APPENDIX A: MITIGATION AND MONITORING REPORTING PROGRAM

MITIGATION MONITORING AND REPORTING PROGRAM

Introduction

The California Environmental Quality Act (CEQA) requires the adoption of feasible mitigation measures to reduce the severity and magnitude of significant environmental impacts associated with project development. The Supplemental Environmental Assessment/Subsequent Initial Study (SEA/SIS) for the Sir Francis Drake Boulevard Improvement Project (CA FLAP CR 109(1)) includes mitigation measures to reduce the potential environmental effects of the proposed project. CEQA also requires reporting on and monitoring of mitigation measures adopted as part of the environmental review process (Public Resources Code section 21081.6). This Mitigation Monitoring and Reporting Program (MMRP) is designed to aid Central Federal Lands Highway Division (CFLHD) and the County of Marin in their implementation and monitoring of measures adopted in the Subsequent Mitigated Negative Declaration. The MMRP is presented in table format and describes the actions that must take place to implement each mitigation measure, the timing of those actions, the entities responsible for implementing and monitoring the actions, and verification of compliance.

The mitigation measures have largely remained unchanged since adoption of the original Mitigated Negative Declaration in 2015. New, or modified mitigation measures, are reflected in strikethrough text if deleted (e.g., ~~deleted~~) and underlined text if added (e.g., <u>added</u>).

Table 1: Mitigation Measures for the Sir Francis Drake Boulevard Improvement Project (CA FLAP CR 109(1))

Impact	Mitigation Measure	Timing	Responsible Party	Monitoring Party
Aesthetics				
Potential impacts to scenic resources (Section I.b) and potential to degrade existing visual character or quality of site and its surroundings (Section I.c)	**Mitigation Measure (MM) VA-1:** The area beyond the construction limits shall not be disturbed. Abandoned segments of roadway and temporary impact areas along Sir Francis Drake Boulevard (SFDB) within the project limits that would no longer be in use shall be reclaimed and revegetated. Degraded areas impacted from construction-related activity shall be replanted or reseeded with native plants from the watershed or nearby watershed under guidance from Point Reyes National Seashore (PRNS) biologists. Shrubs, trees, and herbaceous perennials and annuals shall be seeded and planted along riparian corridors where impacts and vegetation removal occur. Riparian vegetation shall be replanted with shrubs or live-stakes along the banks of East Schooner Creek. Federal Highway Administration Central Federal Lands Highway Division (CFLHD) shall prepare a restoration plan for the project in consultation with PRNS for appropriate seed mixes and plants. Revegetated areas shall be protected and cared for, including watering when needed, until restoration criteria have been met under U.S. Army Corps of Engineers (USACE) permits, the U.S. Fish and Wildlife Service (USFWS) Biological Opinion, and/or National Pollutant Discharge Elimination System (NPDES) standards. Revegetated areas shall be monitored in accordance with the approved restoration plan to ensure success criteria are met.	During and After Construction	CFLHD/Construction Oversight Engineer (COE) and/or National Park Service (NPS)	CFLHD and NPS
	MM VA-2: If fences within the existing SFDB easement need to be removed to accommodate construction, they shall be replaced in-kind at the edge of the road right-of-way. If distinctive fencing materials, such as wood rail fencing, are affected during construction, they shall be replaced in-kind and positioned to maintain the alignment of ranch cattle and human circulation patterns.	After Construction	Contractor	CFLHD/COE
	MM VA-3: If historic wayfinding markers are temporarily removed during construction, the contractor shall reinstall the markers at the right-of-way line.	After Construction	Contractor	CFLHD/COE
	MM VA-4: If construction staging areas are located near ranch or farm residences, the contractor shall visually screen the staging area(s).	During Construction	Contractor	CFLHD/COE

