Natural Environment Study

Yerba Buena Island Ramps Improvement Project

City and County of San Francisco

District 04-SF-80-(KP 12.2/13.1) PM

04-3A640

January 2011

Caltrans
CALIFORNIA DEPARTMENT OF TRANSPORTATION

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STATE OF CALIFORNIA
Department of Transportation

San Francisco County Transportation Authority

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Summary

This report presents the results of the Natural Environment Study (NES) for the Yerba Buena Island (YBI) Ramps Improvement Project. The San Francisco County Transportation Authority (Authority) and California Department of Transportation (Caltrans) proposes to remove the west-bound on- and off-ramps located on the east side of the island from the San Francisco – Oakland Bay Bridge (SFOBB) to YBI. New westbound on-and off-ramps to replace the current ramps, would be constructed.

The existing configuration of the westbound on- and off-ramps from Interstate 80 (I-80) to YBI, have not been updated since the 1960s and do not meet Caltrans current geometric standards. The replacement ramps would address traffic safety requirements, and design standards.

1. Habitat Types in Biological Study Area

Vegetation communities and wildlife habitats within the approximate 33.553-acre Biological Study Area (BSA) on the easternmost portion of YBI can generally be described as a mosaic of nonnative ornamental and invasive vegetation with relatively small patches of remnant native species. Vegetation communities found on-site are eucalyptus woodland (4.110 acres), mixed broadleaf-conifer forest (3.326 acres), nonnative scrub/shrubland (1.181 acre), northern foredune (0.440 acre), central coast riparian scrub (0.028 acre), landscaped/disturbed (3.788 acres), and ruderal/disturbed (1.065 acre). These are found in a matrix of urban hardscape land and bare ground (paved roads, buildings, parking lots, and construction areas) totaling 19.615 acres. Remnant patches of native communities found within the larger communities are northern (Franciscan) coastal scrub, northern coastal bluff scrub, and Coast live oak woodland; however these patches were not considered to be of high enough functional value to be discretely mapped.

2. US Army Corps of Engineers Jurisdictional Area

No evidence of wetlands was found in the BSA. The mean high tide water level corresponds to federally jurisdictional tidal waters of the Bay under the U.S. Army Corps of Engineers. Aquatic habitats on-site consist solely of unvegetated- waters flowing in concreted or roadside swales totaling 0.04 acre (1,852 square feet) of the total 33.553-acres BSA, which may be considered waters of the U.S. and state, subject to verification. If jurisdiction is confirmed by one or all of these agencies, the

appropriate permit applications will be submitted for temporary project impacts to these features.

3. San Francisco Bay Conservation and Development Commission Jurisdictional Area

BCDC jurisdiction includes waters of the Bay and extents 100 feet onto the shore from the mean high tide line encompassing any aquatic habitats as well as uplands. Of the total 0.04 acre (1,852 square feet) of unvegetated waters on site, 0.009 acres (386.49 square feet) may also be regulated by the BCDC. The remaining lands within 100 feet of the mean high tide that fall within the study area are considered uplands. The southeast edge of the study area boundary runs at or slightly above the mean high tide line. On the northern edge of the study area, the boundary is well above the mean high tide line. Under alternative 2b there will be no temporary or permanent impacts to lands falling under the permit authority of BCDC. Alternative 4 will involve permanent impacts to 0.25 acres and temporary disturbance to lands totaling 0.36 acres which fall under the purview of BCDC. Temporarily disturbed habitats within BCDC jurisdiction are uplands and will be restored to their natural condition after completion of the project. A BCDC permit will be obtained for any work within their jurisdiction under Alternative 4. A consistency determination within the park priority use designation for YBI will be requested.

4. Potentially Occurring Special Status Species

Habitats identified above that are of special concern are northern foredune, central coast riparian scrub, and aquatic features. Two special status plant species, stinging phacelia, and large-flowered sand-spurry were observed in the BSA during focused botanical surveys (Table 2). Several special-status animal species which occur in the region or vicinity of the site are not expected to be present due to a lack of suitable habitat or connectivity to known populations. The BSA boundary does not extend into the San Francisco Bay (Bay) and on-site aquatic habitats are limited to roadside swales. The historic disturbance of vegetation on-site has diminished the habitat quality on this portion of YBI. Special-status species with potential to occur on-site are primarily birds and bats (e.g. Cooper’s hawk, western red bat, Table 2) that are moderately tolerant of human disturbance which may nest or roost in remnant natural vegetation and structures on-site. In addition, there is a low potential for the state-listed threatened bank swallow to occur on the hillside behind the project area.

