during ground disturbing activities should be treated according to professional paleontological standards and documented in a data recovery report. The plan should define the scope of the data recovery report. c. The paleontologist shall document the monitoring conducted according to the monitoring plan and any data recovery completed for significant paleontological resource finds discovered, if any. Plans and reports prepared by the paleontologist shall be considered draft reports subject to revision until final approval by the ERO.				

[1] *Definitions of MMRP Column Headings:*

- *Adopted Mitigation Measures:* Full text of the mitigation measure(s) copied verbatim from the final CEQA document.
- *Implementation Responsibility***:** Entity who is responsible for implementing the mitigation measure. In most cases this is the project sponsor and/or project's sponsor's contractor/consultant and at times under the direction of the planning department.
- *Mitigation Schedule:* Identifies milestones for when the actions in the mitigation measure need to be implemented.
- *Monitoring/Reporting Responsibility:* Identifies who is responsible for monitoring compliance with the mitigation measure and any reporting responsibilities.
- *Monitoring Actions/Completion Criteria:* Identifies the milestone at which the mitigation measure is considered complete. This may also identify requirements for verifying compliance.

Agency Acronyms Used in Table:

Caltrans = California Department of Transportation
ERO = (SF Planning Department) Environmental Review Officer or Planning Department designee
NPS = National Park Service
Public Works = San Francisco Public Works
SFPUC = San Francisco Public Utilities Commission
SFPUC EMG = Environmental Management Group
SFPUC CM Team = Construction Management Team
SFPUC EMB = Engineering Management Bureau
SFPUC PMB = Project Management Bureau
RPD = San Francisco Recreation and Parks Department
SFMTA = San Francisco Municipal Transportation Agency
USEPA = U.S. Environmental Protection Agency

Per CEQA guidelines 15097(a): A public agency may delegate reporting or monitoring responsibilities to another public agency or to a private entity which accepts the delegation. Where applicable, implementation responsibility to another agency is subject to acceptance.