

## **SECTION 3**

---

# **Environmental Constraints and Opportunities**

The following section is a preliminary examination of some of the environmental impacts that would be evaluated further under California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA). Project construction would have temporary impacts to the surrounding area. This section presents some of these impacts and the potential mitigation measures to reduce impacts and develop opportunities for beneficial impacts such as habitat restoration. An impact analysis would be developed as part of the environmental documentation required for the project. The public would have several opportunities to weigh in on the topics to be analyzed and this process is described below.

### **Public Involvement for NEPA/CEQA**

Public participation is an essential part of the CEQA and NEPA process. Procedures for public involvement include making environmental information available to the public and soliciting public comments. This process also applies to local, state and federal public agencies, whose comments are solicited on the project as it relates to the agencies activities. Because the final document will be a joint EIR/EIS to satisfy requirements of both CEQA and NEPA, the public involvement and review process will be held simultaneously. CEQA and NEPA do not require formal hearings at any stage of the environmental review process, however public hearings are encouraged. The public review period for draft Environmental Impact Reports (EIRs) and Environmental Impact Statements (EISs) must be for no less than 30 days following the date of notice, or 45 days where the draft EIRs are submitted to the State Clearinghouse. The lead agency must seek and respond to public comments: 1) sharing expertise; 2) disclosing agency analysis; 3) checking for accuracy; 4) detecting omissions; 5) discovering public concerns; and 6) soliciting counterproposals (CEQA Guidelines, section 15200). Under CEQA public notice and review is required for Draft EIRs but not Final EIRs. However, under NEPA, Federal Register public notice and public review is required for Draft and Final EISs.

The following section outlines the opportunities for public engagement in the environmental review process:

## I. Scoping

The lead agency will prepare a Notice of Preparation (NOP), as required by CEQA, and a Notice of Intent (NOI), as required by NEPA. This joint document informs the public of the description of the project, location, probable environmental effects, and alternatives (required for NEPA) as well as the time frame for response and agency contacts.

**Public Involvement in Scoping Process:** After the NOI/NOP is published, the public and agencies are invited to review and comment on the scope of the project within a **30-day period**.

## II. Draft EIS/EIR Preparation

Following the receipt of scoping comments, the lead agency will prepare the EIS/EIR, which describes the project fully and evaluates the potential environmental impacts of the projects and proposes actions to lessen the impacts. Following completion of the document, the draft EIS/EIR is published for public and agency review.

**Public Involvement in Draft EIS/EIR Review:** A Notice of Availability (NOA) will be filed with the State Clearinghouse and in the Federal Register, with formal notification to the Environmental Protection Agency (EPA) to announce the availability of the draft EIS/EIR for public review within the **45-day review period**.

## III. Final EIS/EIR

The final EIS/EIR highlights the responses to comments and makes corrections or clarifications within the document. NEPA requires the federal lead agency to file a second NOA with the EPA with notification in the Federal Register and distribute the final EIS/EIR to interested agencies, groups and individuals.

**Public Involvement in Final EIS/EIR Review:** The final EIS/EIR is available for public review for another **30-day review period**.

## Environmental Impacts

This section elaborates on some of the resources that would be impacted by the construction and operation of this project. The resources described here and the mitigation measures proposed represent some of the primary concerns of the resource agencies. However, this is not a comprehensive list; all resource area impacts and mitigation measures would be fully analyzed during the environmental review process.

### I. Geology and Soils

The geological resources at Fort Funston consist of the Merced Formation which is Pliocene to Pleistocene in age and is generally a mix of sandstone, siltstone, and clay deposited in a shallow marine environment. The rock at the outfall structure is mainly medium to coarse grained, poorly sorted, moderately to thinly-bedded sandstone with layers of finer-grained silt and clay. The cliff

weathers easily, especially during heavy winter rains. Because the rock has high permeability (being mainly sandy), infiltration is high, but as soon as the capacity to store water has been exceeded, the excess runoff easily carries the rock away with it creating the “permanent rill” (gully) erosional features. The most common way these form is by water running off the edge of the cliff as sheet flow from impervious surfaces such as pavement or highly compacted soil (park trails, dirt paths etc...) above this feature. The estimated bluff retreat rate for the coastal cliffs of the Merced formation is one foot/year based on retreat estimates from the past fifty years (Griggs, 1985). Actual retreat rates will depend mostly on the frequency of intense rainfall events, which are highly episodic and tend to be concentrated during El Nino years.