5. Avoidance and Minimization Measures

Pre-construction surveys, contractor education, and other standard avoidance measures will be implemented for potentially occurring special-status plants, invertebrates, roosting bats, and nesting birds. The tidal waters of the Bay will be protected by permanent project features and should not be affected by temporary construction activities. Standard construction best management practices (BMP's) will be implemented to treat and minimize runoff into the Bay.

Based on the Alternative 2B project design which avoids sensitive aquatic habitats, restricts pile driving of steel H-piles to a minimum of 300 feet from the shoreline and implements BMPs, this alternative will have no effect on fisheries or marine mammals. Alternative 4 will also implement BMPs and avoid direct impacts to aquatic habitats however it will involve pile driving steel H-piles within 90 feet of the shoreline. It is also anticipated that this alternative will have no effect on fisheries or marine mammal behavior patterns in the area based on a hydroacoustic analysis performed by Illingworth & Rodkin (2011).

Based on an absence of suitable habitat and isolation from known populations in the region, terrestrial species listed under the Federal Endangered Species Act (FESA) are not expected to occur on the site. Proposed avoidance and minimization measures will reduce potential project impacts to species listed under the California Endangered Species Act (CESA) that occur in the vicinity of the project area or have potential to occur on the site, i.e., bank swallow. Based on the project's avoidance of this species and its potential habitat a 2081 from the California Department of Fish and Game (CDFG) permit is not deemed necessary. Construction BMP's and project features will be reviewed with the San Francisco Regional Water Quality Control Board (RWQCB) to ensure that the project meets standards for water quality protection.

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List of Abbreviated Terms

Authority	San Francisco County Transportation Authority
Bay Plan	San Francisco Bay Plan
BCDC	San Francisco Bay Conservation and Development Commission
BMPs	Best Management Practices
Caltrans	California Department of Transportation
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CH	Critical Habitat
City	City of San Francisco
CNDDB	California Natural Diversity Date Base - California Department of Fish and Game
CNPS	California Native Plant Society
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
dB	Decibels
DBH	Diameter at breast height (~4 ft)
DPS	Distinct Population Segment
Eagle Act	The Bald and Golden Eagle Protection Act
EFH	Essential Fish Habitat
EO	Executive Order
EPA	United States Environmental Protection Agency
ESA	Ecologically Sensitive Area
FEIR	Final Environmental Impact Report
FESA	Federal Endangered Species Act
FFMPs	Federal Fishery Management Plans
ft	foot/feet
HCP	Habitat Conservation Plan
I-80	Interstate 80
km	kilometer(s)

KP	kilometer post
M	meter(s)
MBTA	Migratory Bird Treaty Act
mi	mile(s)
MMPA	Marine Mammal Protection Act
MOU	Memorandum of Understanding
MPA	McAteer-Petris Act
MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act
NEPA	National Environmental Policy Act
NES	Natural Environment Study
NMFS	National Marine Fisheries Service
NOAA - Fisheries	National Oceanic and Atmospheric Administration - National Marine Fisheries Service
NPPA	Native Plant Protection Act
NPS	National Park Service
NRCS	Natural Resources Conservation Service
PM	post mile
RMS	root-mean-square pressure
RWQCB	Regional Water Quality Control Board
SCPBRG	Santa Cruz Predatory Bird Research Group
SFGP	San Francisco General Plan
SFOBB	San Francisco-Oakland Bay Bridge
SFPD	San Francisco Planning Department
SWANCC	Solid Waste Agency of Northern Cook County v. USACE
USACE	Army Corps of Engineers
USCG	United States Coast Guard
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
USN	United States Navy
YBI	Yerba Buena Island

Chapter 1. Introduction

This report presents the results of the Natural Environment Study (NES) for the Yerba Buena Island (YBI) Ramps Improvement Project. The report addresses potential impacts to biological resources that may result from the YBI Ramps Improvement Project. The findings of this report will be incorporated into the environmental documents prepared for the YBI Ramps Improvement Project, as required by the National Environmental Policy Act (NEPA) of 1969 and the California Environmental Quality Act (CEQA) of 1970.

The San Francisco County Transportation Authority (Authority) proposes to improve the safety and functionality of the east- and westbound on- and off-ramps from the San Francisco – Oakland Bay Bridge (SFOBB) to YBI (Figure 1). The California Department of Transportation (Caltrans) is the federal lead agency and will provide project oversight. YBI lies approximately halfway between Oakland and San Francisco, in the Bay, and is only accessible to auto traffic via the SFOBB stretch of Interstate 80 (I-80).

