

## 4.3 Biological Resources

This section evaluates the potential for development under the Inner Harbor Specific Plan to impact biological resources. This section describes the range of biological resources within the Specific Plan Area and the surrounding region that could potentially be affected by development under the Specific Plan. The analysis considers available habitat and wetlands distribution and evaluates the likelihood of special-status species occurrence in the Plan Area. This section identifies the Specific Plan components that may have significant impacts on these resources, and provides mitigation measures to reduce potentially significant impacts. This section also presents a project-level analysis of the Harbor View project, which is located largely within the Specific Plan Area.

### 4.3.1 Environmental Setting

#### Regional Setting

Redwood City is located the San Francisco Bay Area–Delta Bioregion<sup>1</sup>, as defined by the State of California’s Natural Communities Conservation Program. This bioregion consists of a variety of natural communities shoreline areas that range from the open waters of San Francisco Bay and Delta to salt and brackish marshes, as well as upland habitats that include grassland, chaparral, and oak woodlands. The area has a Mediterranean climate with dry, hot summers and cool, wet winters.

Heavy urban and industrial development has reduced open space and connectivity of most natural communities in the San Francisco Bay region. Over many years, historic areas of tidal marsh habitat have been reduced by 80 percent, and tidal flat area (including non-vegetated mudflats and sandflats) has been reduced by 40 percent (Goals Project, 1999). In the central and south San Francisco Bay, residential housing developments and salt evaporation ponds are the most common uses of filled tidal marsh and tidal flat areas. Despite land use changes and habitat fragmentation in southern San Francisco Bay, valuable habitat islands still exist. The Don Edwards San Francisco Bay National Wildlife Reserve (NWR) protects approximately 30,000 acres of existing open bay, salt pond, salt marsh, mudflat, upland, and vernal pool habitats, located mostly in the southern Bay.

#### Existing Conditions

As with the region, past and ongoing development and other human activities have altered natural vegetative patterns or otherwise limited large expanses of most natural communities along the shore of San Francisco Bay. Plant communities found in the vicinity of the Plan Area include shallow bay waters, saline emergent wetland, freshwater emergent wetland, riparian, ornamental

<sup>1</sup> A bioregion is an area defined by a combination of ecological, geographic, and social criteria and consists of a system of related interconnected ecosystems. The Bay-Delta bioregion is considered the immediate watershed of the Bay Area and the Delta, not including the major rivers that flow into the Delta. It is bounded on the north by the northern edge of Sonoma and Napa Counties and the Delta and extends east to the edge of the valley floor; on the south, it is bounded by the southern edge of San Joaquin County, the eastern edge of the Diablo Range, and the southern edge of Santa Clara and San Mateo Counties.

landscaping, and ruderal (disturbed). Communities and habitat types occurring within and adjacent to the Plan Area are described in the discussions below, along with common wildlife species typically associated with each community. **Figure 4.3-1** shows the habitat types present in the Plan Area.

Redwood Creek flows northeast past the Plan Area and enters San Francisco Bay approximately 2.5 miles downstream. Within the Plan Area, the creek is tidally influenced and it is armored with large-sized riprap on both banks. A narrow fringe of wetland vegetation occurs along the waterline and consists of halophytes typically found in association with tidal marsh in the San Francisco Bay. An eastern tributary to Redwood Creek bisects a portion of the area, separating the main land mass from a marshland area known as the Ferrari Property in the northeast corner of the site. Elevations across the Plan Area range from sea level to 10 feet in elevation. Approximately 30 percent of the Plan Area consists of open water and wetlands, while the remaining 70 percent of the area is composed of uplands within the footprint of former baylands.

### ***Habitat Types in the Project Vicinity***

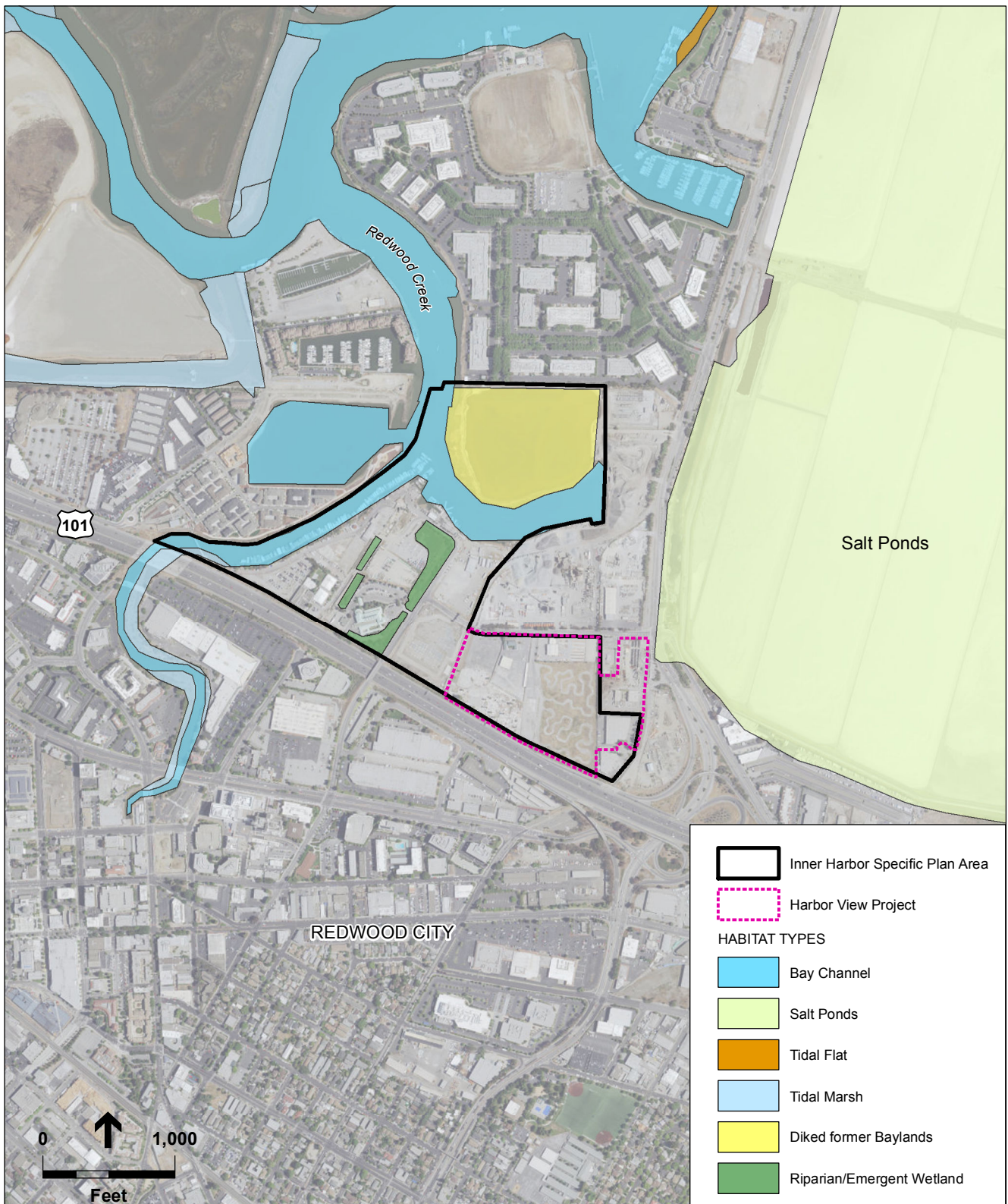
Communities and habitat types occurring within and adjacent to the Plan Area are described below. The vegetation/habitat classification presented herein is based on field observations and the California Department of Fish and Wildlife (CDFW) *List of California Terrestrial Natural Communities Recognized by the CNDDDB* (CDFW, 2010). Additional habitat classifications were obtained from the *Baylands Ecosystem Habitat Goals* (Goals Project, 1999). Figure 4.3-1 shows the habitat areas present in and around the Plan Area and described below.

#### **Shallow Bay and Channel**

Shallow bay and channel habitats in the Plan Area include Redwood Creek, which links the upland urban drainages to the San Francisco Bay estuary. Open waters are primarily located on the north side of the Inner Harbor, connecting to an expansive wetland complex that includes Bair Island and Don Edwards National Wildlife Refuge.

Redwood Creek flows from the north side of Redwood City under Highway 101 and is tributary to Steinberger Slough. Three storm collection systems are within the Plan Area, all of which discharge into Steinberger Slough (Redwood City, 2015). The Ferrari Property in the northern portion of the Plan Area predominantly consists of former baylands bordered by a tidally influenced crescent-shaped dike along the southern boundary of the property.

The sediments of shallow bay and channel habitat are generally mud composed of clays and silts which are exposed during low tide and provide highly valued shorebird foraging habitat. The habitat found in the Plan Area supports a diversity of invertebrates and is considered a suitable foraging area for a number of fishes, including Pacific herring (*Clupea pallasii*), Sacramento splittail (*Pogonichthys macrolepidotus*), and jacksmelt (*Atherinops californiensis*). Birds that use this habitat include western grebe (*Aechmophorus occidentalis*), canvasback (*Aythya valisineria*), and Forster's tern (*Sterna forsteri*). Harbor seal (*Phoca vitulina*) and California sea lion (*Zalophus californianus*) can also be found in these shallower waters.



SOURCE: CDFW, 2014; ESRI, 2014

Inner Harbor Specific Plan . 130467

**Figure 4.3-1**  
Plan Area Habitat Types

### **Saline Emergent Wetland**

Saline emergent wetlands are vegetated areas that occur on the margins of estuaries, lagoons, or bays with high salinity and protection from wave action. The lower margins of these wetland areas are exposed to air during tidal fluctuations, while higher areas can be exposed for months before being submerged. Pacific cordgrass (*Spartina foliosa*) and smooth cordgrass (*Spartina alterniflora* and associated hybrids) dominate from unvegetated tidal mudflats fringing marshes areas to mean high water (MHW). Perennial pickleweed (*Sarcocornia pacifica* (= *Salicornia virginica*)) mixes with Pacific cordgrass in the upper half of this tidal range, but higher wetland areas near and above MHW support pickleweed and ice plant (*Carpobrotus edulis*). The former diked Baylands along the southern boundary of the Ferrari property in the Plan Area supports a pickleweed- and ice plant-dominated habitat which could support special status species including the endangered salt marsh harvest mouse (*Reithrodontomys raviventris*). Other vegetation also varies along this tidal gradient; common wetland species include seaside arrow grass (*Triglochin maritimum*), saltgrass (*Distichlis spicata*), and jaumea (*Jaumea carnosa*). Brackish waters with a mix of saline and fresh water contain vegetation similar to freshwater habitats, including bulrushes (*Scirpus* spp.), cattails (*Typha* spp.), and sedges (*Carex* spp.), which can be found within this habitat in the western portion of Plan Area.

These areas provide food and nesting habitat for a wide variety of bird species, such as the saltmarsh common yellowthroat (*Geothlypis trichas sinuosa*), Alameda song sparrow (*Melospiza melodia pusillula*), and snowy egret (*Egretta thula*). Northern harrier (*Circus cyaneus*) and white-tailed kite (*Elanus leucurus*) forage over salt marshes and adjoining upland areas, and American coot (*Fulica americana*), mallard (*Anas platyrhynchos*), and Canada goose (*Branta canadensis*) occurs in marsh channels and large pans at higher tides. Saline emergent wetland within the Plan Area is considered a sensitive natural community by CNDDDB under the name northern coastal salt marsh.

### **Freshwater Emergent Wetland**

Freshwater emergent wetlands occur where basins or depressions in topography are saturated or periodically flooded by freshwater. Freshwater emergent wetlands are often associated with rivers, creeks, and lakes, and are characterized by vegetation adapted to long periods of root saturation. These wetland areas often fluctuate seasonally with rainfall, and can contain open areas of dry, hard clay, or large expanses of open waters. Freshwater emergent wetland is located in a small area in the Plan Area, at the westernmost end of Maple Street (see Figure 4.3-1). Emergent wetlands fall within the jurisdiction of the CDFW, U.S. Army Corps of Engineers (Corps), and the Regional Water Quality Control Board (RWQCB) (See *Regulatory Setting*, below).

### **Riparian**

Redwood Creek is a perennial creek that flows from the foothills west of the city, into San Francisco Bay. Within the interior of the Plan Area, two linear drainage features carry local stormwater runoff from the Inner Harbor into Redwood Creek. The drainage features consist of incised channels which were observed to carry stormwater and support an assemblage of riparian

vegetation including various willows (*Salix* spp.). These areas are considered fairly low quality habitat due to prior channelization steep channel banks, and the dominance of invasive species.

Riparian areas fall within the jurisdiction of the CDFW, Corps, and the Regional Water Quality Control Board (RWQCB) (See *Regulatory Setting*, below).

### **Salt Pond**

Salt ponds include active and inactive salt evaporation ponds used to produce salt from San Francisco Bay water. Salt ponds can vary from being open water to dry, cracked ground depending on their management. Salt ponds support a diversity of salt-tolerant photosynthetic bacteria, single-celled algae, and invertebrates, but species composition heavily depends on salinity. Although no salt ponds occur in the Plan Area, the shoreline south of Seaport Boulevard and east of the Bayshore Freeway support an expansive landscape of salt ponds.

Salt ponds provide foraging and nesting habitat for a variety of bird species. Resident and migrant shorebirds are most abundant, and common species include western sandpiper, dunlin, and American avocet. Waterbirds that forage salt pond areas include northern shoveler (*Anas clypeata*), eared grebe (*Podiceps nigricollis*), ruddy duck (*Oxyura jamaicensis*), Bonaparte's gull (*Larus philadelphia*), and California gull (*Larus californicus*). Some salt flats and levees between salt ponds provide nesting and foraging habitat for the federally-endangered western snowy plover (*Charadrius alexandrinus nivosus*) (Warnock et al., 2002; CDFW, 2015). Brine shrimp that thrive in salt pond habitats provide food for many foraging birds.

### **Rocky Shore (Riprap)**

Rocky shores occur along the industrial shorelines and at Docketown Marina within the Plan Area. This engineered habitat provides some, but not all, of the habitat values and functions that naturally occurring rocky shore habitat would provide, including a substrate for marine plants, where sufficient sunlight penetrates within the riprap, and support intertidal organisms such as mussels (*Mytilus* sp.) and barnacles. Rocky shore habitat also provides cover for invertebrates such as rock crabs (*Cancer antennarius* and *C. productus*).

Piles, sea walls, and dock structures provide an artificial substrate for many species of marine plants, clams, mussels, barnacles, annelids, and crustaceans, all of which are food sources for larger marine invertebrates, fishes, birds, and marine mammals.

### **Developed and Ornamental Landscaping**

This community type includes areas occupied by buildings, roads, parking lots, and other developed facilities, as well as adjacent landscaped or heavily disturbed areas. Within the Plan Area, these areas are dominated by non-native species such as palms (*Phoenix* sp.), pine (*Pinus* sp.), bottlebrush (*Callistemon* sp.), and gum (*Eucalyptus* sp.), displacing native plants. Developed and ornamental landscaping occurs along the Docketown Marina parking lot; the west end of Maple Street; within the Redwood City Police Department and County Correctional properties; and along Blomquist Street and Seaport Boulevard.

### **Ruderal**

Ruderal vegetation occurs in areas that are subject to repeated or otherwise profound disturbance, and contain opportunistic plant species that can easily colonize and thrive with provided limited resources. Ruderal areas may include some native species, but are typically dominated by non-native and often highly invasive species. Ruderal areas provide low quality foraging or nesting habitat for birds and small mammals. Wildlife species occurring in ruderal areas are generally those that tolerate proximity to human activity and disturbance. Within the Plan Area, wildlife utilizing adjacent higher quality habitats may forage and occasionally nest within ruderal areas.

### **Urban/Developed**

The upland portions of the Plan Area consist of former tidal wetlands that have been filled and converted to upland uses including light and heavy industrial, and various other commercial facilities over the past 60 years. To the northwest of the Plan Area, residential subdivisions and several marinas occur along or adjacent to Redwood Creek. Light industrial and commercial facilities are found to the east of the Plan Area while Highway 101 borders the southern boundary.

## ***Potentially Jurisdictional Waters within the Plan Area***

### **Wetlands**

As mentioned above, two storm drain channels carry local stormwater runoff from the upland Inner Harbor areas, east into Redwood Creek. The drainage features are located along Maple and Walnut Streets and consist of incised channels which were observed to support an assemblage of willows (*Salix* spp.) and other vegetation typically associated with wetlands. These drainages are also heavily disturbed (see Figure 4.3-1 in this section).

These areas fall within the jurisdiction of the CDFW pursuant to California Fish and Game Code 1600, and any proposed changes to this area would be subject to State approval through the 1600 permit process. In addition, this area is within the jurisdiction of the Corps and the RWQCB pursuant to the Clean Water Act (Sections 404 and 401). (See *Regulatory Setting*, below.)

### ***Wildlife Movement Corridors***

Wildlife movement corridors link together areas of suitable wildlife habitat that are otherwise separated by rugged terrain, changes in vegetation, or by areas of human disturbance or urban development. Topography and other natural factors in combination with urbanization have fragmented or separated large open-space areas. The fragmentation of natural habitat creates isolated “islands” of vegetation that may not provide sufficient area to accommodate sustainable populations and can adversely affect genetic and species diversity. Movement corridors mitigate the effects of this fragmentation by allowing animals to move between remaining habitats, which in turn allows depleted populations to be replenished and promotes genetic exchange between separate populations. While the Plan Area does not contain any wildlife corridors, it is within a larger corridor of salt marsh habitat in the Don Edwards NWR. Tidal salt marsh, tidal flat, and salt pond habitat exists on Bair Island, within a 1/2-mile of the Plan Area, as well as near Hayward and Newark along the east side of San Francisco Bay. These habitats are isolated for

most terrestrial species; however, fish and bird species travel around or even through the Plan Area when moving between these habitat islands.

### ***Special-Status Species***

A number of species known to occur in the vicinity of the Plan Area are protected pursuant to federal and/or state endangered species laws, or have been designated as species of concern by U.S. Fish and Wildlife Service (USFWS) or species of special concern by CDFW. In addition, Section 15380(b) of the CEQA Guidelines provides a definition of rare, endangered, or threatened species that are not included in any listing. Species recognized under these terms are collectively referred to as “special-status species.” For purposes of this evaluation, special-status species include:

- Plant and wildlife species listed as rare, threatened, or endangered under the federal or state endangered species acts;
- Species that are candidates for listing under either federal or state law;
- Species designated by the by the CDFW as species of special concern;
- Species (such as candidate species) that may be considered rare or endangered pursuant to Section 15380(b) of the CEQA Guidelines; or
- Non-listed fish species included in Essential Fish Habitat (EFH) and of regional importance for harvest.