Initial site reconnaissance indicates bluff slopes have been over-steepened and are more susceptible to slope failure and wave undercutting.

## Geology and Soils Mitigation Measures

- Provide NPS with peer-reviewed coastal engineering or geologic studies, drawings and/or photos relevant to the likely impacts and possible alternative locations for the proposed outfall structure.
- Provide NPS with calculation of quantity and composition of geologic material that would be excavated as well as peer-reviewed geologic studies of this area.
- NPS requires protection of paleontological and archeological resources during construction projects; provide a monitoring and protection plan for these.

## II. Traffic and Circulation

Traffic and circulation impacts would result from the increase in vehicles due to construction worker transportation; materials and delivery vehicles; and truck trips removing excavated material. **Table 1** presents an estimate of the number of truck trips for the excavated material removal only and does not include worker trips, or material delivery trips. The numbers generated from the tunnel and shaft excavation would be combined with one of the alternatives in order to evaluate the total truck trips per project and to see the difference between the impact of each alternative.

**TABLE 1  
MUCK EXCAVATION QUANTITIES**

Location of Excavation (Jurisdiction)	Material	Quantity Excavated (cubic yards)	Estimated Truck Trips <sup>a</sup>
Fort Funston Shaft Construction Area			
Tunnel from shaft to beach (NPS/GGNRA)	sand	▪ 16,000	1,066
Shaft (NPS/GGNRA)	sand	▪ 11,000-27,000	To be used on site at Fort Funston
Alternative 5B – Portal to shaft	soil/sand	▪ 40,000	2,666
Alternative 6B – Portal to shaft	soil/sand	▪ 29,000	1,933
Alternative 7 – Portal to shaft	soil/sand	▪ 16,000	1,066

<sup>a</sup> Truck trips are one-way and based on a 15 cubic yard (cy) truck capacity

SOURCE: Jacobs Associates

## Traffic and Circulation Mitigation Measures

Implement a traffic control plan with strategies to maintain safe and efficient traffic flow during the construction period.

## III. Noise and Vibration

The following general activities are anticipated to generate the most noise for the proposed project:

- Excavation and lining of the shaft,
- Tunnel excavation and lining,
- Muck disposal near the shaft, and
- General construction activities at the surface.

The type of geologic material encountered during tunneling or boring would have different vibration impacts. Hard rock formations encountered during shaft construction may also require the use of impact or vibratory equipment such as hoe-rams, jackhammers, or rock drills. These types of equipment can produce continuous groundborne noise and vibrations at levels that could damage nearby buildings and would be discernible by human receptors. Groundborne noise and vibration from impact or vibratory equipment are not expected during the tunnel boring activities because rocks encountered during the tunnel boring and excavation process would be broken inside the tunnel. Vibrations that are long term or continuous in nature (shaft construction, tunnel boring, and muck handling) will be evaluated based on the potential to impact sensitive receptors.

Human response to noise varies from individual to individual and depends on the ambient environment in which the noise is perceived. The same noise that would be highly intrusive to a sleeping person or in a quiet park might be barely perceptible at an athletic event or in the middle of a freeway at rush hour. Effects of noise at various levels can include interference with sleep, concentration, and communication; physiological and psychological stress; and hearing loss. Given these effects, some land uses are considered more sensitive to ambient noise levels than others.

People in residences, motels and hotels, schools, libraries, churches, hospitals, nursing homes, auditoriums, natural areas, parks, and outdoor recreation areas are generally more sensitive to noise than are people at commercial and industrial establishments. Consequently, the noise standards for these sensitive land uses are more stringent than those for less sensitive uses. In general, residences and schools are among the land uses considered to be the most sensitive to noise.