The proposed project would replace the existing westbound on-ramp and the westbound off-ramp located on the eastern side of YBI with a new westbound on-ramp and a new westbound off-ramp that replicate the functional roles of the current ramps. The replacement ramps would also address traffic safety requirements, and design standards.

The purpose of the proposed project is to address the geometric and operational deficiencies of the existing on- and off-ramps to the extent physically and economically feasible; improve traffic operations to and from the SFOBB and improve traffic safety by increasing deceleration length for westbound off-ramps, and increasing merging distance for the westbound on-ramps. The new ramps would meet Caltrans current seismic and traffic safety requirements and design standards.

Figure 1:
Regional Location

Yerba Buena Island
Ramps Improvement Project

0 2.5 5 Miles

Source: ESRI, USGS, DMJM Harris, EDAW

07/09

1.1. Project History

The original SFOBB and YBI tunnel opened to traffic in 1936, and included the westbound on- and off-ramps still in use today. In the late 1930's additional timber on-and off-ramps were added to increase access to the inland from the upper and lower deck. The upper deck originally carried both westbound and eastbound auto traffic, while the lower deck was dedicated to passenger rail and truck traffic. In 1960, Caltrans removed the passenger rail line from the lower deck and converted it to eastbound auto traffic, and in turn dedicated the upper deck to westbound traffic. In 1962 the timber ramps were removed and replaced with the westbound and eastbound ramps on the west side of the tunnel and the eastbound on-ramps and off-ramps on the east side of the YBI tunnel. These ramps have remained unchanged since that time.

The purpose of the project is to improve traffic operations between Yerba Buena Island (YBI) and westbound Interstate 80 (I-80), and to improve safety by improving the geometric configurations of the westbound I-80 on-ramp and westbound I-80 off-ramp that are located east of the YBI / I-80 tunnel.

1.2. Project Description

Yerba Buena Island (YBI) is located in the San Francisco Bay approximately halfway between Oakland and San Francisco. YBI is only accessible to vehicular traffic via the San Francisco Oakland Bay Bridge (SFOBB) stretch of I-80. The SFOBB is considered a "lifeline structure" and is a critical link between the East Bay and San Francisco. It provides the only vehicle access to YBI, the active U.S. Coast Guard (USCG) facilities located on the south side of the island, and Treasure Island, located immediately north of YBI (Figure 2).

The proposed project would replace the existing westbound on- and off-ramps located on the east side of YBI with new westbound on- and off-ramps. The new ramps would maintain the functional role of the current ramps while satisfying seismic requirements, highway design standards, traffic operations, and improve safety. The YBI Ramps Improvement Project is independent of both the SFOBB East Span Seismic Safety Project, currently under construction, and the Treasure Island and Yerba Buena Island (TI/YBI) Redevelopment Plan, currently undergoing its own environmental review process.

Figure 2a:
Study Area

Yerba Buena Island
Ramps Improvement Project

Study Area

Image: Google 2008
Data: DMJM Harris, EDAW

0 200 400 Feet

6/09

Figure 2b:
Study Area

Yerba Buena Island
Ramps Improvement Project

Image: Google 2008
Data: DMJM Harris, EDAW

Study Area

1' Contour

5' Contour

0 200 400 Feet

6/09

The purpose of the project is to improve the safety of the westbound on- and off-ramps to the extent physically and economically feasible. The proposed project would provide standard deceleration length for the off-ramp and improved acceleration/merging length for the on-ramp. In addition, the project would improve traffic operations to and from YBI. Alternatives have been proposed to address the geometric deficiencies of the existing on- and off-ramps (Figure 3a, 3b). In addition to the no-build alternative, the proposed build alternatives would analyze the effects to the SFOBB (I-80) mainline structure and YBI. The proposed project is located between post-mile (PM) 7.6 and 8.1[1] beginning at the east portal of the YBI tunnel and ending at the east side of the Transition Structure portion of the new SFOBB. The SFOBB Transition Structure is located between PM 7.9 and 8.1 between the YBI tunnel and the SFOBB Self-Anchored Suspension (SAS) span[2]. Construction would occur from April 2012 to 2014 under either alternative.

Three alternatives are currently under consideration, including:

No Build Alternative

This Alternative assumes that the existing on- and off-ramps would remain in place and no further action or improvements would occur.