Special-status species lists were derived from the California Natural Diversity Database (CNDDB) (CDFW, 2015), U.S. Fish and Wildlife Service (USFWS, 2015), and California Native Plant Society (CNPS, 2015) database searches of the Redwood Point, Palo Alto, San Mateo, and Woodside U.S. Geological Survey 7.5-minute quadrangles. The primary sources of data referenced for this document are as follows and can be found in **Appendix D**:

- USFWS online inventory of federally threatened and endangered species (USFWS, 2015)
- CNDDB Rarefind online program (CDFW, 2015)
- CNPS online inventory of rare and endangered plants (CNPS, 2015)
- Baylands Ecosystem Habitat Goals Report (Goals Report, 1999)
- Biological literature of the region

**TABLE 4.3-1  
LIST OF SPECIAL-STATUS SPECIES RECORDED IN THE REDWOOD CITY INNER HARBOR SPECIFIC PLAN AND HARBOR VIEW PROJECT VICINITY**

<b>Common Name Scientific Name</b>	<b>Listing Status USFWS/ CDFW/CRPR</b>	<b>General Habitat</b>	<b>Potential to Occur in or Near the Plan Area <sup>a</sup></b>
<b>Fish</b>			
Steelhead - Central California Coast ( <i>Oncorhynchus mykiss</i> )	FT/--/--	Ocean waters, Sacramento and San Joaquin Rivers; Migrates from Ocean through San Francisco Bay-Delta to freshwater spawning grounds.	<b>Presumed present (Redwood Creek).</b> May forage in the slough.
Chinook salmon - California Coastal ( <i>Oncorhynchus tshawytscha</i> )	FT/CT/--	Ocean waters, Sacramento and San Joaquin Rivers; Migrates from ocean through San Francisco Bay-Delta to freshwater spawning grounds.	<b>Presumed present (Redwood Creek).</b> May forage in the slough.
Longfin smelt ( <i>Spirinchus thaleichthys</i> )	--/CT/--	Drainages of central California coastal rivers.	<b>Presumed present (Redwood Creek).</b> May forage in the slough.
Pacific herring ( <i>Clupea pallasii</i> )	MSFCMA	Shallow intertidal waters of bays, estuaries, and coastlines; including rocks, jetties, sandy beach, and pilings	<b>Presumed present (Redwood Creek).</b> May forage in the slough.
<b>Amphibians</b>			
California tiger salamander ( <i>Ambystoma californiense</i> )	FT/CT/--	Vernal or temporary pools in annual grasslands, or open stages of woodlands. Typically adults use mammal burrows.	<b>Absent.</b> No suitable habitat in Plan Area.
California red-legged frog ( <i>Rana draytonii</i> )	FT/CSC/--	Streams, freshwater pools, and ponds with overhanging vegetation. Also found in woods adjacent to streams. Requires permanent or ephemeral water sources such as reservoirs and slow moving streams and needs pools of >0.5 m depth for breeding.	<b>Absent.</b> No suitable habitat in Plan Area.
<b>Reptiles</b>			
San Francisco garter snake ( <i>Thamnophis sirtalis tetrataenia</i> )	FE/CE/--	Most often observed in the vicinity of standing water; ponds, lakes, marshes, and sloughs. Temporary ponds and seasonal bodies of water are also used. Banks with emergent and bankside vegetation are preferred and used for cover.	<b>Absent.</b> No suitable habitat in Plan Area.
<b>Birds</b>			
Short-eared owl ( <i>Asio flammeus</i> )	--/CDFW §3503.5/--	Open, flat, treeless terrain. Marshes, grasslands, or fields.	<b>Unlikely.</b> Plan Area vegetation does not provide suitable habitat.
Western burrowing owl ( <i>Athene cunicularia</i> )	--/CSC/--	Open grasslands and shrublands where perches and existing rodent burrows are available	<b>Absent.</b> Suitable habitat found in dirt track area near highway; however, species unlikely to occur due to human activity.
Western snowy plover ( <i>Charadrius nivosus nivosus</i> )	FT/CSC/--	Nest on coasts and estuaries on dune-backed beaches and salt pans at lagoons/estuaries.	<b>Low (nesting).</b> Although the species is present regionally, it is unlikely to nest or forage in the Plan Area.
Northern harrier ( <i>Circus cyaneus</i> )	--/CSC/--	Nests in salt or freshwater wetlands, forages over wetlands, annual grasslands.	<b>Low (nesting).</b> No suitable nesting habitat present on Plan Area or in immediate vicinity.
White-tailed kite ( <i>Elanus leucurus</i> )	FP/--/--	Foothills and valleys with oaks, rivers, and marshes; open woodland, desert grassland.	<b>Low.</b> No suitable habitat present on Plan Area or in immediate vicinity.

**TABLE 4.3-1  
LIST OF SPECIAL-STATUS SPECIES RECORDED IN THE REDWOOD CITY INNER HARBOR SPECIFIC PLAN AND HARBOR VIEW PROJECT VICINITY**

Common Name <i>Scientific Name</i>	Listing Status USFWS/ CDFW/CRPR	General Habitat	Potential to Occur in or Near the Plan Area <sup>a</sup>
American peregrine falcon ( <i>Falco peregrines anatum</i> )	FD/--/--	Wetlands, lakes, rivers, or other water bodies. Also utilizes human-made structures.	<b>Absent (nesting).</b> Specific habitat doesn't occur on site.
Alameda song sparrow ( <i>Melospiza melodia pusillula</i> )	--/CSC/--	Salt marshes of eastern and south San Francisco Bay.	<b>Moderate.</b> Suitable habitat not present at Plan Area and species range is outside of Plan Area.
Double-crested cormorant ( <i>Phalacrocorax auritus</i> )	--/CDFW §3503.5/--	Fresh and salt water habitats and frequently nests on cliffs.	<b>Absent (nesting).</b> Suitable foraging habitat present in Bay waters; however, no nesting habitat in Plan Area.
Ridgway's rail ( <i>Rallus obsoletus</i> )	FE/CE/--	Salt marsh wetlands along the San Francisco Bay.	<b>Low.</b> Suitable habitat not present at Plan Area; historically nested at nearby bay marshlands.
California black rail ( <i>Laterallus jamaicensis coturniculus</i> )	FP/ST/--	Salt and freshwater marshes, grassy wet meadows.	<b>Low.</b> Suitable habitat not present at Plan Area; historically nested at nearby bay marshlands.
California least tern ( <i>Sterna antillarum browni</i> )	FE/SE/--	Open beaches free of vegetation along the California coast.	<b>Moderate.</b> Suitable habitat not present at Plan Area; historically nested at nearby salt evaporation ponds.
Saltmarsh common yellowthroat ( <i>Geothlypis trichas sinuosa</i> )	BCC/CSC/--	Requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.	<b>Low.</b> Suitable habitat not present at Plan Area; historically nested at nearby bay marshlands.
Great blue heron ( <i>Ardea herodias</i> )	--/CSC/--	Rookery sites in close proximity to foraging areas: marshes, lake margins, tide-flats, rivers and streams, wet meadows.	<b>Moderate.</b> Could forage in tidal flats of Plan Area. Rookery observed in transmission tower east of Steinberger Slough on Bair Island.
<b>Mammals</b>			
Salt-marsh harvest mouse ( <i>Reithrodontomys raviventris</i> )	FE/SE/--	Dense pickleweed vegetation required with other halophytes often present.	<b>Moderate.</b> Suitable habitat not present at Plan Area, except at Ferrari property (Water Dependent Development-2); sparse pickleweed in this area may support this species.
Hoary bat ( <i>Lasiurus cinereus</i> )	--/WBWG Medium/--	Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for foraging. Roosts in dense foliage of medium to large trees. Feeds primarily on moths; requires water.	<b>Moderate.</b> Trees and vacant buildings within the Plan Area could provide suitable roosting habitat.
Pallid bat ( <i>Antrozous pallidus</i> )	--/CSC/WBWG High	Most common in open, dry habitats with rocky areas for roosting. Very sensitive to disturbance of roosting sites.	<b>Low.</b> Trees and vacant buildings within the Plan Area could provide suitable roosting habitat.
Townsend's big-eared bat ( <i>Corynorhinus townsendii</i> )	--/CC/WBWG High	Inhabits caves and mines, but may also use bridges, buildings, rock crevices and tree hollows in coastal lowlands, cultivated valleys and nearby hills characterized by mixed vegetation throughout California below 3,300 meters.	<b>Low.</b> Trees and vacant buildings within the Plan Area could provide suitable roosting habitat.
Harbor seal ( <i>Phoca vitulina</i> )	MMPA/--/--	Typically occupy shallow Bay waters, where they feed on fish and invertebrates. Pupping sites occur under the Richmond-San Rafael Bridge, and in Mowry Slough near Fremont. Foraging seals have been observed in the Redwood Creek.	<b>Moderate.</b> Harbor seals could haul out on tidal flats surrounding Bair Island and forage within aquatic habitat in and near the Plan Area.

**TABLE 4.3-1  
LIST OF SPECIAL-STATUS SPECIES RECORDED IN THE REDWOOD CITY INNER HARBOR SPECIFIC PLAN AND HARBOR VIEW PROJECT VICINITY**

<b>Common Name Scientific Name</b>	<b>Listing Status USFWS/ CDFW/CRPR</b>	<b>General Habitat</b>	<b>Potential to Occur in or Near the Plan Area <sup>a</sup></b>
California sea lion ( <i>Zalophus californianus</i> )	MMPA/--/--	A frequent Bay resident, California sea lions occur in Bay and ocean waters. Haul-out sites include Año Nuevo, the Farallon Islands, and Fisherman's Wharf.	<b>Low.</b> Sea lions could haul out on tidal flats surrounding Bair Island; however, are not expected to use habitats within the Plan Area
<b>Plants</b>			
Point Reyes salty bird's-beak ( <i>Chloropyron maritimum</i> ssp. <i>Palustre</i> )	--/--/1B.2	Coastal marsh habitat.	<b>Low.</b> Suitable habitat not present at Plan Area.
Saline clover ( <i>Trifolium hydrophilum</i> )	--/--/1B.2	Marshes, grasslands, and vernal pools.	<b>Low.</b> Suitable habitat not present at Plan Area.
Congdon's tarplant ( <i>Centromadia parryi</i> ssp. <i>congdonii</i> )	--/--/1B.1	Alkaline soils in valleys and grasslands.	<b>Low.</b> Threatened by invasive species and development in Plan Area. Observed in Ravenswood Open Preserve, approximately 7 miles south of Plan Area.

<sup>a</sup> **Potential to Occur Categories:**

Unlikely = The project area and/or immediate vicinity do not support suitable habitat for a particular species. Project area is outside of the species known range. Species identified as unlikely to occur are not addressed further in the EIR.

Low Potential = The project area and/or immediate vicinity only provide limited habitat. In addition, the species' known range may be outside of the project area.

Moderate Potential = The project area and/or immediate vicinity provide suitable habitat.

High Potential = The project area and/or immediate vicinity provide ideal habitat conditions.

**STATUS CODES:**

FEDERAL: (U.S. Fish and Wildlife Service)

FT = Listed as Threatened (likely to become Endangered within the foreseeable future) by the Federal Government.

BCC = Bird of Conservation Concern

FSC = Federal Species of Concern

FC = Candidate for federal listing

FD= Delisted

**STATE:**

CT = Listed as Threatened by the State of California

CE= Listed as Endangered by the State of California

CC = California Candidate for Listing

CSC = California Species of Special Concern

CFP= California Department of Fish and Wildlife designated "fully protected"

WL = Watch list

§3503.5 = Protection for nesting species of Falconiformes (hawks) and Strigiformes (owls)

\* Special animal-listed on CDFG's Special Animal List

**OTHER:**

WBWG = Western Bat Working Group:

Low = Stable population

Medium = Need more information about the species, possible threats, and protective actions to implement.

High= Imperiled or at high risk of imperilment.

California Native Plant Society (CNPS) California Rare Plant Ranks (CRPR):

1A = Presumed extirpated in California; Rare or extinct in other parts of its range.

1B = Rare, threatened, or endangered throughout range; Most species in this rank are endemic to California.

2A = Extirpated in California, but common in other parts of its range.

2B = Rare, threatened, or endangered in California but common in other parts of its range.

3 = Need more information about species to assign it a ranking.

4 = Limited distribution and therefore warrants monitoring of status.

.1 = Seriously endangered in California

.2 = Fairly endangered in California

LS= Locally Significant Species

SOURCES: CDFW, 2015; CNPS, 2015; and USFWS, 2015

## Special-Status Wildlife

Wildlife evaluated in this document is based on a plausible likelihood of habitat loss or construction-related disturbance from implementation of the Inner Harbor Specific Plan. Special-status wildlife species with a moderate or higher potential to occur are described below. **Figure 4.3-2** illustrates the geographic location of special-status species occurrences recorded within one mile of the Plan Area.

### ***Special-Status Birds***

#### **American peregrine falcon**

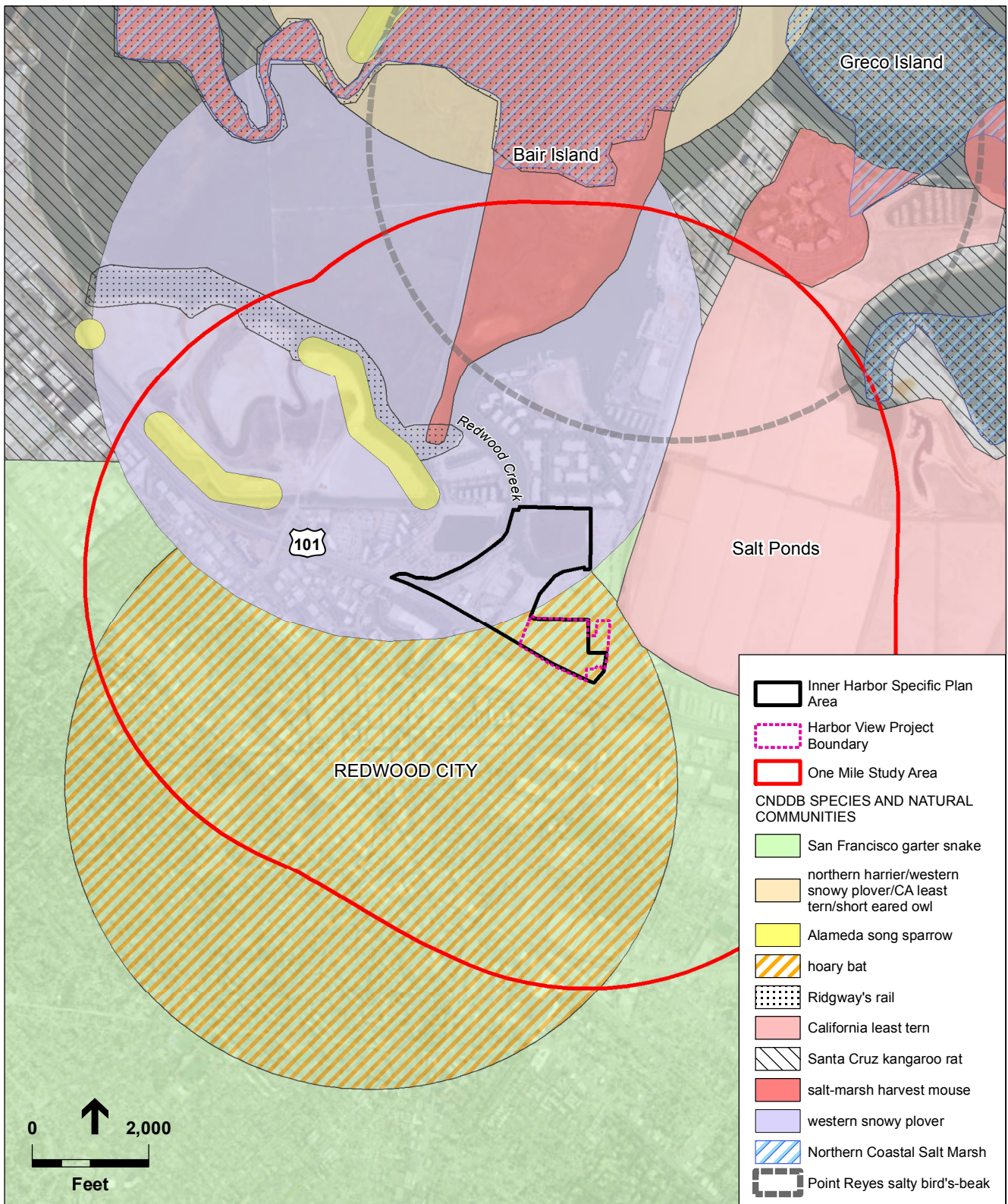
Peregrine falcons can be found worldwide, and are known for their fast, diving foraging techniques. The American peregrine falcon (*Falco peregrinus antum*) occurs in many different habitats in California, including the Sierra Nevada and Cascade mountain ranges, as well as the entire California coastline. Peregrine falcons nest on open sites high above the ground on ledges or rocky outcrops. Peregrine have been recorded nesting on overhangs of large buildings, and nest boxes are often installed to increase the chances of young successfully hatching and fledging. Peregrine falcons' typical prey includes smaller birds, and they are most often found foraging along the outside of salt marshes, where they prey on abundant shorebird populations. Nesting habitat for this species is not present in the Plan Area.

#### **Ridgway's rail**

Ridgway's rail (*Rallus longirostris obsoletus*) lives in coastal salt and brackish marshes and tidal sloughs. Year-round residents, clapper rails stay mainly in the upper to lower zones of coastal marshes that are dominated by pickleweed and cordgrass. They feed in the lower marsh zone where tidal sloughs and channels provide important foraging habitat and cover from predators. Threats to the species include loss and degradation of salt marsh habitat, encroachment of human activities, genetic isolation due to habitat fragmentation, and predation from coyotes, red fox, raptors, raccoons, feral cats, and possibly river otters. Nests are typically constructed adjacent to relatively narrow channels with vegetated edges, which are the rail's preferred feeding areas. Ridgway's rails could use the Plan Area shoreline for foraging; however, tall, dense vegetation is not found in the Plan Area as suitable nesting habitat.

#### **California black rail**

California black rail (*Laterallus jamaicensis coturniculus*) live in coastal salt and brackish marshes and tidal sloughs and may utilize edges of high marshes as refuge during high tides to remain secretive. California black rails forage in the same habitats that they use for nesting. They prey on small invertebrates, chiefly insects, gleaned from marsh vegetation and mudflats; they also eat small seeds (Eddleman et al. 1994). Bulrush and cattail seeds appear to be an important component of their diet during the winter months when insect prey availability is low (Eddleman et al. 1994). Although black rails have historically occurred in Belmont Slough, approximately 8 miles north of the Plan Area, lack of suitable dense habitat in the Plan Area region provides no nesting habitat for this species in the Plan Area.



SOURCE: CDFW, 2015; ESRI, 2014

Inner Harbor Specific Plan . 130467

**Figure 4.3-2**  
CNDDB Occurrences within the Vicinity of the Plan Area

#### **California least tern**

The California least tern (*Sterna antillarum browni*) is a small tern, about nine inches long with a 20-inch wingspan. This migratory bird winters in Latin America, but its winter range and habitats are unknown. The species nests along the Pacific coast from southern Baja California to San Francisco Bay. Least terns usually arrive in California in April and depart in August. They nest colonially on bare or sparsely vegetated flat substrates near the coast. Typical nesting sites are on isolated or specially protected sand beaches or on natural or artificial bare, mostly unvegetated areas in remnant coastal wetlands. These sites are typically near estuaries, bays, or harbors where small fish are abundant.

The former Alameda Naval Air Station is one of the largest and most successful breeding colonies in the state, and was the only nesting colony in San Francisco Bay as of 2004 (H.T. Harvey and Associates, 2005). The California least tern has been recorded nesting at Bair Island and in the salt ponds southeast of the Plan Area, but habitat has deteriorated in recent years and the salt pond nesting colony is now considered extirpated. Many of the salt pond and open bay habitats south of the area are valuable foraging habitat for least terns, and high numbers have been observed there in recent years (H.T. Harvey and Associates, 2005). The Redwood Creek channel and connected sloughs around Bair island provide foraging habitat for California least tern; however, nesting habitat does not occur in the Plan Area.

#### **Double-crested cormorant**

Double-crested cormorants (*Phalacrocorax auritus*) are year-long residents of California and are common in the Central Bay. They rest and roost on offshore rocks, islands, steep cliffs, dead branches of trees, wharfs, jetties, transmission lines, bridges, or marine terminals. Double-crested cormorants are colonial breeders and are common in the Central and South Bay. A rookery site has been observed approximately 1-1/2 mile northwest of the Plan Area on Bair Island in an electrical transmission tower (CNDDDB, 2015, and the species may forage in the Plan Area, though nesting habitat is absent.

