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(National Park Service)

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EXHIBITS

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Exhibit 1



Best Management Practices Table

BMP Number	Description	Responsible Party	Timing
General			
GENERAL-1	<p>A training session would be required for all contractors, partners, or any NPS staff engaged in activities in or near T&E habitat. At this training, construction workers and supervisors would be informed about the Endangered Species Act and listed species in the project area, sensitivity of park resources, and of National Park standard values, regulations, and appropriate housekeeping practices. Training sessions will include identification of NPS/partner staff resource contacts; special-status wildlife, in the work area; markings for the limit line of disturbance; thresholds that would trigger a change in implementation techniques or require a halt in project implementation; prohibitions on feeding resident wildlife; and proper disposal of food waste and garbage to discourage feeding by wildlife, including corvids (scavengers, such as ravens), which may increase predation on native wildlife. Upon completion of training, employees or contracting crews will sign a form stating that they attended the training and understand all the avoidance and protection measures. Documentation of the training will be kept on file and available upon request. As needed, the training would be provided in the language of the contractor crews.</p>	Contractor and NPS	Training prior to construction; maintain records throughout construction.
GENERAL-2	<p>Equipment and material staging areas would be located in existing disturbed areas within the construction limits to the extent possible. Construction access routes and staging areas will be limited and clearly marked prior to the beginning of ground disturbing activities. No disturbance would occur beyond these limits. All protection measures would be clearly stated in the construction specifications and workers would be instructed to avoid conducting activities beyond the construction zone (including storage of equipment, materials, soil, etc.). Field workers would be shown exclusion zones to avoid.</p>	Contractor	During construction
GENERAL-3	<p>Other requirements for a contractor on site are as follows:</p> <ul style="list-style-type: none"> A. The contractor will be required to keep all waste and contaminants contained and remove them daily from the work site. B. All on- and off-road vehicles, equipment, and tools must be power washed to remove soil and plant fragments before entering GGNRA property to avoid spreading pathogens or exotic/invasive species. Equipment must be cleaned if moving from a work zone with aquatic invasive species. 	Contractor	During construction

BMP Number	Description	Responsible Party	Timing
	<p>C. Vehicle and equipment washing can occur on site only as needed to prevent the spread of sediment, pathogens, or exotic/invasive species. No runoff from vehicle or equipment washing is allowed to enter water bodies, including channels and storm drains, without being subjected to adequate filtration (e.g., vegetated buffers, hay wattles or bales, and silt screens).</p> <p>D. All boots, equipment, and tools must be disinfected using a 10% bleach solution, 70% isopropyl alcohol, or other NPS-approved disinfectant method prior to entering the site, as well as between work areas, to prevent pathogen spread.</p> <p>E. Vehicles, equipment, and tools may be inspected by GGNRA upon arrival and vehicles/equipment/tools determined to not be clean will be prohibited from accessing the site or continuing operations.</p> <p>F. Contractors would use quiet or noise-dampening technologies for equipment and implement measures to reduce noise to the extent feasible.</p> <p>G. No construction activities will occur at night to minimize impacts on wildlife that are most active during these times, such as the California red-legged frog.</p>		
GENERAL-4	Sourcing rock and soil materials: All soil and rock type materials will be certified weed free and sourced through quarries approved by GGNRA.	Contractor	During construction
GENERAL-5	All tools, equipment, barricades, signs, and surplus materials will be removed from the project area upon completion of the proposed project.	Contractor	During construction
Biological Resources			
BIO-1	A qualified biological monitor will be required to ensure that project actions conform to restrictions developed for species protection.	Contractor and NPS	During construction
BIO-2	A permitted biologist is defined as a person who holds a valid Sec 10 permit for surveys for a particular listed species. A biological monitor is a biologist approved by the Park's Natural Resource Division who has demonstrated abilities to conduct surveys for this species. A trained observer is defined as a person who may not have a biology background but who has attended recent field and office trainings	Contractor and NPS	During construction