Active parks and playgrounds are not as sensitive to noise as residences, schools, hospitals, or convalescent care facilities, because the levels of background noise at parks with active recreational uses and school playgrounds are elevated. However, natural recreation areas require a degree of quiet for passive recreational uses. Open space or outdoor recreation areas that are used for passive recreational activities such as hiking and picnicking are considered noise-sensitive uses if the noise environment is considered to contribute to the recreational experience. **Table 2** identifies sensitive receptors in the vicinity of the proposed project.

**TABLE 2  
SENSITIVE RECEPTORS IN THE PROJECT VICINITY**

<b>Project Site (Jurisdiction)</b>	<b>Noise Environment</b>	<b>Sensitive Receptors Located Adjacent to or Near Project Area</b>	<b>Minimum Distance to Receptor<sup>a</sup> (feet)</b>
<b>Fort Funston Shaft Construction Area</b>			
National Park Service, GGNRA	Quiet/Natural Area	▪ Outdoor Recreation/Hanglider launch and landing area	975
National Park Service, GGNRA	Quiet/Natural Area	▪ Outdoor Recreation/Horse Trail	0
National Park Service, GGNRA	Quiet/Natural Area	▪ Outdoor Recreation/Sunset Trail	600
National Park Service, GGNRA	Quiet/Natural Area	▪ Education Facility/Environmental Science Center (SFUSD)	875
National Park Service, GGNRA	Quiet/Natural Area	▪ Historic Structure/Battery Davis	930
National Park Service, GGNRA	Quiet/Natural Area	▪ Historic Structure/Nike Missile site	0
Private	Quiet/Suburban	▪ Outdoor Recreation/Olympic Club Golf Course	1200
Daly City	Quiet/Suburban	▪ Residences/Northgate Avenue	1 mile

## Noise and Vibration Mitigation Measures

Daytime noise from equipment at the shaft area could feasibly be reduced by: 1) using a sound barrier positioned near the edge of the shaft to control noise from cranes, conveyors, and other equipment servicing the shaft, and 2) specifying allowable ventilation system noise levels at the design phase. Noise from nighttime construction activities at the shaft area could be controlled administratively to avoid excessive vehicle noise, idling engine noise, and loud conversation during the night and by the placement of sound barriers around the work vehicle parking area.

- Placement of temporary noise barrier(s) as close to noise-generating equipment as feasible while continuing to ensure safe operation;
- Placement of acoustical blankets around noise-generating equipment;
- Use of acoustical tents around equipment and working areas in the shaft area; and
- Use of rubber-on-rubber conveyor belts to transport muck to the muck disposal area in the shaft area

## IV. Aesthetics

The construction activities will be taking place in a highly visible area, because the main staging area for the shaft would be at the public parking lot of Fort Funston, which is part of Golden Gate National Recreation Area. A full analysis of the impacts to visual resources or aesthetics would examine the temporary construction impacts due to the presence of the staging area, construction equipment as well as the permanent operational changes, such as the placement of a new outfall

at Ocean beach. Some of the construction-level impacts would include visual resources disrupted by: 1) construction activities, including the presence of construction workers and their vehicles; 2) the temporary disruption of the existing groundcover; and 3) nighttime lighting near the tunnel entrance during tunneling activities.

If construction activities occur at night, the construction site would be illuminated to ensure the safety of the construction site for workers supporting tunneling activities. Nighttime activities requiring lighting would be limited to support for the operation of the tunneling equipment during the construction period. Lights would be needed at the shaft area to allow operation of the equipment to move muck to the temporary muck bins, to allow for safe movement of workers, and to illuminate parking and office areas.

## **Aesthetics Mitigation Measures**

### ***Short-term Visual Impacts During Construction***

- The noise barrier used at the shaft will serve as visual screening of the construction site at Fort Funston.