#### **Alameda song sparrow**

Alameda song sparrow (*Melospiza melodia pusillula*) is one of three morphologically distinct song sparrow subspecies that occur in tidal marshes of the San Francisco Bay region. This particular subspecies is endemic to the marshes bordering the Central Bay and is a state species of concern. Intermixed stands of bulrush (*Scirpus* spp.), cattail (*Typha* spp.), and other emergent vegetation provide suitable habitat in brackish marshes. Alameda song sparrows nest in tall tules with local pickleweed. They also frequent tall vegetation along the edges of tidal marshes and forage on mudflats and channel beds exposed at low tide; consequently, Alameda song sparrow may occasionally forage in and around the Plan Area; however, there is no suitable nesting habitat for this species in the Plan Area.

#### **Saltmarsh common yellowthroat**

Saltmarsh common yellowthroats (*Geothlypis trichas sinuosa*) are residents of the San Francisco Bay region, in fresh and salt water marshes. Requires thick, continuous cover down to water

surface for foraging; tall grasses, tule patches, willows for nesting. Saltmarsh common yellowthroat have been observed seven miles south of the Plan Area near Cooley Landing.

#### **White-tailed kite**

The white-tailed kite (*Elanus leucurus*) inhabits rolling foothills with scattered oaks or marshes near deciduous woodland. Successful nests are typically surrounded by more natural, fallow and riparian vegetation, as well as non-urban human development (PRBO, 2000). The species could nest in the coyote brush found intermittently throughout the Plan Area and has been documented nesting along Corkslough Slough on Bair Island (CDFW, 2015). This species may occasionally forage in and around the project area; however, there is no suitable nesting habitat for this species in the Plan Area.

#### **Short-eared owl**

The short-eared owl (*Asio flammeus*) is typically found in swamp lands, both fresh and salt; lowland meadows specifically with tule patches and tall grasses as the species requires dense vegetation for nesting and daytime seclusion. Short-eared owls nest on dry ground in depressions concealed in vegetation and has been observed on Bair Island.

### **Special-Status Terrestrial Mammals**

#### **Short-eared owl**

The salt-marsh harvest mouse (*Reithrodontomys raviventris*) is a small rodent that lives in the salt marshes of the San Francisco Bay and feeds primarily on the stems and leaves of salt marsh plants. The species is typically associates with tall, dense, continuous stands of perennial pickleweed. Other highly important habitat considerations include high tide/flood refugia of emergent gumplant (*Grindelia* sp.), seasonal use of terrestrial grassland, and stands of chairmaker's bulrush (*Schoenoplectus americanus*). The species is generally nocturnal and requires access to cover on high ground to escape high tides. Few major, resilient, or secure populations of the species persist in the South San Francisco Bay, including those identified at Bair Island, and are very small and isolated compared with the historical pattern of distribution and abundance of the subspecies (CDFW, 2015; USFWS, 2010; SFEI, 2015).

Key predators include the domestic cat and red fox, in addition to native predators such as hawks, owls, herons and Ridgway's rail, prey on the harvest mouse (USFWS, 2010). Predation by the animals and diminished habitat quality and size are the greatest threat to salt-marsh harvest mouse population numbers (Shellhammer, 1998; USFWS, 2010). In 2005, San Francisco Estuaries Institute (SFEI) documented populations of the species approximately 1.5 miles north of the Plan Area in Don Edwards Wildlife Refuge (SFEI, 2008). Studies by Shellhammer indicate that salt marsh harvest mouse population size is generally correlated with the depth of the pickleweed plain (i.e., the middle zone of tidal marshes) (Shellhammer, 1998). Narrow fringe marshes, such as those found within the Ferrari property and the shorelines west of the Plan Area, tend to have narrow pickleweed zones, as well as extremely narrow high marsh zones (Shellhammer, *in litt.* 2009). While such fringe habitats may support generally poor habitat for salt marsh harvest

mouse, waterfront portions of the Ferrari property may support remnant populations of salt marsh harvest mouse.

## Special-status Fish

### Steelhead – central coast DPS

The central California coast steelhead (*Oncorhynchus mykiss*) distinct population segment (DPS)<sup>1</sup> is listed as threatened under the Federal Endangered Species Act (FESA). Anadromous rainbow trout, or steelhead, occur in California from the Smith River south along the coast to San Mateo Creek, San Diego County, and in streams of the San Francisco Estuary and Central Valley (Moyle, 2002). These fish possess the ability to spawn repeatedly and maintain the mechanisms to return to the Pacific Ocean after spawning in freshwater. Juvenile steelhead may spend up to four years residing in fresh water prior to migrating to the ocean as smolts. Tributaries to the San Francisco Estuary support the ocean-maturing steelhead ecotype, as well as non-anadromous, or resident, forms of rainbow trout (Leidy et al., 2005). Steelhead are known to spawn in several South Bay creeks including San Francisquito Creek and Steven's Creek south of the Plan Area, but no known population exists in Redwood Creek (Leidy et al., 2005). While the potential for salmonids to frequent the waters within the Plan Area is relatively low, they may seasonally occur within adjacent Bay waters and aquatic portions of the Plan Area. Although Redwood Creek does not contain spawning habitat for salmonids, steelhead or Chinook salmon may be present during salmonid migrations.

### Chinook salmon central valley DPS

The population of Chinook salmon (*Oncorhynchus tshawytscha*) in San Francisco Bay consists of three distinct races: winter-run, spring-run, and fall/late fall-run. These races are distinguished by the seasonal differences in adult upstream migration, spawning, and juvenile downstream migration. Chinook salmon are anadromous fish, spending three to five years at sea before returning to fresh water to spawn. These fish pass through San Francisco Bay waters to reach their upstream spawning grounds. In addition, juvenile salmon migrate through the bay en route to the Pacific Ocean.

Sacramento River winter-run Chinook salmon, listed as endangered by both the state and the federal government, migrate through San Francisco Bay from December through July with a peak in March (Moyle, 2002). Spawning is confined to the mainstem Sacramento River and occurs from mid-April through August (Moyle, 2002). Juveniles emerge between July and October and are resident in their natal stream for 5 to 10 months, followed by an indeterminate residency period in estuarine habitats (Moyle, 2002).

The state and federal-listed threatened Central Valley spring-run Chinook salmon migrate to the Sacramento River from March to September with a peak spawning period between late August and October (Moyle, 2002). Juvenile salmon emerge between November and March and are

---

<sup>1</sup> DPS: Distinct population segment: A population segment markedly separate from other populations of the same taxon due to physical, physiological, ecological, or behavioral factors and significant to the conservation of the entire taxon.

resident in streams for a period of 3 to 15 months before migrating to downstream habitats (Moyle, 2002).

The Central Valley fall/late fall-run Chinook salmon is a California Species of Special Concern. These salmon enter the Sacramento and San Joaquin rivers from June through December and spawn from October through December, with a peak in November.

While all three chinook salmon races are found in San Francisco Bay, the non-listed Central Valley fall/late fall-run race is the most likely to spawn in southern San Francisco Bay streams. Most stream habitats in South San Francisco Bay have low flow or high water temperatures for the late spring and summer spawning periods of Sacramento River winter-run or Central Valley spring run Chinook salmon. Migrating individuals could be any of the three Chinook races, but it is presumed that only fall/late fall-run Chinook spawn in southern San Francisco Bay streams (H.T. Harvey and Associates, 2005).

Fall/late fall-run Chinook salmon seasonally occur in deep open water channels east of the Plan Area, migrating in or out from spawning sites in creeks south of the Plan Area. While little is known about Chinook salmon use of salt marsh channels adjacent to the Plan Area, salmon in the Pacific Northwest have been documented residing in salt marsh channels for extended periods of time (Simensted, 1982; MacDonald 1987). Chinook salmon could be present in the sloughs surrounding Bair Island or in the Redwood Creek Channel.

#### **Pacific herring**

Pacific herring (*Clupea pallasii*) is a marine fish that moves from offshore habitats into coastal estuaries to spawn. The San Francisco waterfront is a major spawning area for herring, and they are present in northern San Francisco Bay from November through March. Both the Pacific herring and its eggs belong to an important San Francisco Bay commercial fishery, and populations are monitored closely by the National Marine Fisheries Service (NMFS). Adult fish mobilize in deep channels within the bay until they move into shallower areas where suitable spawning microhabitat is present (Goals Project, 1999). Herring spawning occurs in waves separated by one to several weeks, and eggs are typically attached to aquatic vegetation, rocks, structures in the water, or other solid substrates (Lassuy, 1989). Pacific herring typically spawn in northern San Francisco Bay and their abundance decreases towards the southern end of the Bay (H.T. Harvey and Associates, 2005). Eelgrass beds are especially good habitat for spawning adult herring, although few eelgrass beds are present in southern San Francisco Bay for Pacific herring breeding. Record of Pacific herring occurrences in southern San Francisco Bay are infrequent in comparison to the more favorable foraging habitat in the north, and has not been known as spawning habitat.

#### **Longfin smelt San Francisco Bay-Delta DPS**

Longfin smelt (*Spirinchus thaleichthys*) occur throughout the San Francisco Bay-Delta and are known to congregate in the deeper, cooler waters of the Central Bay during the summer and fall months of the year. During the winter and spring months (December through May), larval longfin smelt are concentrated in the Suisun and San Pablo bays, but are present throughout the Estuary

at all times of year, but the majority is concentrated in the Suisun, San Pablo, and Central bays, as well as nearshore waters outside of the Golden Gate during the summer months (June through August) (Robinson and Greenfield, 2011). As a pelagic species, they will inhabit the entire water column depending on the time of day, tidal cycle, food presence, etc., but are reported to concentrate in the deeper and colder water depths (LTMS, 2009).

Longfin smelt have historically been recorded near the east side of Dumbarton Bridge, however, their populations in the South Bay have declined in recent years due to low rainfall, entrainment, food limitations caused by the invasive amur clam (*Corbula amurensis*), and the availability of more desirable habitat in cooler, nearby coastal ocean waters (USFWS, 2013; Rosenfield, J.A. and R.D. Baxter, 2007). Longfin smelt have the potential to forage and migrate through the Plan Area.

## Marine Mammals

In general, the presence of marine mammals in San Francisco Bay is related to distribution and presence of prey species and foraging habitat. Pacific harbor seals (*Phoca vitulina richardsi*) are fairly common along the entire mainland California coast and are the only resident marine mammals in San Francisco Bay. The current Bay-Delta harbor seal population is estimated at between 500 and 700 individuals. Harbor seals typically occupy shallower waters, where they feed on fish, crustaceans, and cephalopods. Mudflats, nearshore rocks, or sandy coves provide habitat for large colonies of harbor seals to haul out and rest. Two major pupping sites exist in San Francisco Bay; one is under the Richmond-San Rafael Bridge, and the other is in Mowry Slough near Fremont. Bair and Greco Islands support moderate numbers of seals as haul-out and rookery habitats (Goals Project, 1999), and harbor seals have been observed foraging in the Redwood Creek Channel (WRA, 2007). Seals have been observed throughout the year on the banks of Corkscrew Slough, approximately two miles north of the Plan Area, and typically use mudflats, rocky intertidal zones, islands, and wetlands as habitat for pupping (Save the Bay, 2013; Fox 2008). According to recent studies, harbor seal populations decrease and their vigilance increases at Bair Island haul outs as boating activity in the area increases (Fox, 2008). Harbor seals are also known to feed on a variety of fish in the deepest waters of the bay suggesting they are unlikely to seek shallower waters found in the Plan Area, in addition, these areas would be associated with higher levels of human disturbance (Fox, 2008).

California sea lions (*Zalophus californianus*) are also present in San Francisco Bay and are one of the most abundant marine mammals along the California coast (Zeiner, 1990). Sea lions migrate to breeding sites in the Channel Islands and Mexico during spring, and return northward during late summer. Major haul-out sites include Año Nuevo and the Farallon Islands, and a well-known colony is present at Fisherman's Wharf on the San Francisco waterfront. California sea lions could haul out on tidal flats surrounding Bair Island; however, are not expected to use habitats within the Plan Area.

## Special-Status Bat Species

Three special-status bat species, both California species of special concern, have the potential to occur in the Plan Area. The **pallid bat** (*Antrozous pallidus*) is a California species of concern present in most low elevations in California. Preferred habitats for the pallid bat include rocky outcrops with crevices with access to open areas, but can be found in a variety of other habitats as well. Day roosts can be found in crevices, caves, mines, and occasionally hollow buildings and trees, while night roosts can be in more open areas such as open buildings or porches (Zeiner et al., 1990). Pallid bats are nocturnal and present year-round in most areas of California. The hoary bat (*Lasiurus cinereus*) is a California species of concern and can be found at nearly any location in California. Maternity roosts of this species are typically found in woodlands with medium to large trees and dense foliage cover (Zeiner et al., 1990). **Hoary bats** migrate between summer and winter ranges but can be found year-round in the San Francisco Bay Area. While not common behavior, hoary bats may roost or be present on buildings or in building attics. Local occurrences for these two bat species include Stanford University, and within Menlo Park and Woodside (CDFG, 2015). The **Townsend's big-eared bat** (*Corynorhinus townsendii*) is typically found in habitats supporting caves and cave-like roosting habitat, in addition to buildings, bridges, rock crevices and hollow trees as roost sites. Over 90 percent of the species' diet consists of moths. The species has been reported in Portola Valley, ten miles west of the Plan Area (CNDDDB, 2015). All three special-status bat species could potentially roost in tree branches and bark, and in vacant commercial and industrial buildings in the Plan Area.

## Sensitive Natural Communities

Sensitive communities include those that are especially diverse, regionally uncommon, considered sensitive natural communities by CDFW, or are otherwise covered by state, federal, or local regulations. The CNDDDB tracks the status of sensitive natural communities throughout California. Saline emergent wetland is a CNDDDB sensitive natural community under the name northern coastal salt marsh, and occurs in several areas within the Redwood Point USGS 7.5-minute quadrangle, including Bair Island inside the Don Edwards NWR. No other sensitive natural communities occur in the vicinity of the Plan Area.

## Designated Critical Habitat

USFWS and NMFS designate critical habitat with the purpose of contributing to the conservation of threatened and endangered species and the ecosystems upon which they depend. The designation of an area as critical habitat provides additional protection to habitat only when there is a federal nexus with regard to some aspect of the project, for example, when a federal agency is implementing, or issuing a permit for, a project. Critical habitat protection is only relevant when other statutory or regulatory protections, policies, or other factors relevant to agency decision making would not prevent the destruction or adverse modification of habitat. Designation of critical habitat triggers the prohibition of destruction or adverse modification of that habitat, but it does not require specific actions to restore or improve habitat.

NMFS designated critical habitat for central California coast steelhead on September 2, 2005 (NMFS, 2005). The Plan Area is located within the San Mateo Bayside hydrological sub-area, which was excluded from the 2005 critical habitat designation. Therefore, the Plan Area is not within designated central California coast steelhead critical habitat. As discussed above, suitable habitat for this species is present in the Redwood Creek channel and adjacent sloughs. Critical habitat for this species exists less than one mile away, in the open waters of San Francisco Bay.

## 4.3.2 Regulatory Setting

### Federal

#### ***Endangered Species Act***

The federal Endangered Species Act (ESA) protects the fish and wildlife species and their habitats that the USFWS or NMFS has identified as threatened or endangered. The term endangered refers to species, subspecies, or distinct population segments that are in danger of extinction through all or a significant portion of their range. The term threatened refers to species, subspecies, or distinct population segments that are likely to become endangered in the near future. The FESA prohibits the “take”<sup>3</sup> of any fish or wildlife species listed as threatened or endangered, including the destruction of habitat that could hinder species recovery.

#### ***Migratory Bird Treaty Act***

The federal Migratory Bird Treaty Act (MBTA; United States Code, Title 16, Section 703, Supplement I, 1989) prohibits taking, killing, possessing, or trading in migratory birds, except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs. The ESA defines take as “...harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect any threatened or endangered species.” Harm may include significant habitat modification where it actually kills or injures a listed species through impairment of essential behavior (e.g., nesting or reproduction). Therefore, for projects that would not result in the direct mortality of birds, the MBTA is generally also interpreted in CEQA analyses as protecting active nests of all species of birds that are on the List of Migratory Birds, published in the Federal Register in 1995. With respect to nesting birds, while the MBTA itself does not provide specific take avoidance measures, the USFWS and CDFW over time have developed a set of measures sufficient to demonstrate take avoidance. Since these measures are typically required as permitting conditions by these agencies, they are often incorporated as mitigation measures for projects during the environmental review process. The exception is if the project as proposed were to incorporate and be consistent with these protections. These requirements include avoiding tree removal during nesting season, preconstruction nesting bird surveys and establishment of appropriate buffers from construction if active nests are found.

---

<sup>3</sup> From Section 3(18) of the Federal Endangered Species Act: "The term 'take' means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."

### ***Marine Mammal Protection Act***

The Marine Mammal Protection Act (MMPA) is the principal federal legislation that guides marine mammal species protection and conservation policy. The MMPA delegates authority for oceanic marine mammals to the Secretary of Commerce, the parent agency of the National Oceanic and Atmospheric Administration (NOAA). Species other than walrus of the order Carnivora, suborder Pinnipedia (seals and sea lions), are the responsibility of NMFS. Marine mammals that are already managed under international agreements are exempt as long as the agreements further the purposes of the MMPA. The MMPA prohibits, with certain exceptions, the take of marine mammals in U.S. waters and by U.S. citizens on the high seas, and the importation of marine mammals and marine mammal products into the U.S.

### ***Federal Regulation of Wetlands and Other Waters***

Pursuant to Section 10 of the Rivers and Harbors Appropriation Act of 1899 (33 U.S.C. 403), the Corps regulates the construction of structures in, over, or under, excavation of material from, or deposition of material into “navigable waters.” Navigable waters under the act are those “subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce” (33 C.F.R. Section 3294). In tidal areas, the limit of navigable water is the mean high tide line; in nontidal waters it is the ordinary high water mark (OHWM). Larger streams, rivers, lakes, bays, and oceans are examples of navigable waters regulated under Section 10 of the Rivers and Harbors Act. Typical activities requiring Section 10 permits are construction of piers, wharves, bulkheads, marinas, ramps, floats, intake structures, cable or pipeline crossings, and dredging and excavation.

Section 404 of the federal CWA (33 U.S.C. 1251–1376) prohibits the discharge of dredged or fill material into waters of the U.S., including wetlands, without a permit from the Corps. Section 401 of the CWA requires that Corps permitting applicants also obtain state certification that the activity associated with the permit will comply with applicable state effluent limitations and water quality standards. See further discussion in Section 4.8, *Hydrology and Water Quality*.

### ***Magnuson-Stevens Fishery Conservation and Management Act***

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act or MSA) (16 U.S.C. Sections 1801–1884) of 1976 as amended in 1996 and reauthorized in 2007 applies to fisheries resources and fishing activities in federal waters that extend to 200 miles offshore. Conservation and management of U.S. fisheries, development of domestic fisheries, and phasing out of foreign fishing activities are the main objectives of the legislation.

The South Bay region of the San Francisco Bay-Delta, including the waters encompassing the Plan Area, is designated as essential fish habitat for the Pacific coast salmon Fishery Management Plan, which includes Chinook salmon and coho salmon, and identifies all of the San Francisco Bay-Delta as essential fish habitat (NOAA SWR, 2015). The MSA requires that NMFS provide conservation recommendations to state agencies, when a proposed project would have adverse impacts on essential fish habitat.

### ***Federal Essential Fish Habitat***

The Sustainable Fisheries Act of 1996 (Public Law 104-297), amended the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) to establish new requirements for EFH descriptions in federal Fisheries Management Plans (FMPs) and to require federal agencies to consult with NMFS on activities that may adversely affect EFH. The Magnuson-Stevens Act requires all fishery management councils to amend their FMPs to describe and identify EFH for each managed fishery. The act also requires consultation for all federal agency actions that may adversely affect EFH (i.e., direct versus indirect effects); it does not distinguish between actions in EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside of EFH, such as upstream and upslope activities that may have an adverse effect on EFH. Therefore, EFH consultation with NMFS is required by federal agencies undertaking, permitting, or funding activities that may adversely affect EFH, regardless of the activity's location. Under section 305(b)(4) of the Magnuson-Stevens Act, NMFS is required to provide EFH conservation and enhancement recommendations to federal and state agencies for actions that adversely affect EFH. However, state agencies and private parties are not required to consult with NMFS unless state or private actions require a federal permit or receive federal funding. Although the concept of EFH is similar to that of critical habitat under the FESA, measures recommended to protect EFH by NMFS are advisory, not proscriptive.