Alternative 2b

Alternative 2b would include removal of the existing westbound on- and off ramps on the east side of YBI, construction of a westbound loop on-ramp from Macalla Road on the east side of YBI, and construction of a westbound off-ramp to Macalla Road on the east side of YBI (Figure 3a).

[1] 1 Kilometer Post (KP) 12.3 and 13.22

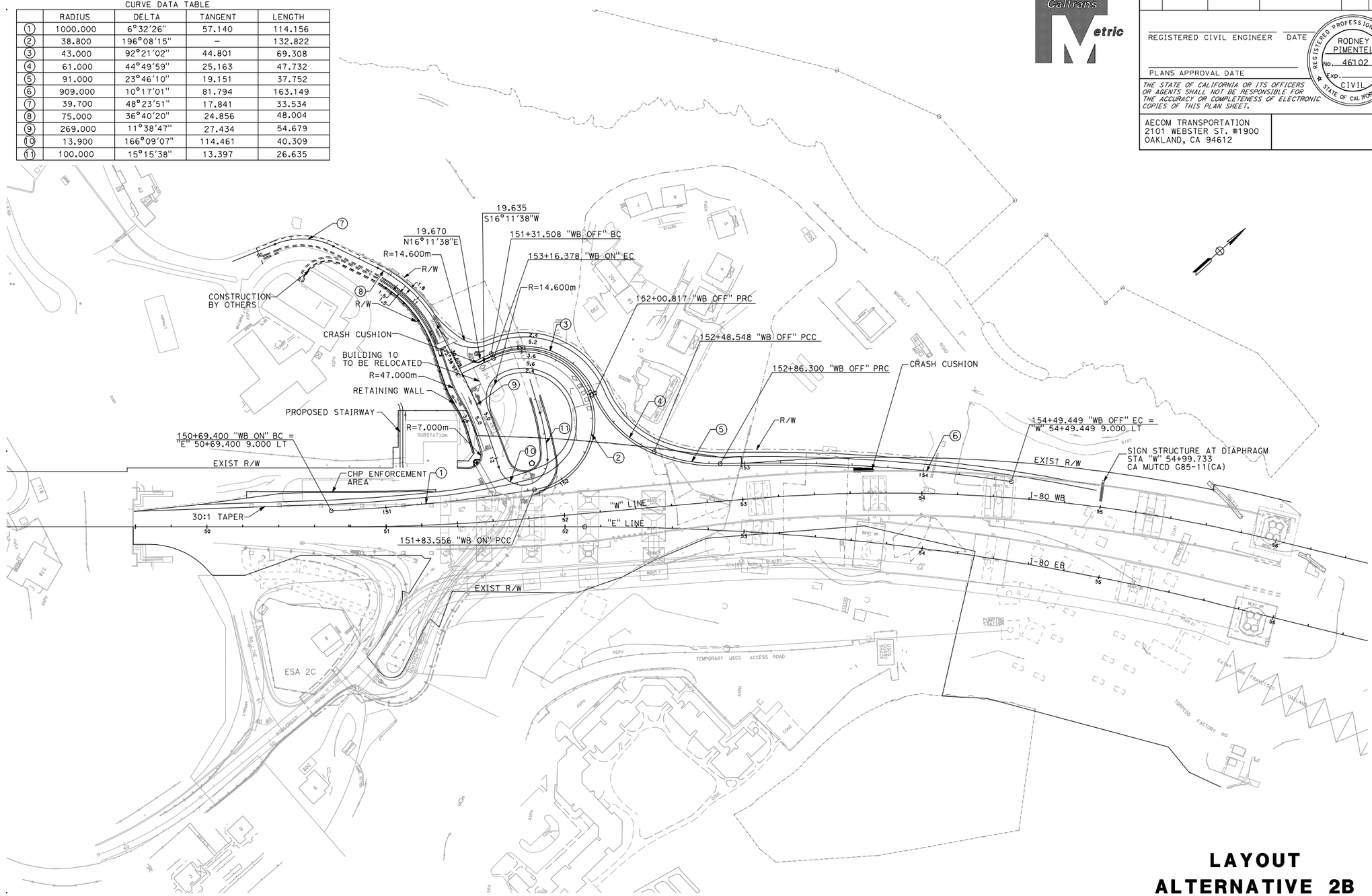
[2] The SFOBB Transition Structure is the name of a section of the new Bay Bridge. The Transition Structure will connect the Self-Anchored Suspension (SAS) span to Yerba Buena Island, and will transition the East Span's side-by-side road decks to the upper and lower decks of the YBI tunnel and West Span.