BMP Number	Description	Responsible Party	Timing
	provided by the Park's Natural Resource Division or similar to identify the listed species, associated habitats, and construction techniques to avoid impacts to that species.		
BIO-3	The biological monitor will have either a Sec10(a)(1)(A) permit for the listed species or experience in the identification and behavior of special-status plant and wildlife species that could be affected, habitat assessment experience, and knowledge of the avoidance measures of the consultation. This would be documented by GGNRA natural resource specialists. The biological monitor(s) or trained observer(s) will keep a copy of the required avoidance measures and project plans in their possession when onsite. The biological monitor or trained observer would have authority to stop work if necessary to protect biological resources and listed species. The biological monitor or trained observer will complete a daily log summarizing activities and environmental compliance.	Contractor and NPS	During construction
BIO-4	Prior to construction activities within 1 mile of California red-legged frog breeding habitats, access routes and all other areas to be disturbed by restoration activities will be surveyed for the presence of the California red-legged frog. Any feature that provides cover and moist ground conditions would be searched by a trained observer immediately prior to construction to determine presence of CRLF. These efforts will include preconstruction night surveys to capture adult red-legged frogs, pre-construction trapping for tadpoles, and preconstruction daytime surveys for any newly transformed metamorphs. These preconstruction surveys will be conducted within 48 hours of the beginning of ground disturbance and will be planned with a "one step ahead" approach relative to construction activities. All rodent burrows, leaf litter deeper than 2 inches, or other obvious refugia will be surveyed for the presence of the species. Frogs observed in these areas will be relocated per CRLF-4.	Contractor and NPS	During construction
BIO-5	NPS will continue to conduct watershed-wide annual winter breeding surveys counting the number of active breeding sites and egg masses both between construction years and post-construction, per the GGNRA CRLF Management Plan.	NPS	Post-construction
BIO-6	<ul style="list-style-type: none"> A. All resource protection measures will be clearly stated in the construction specifications, and workers will be instructed to avoid conducting activities outside the project area. B. Construction zones outside of existing disturbed areas will be delineated with flagging, and all surface disturbances confined to the construction zone. 	NPS and Contractor	Prior to construction and during construction

BMP Number	Description	Responsible Party	Timing
BIO-7	The contractor will be required to keep all waste and contaminants contained and remove them daily from the work site. Wildlife-proof trash receptacles will be used. Uneaten human food and trash attracts crows, ravens, coyotes, and other predators of the CRLF. A litter control program will be instituted at each project site. All workers will ensure their food scraps, paper wrappers, food containers, cans, bottles, and other trash are deposited in covered or closed trash containers. The trash containers will be removed from the project site at the end of each working day.	Contractor	During construction
BIO-8	<p>The following measures will be implemented to minimize potential adverse effects to non-federally listed nesting birds.</p> <ul style="list-style-type: none"> A. To the extent feasible, tree and other vegetation removal would occur outside the nesting season. B. If vegetation clearing or ground disturbing activities commence between March 1 and July 31, a qualified biologist will conduct a survey for nesting birds within 5 days prior to starting work. If a lapse in project-related work of 1 week or longer occurs, another focused survey will be conducted before project work can be initiated. Surveys will cover a minimum of a 1/4-mile radius around the construction area. C. If nesting birds are found, a buffer will be established around the nest and maintained until the young have fledged. Appropriate buffer widths are 300 feet for non-listed raptors and 100 feet for non-listed passerines. A qualified biologist may identify an alternative buffer based on a site-specific evaluation. Work will not commence within the buffer until fledglings are fully mobile and no longer reliant upon the nest or parental care for survival. 	Contractor and NPS	During construction
BIO-9	NPS would monitor the pond for river otters and, if breeding is detected in a year when construction is planned at the pond, methods would be identified to avoid or minimize impacts. Methods to avoid or minimize impacts on river otter could include excluding river otters from the work area and timing activities to allow river otters to vacate the work area prior to construction.	NPS	Prior to construction
BIO-10	Prior to commencement of ground disturbing activities, a qualified botanist will perform surveys for special-status and locally rare plant species within areas that could potentially be disturbed by the Proposed Action. If special-status or locally rare plants are detected within the construction zone or within a 50-foot radius of the construction zone, NPS will adjust the construction footprint or establish an exclusion area to avoid impacts to the plants. Locations of special-status plant populations will be	NPS	Prior to construction