### ***National Invasive Species Act***

Under the National Invasive Species Act of 1996, the United States Coast Guard (USCG) established national voluntary ballast water guidelines. The USCG published regulations on June 14, 2004, establishing a national ballast water management program with mandatory requirements for all vessels equipped with ballast water tanks that enter or operate in U.S. waters.

## **State**

### ***California Endangered Species Act***

Under the California Endangered Species Act (CESA), the CDFW has the responsibility for maintaining a list of threatened and endangered species (California Fish and Game Code, Section 2070). The CDFW also maintains a list of candidate species," which are those formally under review for addition to either the list of endangered species or the list of threatened species. In addition, the CDFW maintains a list of "species of special concern," which serves as a watch list.

The CESA prohibits the take of plant and animal species that the California Fish and Game Commission has designated as either threatened or endangered in California. "Take" in the context of the CESA means to hunt, pursue, kill, or capture a listed species, as well as any other actions that may result in adverse impacts when a person is attempting to take individuals of a listed species. The take prohibitions also apply to candidates for listing under the CESA. However, Section 2081 of the CESA allows the CDFW to authorize exceptions to the State's take prohibition for educational, scientific, or management purposes.

In accordance with CESA, an agency reviewing a project within its jurisdiction must determine if any State-listed endangered or threatened species could be present in the Plan Area. The agency also must determine if the project could have a potentially significant impact on such species. In addition, the CDFW encourages informal consultation on any project that could affect a candidate species.

### ***California Native Plant Protection Act***

State listing of plant species began in 1977 with the passage of the California Native Plant Protection Act (CNPPA), which directed the CDFW to carry out the legislature’s intent to “preserve, protect, and enhance endangered plants in this state.” The CNPPA gave the California Fish and Game Commission the power to designate native plants as endangered or rare and to require permits for collecting, transporting, or selling such plants. The CESA expanded on the original CNPPA and enhanced legal protection for plants. The CESA established threatened and endangered species categories and grandfathered all rare animals—but not rare plants—into the act as threatened species. Thus, three listing categories for plants are employed in California: rare, threatened, and endangered.

### ***California Fully Protected Species and Species of Special Concern***

The classification of “fully protected” was the CDFW’s initial effort to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists were created for fish, amphibian and reptiles, birds, and mammals. Most of the species on these lists have subsequently been listed under CESA and/or FESA. The California Fish and Game Code sections (fish at Section 5515, amphibian and reptiles at Section 5050, birds at Section 3511, and mammals at Section 4700) dealing with “fully protected” species states that these species “...may not be taken or possessed at any time and no provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to take any fully protected species,” although take may be authorized for necessary scientific research. This language makes the “fully protected” designation the strongest and most restrictive regarding the “take” of these species. In 2003, the code sections dealing with fully protected species were amended to allow the CDFW to authorize take resulting from recovery activities for State-listed species.

Species of Special Concern are broadly defined as animals not listed under the FESA or CESA, but which are nonetheless of concern to the CDFW because they are declining at a rate that could result in listing or historically occurred in low numbers and known threats to their persistence currently exist. This designation is intended to result in special consideration for these animals by the CDFW, land managers, consulting biologists, and others, and is intended to focus attention on the species to help avert the need for costly listing under FESA and CESA and cumbersome recovery efforts that might ultimately be required. This designation also is intended to stimulate collection of additional information on the biology, distribution, and status of poorly known at-risk species, and focus research and management attention on them. Although these species generally have no special legal status, they are given special consideration under the CEQA during project review.

### ***California Fish and Game Code***

Birds of prey are protected in California under the State Fish and Game Code, Section 3503.5. This Code states that it is “unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto.” Construction disturbance during the nesting season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered “taking” by CDFW. Typically CDFW recommends a 250-foot exclusion zone (buffer) around active passerine nests, and a 500-foot exclusion zone around active raptor nests. Any loss of fertile eggs, nesting raptors, or any activities resulting in nest abandonment would constitute a significant impact. Project impacts to these species would not be considered significant unless they are known or have a high potential to nest in the Plan Area or to rely on it for primary foraging. Section 3503 of the California State Fish and Game Code protects the nests or eggs of any bird, and also the rookeries of colonial nesting birds such as herons and egrets. Bat species are protected under the California Fish and Game Code Section 4150, which states that all non-game mammals or parts thereof may not be taken or possessed except as otherwise provided in the code or in accordance with regulations adopted by the commission.

### ***Coastal Zone Management Act***

The Coastal Zone Management Act (CZMA) enacted by Congress in 1972 is administered by the National Oceanic and Atmospheric Administration’s Office of Ocean and Coastal Resource Management. The overall program objectives of CZMA are to “preserve, protect, develop, and where possible, to restore or enhance the resources of the nation's coastal zone.”

Under Section 307 of the CZMA (16 USC § 1456), activities that may affect coastal uses or resources that are undertaken by federal agencies, require a federal license or permit, or receive federal funding must be consistent with a state's federally approved coastal management program. California’s federally approved coastal management program consists of the California Coastal Act, the McAteer-Petris Act, and the Suisun Marsh Protection Act. The California Coastal Commission implements the California Coastal Act and the federal consistency provisions of the CZMA for activities affecting coastal resources outside of San Francisco Bay. The Bay Conservation and Development Commission (BCDC) implements the McAteer-Petris Act and the Suisun Marsh Preservation Act and performs federal consistency reviews for activities affecting the San Francisco Bay and Delta and the bay shoreline; however, BCDC jurisdiction does not extend into the Plan Area.

### ***State Regulation of Wetlands and Other Waters***

The state’s authority in regulating activities in wetlands and waters in the Plan Area resides primarily with the State Water Resources Control Board (SWRCB). The SWRCB, acting through the RWQCB, must certify that each Corps permit action meets state water quality objectives (CWA Section 401). Any condition of water quality certification is then incorporated into the Corps Section 404 permit authorized for the project.

### ***Marine Invasive Species Act***

All shipping operations that involve major marine vessels are subject to the Marine Invasive Species Act of 2003 (Public Resources Code Sections 71200 through 71271), which revised and expanded the California Ballast Water Management for Control of Non-indigenous Species Act of 1999 (AB 703). This act is administered by the State Lands Commission. The act regulates the handling of ballast water from marine vessels arriving at California ports in order to prevent or minimize the introduction of invasive species from other regions.

## **Regional**

### ***Long Term Management Strategy Management Plan for Dredging in San Francisco Bay***

The Long Term Management Strategy (LTMS) Management Plan for maintenance dredging of navigation channels in San Francisco Bay, as established in 2001, provides for a cooperative approach to sediment management in the San Francisco Bay-Delta. It represents a cooperative program among the U.S. EPA, Corps, RWQCB, BCDC, and regional stakeholders, including NMFS, CDFW, area environmental organizations, and water-related industries. The LTMS facilitates the economical and environmentally responsible maintenance of critical and needed navigation channels in the Bay-Delta and the environmentally responsible disposal of dredged material. It maximizes the use of dredged material as a beneficial resource, and establishes a cooperative permitting framework for dredging, dredged material disposal, and development of beneficial reuse site for dredge material. A key component of the LTMS is the establishment of construction work windows that include time periods when construction activities that have the potential to affect aquatic and terrestrial wildlife habitat and migration activity are allowed, restricted, or prohibited. Different restrictions and requirements are enforced depending on the affected species and time of year. If a project proponent wishes to construct during restricted periods, they must formally submit for consultation with the appropriate resource agencies (NMFS, USFWS, and CDFW). Through formal consultation specific measures must be implemented to avoid or reduce potential impacts.

### ***San Francisco Bay Plan***

The Bay Conservation and Development Commission (BCDC) is authorized by the McAteer-Petris Act to analyze, plan, and regulate San Francisco Bay and its shoreline. BCDC implements *The San Francisco Bay Plan* and regulates filling and dredging in the Bay, its sloughs and marshes, and certain creeks and their tributaries. BCDC jurisdiction includes the waters of the bay as well as a shoreline band that extends inland 100 feet from the high tide line; however, BCDC jurisdiction does not extend into the Plan Area (BCDC, 2015).

## Local

### **Redwood City General Plan**

The following biological resources policies relevant to the Specific Plan and/or the Harbor View project, adopted for the purpose of avoiding or mitigating an environmental effect, are identified in the Redwood City General Plan. They are identified in the *Built Environment Element*, the *Building Community Element*, and the *Public Safety Element* of the General Plan. Policies listed below that are also considered land use policies are addressed in Section 4.9, *Land Use and Planning*, of this Draft EIR.

- Policy BE-22.2: Apply the following performance criteria and standards, as applicable, to all new development projects, with the level of application commensurate with the scale of development: Minimize direct or indirect impact to sensitive biological resources while optimizing the potential for mitigation.
- Policy BE-23.9: Protect and enhance the natural environmental features in Redwood City. Preserve open space resources as visual, recreational, and habitat resources, finding creative ways to provide habitat areas and species protection.
- Policy BC-5.5: Develop a strategy for the reclaiming of Redwood Creek as a functional natural waterway with recreation amenities along its banks.
- Policy NR-5.1: Restore, maintain, and enhance Redwood City's creeks, streams, and sloughs to preserve and protect riparian and wetland plants, wildlife and associated habitats, and where feasible, incorporate public access.
- Policy NR-5.2: Limit construction activities to protect water quality in creeks and streams.
- Policy NR-5.3: Except for floating home communities, marinas, and the infrastructure necessary for the communities and marinas, prohibit building and development activities to establish a creek buffer zone, based on the site and floodplain characteristics and/or where sensitive species, communities, or habitats occur within the creek or 100-year floodplain, unless construction methods or other methods can substantially minimize damage from potential flooding.
- Policy NR-5.4: In conjunction with new development located along existing creeks and streams and where appropriate, incorporate daylighting for culverted portions or other bank naturalizing approaches for channeled sections as a means of creek and stream restoration.
- Policy NR-5.5: Except for floating home communities, marinas, and infrastructure necessary for the communities and marinas, regulate, and perhaps restrict, new development, grading, fills, and other land disturbances located immediately adjacent to a creek, stream, or in a 100-year floodplain, unless construction methods or other methods to minimize potential damage from flooding are implemented.
- Policy NR-5.7: Preserve and protect riparian vegetation including non-native vegetation that functions to shade the creek and provide wildlife habitat.
- Policy NR-6.1: Ensure that new development minimizes encroachment into sensitive baylands habitats, and minimizes direct or indirect impact to sensitive biological resources while optimizing the potential for mitigation.

- Policy NR-6.2: Restore and maintain marshlands including tidal flats, tidal marshes, and salt marshes as appropriate.
- Policy NR-6.4: Allow for appropriate public access to bayfront open space lands for recreation activities while protecting and restoring the bayfront's natural ecosystem and minimizing environmental damage, as appropriate.
- Policy NR-6.5: Take steps to reduce urban runoff into creeks and the Bay.
- Policy NR-6.6: Consider protection of upland areas adjacent to wetlands as potential habitat.
- Policy NR -7.3: Promote continued maintenance, restoration, and daylighting of creeks in Redwood City through ecologically enhancing methods and any future enhancement ordinance.
- Policy NR-8.1: Pursue efforts to protect sensitive biological resources, including local, State and federally designated sensitive, rare, threatened and endangered plant, fish and wildlife species, and their habitats.
- Policy NR-8.2: Preserve and create contiguous wildlife habitat and movement corridors.
- Policy NR-8.5: Enhance fisheries habitat and restore access for native fishes in Redwood City's creeks.
- Policy NR-9.1: Preserve, maintain, and expand the number of trees in Redwood City's urban forest, on both public and private property.
- Policy NR-9.2: Require new trees to be planted and/or plant new trees in sufficient number, as identified on a site by site basis, on sites designated as sensitive receptors (i.e. schools or hospitals) that are in close proximity to industry, heavily traveled freeways and roads, and other similar pollution sources in order to mitigate air pollution.
- Policy NR-9.3: Select appropriate trees for Redwood City, focusing especially on native and landmark tree types.

### ***Redwood City Tree Preservation Ordinance***

Redwood City Municipal Code protects significant trees (Chapter 35, Tree Preservation), including any tree, sprout clump, or group of trees. Protected trees are defined as follows:

- (a) Any woody plant characterized by having a single trunk of a circumference of thirty-eight inches (38") or more, measured at any point between six inches and thirty six inches above ground level, or
- (b) Any woody plant characterized by having a single trunk which has been found the Park and Recreation commission to have special significance to the community, which plant shall be designated as a "heritage tree".

### ***Redwood City Street Tree Ordinance***

Redwood City Municipal Code also protects street trees or trees within the public right-of-way (Chapter 29, Article VI). The ordinance states that any tree removal in a city street or on a property adjacent to a city street requires a permit from the Park Superintendent of Redwood

City. Removal will depend on conditions stated by the Park Superintendent, and will be valid for a period of six months from the issuance of the permit.

### 4.3.3 Project Baseline

Baseline conditions reflect the setting in the Specific Plan area and Harbor View project site as they existed at the time the Notice of Preparation for the Specific Plan was issued on November 6, 2014, as described above in the Environmental Setting.

### 4.3.4 Significance Criteria

Based on CEQA Guidelines Appendix G, a project would cause significant adverse impacts to biological resources if it would:

- a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife, the National Marine Fisheries Service, or U.S. Fish and Wildlife Service;
- b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service;
- c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- e) Conflict with any local policies or ordinances protecting biological resources, such as tree preservation policy or ordinance; or
- f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional or state habitat conservation plan.

CEQA Guidelines Section 15382 identifies a significant effect on the environment as a "...substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance."

CEQA Guidelines Section 15065 directs lead agencies to find that a project may have a significant effect if it has the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish and wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or wildlife community, or reduce the number or restrict the range of an endangered, rare, or threatened species.

CEQA Guidelines Section 15380 further provides that a plant or wildlife species, even if not on one of the official lists, may be treated as “rare or endangered” if, for example, it is likely to become endangered in the foreseeable future.

In addition to the above, the CDFW and USFWS consider a project to have a significant impact if it were to cause a change in species composition or result in the measurable degradation of sensitive habitats, such as wetlands.

## **Approach to Analysis**

### ***Inner Harbor Specific Plan***

The analysis of the Specific Plan uses the existing biological setting; previous biological surveys, baseline reports, and literature; and database occurrence findings to assess the presence and potential impacts to biological resources criterion identified in Section 4.3.4 as a result of future development within the Plan Area. This document is intended to provide regulatory agencies with sufficient information to guide and streamline future development subject to CEQA within the Plan Area by proposing avoidance, minimization, and mitigation to reduce and/or eliminate potential impacts to sensitive biological resources.

For the purposes of this analysis, the following three principle components are considered with regard to the Specific Plan and how it relates to biological resources:

- Magnitude and duration of the impact (e.g., substantial/not substantial);
- Rarity of the affected resource; and
- Susceptibility of the affected resource to disturbance.

The evaluation of significance must also consider the interrelationship of these three components and is generally made on a case-by-case basis. For example, a relatively small magnitude impact on a state- or federally listed species could be considered significant because the species is rare and believed to be very susceptible to disturbance. Alternately, impacts to a listed or candidate species may not be substantial because of the low magnitude, or brief duration of the effect, or low sensitivity of the affected resource to disturbance. For example, a natural community such as California annual grassland is not necessarily rare or sensitive to disturbance, and thus a much larger magnitude of impact might be required to result in a significant impact. Impacts on biological resources are considered significant when Specific Plan-related habitat modifications (e.g., development, introduction of non-native plant and animal species, increased human intrusion, barriers to movement, or landscape management) could reduce species populations to the extent that they become locally less numerous; impacts on habitats are considered significant when the habitats could not continue to support viable populations of associated plant and animal species as a result of the Specific Plan implementation. Impacts are also considered significant if the effects on the resource may not be sufficiently reduced through nondiscretionary regulatory standards.

### **Harbor View Project**

The analysis of the Harbor View Project uses a similar approach to that of the Plan however examines potential impacts to biological resources within the smaller geographical area as proposed in the Harbor View Project.

### **Cumulative**

The Specific Plan and Harbor View Project's contribution to cumulative impacts on biological resources in the Plan Area should be considered significant if the project's contribution affecting criterion identified in Section 4.3.4, *Significance Criteria*, would be significant.

## **4.3.5 Program-Level Impacts of the Inner Harbor Specific Plan**

**Impact BIO-1.SP: Development under the Specific Plan could adversely affect, either directly or through habitat modifications, any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service (Criterion a). (Significant)**

As discussed below, several special-status fish, birds, and mammals have the potential to temporarily occur within the Plan Area and be impacted during construction activities. These species include California central coast steelhead, Chinook salmon, longfin smelt, Pacific herring, California least tern, Alameda song sparrow, white-tailed kite, Great blue heron, saltmarsh common yellowthroat, hoary bat, Townsend's big-eared bat, and harbor seal. The majority of development under the Specific Plan would occur in existing disturbed industrial or commercial areas and would not result in direct impacts to special-status wildlife species. However, development within disturbed area still have the potential to indirectly impact nearby sensitive species, particularly nesting birds and special-status wildlife in Water Dependent Development 1 and 2 areas, due to noise, vibrations, increased human presence, and use of mechanized equipment associated with project construction. The implementation of Mitigation Measures identified below reduces these potential impacts to less than significant.

### **Special-Status Plants**

No special-status plants are expected to occur in the Plan Area. Tidal salt marsh habitats in the nearby Don Edwards Wildlife Refuge provide high quality habitat for CNPS list 1.B plant species, but the Plan Area contains no habitat for these plants. The CNDDDB (2015) documents historical occurrences of the Point Reyes salty bird's-beak near the mouth of Redwood Creek; however, this population is considered extirpated. The Plan Area upland areas are almost entirely composed of developed areas. Riparian corridors surrounding the stormwater channels within the Plan Area are densely vegetated, but are dominated by weedy, non-native vegetation and have been subject to historic disturbances and the introduction of fill materials. For these reasons, no impacts on special-status plants are expected.

### ***Special-Status Fish and Marine Mammals***

Special-status fish that occur in the Plan Area are expected to vary by season and may include steelhead, Chinook salmon, longfin smelt, and pacific herring. These fish do not permanently reside in the Plan Area waters; however, they have the potential to seasonally migrate through and forage in the Plan Area vicinity, and thus are considered in this analysis. Marine mammals that may intermittently occur in the Plan Area include harbor seal and California sea lion.

As a result of Water Dependent Development-1 and -2 and Open Space – Wetland (OS-0) construction, impacts to special-status fish and marine mammals ranging from short-term impacts on individual animals to permanent habitat effects as a result of dredging; pile driving; levee, seawall, or floating communities construction; or placement of riprap or other fill within the Redwood Creek. Impacts typically associated with in-water work activities may include temporary water quality degradation, increased turbidity due to in-water construction and dredging, harmful underwater sound pressure levels associated with pile-driving, short-term loss of benthic habitat and associated benthos, and short-term loss and disruption of fishery habitat.

***Wildlife Exposure to Suspended Contaminants.*** Dredging within the Plan Area is expected to temporarily suspend fine organic or inorganic sediments in Bay waters causing localized areas of increased turbidity which could locally degrade the water quality and indirectly affect marine biota during construction. Direct impacts to fish include the disruption of potential foraging habitat for Pacific herring, salmonids and longfin smelt. In general, the level of contamination in Bay sediments within the Plan Area are unknown; however as discussed in Section 4.7 *Hazards and Hazardous Materials*, hazardous materials are known to occur at Inner Harbor either as part of existing operations or previous site uses.<sup>2</sup> It is not uncommon to encounter unexpected conditions once groundbreaking activities commence.