Impact	Mitigation Measure	Timing	Responsible Party	Monitoring Party
Air Quality				
Temporary emissions during construction (Section III.b)	**MM AQ-1:** ~~Operators shall avoid leaving equipment and vehicles idling for more than five minutes when parked or not in use.~~ Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California Airborne Toxics Control Measure Title 13, Section 2485 of California Regulations). Clear signage shall be provided for construction workers at all access points.	During Construction	Contractor	CFLHD/COE
	MM AQ-2: The contractor shall control dust within the construction limits in accordance with FP-03 Section 158, FP-03 Section 312, and applicable state and federal regulations.	During Construction	Contractor	CFLHD/COE
	MM AQ-3: All unpaved exposed surfaces (e.g., parking areas, staging areas, soil piles, and graded areas, and unpaved access roads) shall be watered two times a day.	During Construction	Contractor	CFLHD/COE
	MM AQ-4: All haul trucks transporting soil, sand, or other loose material off-site shall be covered.	During Construction	Contractor	CFLHD/COE
	MM AQ-5: All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.	During Construction	Contractor	CFLHD/COE
	MM AQ-6: All vehicle speeds on unpaved roads shall be limited to a maximum of 15 miles per hour.	During Construction	Contractor	CFLHD/COE
	MM AQ-7: All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.	During Construction	Contractor	CFLHD/COE
	MM AQ-8: All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.	During Construction	Contractor	CFLHD/COE

Impact	Mitigation Measure	Timing	Responsible Party	Monitoring Party
Biological Resources				
Potential to adversely affect candidate, sensitive, and/or special status species per USFWS and California Department of Fish and Wildlife (CDFW) (Section IV.a)	**MM BIO-1:** Prior to construction, a qualified biologist shall lead Worker Environmental Awareness Training (WEAT) for all work supervisors. The trained supervisors shall provide WEAT to all workers prior to beginning work on the project. WEAT shall include, but is not limited to, identification of relevant biological resources (e.g., special status species that may be found in the project area) and an overview of conservation measures and avoidance and mitigation measures that are required during construction activities. Handouts summarizing information presented during WEAT and relevant contact information shall be provided to the workers. Upon completion of training, employees shall sign a form stating that they attended the training and understand all of the conservation and protection measures.	Before and During Construction	CFLHD/COE and NPS	CFLHD/COE
	MM BIO-2: All construction equipment shall be washed thoroughly to remove all dirt, plant, and other foreign material prior to entering the project area. Particular attention shall be shown to the under-carriage and any surface where soil containing exotic seeds may exist. These efforts are critical to prevent the introduction and establishment of non-native plant species into the project area. Arrangements shall be made for inspections of each piece of equipment before entering the project, and records of inspections shall be maintained by the contractor. Equipment found operating on the project that has not been inspected or has oil leaks shall be shut down and may be subject to citation.	During Construction	Contractor	CFLHD/COE
	MM BIO-3: To further minimize the introduction or spread of invasive species or non-native plant species, the contractor shall: (1) cover fill material in haul trucks entering the park; (2) limit vehicle parking to existing roadways, parking lots, access routes or previously disturbed sites approved by PRNS; (3) obtain all sand, rock, gravel, and erosion-control materials from PRNS-approved sources that are free of weeds and non-degradable contaminants.	During Construction	Contractor	CFLHD/COE
	MM BIO-4: Before clearing, grubbing, and grading, the contractor shall construct all erosion controls around the perimeter of the project area under construction, including filter barriers, diversion, and settling structures. The combined grubbing and grading operations shall be limited to 350,000 square feet of exposed soil at one time.	Before Construction	Contractor	CFLHD/COE