BMP Number	Description	Responsible Party	Timing
	clearly identified in the field by staking, flagging, or fencing prior to the commencement of activities that may cause disturbance. If avoidance is not feasible, NPS will implement measures to minimize the impact on the species. Minimization measures will be evaluated on a case-by-case basis for local rarity and extent of impacts. Minimization measures may include transplanting perennial species, seed collection and dispersal for annual species, and other conservation strategies that will protect the viability of the local population.		
BIO-11	NPS will prepare a detailed plant protection plan based on specific areas potentially impacted by any proposed actions. NPS will thoroughly review areas of likely impact in advance and identify either any sensitive species or native species that will be protected or invasive species that will be controlled. Based on the potential impact and the species, a plan will be made to either (a) avoid the area if necessary to the presence of a sensitive species; (b) salvage plants if they are salvageable; (c) trim branches/leaves if the plants will easily resprout, (d) cover with plywood or other protective materials, or (e) other types of activities. Salvaged plants will be removed either immediately before impact or possibly up to 1 month in advance. They will be stored in area where there will be an easy water source (i.e.: such as the former nursery area) and replanted either immediately after work is completed in a specific zone or during the typical winter planting period.	NPS	Prior to construction
BIO-12	All areas where vegetation is disturbed by project work will be restored following project work with native plants salvaged onsite or propagated in the park nurseries. Revegetation actions would include the removal of invasive plants.	Contractor and NPS	Prior to construction, during construction, and post-construction
BIO-13	NPS will identify invasive plants within the work and access route areas prior to project implementation. Existing topsoil will also be evaluated for invasive, nonnative plant infestations. A qualified vegetation ecologist or botanist will plan treatments to prevent the spread of invasive species, and implementation of these treatments will be under the supervision of a qualified vegetation ecologist or botanist. The location of invasive species and the treatment plan will be documented in a plant protection plan. The final treatment prior to project implementation will occur close to initiation of project work. Topsoil heavily infested with invasive, nonnative plants will be removed. Non-infested topsoil will be salvaged, stored according to soil conservation guidelines, and replaced once construction is complete. Post-project monitoring and treatment for invasive plant species is expected to	NPS	Prior to construction and post-construction

BMP Number	Description	Responsible Party	Timing
	be on-going, with treatments at least 2 to 3 times per year for at least two to three years after construction or longer, as long as funding is available.		
California Red-legged Frog			
CRLF-1	All construction actions within 1-mile of breeding habitat would be conducted during the non-breeding season (April to October). Revegetation activities would be conducted during late fall and winter months.	NPS	Prior to construction and during construction
CRLF-2	Prior to expected start of construction, NPS will notify USFWS about the status of CRLF breeding activity for the year and proposed relocation activities within the watershed and possible transfers to Mountain Lake.	NPS	Prior to construction
CRLF-3	For vegetation clearing within 1 mile of California red-legged frog breeding habitats, when the site presents wet ground conditions, vegetation is dense, and ground is not visible, the vegetation will be hand-cleared to prevent take of frogs prior to entrance of heavy equipment into the area and to prevent occupation during construction. To avoid direct injury to California red-legged frogs, vegetation would be cut horizontally and removed to a height (approx. 12-16 inches) that allows for visual inspection of the ground to avoid direct injury to these animals. Trained observers must use a hand rake or similar hand tool to clear the ground for inspection. Powered hedge trimmers would be used in lieu of other power cutters or unless conditions are not suitable. Once the ground is visible, a visual survey will be conducted by either biological monitor or permitted biologist. Cover features (e.g., downed wood) would be inspected for animals and temporarily removed prior to any ground disturbance activities. Once the monitor determines the area is clear, the equipment will be allowed to enter the area.	NPS and Contractor	Prior to construction, during construction, and post-construction
CRLF-4	During heavy equipment work around the existing pond and downstream of the dam, trained observers will be present during construction activities to inspect for possible presence of CRLF.	NPS and Contractor	During construction
CRLF-5	If a California red-legged frog is observed, activities in the direct vicinity shall cease and the biological monitor or permitted biologist notified. To the extent possible, contact with the California red-legged frog will be avoided and the observed frog will be allowed to leave the site without intervention. If allowing the California red-legged frog to remain in the vicinity would cause injury or harm to the individual, the biological monitor or permitted biologist would capture and release the individual frog	NPS and Contractor	During construction

BMP Number	Description	Responsible Party	Timing
	outside the construction area in similar habitat where it was found. The biological monitor or permitted biologist will complete a log summarizing the activity including collection and translocation locations.		
CRLF-6	For vegetation clearing occurring within 100 meters of red legged frog aquatic breeding habitat, debris bags will be kept upright, and any piled vegetation and debris bags will be inspected before vegetative material is disposed of.	NPS and Contractor	During construction
CRLF-7	To prevent inadvertent entrapment of California red-legged frog during construction, steep-walled holes or trenches more than 2 feet deep will be covered at the close of each working day by plywood or similar materials. If this is infeasible, one or more escape ramps will be installed. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals.	NPS and Contractor	During construction
CRLF-8	To prevent entrapment/entanglement of animals in erosion control products, only natural fiber, loose weave, non-welded, movable jointed netting, burlap or non-binded materials (e.g., rice straw) shall be used for erosion control or other purposes. These limitations will be communicated to contractors and designers.	NPS and Contractor	During construction
CRLF-9	Any on-site materials left overnight will be inspected prior to use unless those materials have been outfitted with barriers and elevated above the ground. Areas under parked equipment will be inspected each morning before equipment is turned on.	NPS and Contractor	During construction
CRLF-10	Prior to herbicide application, any feature that provides cover and moist ground conditions within 100m of California red-legged frog breeding site would be searched by a trained observer immediately prior to disturbance to determine presence of CRLF. If conditions dictate, the Park may require a Biological Monitor as the trained observer.	NPS	Post-construction
Dewatering			
DW-1	Dewatering of the pond shall be initiated as late as possible in the summer while still allowing a reasonable period to complete construction activities before the start of the rainy season in late fall.	NPS and Contractor	During construction