### ***Nighttime Lighting***

- A lighting plan will be prepared by a qualified lighting professional.
- The lighting plan will indicate required lighting sources during nighttime operations and specify shielding of light sources to minimize light spillover at the shaft area; in addition, the plan will specify that lighting be shielded and directed to work areas only, and that light spillover will be minimized to the extent feasible. It will also provide for monitoring of lighting sources to ensure that feasible adjustments are made as necessary to provide maximum shielding during all phases of construction.

### ***Operational Impacts to Visual Resources***

- Use alternative materials for the outfall that are compatible with the scenic resources at the beach and blend in with the natural environment.

## **V. Cultural Resources**

Excavation of the tunnel and shaft on lands that are leased by the National Park Service would require an archaeological and paleontological resource monitoring and protection plan for resources that may be encountered during construction.

### **Cultural Resources Mitigation Measures**

- The National Park Service has developed a Programmatic Agreement in consultation with the California State Historic Preservation Officer, the Advisory Council on Historic Preservation, culturally associated American Indian tribes, and the public. This agreement stipulates a process for the treatment of historic properties, including identification, evaluation, and, if necessary, mitigation of adverse effects including: documentation, interpretation, materials salvage, and National Register re-evaluation.

- Incorporate mitigation measures into site-specific planning and design including protecting archeological deposits from disturbance
- Protect known human burials from disturbance, and prepare emergency discovery plans to deal with any unanticipated discoveries
- Mitigate impacts to archeological resources through data recovery excavations and construction monitoring as specified in the Programmatic Agreement.
- Undertake all treatments to historic structures or within cultural landscapes in keeping with the Secretary of Interior's Standards for the Treatment of Historic Properties

## VI. Biological Resources

### Special-Status Species

Construction of the shaft will occur on disturbed area next to the parking lot at Fort Funston. Sensitive species within the proximity of the construction staging area include the San Francisco Spineflower (*Chorizanthe cuspidata*) and bank swallow (*Riparia riparia*). San Francisco spineflower, a California Native Plant Society List 1B species<sup>3</sup>, is found in a 34-acre enclosure approximately 1,800 feet from the staging area. The National Park Service has been engaged in its protection at the Fort Funston site and closed off this area to the public.

A colony of bank swallows (*Riparia riparia*), a state-listed threatened species and federally-listed species of concern located at Fort Funston is the largest nesting colony in the San Francisco Bay Area: more than 700 burrows (approximately 40 to 50 percent of which are occupied) were present in 1997 (NPS, 1999). The Fort Funston bank swallow colony is one of only two or three remaining on the California coast. The colony is located in the bluffs at the north end of Fort Funston. Any construction south of the Hang Glider Observation Deck is not likely to have an impact on the swallows, which are approximately 3,800 feet from the proposed staging area.

It will be necessary to survey the cliffs at the outfall site for evidence of bank swallow nesting during May and June when the swallows would be present. A survey of wintering ducks, grebes, cormorants and loons should be included in the environmental assessment for the outfall structure construction.

California red-legged frog (CRLF) has not been observed at Lake Merced since a San Francisco University biologist reported a juvenile red-legged frog at Impound Lake in 2000<sup>4-5</sup>. Prior to that time the species had not been observed since the 1970's. Protocol-level surveys conducted in 2000 did not find any further presence of CRLF, and concluded that the species was extirpated

<sup>3</sup> List 1B = Plants rare, threatened, or endangered in California and elsewhere.

<sup>4</sup> EDAW, Inc./Talavera and Richardson. 2004. Natural Resource Baseline Study Final Report for Lake Merced. March, 2004.