Dredging in San Francisco Bay has long been identified as a potential source of impact to fisheries resources, including Pacific herring, and is addressed by the LTMS (Corps, 2001). Open water construction activities associated with the proposed pedestrian-bicycle bridges, Water Dependent Development-1 and -2, and Open Space – Wetland, would require authorization from the Corps, which in turn would require consultation with the USFWS and NMFS. Typically, permit applicants are required to implement the guidelines of the Corps' LTMS if the project includes dredging or other in-water activities that may result in similar impacts, such as increased turbidity.

As identified in the LTMS, restricting dredging and other in-water construction activities to specific work windows would avoid direct and indirect impacts to special-status fish species that may occur in the open waters of the Plan Area. The LTMS-defined work window for Chinook salmon and steelhead extends from June 1 through November 30; and Pacific herring extends from March 1 through November 30. Typical permit requirements would include, but not necessarily be limited to:

---

<sup>2</sup> Site records of contamination are available spanning the years of 1990 to 2012, activities prior to those dates may not have been recorded, and additional ground contamination may be present within the Plan Area.

- Clamshell dredging<sup>3</sup> shall be required whenever practicable in areas within 250 feet of a shoreline or in depths less than 20 feet;
- If hydraulic dredging<sup>4</sup> in depths less than 20 feet, dredge head<sup>5</sup> must be maintained at or below substrate surface. Head may not be raised more than 3 feet off bottom for flushing; shut off pump when raising head more than 3 feet off bottom (e.g., at end of dredging).
- If a project would cause unavoidable direct or indirect effects to submerged or emergent aquatic vegetation, compensatory mitigation at a 3:1 ratio is required for lost function and values. Other proposed ratios require consultation with USFWS and CDFW.
- Implementation of Best Management Practices to reduce turbidity (including silt curtains or other physical or operational measures) shall be required.

Under the LTMS, further restrictions would apply if in-water construction or dredging is proposed to occur within the identified critical period for steelhead, Chinook salmon, longfin smelt, or Pacific herring or within 250 feet of wetland vegetation. USFWS and CDFW must be contacted in these circumstances.

Specific Plan in-water construction would comply with the regulatory provisions established by the Corps, U.S. Environmental Protection Agency (USEPA) and RWQCB, and permit conditions determined by these agencies, including BMPs to avoid or reduce potential impacts related to suspended sediments. Additionally, it is anticipated that tidal action will enhance dissipation of any turbidity plumes generated from Specific Plan activities and that impacts to marine life would be short-lived *and* temporary.

Furthermore, measures specified in Section 4.7, *Hazards and Hazardous Materials* and Section 4.8, *Hydrology and Water Quality* would ensure that impacts to marine biota would be less than significant. These measures include complying with NPDES General Construction Activities Permit, the project's SWPPP for General Construction Activities for in-water construction activities, including specific measures for on-site fueling of in-water equipment and measures for placement of concrete, and the San Mateo County Environmental Health (SMCEH) requirements.

Implementation of Mitigation Measure HAZ-1a.SP would minimize the potential exposure of contaminants to the environment through the requirement for all proposed development to have a site assessment performed. If analytical analysis shows that either organic or inorganic chemicals are exhibited in sediments at unacceptable concentrations for any aquatic or beneficial reuse site, adherence to the LTMS-required best management practices (BMPs) for dredging and disposal procedures (e.g., use of silt curtains, upland disposal) would ensure that any potential impact from the resuspension or dissolution of organic or inorganic contaminants from dredging would result in less-than-significant impacts. Furthermore, Mitigation Measure HAZ-1a.SP requires all proposed development in the Plan Area where previous hazardous material releases have

---

<sup>3</sup> Dredging process using a crane and bucket with a hinge on one side, opening and closing to grab material.

<sup>4</sup> Dredging process using a pipe and a cutting head (or dredge head) that disturbs and sucks up sediments and relocates them, typically to a nearby detention basin.

<sup>5</sup> Part of a hydraulic dredge, also known as a cutting head, which mechanically breaks up or disturbs sediments so the suction pipe can remove them.

occurred shall require remediation and cleanup to levels established by the RWQCB. Implementation of the above measures would reduce impacts related to fish and marine mammals related to exposure to suspended contaminants to less than significant.

**Increased Turbidity.** During any type of dredging operations, the interaction of the dredge equipment with the dredged material resuspends sediment into the water column. The placement of dredged material in the aquatic environment also creates a plum of turbidity as the material travels downward. The turbidity resulting from dredging and the placement of dredged material may affect marine organisms and aquatic wildlife during various life stages by affecting respiration (clogging gills); reducing visibility and the ability to forage or avoid predators; and altering movement patterns (due to avoidance of turbid waters) (URS, 2014). Suspended sediments have been shown to affect fish behavior, including avoidance responses, territoriality, feeding, and homing behavior. Wilber and Clarke found that suspended sediments result in cough reflexes, changes in swimming activity, and gill flaring (Wilber and Clarke, 2001). Dredging within the Plan Area is expected to temporarily resuspend fine sediments in Redwood Creek causing localized areas of increased turbidity potentially impacting special-status fish foraging habitat.

In-water construction would comply with the regulatory provisions established by the Corps, USEPA, and RWQCB, and permit conditions determined by these agencies, including best management practices to avoid or reduce potential impacts related to suspended sediments. Routine dredging currently occurs every one to two years in the Redwood City Harbor (URS, 2014), which further presents evidence of existing disturbance to special status species which have habituated to these types of activities in the vicinity of the Plan Area. Also, it is anticipated that currents and wave action will quickly dissipate any turbidity plumes generated from Plan activities, and that impacts to marine life, such as foraging salmonids, Pacific herring, longfin smelt, would be short-lived and temporary. Strict adherence to the SWPPP BMPs would ensure that the impact from turbidity associated with resuspension of sediments would be less than significant.

**Marine Wildlife Entrainment.** Dredging of bay sediments by either hydraulic suction or clamshell dredging equipment has the potential to entrain (directly remove) managed fish and commercially important crabs and invertebrates. Among available dredging methods, clamshell dredging has the lowest occurrence of fish and mobile invertebrate entrainment, since mobile animals are generally capable of sensing the pressure wave that precedes the clamshell bucket traveling through the water column, can actively avoid the bucket, and generally avoid the active dredging site because of increased seafloor turbidity and noise. The issue of potential entrainment of special-status fish by dredging activities was evaluated in the LTMS for the Placement of Dredged Materials in San Francisco Bay Region (Robinson and Greenfield, 2001). As discussed above, the LTMS established specific BMPs for Bay-Delta dredging that defined allowable work windows and limited in-Bay disposal to avoid and minimize entrainment of fish and commercially important invertebrates, as such, impacts to these species would be considered less than significant.

**Habitat Loss.** In-water construction would result in temporary and permanent losses of special-status fish habitat and associated benthic infaunal community, which would result in a loss of foraging opportunities for protected fish and marine mammals. Habitat loss could occur as a result

of the filling and the coverage of waterways (such as with docks, bridges, and boat slips). Altering benthic habitat and associated faunal communities can result in the loss or reduction of habitat suitable for fish foraging. Following dredging, the deposition of new sediments should begin almost immediately, and the benthic community inhabiting those sediments would be expected to recover to pre-dredging composition and abundances within a few months to under two years, depending on when dredging occurs and other ecological factors affecting recolonization (Newell et al., 1998). The amount of dredging required in association with the Specific Plan is unknown at this time but LTMS work windows would be employed for both dredging and pile driving, and acknowledging that dredged habitat would be recolonized over time and that abundant foraging habitat would still be available outside the Plan Area, loss of foraging habitat for special-status species as a result of Specific Plan activities is expected to be less than significant.

**Noise Impacts to Fish and Marine Mammals.** It is assumed that pile driving would be required for construction proposed under the Specific Plan. New or replacement concrete, wood, and steel piles that are driven within the water column can produce high-intensity noise and result in damage to the soft tissues, such as gas bladders or eyes (barotraumas), and/or harassment of fish and marine mammals such that they alter swimming, sleeping, or foraging behavior or temporarily abandon forage habitat. Protected fish species, including salmon, steelhead, Pacific herring, longfin smelt as well as harbor seals may use the Plan Area waters for foraging and/or as a transit corridor and would be potentially affected by the noise from pile driving.

The striking of a pile by a pile-driving hammer creates a pulse of sound that propagates through the pile, radiating out through the water column, seafloor, and air. Sound pressure pulses, as a function of time are referred to as a waveform. Peak waveform pressure underwater is typically expressed in decibels (dB) referenced to 1 microPascal ( $\mu\text{Pa}$ ). Sound levels are generally reported as peak levels (peak) and sound exposure levels (SEL). In addition to the pressure pulse of the waveform, the frequency of the sound, expressed in Hertz (Hz) is also important to evaluating the potential for sound impacts. Low frequency sounds are typically capable of traveling over greater distances with less reduction in the pressure waveform than high frequency sounds. Pile driving hammers driving concrete and steel piles in water typically generate sound waves ranging between 185-220 dB (peak) and 160-195 dB (SEL) (CalTrans, 2009).

Vibratory pile drivers work on a different principle than pile-driving hammers and produce a different sound profile. A vibratory driver works by inducting particle motion to the substrate immediately below and around the pile causing liquefaction of the immediately adjacent sediment, allowing the pile to sink downward or be removed. Vibratory pile driving is only suitable where soft substrate is present. The noise produced by vibratory drivers driving concrete and steel piles in water range between 165-195 dB (Peak) and 150-180 dB (SEL) (CalTrans, 2009). These levels are typically 10-20 dB lower in intensity relative to the higher, pulse-type noise produced by an impact hammer (CalTrans, 2009).

Water-based construction activities such as demolition of existing shoreline structures, levee construction, pile installation, and construction of Water Dependent Development-2 could impact fish potentially present in the Plan Area and vicinity. Scientific investigations on the potential effect of noise on fish indicate that sound levels below 187 dB do not appear to result in any acute physical damage or mortality to fish (barotraumas) (Dalen and Knutsen, 1986). **Table 4.3-2**

provides a summary of known acute and sub-lethal effects of noise on fish and marine mammals. Noise levels that result in startle responses in steelhead trout and salmon have been documented to occur at sound levels as low as 140 dB at a frequency of 100 Hz and between 180 and 186 dB in Pacific herring (San Luis and Delta Mendota Water Authority and Hanson, 1996). Any disturbance to FESA-listed fish species that results in altered swimming, foraging, movement along a migration corridor, or any other altered normal behavior is considered harassment.

**TABLE 4.3-2  
 POTENTIAL EFFECTS OF VARYING NOISE LEVELS ON FISH AND MARINE MAMMALS**

<b>Taxa</b>	<b>Sound Level Threshold (dB)</b>	<b>Effect</b>	<b>Reference</b>
<b>Fish</b>			
All fish > 2 grams in size	206 dB peak 187 dB (SEL)	Acute barotraumas	Caltrans, 2009
All fish < 2grams	183 dB (SEL)	Acute barotraumas	Caltrans, 2009
Pacific herring	180-186 dB	Avoidance behavior	Dalen and Knutsen, 1986
<b>Marine Mammals</b>			
Marine Mammals	180 dB for pinnipeds 190 dB for cetaceans <sup>6</sup>	Level A <sup>a</sup> injury for sound levels above threshold	NMFS, 2014
Marine Mammals	160 dB from impact hammer	Level B <sup>b</sup> behavioral harassment	NMFS, 2014
Marine Mammals	120 dB from vibratory hammer	Level B <sup>a</sup> behavioral harassment	NMFS, 2014

NOTES: dB = decibels; SEL = sound exposure level

<sup>a</sup> Level A harassment is defined as any act of pursuit, torment, or annoyance with has the potential to injure a marine mammal or marine mammal stock in the wild.

<sup>b</sup> Level B harassment is defined as any act of pursuit, torment, or annoyance with has the potential to disturb a marine mammal or marine mammal stock in the wild.

However, during pile driving activities, fish are not expected to be present within proximity to the impact zone, since the movement of piles or levees (or other water-based construction material) through the shallow water and initial contact with the Bay floor should result in any fish or marine mammals that are present, quickly leaving the immediate area. Any salmon, steelhead, longfin smelt, Pacific herring, or MSA-managed fish species swimming near pile driving activities are therefore not expected to experience any acute effects or barotraumas from vibratory pile driving.

In 2007, the NMFS programmatic consultation for essential fish habitat pursuant to MSA (NMFS 2007b) and FESA (NMFS 2007c) listed species and marine mammals covered by the MMPA, established activity-specific criteria to avoid or minimize adverse effects to individuals and cumulative instances of specific routine permitted activities. These activities include piling installation. As part of a project’s consultation with NMFS, pursuant to FESA, MMPA, and MSA, if the proposed activity included one of the above routine permitted activities and

<sup>6</sup> Pinnipeds include fin-footed mammals (e.g., harbor seal and sea lions) and cetaceans include whales, dolphins, and porpoises.

conformed to normal and routine type operations, the activity would be allowed pursuant to specific requirements. Specific to piling installation, this programmatic consultation established that for any size of steel, wood, or concrete piling installation employing a vibratory hammer, that installation could occur year-round with no meaningful impact to fish. Specific elements of the Specific Plan that involve in-water work, such as demolition of existing in-water structures, construction of shoreline development and levees, and installation and demolition of storm water outfalls, will require consultation with NMFS as the project applicant applies for Section 404 and/or Section 10 permits, and possibly with the CDFW.

Bair and Greco Islands provide expansive tidal flats for Pacific harbor seal haul-out sites, and seal breeding have been recorded on the islands. The haul-out nearest to the Inner Harbor is where Corkscrew Slough enters Redwood Creek, north of the Plan Area. This haul-out site is more than 2 miles from the Plan Area, and no tidal flats suitable for harbor seal haul-out sites are present within the Plan Area. Foraging seals have been observed in Redwood Creek, but would likely not approach the Plan Area due to high levels of noise disturbance from construction activity.

Noise studies on pinnipeds (seals and sea lions) indicate that harbor seals can detect sounds in water as low as 65 dB at frequencies of 75 Hz and higher, and that avoidance behaviors are regularly exhibited at sound levels of 80 dB above hearing thresholds, or approximately 160 to 165 dB (Kastak and Schusterman 1998) (see Table 4.3-2). Of particular significance are the investigations of Kastelein et al. (2006) which reported that 12 kHz sounds produced a discomfort threshold for harbor seals at 107 dB and that 180 dB sounds at the same frequency maintained a discomfort zone extending out 4 miles. Sounds at 12 kHz are extremely low frequency sounds and as such can travel long distances with little decrease in sound intensity. Part of the programmatic consultation between the Army Corps of Engineers and the National Marine Fisheries Service for routine harbor and port maintenance activities further established that when marine mammals are potentially present, a species-specific work window would apply, the project may be required to have on-site monitors, and Incidental Harassment Authorization (IHA) may be needed (NMFS 2007b). The programmatic consultation further stated that a project seeking coverage under the BO would be required to:

- Maintain root mean square (RMS) underwater sound pressures below levels that can injure (180 dB re 1 micropascal) or affect the behavior (160 dB re 1 micropascal) of marine mammals
- Maintain a 1,600-foot (500-meter) safety zone around sound sources in the event the sound level is unknown or cannot be adequately predicted
- Maintain sound levels below 90 dBA in air when pinnipeds (seals and sea lions) are present
- Halt work activities when a marine mammal enters the 1,600-foot (500-meter) safety zone
- Bring loud mechanical equipment on-line slowly
- Vessel operations should reduce speed when marine mammals are in the Plan Area.

Noise impacts to sensitive fish and marine mammals would be reduced to less than significant by implementation of Mitigation Measure BIO-1a.SP and Mitigation Measure BIO-1b.SP, and by employing BMPs demonstrated to reduce noise levels to safe levels for fish.

**Mitigation Measure BIO-1a.SP:** *Sound Attenuation Monitoring Plan.* If underwater sound levels will exceed the thresholds identified by NMFS, prior to the start of in-water construction associated with the Specific Plan, the project applicant shall provide a NMFS-approved sound attenuation monitoring plan to protect fish and marine mammals. This plan shall provide detail on the sound attenuation system, detail methods used to monitor and verify sound levels during pile driving activities, and describe management practices to be taken to reduce impact hammer pile-driving sound in the marine environment to an intensity level of less than 183 dB. The sound monitoring results shall be made available to the NMFS. The plan shall incorporate, but not be limited, to the following BMPs:

- To the extent feasible, all pilings shall be installed and removed with vibratory pile drivers only. Vibratory pile driving will be conducted following the Corps' "Proposed Procedures for Permitting Projects that will Not Adversely Affect Selected Listed Species in California". USFWS and NMFS completed Section 7 consultation on this document, which establishes general procedures for minimizing impacts to natural resources associated with projects in or adjacent to jurisdictional waters.
- An impact pile driver may only be used where necessary to complete installation of larger steel pilings in accordance with seismic safety or other engineering criteria.
- The hammer shall be cushioned using a 12-inch thick wood cushion block during all impact hammer pile driving operations.
- All piling installation using impact hammers shall be conducted between June 1 and November 30, when the likelihood of sensitive fish species being present in the work area is minimal.
- If pile installation using impact hammers must occur at times other than the approved work window, the project applicant shall obtain incidental take authorization from NMFS and CDFW, as necessary, to address potential impacts on salmon and steelhead, longfin smelt, Pacific herring and implement all requested actions to avoid impacts.
- The project applicant shall monitor and verify sound levels during pile driving activities. The sound monitoring results will be made available to NMFS and the City of Redwood City.
- In the event that exceedance of noise thresholds established and approved by NMFS occurs, a contingency plan involving the use of bubble curtains or air barrier shall be implemented to attenuate sound levels to below thresholds.

**Mitigation Measure BIO-1b.SP:** *In-Water Work Restrictions.* As part of the NMFS-approved Sound Attenuation Monitoring Plan required for pile driving in the Plan Area as described in Mitigation Measure BIO-1a.SP, the City shall ensure that the project applicant implements the following actions to reduce the effect of underwater noise transmission on marine mammals. These actions shall include at a minimum:

- Establishment of a 1,600-foot (500-meter) safety zone that shall be maintained around the sound source, for the protection of marine mammals in the event that sound levels are unknown or cannot be adequately predicted.
- Work activities shall be halted when a marine mammal enters the 1,600-foot (500-meter) safety zone and resume only after the animal has been gone from the area for a minimum of 15 minutes.
- A “soft start” technique shall be employed in all pile driving to allow marine mammals an opportunity to vacate the area.
- Maintain sound levels below 90 dBA in air when pinnipeds (seals) are present.
- A NMFS-approved biological monitor will conduct daily surveys before and during impact hammer pile driving to inspect the work zone and adjacent Bay waters for marine mammals. The monitor will be present as specified by NMFS during the impact pile-driving phases of construction.

### ***Special-Status and Nesting Birds***

Although the high ambient levels of noise and disturbance originating from Highway 101 and Graniterock operations and other human disturbances surrounding the Plan Area likely preclude nesting activities for many special-status birds, potential nesting habitat for resident and migratory birds, including raptors, is present in the Plan Area. Construction noise from within the Plan Area could impact actively nesting raptors, if present. The Canary Island pine, Mexican fan palm, and gum trees found throughout the Plan Area could support raptor nests. All raptors, their nests, and eggs are protected under Fish and Game Code (FGC) 3503.5. In addition, FGC 3503 protects the needless destruction of nests or eggs of most passerine bird species. Other common birds that could be found nesting in ruderal or ornamental habitat, vacant commercial or industrial buildings, or on Bair Island include mallard (*Anas platyrhynchos*), Canada goose (*Branta canadensis*), American coot (*Fulica americana*), killdeer (*Charadrius vociferous*), mourning dove (*Zenaida macroura*), black phoebe (*Sayornis nigricans*), red-winged blackbird (*Agelaius phoeniceus*), rock dove (*Columba livia*), mockingbird (*Mimus polyglottos*) and others.