Figure 3a:
Alternative 2b

Yerba Buena Island
Ramps Improvement Project

CURVE DATA TABLE

	RADIUS	DELTA	TANGENT	LENGTH
①	1000.000	6°32'26"	57.140	114.156
②	38.800	196°08'15"	–	132.822
③	43.000	92°21'02"	44.801	69.308
④	61.000	44°49'59"	25.163	47.732
⑤	91.000	23°46'10"	19.151	37.752
⑥	909.000	10°17'01"	81.794	163.149
⑦	39.700	48°23'51"	17.841	33.534
⑧	75.000	36°40'20"	24.856	48.004
⑨	269.000	11°38'47"	27.434	54.679
⑩	13.900	166°09'07"	114.461	40.309
⑪	100.000	15°15'38"	13.397	26.635



LAYOUT
ALTERNATIVE 2B

Caltrans Metric

Dist	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

RODNEY PIMENTEL No. 46102 EXP. CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

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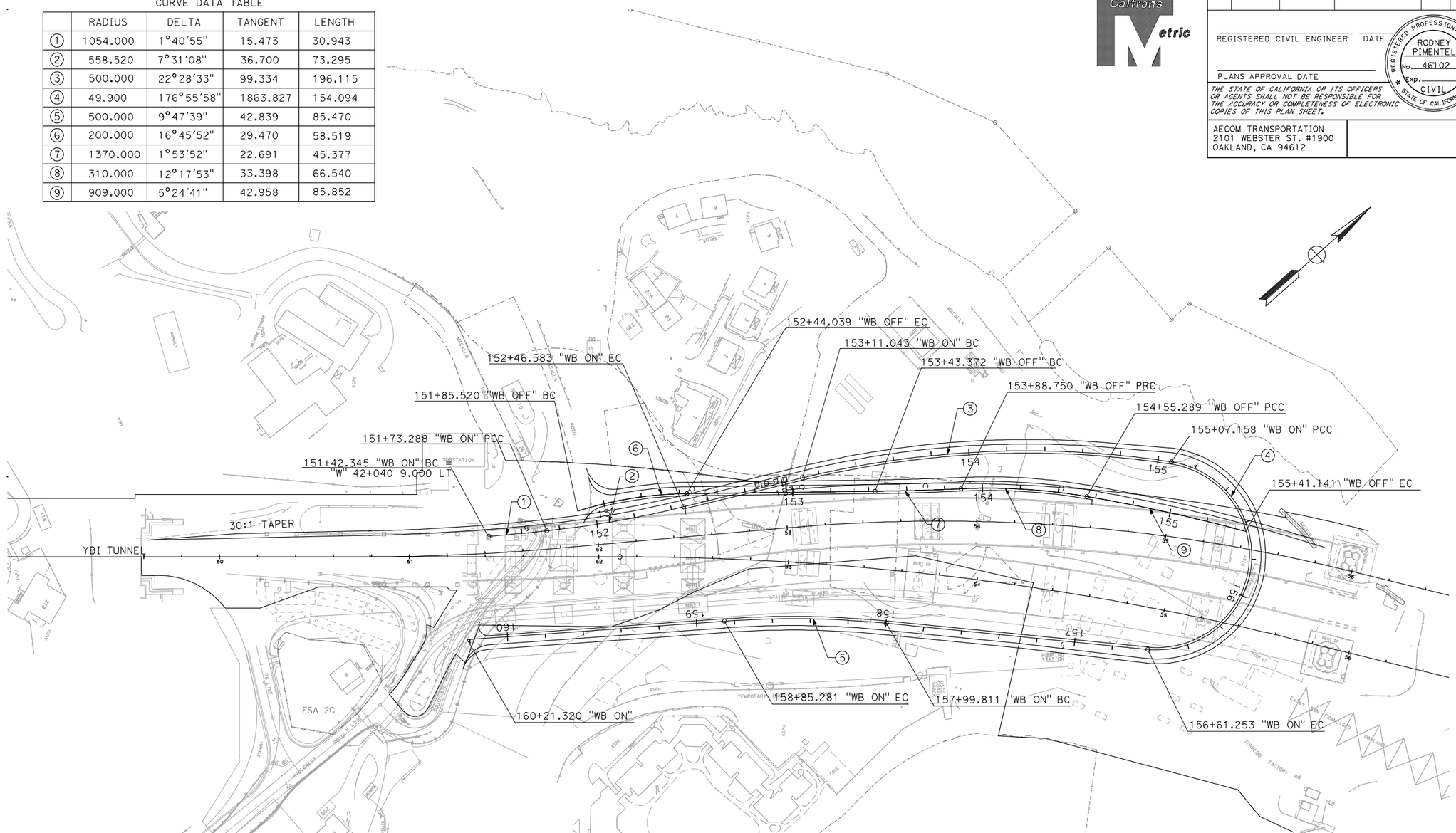
Figure 3b:
Alternative 4