Impact	Mitigation Measure	Timing	Responsible Party	Monitoring Party
	MM BIO-5: The contractor shall ensure that food scraps and other trash from the project are deposited in covered or closed trash containers. The trash containers shall be stored and secured at the end of each working day to prevent wildlife access.	During Construction	Contractor	CFLHD/COE
	MM BIO-6: CFLHD shall comply with the *California Stormwater BMP Handbook* (2009) specifically addressing procedures for the proper use, storage, and disposal of materials and equipment on temporary construction pads that minimize or eliminate the discharge of potential pollutants to a watercourse (NS-14 in handbook) and procedures to protect waterbodies from debris and wastes associated with structure demolition or removal over or adjacent to watercourses (NS-15 in handbook).	During Construction	CFLHD/COE and Contractor	CFLHD/COE
	MM BIO-7: Any spill of petroleum products, hazardous materials, or other chemical or biological products released from construction, fleet, or other support vehicles, or stationary sources shall be properly cleaned, mitigated, and remedied, if necessary. Response shall occur in accordance with federal, state, and local regulations. Any spill of petroleum products or hazardous material shall be reported to the appropriate federal, state, and local authorities, if the spill is a reportable quantity.	During Construction	Contractor	CFLHD/COE
	MM BIO-8: The contractor shall repair leaks immediately on discovery. Equipment that leaks shall not be used. Oil pans and absorbent material shall be in place prior to beginning work. The contractor shall be required to provide the "on-scene" capability of catching and absorbing leaks or petroleum product spills, including antifreeze from breakdowns or repair actions, with approved absorbent materials. A supply of acceptable absorbent materials at the job site in the event of spills, as defined in the Stormwater Pollution Prevention Plan, shall be available. Sand and soil are not approved absorbent materials. Soils contaminated with fluids shall be removed, placed in appropriate safety containers, and disposed of according to state and/or federal regulations.	During Construction	Contractor	CFLHD/COE
	MM BIO-9: The construction contractor shall use best management practices to prevent the discharge of equipment fluids. All equipment shall be stored, repaired, maintained, and fueled at least 65 feet away from waterways, wetlands, and riparian habitat. A plan for prompt and effective response to any accidental spills shall be developed prior to construction.	During Construction	Contractor	CFLHD/COE

Impact	Mitigation Measure	Timing	Responsible Party	Monitoring Party
	MM BIO-10: Certified weed-free permanent and temporary erosion control measures shall be implemented to minimize erosion and sedimentation during and after construction.	Before, During, and After Construction	Contractor	CFLHD/COE
	MM BIO-11: CFLHD shall conform to the Federal Seed Act, the Federal Noxious Weed Act, and applicable state and local seed and noxious weed laws.	During and After Construction	CFLHD/COE and Contractor	CFLHD/COE
	MM BIO-12: Herbicides and pesticides shall not be used within the project construction limits.	Before, During, and After Construction	Contractor	CFLHD/COE
	MM BIO-13: Tree and vegetation removal shall not occur between February 1 and August 1 between project mile (PM) 10 and PM 12 to avoid the primary nesting season for NSO. In addition, tree and vegetation removal shall not occur between March 15 and August 1 for the entire project area for birds protected under Migratory Bird Treaty Act and special status bat species.	During Construction	CFLHD/COE	CFLHD/COE
	MM BIO-14: If any vegetation removal activities are scheduled to occur February 1–August 1 between PM 10 and PM 12 or March 15–August 1 for the remainder of the project corridor, a nest and roost survey shall be conducted no more than three days prior to construction to identify any active nests and roosts. Breeding and nesting behaviors shall be recorded and nest locations shall be documented using a Global Positioning System (GPS). Prior to conducting presence/absence surveys, biologists shall consult with PRNS for information on these species (i.e., known location, recent sightings, or presence of any tracked individuals near the project area).	Before Construction	CFLHD/COE	CFLHD/COE
	MM BIO-15: If active migratory birds or raptor nests are identified during the nesting season, a no-disturbance buffer shall be established around the nests. The extent of the no-disturbance buffers shall be determined by a wildlife biologist in consultation with CDFW or PRNS staff, and shall depend on the level of noise or construction disturbance, line of sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographic or artificial barriers. The purpose of the buffer is to avoid disturbance or destruction of the nest until after the breeding season, or until a wildlife biologist determines that the young have fledged (usually late June to middle July). Within this buffer, construction activities shall be avoided during the identified species nesting season. However, construction activities can proceed if the biological monitor determines that the individual is not likely to abandon	Before Construction	CFLHD/COE	CFLHD/COE