Increased noise and activity resulting from Plan Area construction, were it to exceed ambient levels, could cause nest abandonment or loss of reproductive potential at active nests located in the Plan Area, which would be considered a “take” by the CDFW. In addition, the removal of trees or other vegetation could result in direct losses of active nests, eggs, or nestlings (see discussion under Impact BIO-5.SP, below). Such impacts on nesting birds would be considered significant. However, implementation of Mitigation Measure BIO-1c.SP below would reduce potential impacts on nesting birds to less-than-significant levels.

**Mitigation Measure BIO-1c.SP:** The City shall require project applicants to conduct pre-construction nesting bird surveys for projects proposed in areas containing, or likely to contain, habitat for nesting birds as a condition of approval for any development-related permit. Specific measures to avoid and minimize impacts on nesting birds include, but are not limited to, those described below.

- To the extent practicable, construction activities including building demolition, vegetation and tree removal, and new site construction shall be performed between September 1 and January 31 in order to avoid the avian nesting season. If these activities cannot be performed during this period, a preconstruction survey for nesting birds shall be conducted by a qualified biologist.
- During the avian nesting season (February 1 through August 31), a qualified biologist shall survey construction areas within and in the vicinity of the Plan Area for nesting raptors and passerine birds not more than 14 days prior to any ground-disturbing activity or vegetation removal. Surveys shall include all potential habitats within 500 feet (for raptors) of activities and all on-site vegetation including bare ground within 250 feet of activities (for all other species). These buffer distances may also be modified if obstacles such as buildings or trees obscure the construction area from active bird nests, or existing disturbances create an ambient background disturbance similar to the proposed disturbance.
- If active nests are found either within the Plan Area or within the 500-foot survey buffer surrounding the Plan Area, no-work buffer zones shall be established around the nests in coordination with CDFW. No demolition, vegetation removal, or ground-disturbing activities shall occur within a buffer zone until young have fledged or the nest is otherwise abandoned as determined by the qualified biologist. If work during the nesting season stops for 14 days or more and then resumes, then nesting bird surveys shall be repeated, to ensure that no new birds have begun nesting in the area.
- Typically, the size of individual buffers ranges from a minimum of 250 feet for raptors to a minimum of 50 feet for other birds but can be adjusted based on an evaluation of the site by a qualified biologist in cooperation with the USFWS and/or CDFW
- Birds that establish nests after construction starts are assumed to be habituated to and tolerant of the indirect impacts resulting from construction noise and human activity. However, direct take of nests, eggs, and nestlings is still prohibited and a buffer must be established to avoid nest destruction.
- Results of the surveys shall be forwarded to CDFW (if results are positive for nesting birds) and avoidance procedures shall be adopted, if necessary, on a case-by-case basis. These may include construction buffer areas (up to several hundred feet in the case of raptors) or seasonal avoidance.

**Special Status Bird Habitat Loss.** The Specific Plan proposes to compensate for loss of special-status wildlife subtidal foraging habitat by enhancing and creating such habitat in the OS-1 areas and the potential increase in habitat in Adaptive Retreat areas. Reducing the slope of tidally influenced wetlands and outboard levees would allow for higher quality marsh development.

Long-term impacts to special-status birds could occur from ongoing disturbance from increased recreational boating activity. Overall human disturbance levels, including ambient noise levels, within Plan Area waters are already relatively high and the marine species frequenting these waters are habituated to recreationalists originating from the Bair Island Aquatic Center and Peninsula Yacht Club. Additionally, Specific Plan Site Design guideline section 4.5.6.A *Signage*, would provide signage throughout the Plan Area indicating the prohibition of watercraft in marsh areas.

### ***Special-Status Bats***

Insects associated with tidal marsh, tidal flats, and ruderal habitat located within the Plan Area provide a good potential food source for bats. Bats may roost in abandoned or underutilized buildings, as well as trees, and may use such structures as nurseries or winter roosting sites. Special-status bat species, including pallid bat, hoary bat, and Townsend's big-eared bat, could also potentially roost in vacant buildings proposed for demolition within the Plan Area.

Building demolition could destroy maternity roosts were they to be located inside vacant buildings and thereby could adversely affect reproductive success. Construction could likewise adversely affect winter roosts. Finally, tree removal and building demolition could result in the direct mortality of special-status bats if present. These would be considered significant impacts. Implementation of **Mitigation Measure BIO-1d.SP** below would reduce this significant impact to less-than-significant levels.

**Mitigation Measure BIO-1d.SP:** Prior to each phase of construction activities that has the potential to result in impacts on special-status bats, the project applicant shall take the following steps to avoid direct losses of maternity roosts, winter roosts, or individual bats and indirect impacts to bat breeding success:

- Prior to construction or demolition activities within 250 feet of trees/structures with at least a moderate potential to support special-status bats, a qualified biologist (i.e., a biologist holding a CDFW collection permit and a Memorandum of Understanding with the CDFW allowing the biologist to handle and collect bats) shall survey for bats. If no evidence of bats (i.e., visual or acoustic detection, guano, staining, strong odors) is present, no further mitigation is required.
- If bats raising pups are present within 250 feet of the Plan Area during project construction activities (typically April 15 through August 15), the project sponsor shall create a no-disturbance buffer acceptable in size to the CDFW around the bat roosts. Bat roosts initiated within 250 feet of the Plan Area after construction has already begun are presumed to be unaffected by project-related disturbance, and no buffer would be necessary. However, the "take" of individuals (e.g., direct mortality of individuals, or destruction of their roost while bats are present) is prohibited.
- Trees or buildings with evidence of bat activity shall be removed during the time that is least likely to affect bats as determined by a qualified bat biologist (in general, roosts should not be removed if maternity bat roosts are present, typically April 15 – August 15, and roosts should not be removed if present bats are in torpor, typically when temperatures are less than 40 degrees Fahrenheit). Non-maternity bat roosts shall be removed by a qualified biologist, by either making the roost unsuitable for bats by opening the roost area to allow airflow through the cavity, or excluding the bats using one-way doors, funnels, or flaps.
- All special-status bat roosts that are destroyed shall be replaced at a 1:1 ratio with a roost suitable for the displaced species. The roost will be modified as necessary to provide a suitable roosting environment for the target bat species.

### **Special Status Mammals**

*Salt Marsh Harvest Mouse.* The sparse perennial pickleweed habitat that occurs in the Ferrari property (Water Dependent Development-2) is the only portion of the Plan Area that is considered to provide potential habitat for salt marsh harvest mouse. This area supports generally low quality pickleweed populations where this species is interspersed with ice plant (*Aizoaceae* sp.). However, these areas may support remnant populations of salt marsh harvest mouse. In the absence of focused surveys to determine species' presence or absence, waterfront construction activities on the Ferrari property have the potential to remove habitat for or cause direct mortality of salt marsh harvest mice. Potential impacts to the species and its habitat would not occur in any other portions of the Plan Area. The implementation of **Mitigation Measure BIO-1e.SP** would reduce potential impacts to salt-marsh harvest mouse to less than significant levels. If pickleweed-bearing portions of the Ferrari property were excluded from development, potential impacts would not occur and Mitigation Measure BIO-1e.SP would not be needed to reduce impacts to salt marsh harvest mouse.

**Mitigation Measure BIO-1e.SP:** With approval from the Resource Agencies, a qualified biologist shall perform sampling to ascertain the status of salt marsh harvest mouse on the Ferrari property. The survey shall be designed in cooperation with the USFWS and CDFW to determine the presence or absence of the salt marsh harvest mouse on the Ferrari Property. If salt marsh harvest mouse is not detected during surveys, no impacts would occur to this species and further action would not be required.

If salt marsh harvest mouse is identified during surveys, or surveys are not performed and species' presence is presumed, Mitigation Measure BIO-1f.SP shall be implemented to reduce potential impacts to less than significant.

**Mitigation Measure BIO-1f.SP:** The following measures shall be implemented within occupied, or presumed-occupied salt marsh harvest mouse habitat to avoid, minimize, and mitigate impacts to this species and its habitat.

1. A qualified, CDFW/USFWS-approved biological monitor will be present during all project-related activities within habitat for the salt marsh harvest mouse. The biological monitor will present a Worker Environmental Awareness Program for construction personnel to provide guidance about listed species and their habitats. The biological monitor will monitor all activities to ensure that no special-status species is harassed, killed, or injured, and to ensure that the project conforms to the conservation measures outlined in this document. The biological monitor will notify responsible construction management personnel when any aspect of the project will result in unauthorized take of special-status wildlife.
2. Vegetation will be removed using hand-tools prior to the start of any construction-related activities. A qualified biological monitor will be present during all clearing and construction-related activities associated with potential salt marsh harvest mouse habitat. If salt marsh harvest mice are observed within the work area, a biologist, with the appropriate federal and state permits, will remove and relocate the species.
3. To avoid potential impacts to salt marsh harvest mouse, exclusion fencing will be erected along the upper edges of the marsh prior to construction initiation around any work area. The fencing shall extend along the marsh edge at least 100 feet beyond the work area.

4. Any additional measures required by the USFWS (Biological Opinion) or CDFW (ITP) that will avoid impacts to the salt marsh harvest mouse will be incorporated and implemented during construction.
5. Every morning prior to the start of construction, a qualified biologist will inspect all areas within 250 feet of emergent pickleweed habitat to determine the potential presence of salt marsh harvest mice.
6. At the close of each workday, escape ramps/boards will be provided in all open trenches.
7. Vehicle use and disturbance within suitable habitat will be minimized to the maximum extent practicable.
8. The permanent or temporary loss of occupied salt marsh harvest mouse habitat will be mitigated by creating or restoring a comparable amount of habitat following completion of construction activities. Such enhancement will achieve a 1:1 ratio (i.e., no-net loss) for on-site pickleweed habitat, with habitat restored to pre-construction conditions or better and monitored following the restoration plan, as stated below.
9. To compensate for the loss of pickleweed and occupied salt marsh harvest mouse habitat, a restoration plan will be prepared by a qualified biologist to ensure there are no permanent impacts to salt harvest mouse habitat. The plan will outline measures to be implemented to restore and re-establish habitat on the site, and should include (but is not necessarily limited to) the following elements:
  - a. Restoration of temporarily filled pickleweed habitat to original contours
  - b. Preparation of enhanced/restored areas for replanting
  - c. Collection and propagation of site-specific plant materials
  - d. Planting methods and required soil amendments
  - e. The need for irrigation or site protection
  - f. Provisions for annual weeding and other maintenance
  - g. Performance criteria by which successful completion of mitigation can be assessed (e.g., 80% survival of plantings in year 5 with increased plant vigor each year)
  - h. Monitoring methods and schedule (e.g., minimum of 5 years)
  - i. Reporting requirements (e.g., annual monitoring for at least five years)

### **Summary of Impact BIO-1.SP Impacts**

The Specific Plan would potentially affect sensitive marine species in their general use of Plan Area waters for foraging and resting. Noise from pile driving activities during construction could result in noise levels that could cause potentially significant impacts on fish and marine mammals if they exceeded known impact thresholds. Implementation of **Mitigation Measures BIO-1a.SP** and **BIO-1b.SP** would reduce these construction impacts to less than significant by ensuring that noise levels would not exceed the noise level thresholds, regulatory agencies would be consulted, and in-water work restrictions would be applied.

The Specific Plan could potentially impact foraging and nesting birds through loss or degradation of foraging and nesting habitat due to construction activity and tree removal, in addition to increases in human activity throughout the Plan Area. Implementation of **Mitigation Measure BIO-1c.SP** would reduce these impacts to less-than-significant levels.

The proposed project could have potential impacts on roosting bats through mortality resulting from tree removal, building removal, or roost destruction by any other means. Increases in noise or increased human activity could cause bats to alter behavior, potentially resulting in lost fitness or impaired reproductive success. Implementation of **Mitigation Measures BIO-1d.SP** would reduce these impacts to less-than-significant levels.

The proposed project could have potential impacts on salt marsh harvest mouse, if present on the Ferrari property, indirectly through the loss of habitat or directly through mortality. Implementation of **Mitigation Measure BIO-1e.SP** and **Mitigation Measure BIO-1f.SP** would reduce these impacts to less-than-significant levels.

**Significance after Mitigation:** Less than Significant

---

**Impact BIO-2.SP: Development under the Specific Plan could have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service (Criterion b). (Significant)**

The riparian corridor, surrounding a stormwater channel along Maple Street, would receive short-term impacts as a result of construction activities including the proposed extension of Blomquist Street over the channel likely affecting vegetation and channel banks. At the time of this publication, design details regarding this project element have not been formalized; however, implications of the Blomquist Street extension would be subject to regulatory agency consultation and are discussed further under Impact BIO-3.SP, below. Long-term impacts would occur through increased human disturbance as a result of recreationalists using OS-2 areas and increased activity along the Maple Street. This riparian corridor, extending from Highway 101 to the culvert at Maple Street, in addition to the riparian corridor paralleling Walnut Street, are considered limited in their function as wildlife corridors due to the existing level of human disturbance from adjacent construction and in-channel debris. Moreover, impacts to these communities would be reduced to less-than-significant levels with the implementation of BMPs and Mitigation Measure BIO-3b.SP, discussed under Impact Criterion c, *Wetlands*.

Although pickleweed mats are not considered a community of special concern, they are considered a natural community (CDFW, 2010). Pickleweed is typically associated with supporting the federally endangered and state fully protected salt-marsh harvest mouse. Low quality characteristics observed in the stands within the Ferrari property and those found between Maple and Walnut streets would not warrant mitigation resulting from disturbance or removal during Specific Plan development as more higher-quality stands (tall, dense, and continuous) are found nearby in the Don Edwards Wildlife Refuge. Impacts to pickleweed mats are considered less-than-significant.

High-quality northern coastal salt marsh occurs 1/2-mile north of the Plan Area on Bair Island and is protected within the Don Edwards Wildlife Refuge. While direct impacts are not

anticipated on this habitat, in-water construction activities could indirectly impact areas of northern coastal salt marsh in Redwood Creek and special-status species associated with salt marsh habitats. Since these sensitive natural communities are also wetland types and because their functional values, including their habitat values, are considered as part of wetland assessment, they are discussed below under Impact Criterion c, *Wetlands*.

**Significance after Mitigation:** Less than Significant

---

**Impact BIO-3.SP: Development under the Specific Plan could have a substantial adverse effect on federally protected wetlands (as defined by Section 404 of the Clean Water Act) or state protected wetlands, through direct removal, filling, hydrological interruption, or other means (Criterion c). (Significant)**

Several areas of jurisdictional waters, including riverine, freshwater emergent wetland, estuarine wetland, and open water areas, occur in or in the immediate vicinity of Plan Area construction activities. Specific Plan development and associated construction activities could result in substantial adverse effects on wetlands and waters of the U.S. under the jurisdiction of the Corps, waters of the State under the jurisdiction of CDFW or the SWQCB, RWQCB, and State Lands Commission jurisdiction. Specific Plan associated activities that would, or have the potential to, result in significant impacts on jurisdictional waters include, but are not limited to:

- Levee or seawall construction along Redwood Creek (Corps);
- Construction of Water Dependent Development -1 and -2, including potential demolition, renovation, or construction of floating communities, in Redwood Creek and Ferrari property, potentially including pile-driving and dredging (Corps);
- Construction of elevated development pad and/or site area fill (base +3 ft.) for Water Dependent Development -1 (Corps); and
- Plan Area upland activities that could directly impact or discharge sediment or hazardous materials into drainage channels flowing into jurisdictional waters (Corps, CDFW, and RWQCB).

Potential significant impacts resulting from such activities include, but are not limited to, permanent fill, or temporary disturbance, of jurisdictional waters; degradation of water quality and aquatic habitat; and accidental discharge of sediment or toxic materials.

### ***Wetland Permitting Requirements***

Fill and excavation in areas considered jurisdictional waters requires permitting and authorization from the appropriate regulatory agencies. Failure to proceed without permits or approvals would be in violation of these regulations. A verified wetland delineation is required prior to the submittal of regulatory permit applications, and should include a full delineation of wetland features associated with the drainage channel north of the Plan Area. Due to the extended time

frame development would occur under the Specific Plan, this process would need to be repeated every five years. Permit approvals and certifications generally include the following:

**Section 404 / Section 10 Permits.** Pursuant to Section 404 of the federal Clean Water Act, permit approval from the Corps shall be obtained for the placement of dredge or fill material in waters of the U.S., including, for example, the placement of rip-rap or other fill along the shoreline during seawall construction. Any other construction below MHW elevation in the Redwood Creek would require a Section 10 permit. Preparation of the Section 404 / Section 10 permit applications will require a Pre-construction Notification (PCN) and supporting documentation. A PCN outlines project activities, areas of impact, construction techniques, and methods for avoiding and reducing impacts to jurisdictional features.

**Section 401 Water Quality Certification.** Approval of Water Quality Certification (WQC) and/or Waste Discharge Requirements (WDRs) must be obtained from the RWQCB for work within jurisdictional waters. Preparation of the Section 401 Water Quality Certification permit applications requires a permit application and supporting materials including construction techniques, areas of impact, and project schedule.

In addition to compliance with the permitting processes outlined above, as well as any terms and conditions included therein, Specific Plan wetland restoration design will restore hydraulic and sediment connectivity in the eastern portions of the Ferrari property and western portions of Redwood Creek such that creation of high-quality tidal marsh could develop in approximately two to four decades. Lastly, the following mitigation measures will help to ensure that potentially significant impacts to jurisdictional waters will be minimized.

**Mitigation Measure BIO-3a.SP:** Construction activities shall avoid or minimize adverse effects on jurisdictional waters to the greatest extent feasible. Specifically:

- Any jurisdictional salt marsh areas across Redwood Creek shall be protected by setbacks throughout Plan Area construction. The Baylands Ecosystems Habitat Goals (Goals Project, 1999) recommend a minimum 300-foot marsh buffer be incorporated into project design wherever possible and recommend an absolute minimum buffer of 100 feet where existing uses preclude the establishment of larger buffers.
- Areas that are avoided and provided with setbacks, as well as jurisdictional drainage channels in the vicinity of the Plan area, shall be protected during construction by BMPs as described in Mitigation Measure BIO-3b.SP below. Such measures include the installation of silt fencing, straw wattles or other appropriate erosion and sediment control methods or devices to prevent sediment from activities on the upland portion of the site from entering drainages or Redwood Creek. To minimize disturbance of setbacks and wetlands, equipment such as pile drivers, backhoes and cranes used for removal or installation of levees, piles, and rip-rap along the Plan Area shoreline shall operate from dry land where possible. Construction operations within the Redwood Creek may also be barge-mounted or utilize other water-based equipment such as scows, derrick barges and tugs.

**Mitigation Measure BIO-3b.SP:** Standard BMPs described below shall be employed to avoid degradation of aquatic habitat by maintaining water quality and controlling erosion and sedimentation during construction as required by compliance with the General National

Pollution Discharge Elimination System (NPDES) Permit for Construction Activities and as established by mitigation measures set forth in Section 4.8, *Hydrology and Water Quality*, to address impacts to water quality.

BMPs shall include, but not be limited to, installing silt fencing between jurisdictional waters and Specific Plan related activities, locating fueling stations away from potentially jurisdictional features, and otherwise isolating construction work areas from any identified jurisdictional features outside of the Plan Area. In addition, BMPs to avoid impacts to water quality resulting from dredging or other activities within open waters that are identified in the LTMS (Corps, 2001) shall be implemented. These BMPs include: silt fencing and gunderbooms or other appropriate methods for keeping dredged materials or other sediments from leaving the Plan Area.

**Significance after Mitigation:** Less than Significant

---

**Impact BIO-4.SP: Development under the Specific Plan could substantially interfere with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites (Criterion d). (Potentially Significant)**

The Plan Area is located in a regionally-sensitive natural area, with extensive salt marsh, tidal flat, and salt pond habitats in the immediate vicinity of its industrial activities. A number of fish, avian, and terrestrial species either depend on resources in the area during seasonal migrations or require these specific habitats to successfully breed. Much of the Plan Area development would occur within upland areas where very little undisturbed wildlife habitat exists. Construction under the Specific Plan would minimally impact potential wildlife movement, nursery sites, or other habitat functions of the Plan Area.