Yerba Buena Island
Ramps Improvement Project

CURVE DATA TABLE

	RADIUS	DELTA	TANGENT	LENGTH
①	1054.000	1°40'55"	15.473	30.943
②	558.520	7°31'08"	36.700	73.295
③	500.000	22°28'33"	99.334	196.115
④	49.900	176°55'58"	1863.827	154.094
⑤	500.000	9°47'39"	42.839	85.470
⑥	200.000	16°45'52"	29.470	58.519
⑦	1370.000	1°53'52"	22.691	45.377
⑧	310.000	12°17'53"	33.398	66.540
⑨	909.000	5°24'41"	42.958	85.852



LAYOUT
ALTERNATIVE 4

Dist	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

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This alternative proposes to reconstruct two of the existing six on- and off-ramps at the I-80/YBI interchange. The proposed on- and off-ramps would provide standard shoulder widths, and would include the following features:

- Westbound on-ramp on the east side of YBI- This ramp would begin at a "T" intersection at Macalla Road, loop right with a tight radius, and merge on to the north side of the SFOBB. The length of this ramp would be approximately 267 meters (876 feet). This ramp would have two traffic lanes, merging into one as it connects to the SFOBB. One lane would be a high occupancy vehicle (HOV) lane and the other a mixed-flow[3] lane.

- Westbound off-ramp on the east side of YBI - This ramp would diverge from the new SFOBB Transition Structure between bents W3 and W4 curving around the Nimitz House and terminate at a "T" intersection at Macalla Road. The length of this ramp would be approximately 340 meters (1,115 feet). A stop sign is proposed at the ramp terminus.

- Macalla Road would be widened for approximately 202 meters (662.7 feet) adjacent to the terminus of the westbound on- and off-ramps. The existing roadway is about 6 meters (19.7 feet) wide near the ramp terminus. The roadway widening is required to accommodate a 3.7 meters (12.1 feet) wide multi-use pedestrian/bike path and two 3.7 meters (12.1 feet) wide lanes within the Caltrans right-of-way. A retaining wall would be constructed adjacent to Macalla Road to provide the required width. The height of the retaining wall would vary from 1.2 to 4.9 meters (3.9 to 16.1 feet) and would retain the hillside above Macalla Road. The stairway adjacent to the Caltrans Substation would be relocated to the west side of the building to make room for the new retaining wall. The roadway width would vary around the curve at South Gate Road to provide proper width for truck turning movements.

- Under Alternative 2B, the westbound on- and off-ramps would terminate at Macalla Road where Quarters 10 and Building 267 are currently located[4]. Quarters 10 and Building 267 would be relocated prior to construction of the ramps at Macalla Road. The relocation site for these buildings would be on YBI and would be determined under the Section 106 mitigation development process.

[3] A mixed-flow lane is a general purpose travel lane with no traffic restrictions.

[4] Quarters 10 and Building 267 (a contributing garage) are listed in the National Register of Historic Places and significant at the local level under Criterion C, as a significant example of mid-twentieth century residential architecture.

Alternative 4

Alternative 4 would include the removal of the existing westbound on- and off ramps on the east side of YBI, construction of westbound on-ramp from South Gate Road, and construction of westbound off-ramp to North Gate Road on the east side of YBI (Figure 3b).

This alternative proposes to reconstruct two of the existing six on- and off-ramps at the I-80/YBI interchange. The proposed on- and off-ramps would provide standard shoulder widths, and would include the following features:

- Westbound on-ramp on the east side of YBI - This ramp would begin at South Gate Road, proceed east paralleling the eastbound on-ramp, loop under the new SFOBB Transition Structure near its eastern end to provide adequate merging distances, cross over the westbound off-ramp along the north side of the SFOBB. The length of this ramp would be approximately 879 meters (2,883 feet). HOV lane would not be provided under Alternative 4.