Impact	Mitigation Measure	Timing	Responsible Party	Monitoring Party
	the nest during construction.			
	MM BIO-16: No man-made structures that could provide substrate for bat roosting shall be removed. Prior to any tree removal, a qualified biologist shall conduct a habitat assessment for any potentially suitable bat habitat within the trees to be removed. If no suitable habitat is identified, then avoidance for the species has been achieved. If the survey reveals suitable bat habitat, and tree removal is scheduled between April 16 through August 31 and/or October 16 through February 28, then bat presence/absence surveys shall be conducted prior to any tree removal. If presence/absence surveys are negative then avoidance has been achieved, and trees may be removed following the two-phased tree removal system. The two-phased removal system shall be conducted over two consecutive days. The first day, in the afternoon, limbs and branches are removed by a tree cutter using chainsaws only. Limbs with cavities, crevices or deep bark fissures would be avoided, and only branches or limbs without those features would be removed. On the second day, the entire tree is removed. If presence/absence surveys result in bat occupancy then the occupied trees shall only be removed from March 1 through April 15 and/or August 31 through October 15.	During Construction	CFLHD/COE and Contractor	CFLHD/COE
	MM BIO-17: A biological monitor shall be present on site to monitor for California red-legged frog during construction within suitable aquatic breeding habitat areas, including any drainage or identified wetland within the project area. The monitor shall be approved by the USFWS at least 15 days before construction begins. Credentials and experience must be supplied to the USFWS.	During Construction	CFLHD/COE	CFLHD/COE
	MM BIO-18: A USFWS-approved biologist shall search all suitable aquatic breeding habitat areas within the proposed construction limits, including any drainage or identified wetland within the project area, for California red-legged frogs. Specifically, surveys will occur during the following periods: one time prior to initial groundbreaking activities; daily during the initial ground disturbing phase of construction; daily during rainy period; and periodically during the remaining times.	During Construction	CFLHD/COE	CFLHD/COE

Impact	Mitigation Measure	Timing	Responsible Party	Monitoring Party
	MM BIO-19: Excavated steep-walled holes or trenches more than 1 foot deep shall be provided with one or more escape ramps constructed of earth fill or wooden planks at the end of each work day to assist with avoiding entrapment of wildlife. Escape ramps or covered open trenches would help prevent injury or mortality of wildlife resulting from falling into trenches and becoming trapped. Trenches shall be inspected for the presence of federally-listed species at the beginning of each workday by a designated person trained by the USFWS-approved biologist. This person shall report daily during construction to the USFWS-approved biologist on the findings of these inspections and daily monitoring.	During Construction	CFLHD/COE and Contractor	CFLHD/COE
	MM BIO-20: For all activities occurring within the bed or bank of a drainage, daily construction monitoring by a qualified biologist shall be conducted.	During Construction	CFLHD/COE	CFLHD/COE
	MM BIO-21: Construction shall only occur during daylight hours (1/2 hour after sunrise to 1/2 hour before sunset).	During Construction	Contractor	CFLHD/COE
	MM BIO-22: No construction staging shall occur in wetlands or riparian habitat.	During Construction	Contractor	CFLHD/COE
	MM BIO-23: California red-legged frogs (CRLFs) found within the project area shall be captured by the approved biologist and held for the minimum amount of time necessary to release them in a suitable habitat outside of the construction work area following proper protocol as described below. Suitable release sites shall be identified by the USFWS-approved biologist prior to the start of construction. • ~~All work that could result in direct injury, disturbance, or harassment of the individual animal must immediately cease.~~ • CRLFs shall be captured using nets or by hand. The biologist shall avoid reaching for the frog by the tail, head, or limbs. The duration of handling individuals shall be limited to the maximum extent possible. Captured adults shall be kept moist, cool, and in an aerated environment, such as a bucket containing a damp sponge or cloth, and periods of direct sun exposure shall be minimized. Time in captivity shall be minimized to the extent practicable. • Individual animals shall not be placed in positions/containers	Before and During Construction	CFLHD/COE	CFLHD/COE