**Nighttime Artificial Illumination on Fish Habitat.** Increased artificial illumination of open waters within the Plan Area at night can alter normal swimming and foraging behavior of fish, marine mammals, and seabirds. Many pelagic schooling fish, such as sardines and herring, are attracted to illumination cast by boats and offshore structures and are frequently subject to increased predation from other fish species as well as marine birds and occasional marine mammals (TRAC 2001). The potential for impacts on migratory or foraging fish from artificial night lighting within the floating communities and Water Dependent Developments could be potentially significant. However, the Specific Plan has identified site design elements to reduce these effects to a less than significant level. Lighting will be low mounted and downward casting so as to reduce unnecessary light trespass into open waters. Additionally, no lighting above the first floor should be used other than to selectively highlight upper story features or building identified signage.

The potential for the OS-1 development and anticipated sea level rise to result in increased foraging habitat over the long-term for special-status fish and other aquatic biological resources would be considered less than significant.

**Avian Collisions with Buildings and Night Lighting.** The Plan Area is located within the Pacific Flyway along the western shoreline of San Francisco Bay. While exact migratory corridors through the area are unknown and vary by species, birds typically follow coastlines, rivers, and mountain ranges in their migratory passages from wintering to breeding grounds and back again. The Plan Area provides foraging and roosting habitat for numerous migratory species.

Many collisions are induced by artificial night lighting, particularly from large buildings, which can be especially problematic for migrating songbirds since many are nocturnal migrants (Ogden, 1996). The tendency of birds to move towards lights at night when migrating, and their reluctance to leave the sphere of light influence for hours or days once encountered (Graber 1968), has been well documented (Ogden, 1996). It has been suggested that structures located at key points along migratory routes may present a greater hazard than those at other locations (Ogden, 2002). Other research suggests that fatal bird collisions increase as light emissions increase, that weather often plays an important part in increasing the risk of collisions (Verheijen, 1981), and that nights with heavy cloud cover and/or precipitation present the conditions most likely to result in high numbers of collisions (Ogden, 2002). The type of light used may affect its influence on the birds: for example, studies have indicated that blinking lights or strobe lights affect birds significantly less than non-blinking lights (Gauthreaux and Belser, 2006; Evans et al., 2007).

Collisions with lighted buildings and other structures are not the only danger that nighttime lighting has for migratory birds. Even if collisions are avoided, birds are still at risk of death or injury. Birds can become “trapped” by a light source and, disoriented, continue to fly around the source until they become exhausted and drop to the ground, where they may be killed by predators (Ogden, 1996) or die from stress or exhaustion (Reed et al., 1985). Light attraction in birds is positively related to light intensity, and studies have shown that reduction in lighting intensity and changing fixed lighting to a flashing or intermittent light system can dramatically reduce avian mortality at lighted structures (Jones and Francis 2003). At least one controlled experiment has shown avian mortality can be dramatically reduced through shielding upward radiance of lighting fixtures.

In an experiment with fledgling seabirds in Hawaii, shielding the upward radiation of lights resulted in a 40 percent reduction in attraction to lights as the fledglings made their way from their nesting colonies to the sea (Reed et al. 1985). Furthermore, during the study the sides of large buildings and the grounds remained fully lit by the shielded lights, suggesting that birds are not attracted to lighted areas per se but, rather to point-sources of light, which may be related to the use of stars and the moon as navigational aids (*ibid.*). Although the Plan Area is located within the Pacific Flyway and in an urban area of the South Bay shoreline, specific migratory corridors in the vicinity of the Plan Area are unknown. It can be assumed, however, that numerous birds pass overhead or in the project vicinity during spring and fall migrations.

The potential for impacts on special status birds and migratory birds from artificial night lighting within the waterside areas of the Specific Plan in particular could be potentially significant. Although a portion of the Plan Area is currently illuminated during the nighttime and existing

commercial and industrial developments and Highway 101 have increased ambient lighting over the recent years, development proposed under the Specific Plan could substantially increase ambient light and glare levels associated with the potential use of reflective building materials, street light fixtures, nighttime lighting of commercial identification signs and logos, and increased vehicle and transit use.

Consistent use of requirements identified in California Energy Commission Title 24, California Green Building Standards, Illuminating Engineering Society standards, and other applicable policies, and incorporation of Specific Plan development standards and design standards (which are mandatory requirements) would help ensure that new development does not create unnecessary glare or lighting impacts to adjacent parcels or waters suitable for wildlife foraging or nesting habitat within the Plan Area. To minimize potential glare and lighting, Specific Plan development standards include requiring installation of downward focused and glare cut-off lights (4.6.2.G *New Streets and Pathways Regulations*), and design guidelines in the Specific Plan (*External Building Lighting*, including specifically in districts near waterbodies and habitat) encourage flush mounted building lights, and no lighting above the first floor other than to selectively highlight upper story features or building identification signage.

To address potential glare and building reflectivity, other Specific Plan design standards (*Building Materials*) require that exterior building materials and wall cladding provide a solid appearance, that use of highly reflective surfaces be discouraged, and that reflective glass be prohibited. Proposed design standards (*Street Facades, Entries, and Fenestration*) also require that all glass on non-residential buildings permit 80 percent visible transparency and a reflectance of no greater than 10 percent visibility.

The aforementioned development standards regarding lighting placement and orientation align with BMPs to reduce potential avian collisions (bird strikes) with buildings and due to night lighting as bird attractants. In addition, the following design approaches supplement the Specific Plan's required development and design standards (and related design guidelines), and are strongly encouraged to be incorporated into the Specific Plan thereby substantially reducing the potential impacts relating to avian collisions with buildings.

1. Additional BMP strategies that supplement the Specific Plan's Development Standards, and Design Guidelines and Standards, in the Specific Plan shall incorporate design approaches into projects where appropriate, based on City review and approval include the following:
  - a. Make clear or reflective glass visible to birds using design approaches. Examples include:
    - i. Use of opaque or transparent glass in window panes instead of reflective glass.
    - ii. Uniformly cover the outside clear glass surface with patterns (e.g., dots, decals, images, abstract patterns). Patterns must be separated by a minimum 10 centimeters (cm).

- iii. Apply striping on glass surface. If the striping is less than 2 cm wide it must be applied vertically at a maximum of 10 cm apart (or 1 cm wide strips at 5 cm distance).
  - iv. Install paned glass with fenestration patterns with vertical and horizontal mullions of 10 cm or less.
  - v. Place decorative grilles or louvers with spacing of 10 cm or less.
  - vi. Apply one-way transparent film laminates to outside glass surface to make the window appear opaque on the outside.
  - vii. Install internal screens through non-reflective glass (as close to the glass as possible) for birds to perceive windows as solid objects.
  - viii. Install windows which have the screen on the outside of the glass.
  - ix. Use UV-reflective glass. Most birds can see ultraviolet light, which is invisible to humans.
  - x. If it is not possible to apply glass treatments to the entire building, the treatment should be applied to windows at the top of the surrounding tree canopy or the anticipated height of the surrounding vegetation at maturity.
- b. Incorporation of mute reflections in glass. Examples include:
- i. Angle glass panes toward ground or sky so that the reflection is not in a direct line-of-sight (minimum angle of 20 degrees with optimum angle of 40 degrees).
  - ii. Awnings, overhangs, and sunshades provide birds a visual indication of a barrier and may reduce image reflections on glass, but do not entirely eliminate reflections.
- c. Reduce Light Pollution. Examples include:
- i. Dock lighting on all floating docks shall be installed to minimize artificial lighting of Bay waters by using shielded, low-mounted, and low light-intensity fixtures and bulbs.
  - ii. Turn off all unnecessary interior lights from 11 p.m. to sunrise.
  - iii. Install motion-sensitive lighting in lobbies, work stations, walkways, and corridors, or any area visible from the exterior and retrofitting operation systems that automatically turn lights off during after-work hours.
  - iv. Reduce perimeter lighting whenever possible.
- d. Institute a building operation and management manual that promotes bird safety. Example text in the manual includes:
- i. Donation of discovered dead bird specimens to authorized bird conservation organization or museums to aid in species identification and to benefit scientific study, as per all federal, state and local laws.
  - ii. Production of educational materials on bird-safe practices for the building occupants.
  - iii. Asking employees to turn off task lighting at their work stations and draw office blinds or curtains at end of work day.

- iv. Schedule nightly maintenance during the day or to conclude before 11 p.m., if possible.

**Mitigation Measure BIO-4.SP:** Prior to the approval of a landscaping plan and lighting plan for any project in the Specific Plan Area, the project applicant shall submit plans to the City, for review and approval, to demonstrate that the project has been designed to reduce unnecessary artificial nighttime lighting and potential bird collisions with buildings. The applicant shall implement into the project the following required avoidance measures to reduce bird strike impacts.

1. Required avoidance measures include **all** of the following:
  - a. Prohibit the use of mirrors in landscape design.
  - b. Avoid placement of bird-friendly attractants (i.e., vegetated landscaped areas, including roofs, and water features) near glass. The placement of trees or shrubs greater than five feet tall when planted shall be located within three (3) feet of any glass façade to avoid creating a gap where birds could fly between the glass façade and the reflecting vegetation, and to slow birds down on approach.
  - c. For all buildings developed within 300 feet of open spaces that are at least two acres or larger and dominated by vegetation (including vegetated landscaping, wetlands, or open water), all trees or shrubs shall be placed far enough away from any glass façades to avoid reflecting tree canopies or other vegetation in the glass façades. The specific distance would be a project-specific determination based on building and landscape plans and the proposed tree species (which will indicate the proposed tree canopy profile).

**Significance after Mitigation:** Less than Significant

---

**Impact BIO-5.SP: Development under the Specific Plan could conflict with the Redwood City's Tree Protection Ordinance (Redwood City Municipal Code Chapter 35.3) by removal of protected trees (Criterion e). (Less than Significant)**

Future development under the Specific Plan would result in the removal of trees that are protected under the City's Street Tree and Tree Preservation ordinances, which have been enacted to preserve the City's urban forest and are described below. Although the City has not designated any tree species as Heritage Trees, tree species that are formally adopted in the future would also be protected under the following ordinances.

1. *Street Tree Ordinance* protects all street trees growing on public property adjacent to roadways throughout the city.
2. *Tree Preservation Ordinance* protects all trees growing on private property with trunk sizes that exceed 38 inches in circumference (twelve inches in diameter) measured between six inches and 36 inches above ground.

Impacts would be considered potentially significant; however, project applicants of future development would be required to obtain a tree removal permit from the City Parks and Recreation Director prior to project approval. Additionally, tree removal impacts would be reduced with the implementation of Mitigation Measure BIO-5a.SP and Mitigation Measure BIO-5b.SP, discussed below. As a result, impacts to protected trees would be considered less than significant.

**Mitigation Measure BIO-5a.SP:** To mitigate for the loss of removed trees, replacement planting shall be provided to prevent excessive loss of shade, erosion control, groundwater replenishment, visual screening and wildlife habitat in accordance with the following criteria:

1. No tree replacement shall be required for the removal of nonnative species, for the removal of trees which is required for the benefit of remaining trees, or where insufficient planting area exists for a mature tree of the species being considered.
2. Replacement tree species shall be native to California.
3. Replacement trees shall be of twenty-four (24) inch box size, except that three fifteen (15) gallon size trees may be substituted for each twenty-four (24) inch box size tree where appropriate.
4. In the event that replacement trees are required but cannot be planted due to site constraints, an in lieu fee as determined by the master fee schedule of the city may be substituted for required replacement plantings, with all such revenues applied toward tree planting in city parks, streets and medians.
5. Plantings shall be installed prior to the issuance of a certificate of occupancy, subject to seasonal constraints, and shall be maintained by the applicant until established. The Tree Reviewer may require a landscape plan showing the replacement planting and the method of irrigation. Any replacement planting which fails to become established within one year of planting shall be replanted at the applicant's expense.

**Mitigation Measure BIO-5b.SP:** Tree Protection during construction. Adequate protection shall be provided during the construction period for any trees which are to remain standing, deemed to be potentially endangered by said site work, and shall include the following:

1. Before the start of any clearing, excavation, construction or other work in the Plan Area, every protected tree deemed to be potentially endangered by said site work shall be securely fenced off at a distance from the base of the tree to be determined by the City's Parks and Recreation Director. Such fences shall remain in place for duration of all such work. All trees to be removed shall be clearly marked. A scheme shall be established for the removal and disposal of logs, brush, earth and other debris which will avoid injury to any protected tree.
2. Where proposed development or other site work is to encroach upon the protected perimeter of any protected tree, special measures shall be incorporated to allow the roots to breathe and obtain water and nutrients. Any excavation, cutting, filing, or compaction of the existing ground surface within the protected perimeter shall be minimized. No change in existing ground level shall occur within a distance to be determined by the City's Parks and Recreation Director from the base of any

protected tree at any time. No burning or use of equipment with an open flame shall occur near or within the protected perimeter of any protected tree.

3. No storage or dumping of oil, gas, chemicals, or other substances that may be harmful to trees shall occur within the distance to be determined by the City's Parks and Recreation Director from the base of any protected trees, or any other location on the site from which such substances might enter the protected perimeter. No heavy construction equipment or construction materials shall be operated or stored within a distance from the base of any protected trees to be determined by the tree reviewer. Wires, ropes, or other devices shall not be attached to any protected tree, except as needed for support of the tree. No sign, other than a tag showing the botanical classification, shall be attached to any protected tree.
4. Periodically during construction, the leaves of protected trees shall be thoroughly sprayed with water to prevent buildup of dust and other pollution that would inhibit leaf transpiration.
5. If any damage to a protected tree should occur during or as a result of work on the site, the project applicant shall immediately notify the Parks and Recreation Department of such damage. If, in the professional opinion of the City's Parks and Recreation Director, such tree cannot be preserved in a healthy state, the Director shall require replacement of any tree removed with another tree or trees on the same site deemed adequate by the Director to compensate for the loss of the tree that is removed.
6. All debris created as a result of any tree removal work shall be removed by the project applicant from the property within two weeks of debris creation, and such debris shall be properly disposed of by the project applicant in accordance with all applicable laws, ordinances, and regulations.

**Significance after Mitigation:** Less than Significant

---

**Impact BIO-6.SP: Development under the Specific Plan could conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional or state habitat conservation plan (Criterion f). (Less than Significant)**

The San Francisco Bay Subtidal Habitat Goals Report provides a scientific foundation and approach for the conservation and enhancement of submerged areas of San Francisco Bay and was prepared with collaboration among BCDC, California Ocean Protection Council/California State Coastal Conservancy, NMFS, and the San Francisco Estuary Partnership (San Francisco Bay Subtidal Habitat Goals Project, 2010). As such, it contains many recommended conservation goals for Bay subtidal habitats.

The Subtidal Habitat Goals Report includes habitat conservation goals promoting no net loss or disturbance to soft bottom and rock habitats (subtidal and intertidal habitats), enhancing habitat function of artificial structures, minimizing placement of artificial structures detrimental to subtidal

habitat function, protecting native shellfish habitat and existing eelgrass habitat, and protecting macroalgal beds.

As discussed above, marginal impacts to intertidal and subtidal habitat would be expected as a result of development under the Specific Plan. Although some disturbance of Bay subtidal soft substrate would occur during dredging and pile installation, these disturbances would be minimized, with implementation of mitigation measures identified above, and of short duration. Over the long-term, implementation of Adaptive Retreat and wetland restoration identified in OS-1 areas, would further support higher quality intertidal habitat than under existing conditions and presumably offer enhancement of natural community habitat function and wildlife habitat. None of the proposed infrastructure improvements would result in the removal or loss of any habitat function or historical value of artificial structures, or result in the net loss of any eelgrass or macroalgal beds, or result in a net loss of oyster beds or habitat.

Therefore, the potential for the project to conflict with applicable local policies or ordinances protecting marine or estuarine biological resources or conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan for marine or estuarine resources would be less than significant.

**Mitigation:** None Required.

---

### 4.3.6 Project-Level Impacts of the Harbor View Project

**Impact BIO-1.HV: Development under the Harbor View project could adversely affect, either directly or through habitat modifications, any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service (Criterion a). (Potentially Significant)**

Nesting or foraging habitat for listed non-avian terrestrial wildlife does not occur in the project site, nor does habitat to support special-status plants; therefore, these resources are not further discussed. Sensitive species potentially impacted by the proposed project are likely to have adapted to continuously evolving environments by which this portion of Redwood City is defined.

Special-status birds are not expected to nest in the project site. Potential foraging habitat for Ridgway's rail, California black rail, double-crested cormorant, Alameda song sparrow, western snowy plover, California least tern, northern harrier, white-tailed kite, Great blue heron, saltmarsh common yellowthroat, and short-eared owl is located less than 700 feet north of the project site and in the salt ponds directly east of Seaport Boulevard potentially supporting migration patterns through the project site; however, these special-status species are not expected to frequent the project site due to the lack of salinity influenced shoreline foraging and nesting habitat and high level of human disturbance.

Similarly, high ambient noise levels originating from Highway 101 and Graniterock operations and other human disturbances surrounding the project site likely preclude nesting activities for many resident and migratory birds, including raptors. Although, there still is potential for construction noise from the proposed project to impact migratory bird and raptor nests in Canary Island pine, Mexican fan palm, gum and similarly tall densely foliated trees found throughout the project site. All raptors, their nests, and eggs are protected under FGC 3503.5. In addition, FGC 3503 protects the needless destruction of nests or eggs of most passerine bird species. Other common birds that could be found nesting in ruderal or ornamental habitat, vacant commercial or industrial buildings, include Canada goose, killdeer, mourning dove, black phoebe, red-winged blackbird, rock dove, and others.

Increased noise and activity resulting from the proposed project construction, were it to exceed ambient levels, could cause nest abandonment and death of young or loss of reproductive potential at active nests located in the project site. In addition, any removal of trees or other vegetation could result in direct losses of nests, eggs, or nestlings. Such impacts on nesting birds would be considered significant. However, implementation of Mitigation Measure BIO-1a.HV below would reduce impacts on nesting birds to less-than-significant levels.

**Mitigation Measure BIO-1a.HV: Implement Mitigation Measure BIO-1c.SP.**

**Significance after Mitigation:** Less than Significant

---

### ***Special-Status Bats***

Bats may roost in abandoned or underutilized buildings, as well as trees, and may use such structures as nurseries or winter roosting sites. Special-status bat species, including pallid bat, hoary bat, and Townsend's big-eared bat, could also potentially roost in vacant buildings proposed for demolition within the project site.

Building demolition could destroy maternity roosts were they to be located inside vacant buildings and thereby could adversely affect reproductive success. Construction could likewise adversely affect winter roosts. Finally, tree removal and building demolition could result in the direct mortality of special-status bats if present. The implementation of Mitigation Measure BIO-1b.HV would reduce impacts on special-status bats to less-than-significant levels.

**Mitigation Measure BIO-1b.HV: Implement Mitigation Measure BIO-1d.SP.**

**Significance after Mitigation:** Less than Significant

---

**Impact BIO-2.HV: Development of the Harbor View project could have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service (Criterion b). (No Impact)**

The proposed project would not impact any riparian habitat or other sensitive natural communities as none occur in or adjacent to the Harbor View project area.

**Mitigation:** None Required.

---

**Impact BIO-3.HV: Development of the Harbor View project could have a substantial adverse effect on federally protected wetlands (as defined by Section 404 of the Clean Water Act) or state protected wetlands, through direct removal, filling, hydrological interruption, or other means (Criterion c). (No Impact)**

The Harbor View project area does not support jurisdictional features; therefore, the project would not impact these resources.