- Westbound off-ramp on the east side of YBI. This ramp would diverge from the new SFOBB Transition Structure between bents W2 and W3, parallel the Transition Structure, cross under the westbound on-ramp, and terminate at a "T" intersection at North Gate Road. The length of this ramp would be approximately 356 meters (1,168 feet)... A stop sign is proposed at the ramp terminus and meets the 20-year design needs. An HOV lane would not be provided.

- Pavement reconstruction on Macalla Road and South Gate Road at the ramp intersections is proposed to ensure a proper pavement conform and truck turning movements.

- Quarters 10/Building 267 and associated landscaping would remain in place.

Tree and Sensitive Plant Replacement

As part of the project, the SFCTA will plant replacement trees and vegetation to benefit aesthetics as well as native plant and wildlife habitat values on the island post construction.

Temporarily disturbed woodland and forested areas would be restored after completion of construction activities. Any trees removed in temporary disturbance areas would be replaced at a minimum 1:1 ratio utilizing native species appropriate to the island. Approximately 130 trees would be removed, of which approximately 90% are greater than 6.1 meters (20 feet) high with a trunk size greater than 30.5 centimeters (12 inches). Trees native to YBI that are removed, such as 2 Coast live oak trees, would be replaced at a 3:1 ratio. Other permanently affected woodland and forest habitat will be replanted at a 1:1 ratio at a location identified in coordination with stakeholder agencies and utilizing native species appropriate to the location.

A sensitive, native plant species, stinging phacelia (*Phacelia malvifolia*), has been documented within the mixed broadleaf conifer and eucalyptus woodland forest habitat in the BSA. A portion of the population will be affected by construction activities. This plant is considered a Rare, Unusual, or Significant plant of local concern (A2) by the East Bay Chapter of the CNPS. Stinging phacelia plants temporarily and/or permanently removed during project construction will be replanted at a 1:1 ratio as part of the woodland habitat revegetation effort. This may be achieved through the following methods:

1. Harvest the plants to be permanently lost or temporarily disturbed, and relocate them a suitable and equal-sized area either within the project site or off-site that would be avoided or restored; or
2. Harvest seeds from the plants to be permanently lost or temporarily disturbed, or use seeds from another appropriate source, and seed an equal amount of area suitable for growing the plant either within the project site or off-site that would be avoided or restored.

SFCTA will develop a woodland habitat revegetation plan 30 days prior to construction that outlines an implementation strategy, monitoring plan, and performance standards to facilitate and document success of the revegetation effort. The revegetation plan will be implemented under the oversight of a qualified biologist.

Chapter 2. Study Methods

In accordance with guidelines outlined in the Caltrans Guidance Documents (Caltrans 2000, Caltrans 1997), biological resources were mapped, and a reconnaissance-level biological resources assessment and wetland delineation were completed for the YBI Ramps Improvement Project (Figures 4-6b). Specific regulatory requirements and survey methods are outlined below.

2.1. Regulatory Requirements

Riparian areas, wetlands, other waters of the U.S., waters of the State, special-status species, and sensitive natural communities are considered sensitive biological resources and fall under the jurisdiction of several state and federal regulatory agencies. Impacts or potential impacts to these resources often require federal, state, and/or local permits, depending on the type and extent of project impacts. Regulatory jurisdictions of these agencies and relevant laws, ordinances, and regulations pertinent to biological resources occurring on-site or in the vicinity of the site are described below for context. Notification and/or coordination with most of these agencies will occur as part of the NEPA and CEQA process, however in some cases the project will have no affect on resources regulated by a particular agency and further permits or coordination will not be necessary. Additional agency coordination and permits needed for the project are detailed in Section 5 of this document.

U.S. Army Corps of Engineers

Clean Water Act

Section 404 of the Clean Water Act (CWA) of 1972 regulates activities that result in the discharge of dredged or fill material into waters of the United States, including wetlands. The primary intent of the CWA is to authorize the Environmental Protection Agency (EPA) to regulate water quality through the restriction of pollution discharges, which includes sediments. The U.S. Army Corps of Engineers (USACE) has the principal authority to regulate discharges of dredged or fill material into waters of the United States. However, the EPA has oversight authority over the USACE and retains veto power over the USACE decision to issue permits.