<sup>5</sup> CDFG, 2003. List of California Terrestrial Natural Communities Recognized by the California Natural Diversity Database. September 2003. Available online at <http://www.dfg.ca.gov/biogeodata/vegcamp/pdfs/natcomlist.pdf>. Accessed April, 2009.

because of a large population of predacious bullfrogs and large-mouthed bass<sup>6</sup>. However, the recorded observation from 2000 would make this finding debatable with the USFWS. Recent increases in lake levels would further favor populations of bullfrogs and bass as this would prevent areas of the lake from exhibiting seasonal hydrology that favors CRLF over bullfrogs and bass. Although it is not impossible for CRLF to survive in perennial waterbodies with dominant predacious species, it is highly unlikely that they could. Updated protocol-level surveys for CRLF would be recommended to document the species absence for any future work within Impound Lake. Without these studies, it is likely that the USFWS and/or the Corps would assume presence of the species; impacts to Impound Lake would then require a Section 7 consultation under the Endangered Species Act (ESA). If species presence is assumed in Impound Lake, any designed mitigation would need to target CRLF habitat as a stated objective. However, even negative results from protocol surveys wouldn't necessarily persuade USFWS that the lake was not potential habitat. Some level of mitigation may still be required based on the recorded observation of CRLF in 2000, and the persistent suitability of aquatic and upland habitat elements. Required mitigation ratios for impacted wetlands that also are endangered species habitat may approach as high as 3-to-1; ratios in wetlands where endangered species are assumed but not confirmed can be lower.

The biodiversity of Fort Funston is threatened by a blanket of the invasive species ice plant (*Carpobrotus edulis*). The Vista Grande project proposes to develop a native habitat restoration plan for the upper portion of Fort Funston that is impacted by construction and staging as well as adjacent areas. This restoration plan would be developed in consultation with GGNRA and Fort Funston natural resource management staff and would include invasive plant removal and native plant propagation and planting. Fort Funston houses a native plant nursery on site, which could serve as the propagation site for the native plants.

## Wetlands

Since the first Bush administration, the Corps has implemented a no-net-loss policy for impacts to wetlands. Impacts to wetlands can result from the direct fill of wetlands, or from intentionally or unintentionally altering the hydrology resulting in the destruction of the wetland. As such, the Corps would require a minimum of 1-to-1 wetland creation for those wetlands lost due to inundation from increased lake levels or other construction activities and potentially for future maintenance activities. At its most extreme, the Corps could assert that all existing wetlands within Impound Lake would be lost due to changes resulting from the proposed project. Under this scenario, the project proponent may be required to prepare a wetland mitigation plan for the creation of in-kind wetlands elsewhere within the region to fully compensate for the loss of wetlands due to new construction. One strategy to lower required mitigation ratios is to satisfy mitigation requirements prior to initiating construction. In this way, there are no expected temporal losses of wetland habitat or functions resulting from the lag in wetland destruction during project construction and wetland creation during mitigation implementation.

---

<sup>6</sup> EIP Associates. 2006. Significant Natural Resources Areas Management Plan, Final Draft. Prepared for the San Francisco Recreation and Park Department. February, 2006.

In July 2010 a wetland assessment was completed for Lake Merced's Impound Lake in San Francisco, CA. The purpose of this study was to determine a preliminary acreage of wetlands and other waters as defined by the Clean Water Act that could be affected by the Project. A formal wetland delineation was not conducted onsite and further investigation will be warranted prior to submittal of these results to any regulatory agency. Potentially jurisdictional waters (wetlands and other waters) observed at the survey location total approximately 19.57 acres. The wetland area covers approximately 9.85 acres and is a mix of palustrine aquatic bed (PAB), palustrine emergent (PEM), and palustrine scrub-shrub (PSS) Cowardin wetland types.<sup>7</sup> Other waters total approximately 9.72 acres and consist of open water.

### **Biological Resources Mitigation Measures**

- Avoid construction activities within the vicinity of sensitive species
- Conduct bird surveys for bank swallows during May and June
- Conduct winter survey for ducks, grebes, cormorants and loons at outfall structure
- Avoid tree and native vegetation removal where practicable
- Develop a restoration plan that restores areas of invasive species with native dune, scrub and grass species
- Required mitigation ratios for impacted wetlands that also are endangered species habitat may approach as high as 3-to-1; ratios in wetlands where endangered species are assumed but not confirmed can be lower.

---

<sup>7</sup> Cowardin, L. M., V. Carter, F. C. Golet, and E. T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. FWS/OBS-79-31. USDI Fish and Wildlife Service, Washington, DC. 103 pp.