Impact	Mitigation Measure	Timing	Responsible Party	Monitoring Party
	where they may physically contact other individuals. • Multiple captured CRLFs shall not be released to the same location. • CRLFs shall be located upstream or downstream (not more than ¼ mile) of the work area to the closest suitable habitat for their life cycle. Suitable habitat shall be identified prior to the start of activities and shall be equivalent to the habitat (topography, exposure, vegetation) where the frog was found. The USFWS-approved biologist shall monitor any translocated animal until it is determined that the frog is not imperiled by predators or other dangers. • Only USFWS-approved biologists for the project shall capture CRLF. Soaps, oils, creams, lotions, repellents, or solvents of any sort shall not be used on hands within two hours before and during periods when they are capturing and relocating animals. To avoid transferring disease (e.g., chytrid fungus) or pathogens between sites during the course of handling the animals, the biologists shall take appropriate measures to disinfect all equipment and clothing, such as those describing in the Declining Amphibian Population Task Force's Code. • Pictures and GPS points shall be taken of the frog, the capture site, and the relocation site. Observations shall be recorded on California Natural Diversity Database field sheets and sent to CDFW. The USFWS shall be notified within one day of relocating individuals.			
	MM BIO-24: Any dewatering using pumps shall include screening not to exceed 0.2 inch mesh size. Pump intakes shall be placed in larger, perforated intake basins to allow water to be drawn into the pump while protecting aquatic organisms from entrainment. Both the outside of the intake basin and the pump intake shall be screened. The perforated intake basin shall be large enough to reduce the intake velocity so as not to impinge aquatic organisms on the screen.	During Construction	Contractor	CFLHD/COE

Impact	Mitigation Measure	Timing	Responsible Party	Monitoring Party
	MM BIO-25: Ground-disturbing activities shall be restricted to the dry season at approximately ~~PM 1.6–1.8,~~ PM 4.2–4.3, PM, 8.5–10.1, ~~and~~ PM 10.5–10.6, and PM 11.5–11.6 to avoid the period when California red-legged frogs could be actively breeding and dispersing to riparian habitats. Restrictions include no work between October 15 and June 15 for aquatic breeding areas.	During Construction	Contractor	CFLHD/COE
	MM BIO-26: Prior to any ground disturbance on the project site, wetland areas adjacent to the construction footprint shall be clearly delineated with orange-colored plastic construction fencing (environmentally sensitive area fencing), silt fencing, or solid barriers to prevent workers or equipment from inadvertently straying from the project area.	Before and During Construction	Contractor	CFLHD/COE
	MM BIO-27: Plastic mono-filament netting (erosion control matting) or similar material containing netting shall not be used at the project site as California red-legged frog or other animals may become entangled or trapped in it. Acceptable substitutes include coconut coir matting or tackified hydro-seeding compounds.	During Construction	Contractor	CFLHD/COE
	MM BIO-28: California red-legged frogs may take refuge in cavity-like structures (e.g., pipes, culverts). To prevent entrapment, any materials stored for one or more overnight periods shall be either securely capped prior to storage or thoroughly inspected by the on-site biologist and/or the construction foreman for individuals before the structure is used. If individuals are found, protocols for handling and relocating individuals as outlined in MM BIO-23 shall be followed.	During Construction	Contractor	CFLHD/COE
	MM BIO-29: Work in Schooner Creek, East Schooner Creek, and unnamed drainages between PM 9 and PM 12 shall be conducted during no- to low-flow periods of the year (July 1 and October 15 or the first significant fall rainfall; i.e., 0.2 inches over a 24-hour period). For the remainder of the project corridor, culvert repair or replacement and associated work shall be completed during the dry season—typically between April 15 and October 15 or the first significant fall rainfall. All construction-related work within waterways that cross the project area shall be done in accordance with permit conditions.	During Construction	Contractor	CFLHD/COE