BMP Number	Description	Responsible Party	Timing
DW-2	Pump intakes shall be completely screened with wire mesh not larger than five millimeters to prevent aquatic wildlife from entering the pump system. Some redundancy in screening systems will be built into the intake system.	NPS and Contractor	During construction
DW-3	A biomonitor would be present to capture and relocate aquatic life, including fish species, prior to dewatering. The biomonitor will observe the pump intake daily to relocate any species that could be drawn into the screen or the pump.	NPS	Prior to construction
DW-4	If reasonable methods can be identified to limit dewatering while still achieving construction actions, then they shall be used.	NPS and Contractor	During construction
DW-5	Discharge will employ methods to minimize downstream turbidity in the channel. These may include the use of de-siltation devices at the terminal end of the discharge pipe such as temporary settling basins, the use of sandbags or plastic to disperse outflow, sediment filter sacks, or the use of a coffer dam to prevent infiltration in undesirable locations.	NPS and Contractor	During construction
DW-6	If an auxiliary fuel tank is needed for the dewatering pump, NPS will work with the contractor to identify a suitable location and identify site-specific BMPs.	NPS and Contractor	During construction
Water Quality			
WATER-1	<p>SWPPPs and erosion control BMPs will be developed and implemented to minimize any wind- or water- related erosion and will be in compliance with the requirements of USACE. NPS will include provisions in construction contracts for measures to protect sensitive areas and prevent and minimize stormwater and non-stormwater discharges. Protective measures will include, at a minimum, those listed below.</p> <ul style="list-style-type: none"> A. No discharge of pollutants from vehicle or equipment cleaning will be allowed into any storm drains or water courses. B. Concrete waste and water from curing operations will be collected in washouts and will be disposed of and not allowed into water courses. 	NPS and Contractor	During construction

BMP Number	Description	Responsible Party	Timing
	C. Erosion control measures will be implemented that provide for soil stability and prevent movement of soils during rain events (i.e., silt fences and tarps).		
WATER-2	No heavy equipment will operate in a live stream.		
Visitor Use			
VIS-1	A Visitor Use Access and Safety Plan would be developed and include public notification and signage to effectively communicate construction closures and limitations.	NPS	Prior to construction
Hazardous Materials			
HAZ-1	No equipment servicing will be done in the channel or immediate floodplain, unless equipment stationed in these locations cannot be readily relocated (i.e., pumps and generators).	NPS and Contractor	During construction
HAZ-2	Spill kits will be maintained on site at all times during construction operations and/or staging or fueling of equipment.	NPS and Contractor	During construction
HAZ-3	If necessary, all servicing of equipment done at the job site will be conducted in a designated, protected area to reduce threats to water quality from vehicle fluid spills. Designated areas will not directly connect to the ground, surface water, or the storm drain system. The service area will be clearly designated with berms, sandbags, or other barriers. Secondary containment, such as a drain pan, to catch spills or leaks will be used when removing or changing fluids. Fluids will be stored in appropriate containers with covers and properly recycled or disposed of offsite.	NPS and Contractor	During construction
HAZ-4	No large fuel storage containers will be allowed. Fuel will be delivered to the site only in pick-up trucks designed for fuel hauling, but it will not be otherwise stored on site. Vehicle and equipment fueling and maintenance operations will be at least 50 feet away from water courses, except at established commercial gas stations or established vehicle maintenance facilities.	NPS and Contractor	During construction
Air Quality			