**Mitigation:** None Required.

---

**Impact BIO-4.HV: Development of the Harbor View project could substantially interfere with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites (Criterion d). (Potentially Significant)**

As discussed above, the project site is located in a regionally-sensitive natural area, with extensive salt marsh, tidal flat, and salt pond habitats in the immediate vicinity of its commercial and industrial activities. A number of avian species either depend on resources in the project site vicinity during seasonal migrations or require these specific habitats to successfully breed. All of the proposed project development would occur within upland areas where no undisturbed wildlife habitat exists. There is therefore a low potential to impact resident and migratory fish and wildlife corridors or impede the use of native wildlife nursery sites.

***Avian Collisions with Buildings and Night Lighting.*** The project site vicinity is located within the Pacific Flyway along the western shoreline of San Francisco Bay. While exact migratory corridors through the area are unknown and vary by species, birds typically follow coastlines, rivers, and mountain ranges in their migratory passages from wintering to breeding grounds and back again. The project site provides foraging and roosting habitat for numerous migratory species.

The waters of the Bay approximately 700 feet north of the project site provide valuable stopover habitat for migratory birds. Development of the proposed project may increase the risk of bird collisions over that posed by existing structures. This would be a significant impact because migratory birds are protected under the Migratory Bird Treaty Act and native resident nongame birds are protected from take under the California Fish and Game Code. A discussion regarding

findings of bird collisions with buildings is presented in Impact BIO-3.SP and would also be relevant to this project-level analysis.

The potential for impacts on resident and migratory birds from artificial night lighting within proposed project could be potentially significant. Although development in the vicinity of proposed project is currently illuminated during the nighttime and existing commercial and industrial developments and Highway 101 have increased ambient lighting over the recent years, development proposed under the proposed project would significantly increase ambient light and glare levels associated with the potential use of reflective building materials, street light fixtures, nighttime lighting of commercial identification signs and logos, and increased vehicle and transit use.

Incorporation of the proposed development standards and design standards in the Specific Plan (which would apply to the Harbor View project), supplemented by bird safe measures in Mitigation Measure BIO- 4.HV, would reduce residual impacts relating to avian collisions with buildings to less than significant.

**Mitigation Measure BIO-4.HV: Implement Mitigation Measure BIO-4.SP**

**Significance after Mitigation:** Less than Significant

---

**Impact BIO-5. HV: Development under the Harbor View project could fundamentally conflict with the City of Redwood City's Tree Protection Ordinance (Redwood City Municipal Code Chapter 35.3) by removal of protected trees under certain circumstances (Criterion e). (Potentially Significant)**

**Conflict with Tree Ordinance.** Future development under the proposed project would result in the removal of trees and conflict with the City's Street Tree and Tree Preservation ordinances, which have been enacted to preserve the City's urban forest and are described below. As discussed in the Inner Harbor Specific Plan program-level analysis above, Redwood City's Tree Preservation Ordinance protects all trees growing on private property with trunk sizes that exceed 38 inches in circumference (twelve inches in diameter) measures between six inches and 36 inches above ground. The City's Street Tree Ordinance protects all street trees growing on public property adjacent to roadways throughout the city.

The 2014 Harbor View project Tree Survey Report found 104 trees of 21 various species in the Plan Area (Arbor Resources, 2014). The report indicated the site is populated predominantly by Mexican fan palms and Hollywood junipers, while all of the trees are regarded as ornamental and non-native to the area, it is anticipated that tree removal will require a permit from the City with associated permit conditions. The project would not conflict with the City's tree ordinance, provided the project applicant applies for a tree removal permit (Redwood City Municipal Code 35.3) and implements Mitigation Measure BIO-5.HV. Thus, this impact would be less than significant.

**Mitigation Measure BIO-5.HV: Implement Mitigation Measure BIO-5b.SP.**

**Significance after Mitigation:** Less than Significant

---

**Impact BIO-6.HV: Adoption and development under the Harbor View project could conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional or state habitat conservation plan (Criterion f). (No Impact)**

No Habitat Conservation Plan, Natural Community Conservation Plan, or other approved habitat conservation plan is applicable to the Harbor View project area; therefore, the Project would not present a conflict.

**Mitigation:** None Required.

---

### 4.3.7 Cumulative Impacts

**Impact BIO-1.CU: Construction activity and operations of development under the Specific Plan and/or the Harbor View project, in combination with past, present, existing, approved, pending and reasonably foreseeable future projects within and in the vicinity of the Plan Area and project site, would not result in impacts on special-status species, sensitive habitats, wildlife movement corridors, wetlands, and other waters of the U.S. (Less than Significant)**

The cumulative analysis considers the effect of the Specific Plan and Harbor View project in combination with past, present, existing, approved, pending and reasonably foreseeable future projects within and in the vicinity of the Plan Area (as described in Section 4.0.4, *Cumulative Analysis*, in this chapter). Cumulative projects in the Specific Plan vicinity that would involve construction and operations that could affect biological resources include those in the development forecasts conducted for this EIR based on the countywide transportation model and the US (Highway) 101/SR84 (Woodside Road) Interchange Improvement Project and other current or reasonably foreseeable future projects citywide, including the nearby San Mateo County Replacement Jail and several recent, existing, and anticipated projects underway in downtown Redwood City under the Downtown Precise Plan. Other relevant past and present projects in the cumulative context are various wetlands restoration projects, including namely the restoration of 15,100 acres of Cargill's former salt ponds (by State of California and the federal government), east of the Plan Area and project site, and the California Coastal Conservancy's large-scale program to control non-native vegetation in the Bay salt marshes.

The vicinity of the Plan Area largely includes areas that have previously been developed. Cumulative developments, particularly those in proximity to water and natural resources, have been or will be adequately assessed for their potential to result in significant environmental effects and would be required to implement adopted mitigation measures to reduce such impacts.

Other reasonably foreseeable development within the area, although likely increasing the potential to disturb existing biological resources and result in potentially significant environmental effects, would be required to comply with the same regulatory framework as the proposed Specific Plan and Harbor View project. Combined with implementation of all mitigation measures identified in this section for the Specific Plan and Harbor View project, would reduce significant or potentially significant impacts to biological resources to less than significant.

Further, environmentally protective laws and regulations have been applied with increasing rigor since the early 1970s and include the CESA, FESA, and the CWA, as described earlier in this section. Adoption and development under the Specific Plan and Harbor View project, as well as other future projects within the cumulative geographic context of the Plan Area, would be required to comply with local, state, and federal laws and policies and all applicable permitting requirements of the regulatory and oversight agencies intended to address potential impacts on biological resources, including waters of the State and U.S., and special-status species. Additionally, future projects would be required to demonstrate that they would not have significant effects on these biological resources, although it is possible that some projects may be approved even though they would have significant, unavoidable impacts on biological resources.

Therefore, overall, considering development under the Specific Plan and/or the Harbor View project, combined with effects of past, present, pending and reasonably foreseeable future projects within the geographic context for this analysis, would not result in a significant cumulative effect on biological resources to which the Specific Plan and/or Harbor View project would contribute. The impact would be less than significant.

**Mitigation:** None Required.

---

## References – Biological Resources

- Bay Conservation Development Commission (BCDC), 2015. Email correspondence between Elizabeth Hill, ESA biologist, and Javier del Castillo, BCDC GIS Specialist. September 25, 2015.
- Brown, H., Caputo, S., McAdams, E.J., Fowle, M., Phillips, G., Dewitt, C., Gelb, Y., 2007. Bird-safe Building Guidelines, New York Audubon. May 2007, available at <http://nycaudubon.org>, accessed February 27, 2014.
- California Department of Fish and Wildlife (CDFW), Biogeographic Data (BIOS), <http://bios.dfg.ca.gov>, June 2013.
2010. List of Vegetation Alliances and Associations. Vegetation Classification and Mapping Program, California Department of Fish and Game. Sacramento, CA. September 2010.

- CDFW California Natural Diversity Database. (CNDDDB). Accessed April 2015.
- CDFW, Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities. November 24, 2009.
- California Native Plant Society (CNPS), Rare Plant Program. 2015. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society, Sacramento, CA. Website <http://www.rareplants.cnps.org> [accessed 21 April 2015].
- Caltrans, 2009. *Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish*. Final Report. Prepared for California Department of Transportation by ICF Jones & Stokes and Illingworth and Rodkin, Inc. [www.dot.ca.gov/hq/env/bio/files/Guidance\\_Manual\\_2\\_09.pdf](http://www.dot.ca.gov/hq/env/bio/files/Guidance_Manual_2_09.pdf), February 2009.
- City of Redwood City, 2010. Redwood City General Plan. October 11, 2010.
- Dalen, J. and G.M. Knutsen, 1986. Scaring effects of fish and harmful effects on eggs, larvae and fry from offshore seismic explorations, ICA Associated Symposium on Underwater Acoustics, Halifax, Canada, July 16-18, 1986.
- Eddleman, W.R., R.E. Flores, and M. Legare. 1994. "Black Rail (*Laterallus jamaicensis*)," The Birds of North America Online. Edited by A. Poole. Ithaca, New York: Cornell Lab of Ornithology. Accessed April 22, 2015. <http://bna.birds.cornell.edu/bna/species/123>.
- Environmental Science Associates (ESA), 2015a. Reconnaissance Level Site Visit for the Redwood City Inner Harbor Specific Plan. April 8, 2015.
- Evans, W.R., Akashi, Y., Altman, N.A., Manville, A.M., 2007. *Response of night-migrating songbirds in cloud to colored and flashing light*, North American Birds, 60 (4): 476–88.
- Fox, 2008. Harbor seal behavioral response to boaters at Bair Island refuge. Prepared by Kathryn Snyder Fox. San Jose State University Master's Thesis. 2008.
- Gauthreaux, S.A., Belser, C.G., 2006. Effects of Artificial Night Lighting on Migrating Birds, In: Rich, C. and Longcore, T., *Ecological Consequences of Night Lighting*. Covelo, CA: Island Press, 2006.
- Goals Project. 1999. *Baylands Ecosystem Habitat Goals: A Report of Habitat Recommendations Prepared by the San Francisco Bay Area Wetlands Ecosystem Goals Project*. San Francisco Estuary Project. [http://sfep.abag.ca.gov/pdf/habitat\\_goals/Habitat\\_Goals.pdf](http://sfep.abag.ca.gov/pdf/habitat_goals/Habitat_Goals.pdf).
2000. Baylands Ecosystem Species and Community Profiles: *Life histories and environmental requirements of key plants, fish and wildlife*. Prepared by the San Francisco Bay Area Wetlands Ecosystem Goals Project. P.R. Olofson, editor. San Francisco Bay Regional Water Quality Control Board, Oakland, Calif.
- Graber, R., 1968. *Nocturnal Migrations in Illinois—Different Points of View*, The Wilson Bulletin 20 (1): 36-71.
- Hickman, J.C., (Ed.) 1993. The Jepson Manual: Higher Plants of California. University of California Press, Berkeley, California.

- Holland, R.F., Preliminary Descriptions of the Terrestrial Natural Communities of California, 1986. Department of Fish and Game, Sacramento, CA. 156 p.
- H.T. Harvey and Associates. 2005. South Bay Salt Pond Restoration Project: Biology and Habitats Existing Conditions Report. 237 pp.
- Jepson Flora Project (eds.) 2012. *Jepson eFlora*, <http://ucjeps.berkeley.edu/IJM.html> [Accessed on November 20, 2012]
- Jones, J., Francis, C.M., 2003. *The effects of light characteristics on avian mortality at lighthouses*, J. Avian Biology 34: 328–333.
- Kastak, D. and R.J. Schusterman, 1998. *Low-frequency amphibious hearing in pinnipeds: Methods, measurements, noise and ecology*. J. Acoust. Soc. of Am. 103 (4), 2216-2226, April 1998.
- Lassuy, D.R. 1989. Species profiles: life histories and environmental requirements of coastal fishes and invertebrates (Pacific Northwest)—Pacific herring. U.S. Fish Wildl. Serv. Biol. Rep. 82(11.126). U.S. Army Corps of Engineers, TR-EL-82-4. 18 pp.
- Leidy, R.A., G.S. Becker, B.N. Harvey. 2005. *Historical distribution and current status of steelhead/rainbow trout (Oncorhynchus mykiss) in streams of the San Francisco Estuary, California*. Center for Ecosystem Management and Restoration, Oakland, CA. Available at: <http://www.cemar.org/estuarystreamsreport/homepage.html>.
- Lidicker, W.Z. 1997. Harbor seal (*Phoca vitulina richardi*). In: San Francisco Bay Area Wetlands Ecosystem Goals Project, Amphibians, Reptiles and Mammals Narratives.
- Lochhead, C., 2008. “Bird Species Plummet as Habitat Dwindles,” [newspaper article], San Francisco Chronicle, Friday July 11, 2008, p.A-1.
- Longcore, T, Catherine R. 2004. *Ecological light pollution*. Frontiers in Ecology and the Environment: Vol. 2, No. 4, pp. 191-198.
- LTMS Background Information for Dredgers’ Assessments of Potential Impacts on the Longfin Smelt in San Francisco Bay, [http://www.spn.usace.army.mil/conops/Longfin%20and%20Dredging%20Impacts\\_091409.pdf](http://www.spn.usace.army.mil/conops/Longfin%20and%20Dredging%20Impacts_091409.pdf), dated September 14, 2009.
- Marine Science Institute. *Trends in South San Francisco Bay Fish Populations from 1972-2002*. Online at: [sfbaymsi.org/documents/MSI%20FISH%20DATA%20REPORT.pdf](http://sfbaymsi.org/documents/MSI%20FISH%20DATA%20REPORT.pdf). Accessed 21 July 2009.
- Moyle, P.B. 2002. *Inland Fishes of California*, University of California Press, Berkeley and Los Angeles, CA.
- National Marine Fisheries Service (NMFS), 2014. Interim Sound Threshold Guidance for Marine Mammals. Online at: [http://www.westcoast.fisheries.noaa.gov/protected\\_species/marine\\_mammals/threshold\\_guidance.html](http://www.westcoast.fisheries.noaa.gov/protected_species/marine_mammals/threshold_guidance.html)

- \_\_\_\_ 2007a. Programmatic Consultation Letter to Brigadier General John R. McMahon, U.S. Army Corps of Engineers, from NMFS concerning EFH for eight categories of activities regularly permitted by the ACOE, December 21, 2007a.
- \_\_\_\_ 2007b. Programmatic Consultation Letter to Brigadier General John R. McMahon, U.S. Army Corps of Engineers, from Robert S. Hoffman, concerning Section 7(a)(2) consultation under ESA for eight categories of activities regularly permitted by the ACOE, February 14, 2007b.
- National Oceanic Atmospheric Association Southwest Region (NOAA SWR), 2015. Fisheries Management Plan Species Distributions in San Francisco, San Pablo and Suisun Bays. Available online: [http://www.nmfs.noaa.gov/region\\_swr.html](http://www.nmfs.noaa.gov/region_swr.html). Accessed April 9, 2015.
- Newell, R.C.; Seiderer, L.J., and Hitchcock, D.R., 1998. *The impact of dredging works in coastal waters: A review of the sensitivity to disturbance and subsequent recovery of biological resources on the seabed*, Oceanography and Marine Biology, 36, 127-178.
- Ogden, L.E., 1996. *Collision Course: The Hazards of Lighted Structures and Windows to Migrating Birds*, Special Report for the World Wildlife Fund and the Fatal Light Awareness Program, [www.flap.org](http://www.flap.org). September 1996.
- Ogden, L.E., 2002. *Summary Report on the Bird Friendly Building Program: Effect of Light Reduction on Collision of Migratory Birds*, Special Report for the Fatal Light Awareness Program, [www.flap.org](http://www.flap.org).
- Redwood City Municipal Code. Chapter 29, *Streets, Sidewalks, and Driveways*, and Chapter 35, *Tree Preservation*.
- Redwood City, 2015. Inner Harbor Specific Plan.
- Reed, J.R., Sincock, J.L., and J.P. Hailman, 1985. *Light Attraction in Endangered Procellariiform Birds: Reduction by Shielding Upward Radiation*, *The Auk* 102: 377–38.
- Robinson, A. and B.K. Greenfield, 2011. LTMS Longfin Smelt Literature Review and Study Plan. SFEI Contribution XX. San Francisco Estuary Institute, Oakland California. 40 pp.
- Rosenfield, J.A. and R.D. Baxter. 2007. Population dynamics and distribution patterns of longfin smelt in the San Francisco Estuary. *Transactions of the American Fisheries Society* 136:1577–1592.
- San Francisco Bay Subtidal Habitat Goals Project, 2010. *San Francisco Bay Subtidal Habitat Goals Report – Conservation Planning for the Submerged Areas of the Bay; 50-Year Conservation Plan*, [www.sfbaysubtidal.org/report.html](http://www.sfbaysubtidal.org/report.html).
- San Francisco Estuary Institute (SFEI). Salt Marsh Harvest Mouse, *Reithrodontomys raviventris*, Database and Maps. Queried for Redwood Point USGS 7.5 Minute Quadrangle. Online at: <http://www.sfei.org/ecoatlas/smhm/>. Accessed 14 April, 2015.
- Save the Bay, 2013. *Protecting Harbor Seals in San Francisco Bay*. Prepared by Nicole Phipps. October 30, 2013.

- SBSPRP. 2007. *South Bay Salt Pond Restoration Project Final Environmental Impact Statement/Report*. Prepared by EDAW, Philip Williams and Associates, Ltd., H.T. Harvey and Associates, Brown and Caldwell, and Geomatrix for USFWS and CDFG.
- Science Applications International Corporation. 2001. *Mitigated Negative Declaration for the RMC Pacific Materials Construction Materials Park*. Prepared for RMC Pacific Materials.
- Shellhammer, H., PhD. 1998. A Marsh is a Marsh is a Marsh . . . But not Always to a Salt Marsh Harvest Mouse. *Tideline* Vol. 18 No. 4 1-3.
- TRAC (Washington State Transportation Commission), 2001. *Executive Summary Overwater Structures: Marine Issues*, Research Project 1803, Task 35, Overwater Whitepaper by Barbara Nightingale and Charles A. Simenstad, University of Washington, Seattle, Washington, prepared for the Washington State Transportation Commission, June 2001.
- U.S. Fish and Wildlife Service (USFWS). 2010. Species Account Salt Marsh Harvest Mouse *Reithrodontomys raviventris*. Updated June 1, 2010.
2013. Recovery Plan for Tidal Marsh Ecosystems of Northern and Central California. Sacramento, California. xviii + 605 pp.
2015. Species List for Inner Harbor Specific Plan and Harbor View Project EIR. United States Department of the Interior. Accessed April 10, 2015.
- URS Group Inc., 2014. Maintenance Dredging of the Federal Navigation Channels in San Francisco Bay Fiscal Years 2015 – 2024. Prepared for U.S. Army Corps of Engineers and Regional Water Quality Control Board San Francisco Bay Region. December 2014.
- Verheijen, F.J., 1981. *Bird kills at lighted man-made structures: not on nights close to a full moon*. *American Birds* 35 (3): 251-254.
- Warnock, N., Page, G.W., Ruhlen, T.D., Nur, N., Takekawa, J.Y., and Handon, J.T. 2002. *Management and conservation of San Francisco Bay salt ponds: Effects of pond salinity, area, tide and season on Pacific Flyway waterbirds*. *Waterbirds* 25, pp. 79-92.
- Wetland Research Associates (WRA). 2007. *Biological Resources Assessment for Redwood City Ferry Terminal*. Prepared for CHS Consulting Group.
- Wilber, D.H., and D.G. Clarke, 2001. “Biological effects of suspended sediments: A review of suspended sediment impacts on fish and shellfish with relation to dredging activities in estuaries,” *North American Journal of Fisheries Management* 21(4):855-875.
- Zeiner, D.C., Laudenslayer, W.F., Mayer, W.E., and White, M., ed. 1990. California’s Wildlife, Volume I-III: Amphibians and reptiles, Birds, Mammals. California Statewide Wildlife Habitat Relationships System, California Department of Fish and Game, Sacramento, CA.

This page intentionally left blank