Impact	Mitigation Measure	Timing	Responsible Party	Monitoring Party
	MM BIO-30: In accordance with the NPDES permit, a Rain Event Action Plan (REAP) shall be developed prior to Notice to Proceed. The REAP shall be reviewed and structured to address project-specific actions that are needed to prevent pollutants from reaching waterways or wetlands during a rain event. The REAP shall be executed within 48 hours prior to a forecasted rain event of 50% chance of precipitation or more.	Before and During Construction	Contractor	CFLHD/COE
	MM BIO-31: If a badger is observed within or near the project construction limits, construction shall stop and a PRNS biologist shall be notified. The biologist, in consultation with the Contracting Officer, shall determine an appropriate buffer distance and what construction activities can proceed.	Before and During Construction	Contractor and COE	CFLHD/COE
	MM BIO-32: A qualified biologist shall perform surveys prior to construction to determine the presence or absence of any life-stage of Myrtle's silverspot butterfly. If any life-stage of Myrtle's silverspot butterfly is observed during pre-construction surveys, the USFWS shall be contacted before work activities begin for technical assistance and determination if additional protection measures are needed.	Before and During Construction	CFLHD and/or NPS	CFLHD/COE
	MM BIO-33: A qualified botanist shall conduct a preconstruction survey of the construction limits for western dog violet plants within one year prior to project implementation. Preconstruction surveys shall be conducted within the blooming period between April and August. Identified plant populations shall be marked prior to project construction for avoidance during construction. If a plant population(s) cannot be feasibly avoided, individual plants shall be relocated by a qualified botanist to a location adjacent to the project disturbance limits.	During Construction	CFLHD and NPS	CFLHD
	MM BIO-34: If a seal or sea lion is identified within the project area, all work within 300 feet of the animal(s) shall be stopped and the contractor shall contact PRNS immediately. Work may resume once the seal or sea lion has left the project area or as approved by PRNS.	During Construction	Contractor	CFLHD/COE
	MM BIO-35: Impacts to sensitive natural communities shall be minimized by designating Environmentally Sensitive Areas. Environmentally Sensitive Areas shall include each population of special status plants known to occur within the study area, as well as locations of sensitive natural communities. Annual and perennial plant populations shall be delineated separately to ensure that the proper revegetation or	Before and During Construction	CFLHD/COE, Contractor, and NPS	CFLHD/COE

Impact	Mitigation Measure	Timing	Responsible Party	Monitoring Party
	transplanting methods, as described below, are followed. Environmentally Sensitive Areas shall be delineated with flags or fencing prior to construction and shall be maintained by the contractor and the biological monitor throughout construction. The contractor shall avoid fenced Environmentally Sensitive Areas.			
	MM BIO-36: Where Environmentally Sensitive Areas cannot be avoided, special status perennial plants with a Rare Plant Rank of 1, 2, or 4 shall be transplanted as appropriate. Perennial plants and their associated soil profiles shall be transplanted to adjacent areas outside of the impact zone, in close coordination with and guidance from PRNS ecologists. Prior to construction, seeds or cuttings shall be collected from perennial plants for propagation. Propagules shall be planted with the transplants to account for potential failure of transplants, as deemed necessary through coordination with PRNS ecology staff.	Before and During Construction	CFLHD/COE, Contractor, and NPS	CFLHD/COE
	MM BIO-37: Where Environmentally Sensitive Areas containing Point Reyes meadowfoam (blooms March to May), Point Reyes Bird's-beak (blooms June to October), and woolly-headed spineflower (blooms May to August) cannot be avoided, these special status annual plants shall be reseeded in a suitable location within the project corridor at a 2:1 rate.	Before and During Construction	CFLHD and NPS	CFLHD
	MM BIO-38: Where permanent impacts and annual plant Environmentally Sensitive Areas overlap, seeds shall be collected. Therefore, seed shall be collected prior to construction initiation/bid letting or construction shall occur after the species has produced seeds (May through October depending on the species). Collected seeds shall be dispersed in an area equivalent in size to the original, and in an area appropriate for each species. If feasible, the reseeded area shall be adjacent to the current population. Reseeding efforts shall occur in close coordination with PRNS ecology staff.	Before and After Construction	CFLHD/COE and NPS	CFLHD
	MM BIO-39: Where temporary impacts and annual plant Environmentally Sensitive Areas overlap, seed shall be collected prior to construction initiation/bid letting or construction shall occur after each species has had time to set seed (May through October, depending on the species). Collected seeds shall be stored for reseeding. After seed collection, the top six inches of soil shall be stockpiled and replaced in-kind post-construction. Collected seeds shall be dispersed in the same area and equivalent in size to the original. Reseeding efforts shall occur amid close coordination with PRNS ecology staff.	Before and After Construction	CFLHD/COE, Contractor, and NPS	CFLHD/COE