BMP Number	Description	Responsible Party	Timing
AIR-1	<p>Dust abatement measures include:</p> <ul style="list-style-type: none"> A. Water all active construction areas with exposed soil surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads that have not been stabilized with soil binder, mulch, gravel, vegetation or other cover) sufficiently to prevent dust from becoming airborne. B. All trucks transporting soil, sand, or other loose material offsite shall be covered. C. Vehicle speeds on unpaved areas shall be limited to 15 miles per hour. 	Contractor	During construction
AIR-2	Idling time of equipment when not in use will be avoided and low emission producing equipment will be used when feasible.	Contractor	During construction
Noise			
NOISE-1	<p>The following will be implemented to minimize disturbance from construction noise:</p> <ul style="list-style-type: none"> A. Contractors will ensure that power equipment (vehicles, heavy equipment, and hand equipment such as chainsaws) are equipped with original manufacturer's sound-control devices. No equipment will be operated with an unmuffled exhaust. B. Except when required for safety or to ensure the integrity of a proposed project component, no work will be conducted on weekends or holidays. The hours specified in the Marin County noise ordinance will be adhered to as general guidance: general construction will be limited to the hours of 7 a.m. to 6 p.m. on Monday through Friday and 9 a.m. to 5 p.m. on Saturdays; loud noise generating equipment operation will be limited to 8 a.m. to 5 p.m. on Monday through Friday. C. Construction equipment will be properly maintained to minimize noise. 	Contractor	During construction
Soils			

BMP Number	Description	Responsible Party	Timing
SOIL-1	Minimize disturbance to vegetation and soils.	NPS and Contractor	During construction
SOIL-2	Place protective mats, if necessary, on the haul route to disperse the load.	NPS and Contractor	During construction
SOIL-3	Evaluate compaction both before and after work and de-compact using hand methods, if needed. Aerate any ground surface temporarily disturbed during construction and replant with native vegetation to reduce compaction and prevent erosion.	NPS and Contractor	During construction
Cultural Resources			
CR-1	In the event that potentially significant archaeological materials are encountered during Project-related ground disturbing activities, all work should be halted in the vicinity of the archaeological discovery until a qualified archaeologist can visit the site of discovery and assess the significance of the archaeological resource. Should additional actions be proposed outside the currently defined APE that have the potential for additional subsurface disturbance, further cultural resource management may be required.	NPS and Contractor	During construction
CR-2	In the unlikely event that human remains are discovered during construction activities, all work will stop within 50 feet of the discovery, and the NPS archeologist will be contacted immediately. Furthermore, as required by law, the requirements of California Health and Human Safety Code Section 7050.5 will be followed and the Marin County coroner will be notified. If the human remains are determined to be of Native American origin, NPS will follow the provisions outlined in the Native American Graves Protection and Repatriation Act (1990).	NPS and Contractor	During construction
Wetlands			
WET-1	Pre-construction Preparation a) The boundaries of construction areas will be clearly flagged and/or signed in advance of construction.	NPS and Contractor	Prior to and during construction

BMP Number	Description	Responsible Party	Timing
	<p>b) Trees or shrubs overhanging or encroaching on access roads will be trimmed back to allow vehicles to pass by without going off the road.</p> <p>c) All material stockpiling and staging areas will be located within project right of ways in non-sensitive areas, or at designated disturbed/developed areas outside of design construction zones.</p>		
WET-2	<p>Transportation and Access</p> <p>a) Access to the project area will be restricted to existing access roads and routes identified in the project description and construction documents.</p> <p>b) Vehicle and equipment refueling, and lubrication will only be permitted in designated disturbed developed areas where accidental spills can be immediately contained. No refueling or maintenance will be conducted in the creek or immediately adjacent to the creek.</p> <p>c) All vehicles will carry a suitable fire extinguisher and other protective and preventative gear as required by NPS.</p>	Contractor	During construction
WET-3	<p>Heavy equipment use in wetlands must be avoided if at all possible. Heavy equipment used in wetlands must be placed on mats, or other measures must be taken to minimize soil and plant root disturbance and to preserve preconstruction elevations.</p>	NPS and Contractor	During construction
WET-4	<p>Whenever possible, excavated material must be placed on an upland site. However, when this is not feasible, temporary stockpiling of excavated material in wetlands must be placed on filter cloth, mats, or some other semi-permeable surface, or comparable measures must be taken to ensure that underlying wetland habitat is protected. The material must be stabilized with straw bales, filter cloth, or other appropriate means to prevent reentry into the waterway or wetland.</p> <p>Temporary stockpiles in wetlands must be removed in their entirety as soon as practicable. Wetland areas temporarily disturbed by stockpiling or other activities during construction must be returned to their pre-existing elevations, and soil, hydrology, and native vegetation communities must be restored as soon as practicable.</p> <p>Revegetation of disturbed soil areas should be facilitated by salvaging and storing existing topsoil and reusing it in restoration efforts in accordance with NPS policies and guidance. Topsoil storage must be for as short a time as possible to prevent loss of seed and root viability, loss of organic matter, and</p>	NPS and Contractor	During construction

BMP Number	Description	Responsible Party	Timing
	degradation of the soil microbial community. Salvaged topsoil should not be piled taller than 2 feet high and 3 feet wide, and piles should be windrowed to retain viability of the microorganisms.		