Impact	Mitigation Measure	Timing	Responsible Party	Monitoring Party
	MM BIO-40: Topsoil shall be conserved and separated from roadway excavation and embankment foundation areas. No topsoil shall be imported from outside PRNS and only conserved topsoil shall be used. All areas disturbed by earthwork or other construction activity shall have topsoil replaced, as required, within two weeks of completing slope finishing.	Before and After Construction	Contractor	CFLHD/COE
	MM BIO-41: Impacts to Point Reyes meadowfoam habitat shall be mitigated at a 2:1 ratio (created habitat to impacted habitat) to ensure the successful translocation of the species. The newly created habitat shall be monitored annually for five years during the height of the blooming season. To promote success of the mitigation, mowing within the newly created habitat as part of road maintenance or fire reduction shall occur after meadowfoam have set seed (typically occurs by June). A mitigation and monitoring plan shall be created and approved by CDFW, PRNS, and FHWA prior to initiation of construction.	After Construction	CFLHD and NPS	CFLHD and NPS
	MM BIO-42: Impacts to designated California red-legged frog critical habitat shall be mitigated in accordance with the terms and conditions of the USFWS Biological Opinion.	During and/or After Construction	CFLHD	CFLHD
	MM BIO-43: CFLHD shall comply with the ~~conservation measures set forth by the~~ terms and conditions of the National Marine Fisheries Service ~~as a result of informal Section 7 consultation~~ Biological Opinion.	During and/or After Construction	CFLHD	CFLHD
	MM BIO-44: CFLHD shall comply with the terms and conditions of the California Endangered Species Act incidental take permit for Point Reyes meadowfoam.	During and/or After Construction	~~CFLHD~~ Marin County	~~CFLHD~~ Marin County
	MM BIO-45: Construction at Drakes Beach parking lot will not occur during the seasonal beach closures (typically January–March) along Drakes Beach as established yearly by the NPS. The Contracting Officer's Engineer will coordinate with NPS and notify the contractor when construction may begin.	Before and During Construction	CFLHD/COE	CFLHD/COE
	See **MM VA-1, AQ-1, and AQ-2**.			

Impact	Mitigation Measure	Timing	Responsible Party	Monitoring Party
Potential adverse effects to riparian habitat and other sensitive natural communities (Section IV.b)	**MM BIO-45:** CFLHD shall compensate for the permanent loss of jurisdictional features through creation of wetland and riparian compensatory mitigation. The replacement ratio shall be 1.5:1 (acres replaced to acres impacted) or ~~higher~~ as negotiated with regulatory agencies, in accordance with permit terms and conditions. A mitigation and monitoring plan shall be developed for on-site restoration of temporarily impacted wetlands and riparian habitat, restoration or mitigation of permanently impacted riparian habitat, and mitigation of permanently impacted wetlands.	During and/or After Construction	CFLHD/COE	CFLHD/COE
	See **MM BIO-35**.			
Adverse effect on federally protected wetlands through placement of fill material (Section IV.c)	**MM BIO-46:** All material and debris generated as a result of project construction shall be removed from the site and disposed in an approved location outside of USACE jurisdiction.	After Construction	Contractor	CFLHD/COE
	MM BIO-47: Concrete and asphalt piles shall be stockpiled outside and away from wetland resource areas, surrounded with fiber rolls, and covered with plastic.	During Construction	Contractor	CFLHD/COE
	MM BIO-48: Temporarily impacted wetlands shall be restored on-site to pre-construction conditions through planting vegetation and hydroseeding with a native seed mix from the watershed or nearby watersheds under guidance from the PRNS biologists.	After Construction	Contractor and/or NPS	CFLHD/COE
	See **MM VA-1, BIO-9, BIO-29**.			
Potential to temporarily interfere with movement of native resident or migratory fish (Section IV.d)	See **MM BIO-29**.			
Cultural Resources				
Potential adverse change in significance of historic resource (Section V.a)	**MM HR-1:** The Historic E Ranch corral, Historic A Ranch main house, Historic B Ranch main house, and Historic B Ranch hay barn shall be protected from inadvertent damage by placement of fencing or concrete barriers.	Before Construction	CFLHD/COE or Contractor	CFLHD/COE

Impact	Mitigation Measure	Timing	Responsible Party	Monitoring Party
	MM HR-2: The contractor shall avoid disturbing trees within the B Ranch windbreak and their roots.	During Construction	Contractor	CFLHD/COE
	MM HR-3: No construction staging shall occur at E Ranch corral, B Ranch windbreak, A Ranch main house, or B Ranch hay barn.	During Construction	Contractor	CFLHD/COE
	MM HR-4: Project design will avoid the historic-era water trough on Home Ranch.	Before Construction	CFLHD	CFLHD
	See **MM VA-2**.			
Geology and Soils				
Soil erosion and loss of topsoil (Section VI.b)	See **MM VA-1**.			
Hazardous Materials				
Potential to encounter hazardous materials (Section VIII.a)	**MM HM-1:** Owners of subsurface utilities shall be contacted where excavation is to be conducted in order to assess whether any of the utilities are placed within Transite™ asbestos pipe. If subsurface utilities that need to be relocated are determined to be housed in Transite™ asbestos pipe, special handling, and possibly asbestos abatement, shall be required. Any disposal shall be conducted in accordance with applicable local, state, and federal regulations.	Before Construction	Contractor	CFLHD/COE
	MM HM-2: The contractor shall test the cattle under-crossings and culverts prior to demolition. Per the requirements of Regulation 11, Rule 2 (Asbestos Demolition, Renovation, and Manufacturing), if asbestos-containing material is identified, the contractor shall provide a written plan or notification of intent to the Bay Area Air Quality Management District's Enforcement Division and Air Pollution Control Officer prior to commencing demolition of structures.	Before Construction	Contractor	CFLHD/COE
	MM HM-3: During Worker Environmental Awareness Training, construction supervisor personnel shall be trained to recognize signs of possible contamination in soil such as odors and staining. Supervisors shall be responsible for training construction staff. Handouts shall be provided to aid construction workers in issue identification.	Before/During Construction	CFLHD/COE	CFLHD/COE

Impact	Mitigation Measure	Timing	Responsible Party	Monitoring Party
Hydrology & Water Quality				
Temporary impacts to existing beneficial uses of Schooner Creek (Section IX.a)	**MM WQ-1:** All materials placed in watercourses shall be non-toxic. Any combination of wood, plastic, cured concrete, steel pilings, or other materials used for in-channel structures shall not contain coatings or treatments, or consist of substances deleterious to aquatic organism that may leach into the surrounding environment in amounts harmful to aquatic organisms.	During Construction	Contractor	CFLHD/COE
	MM WQ-2: Temporary erosion control measures shall be maintained in working condition until the project is complete or the measures are no longer needed.	During Construction	Contractor	CFLHD/COE
	See **MM BIO-4, BIO-6, BIO-7, BIO-8, BIO-9, and BIO-12**.			
Potential to degrade water quality (Section IX.f)	See **MM BIO-4, BIO-6, BIO-7, BIO-8, BIO-9, BIO-12, WQ-1,** and **WQ-2**.			
Noise				
Temporary noise impacts during construction activities (Section XII.d)	**MM N-1:** Construction equipment shall have mufflers conforming to original manufacturer specifications that are in good working order and are in constant operation to prevent excessive noise or unusual noise.	During Construction	Contractor	CFLHD/COE
	MM N-2: The contractor shall provide the construction schedule to residences within or adjacent to the construction limits and notify adjacent residences at least 48 hours in advance of construction work.	During Construction	Contractor	CFLHD/COE
	MM N-3: Construction shall occur on weekdays. If weekend work is proposed, the contractor shall provide notification to the Contract Oversight Engineer two weeks prior to the proposed work. No weekend work shall be conducted without Contract Oversight Engineer approval.	During Construction	Contractor/COE	CFLHD/COE
	See **MM AQ-1** and **BIO-21**.			