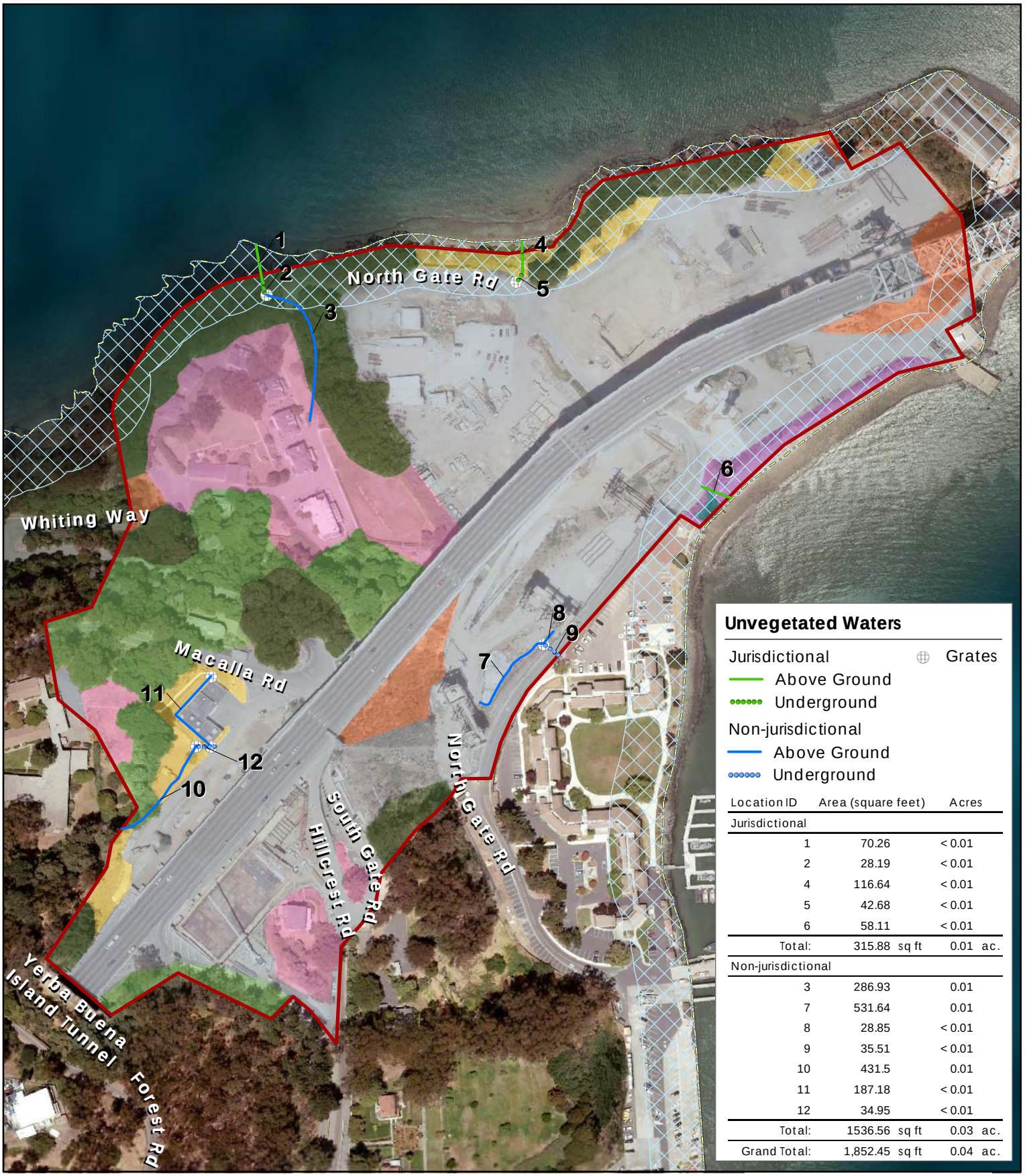
Waters of the United States include:

1. all waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of tide;
2. all interstate waters including interstate wetlands;
3. all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, vernal pools, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce;
4. tributaries of the above; and
5. territorial seas.

Federal jurisdictional wetlands are defined as those areas that are inundated or saturated by surface water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, bogs, vernal pools, seeps, marshes and similar areas.

Figure 4:
Vegetation Communities

Yerba Buena Island
Ramps Improvement Project



Unvegetated Waters

Jurisdictional — Grates
Above Ground
Underground

Non-jurisdictional
Above Ground
Underground

Location ID	Area (square feet)	Acres
Jurisdictional		
1	70.26	< 0.01
2	28.19	< 0.01
4	116.64	< 0.01
5	42.68	< 0.01
6	58.11	< 0.01
Total:	315.88 sq ft	0.01 ac.
Non-jurisdictional		
3	286.93	0.01
7	531.64	0.01
8	28.85	< 0.01
9	35.51	< 0.01
10	431.5	0.01
11	187.18	< 0.01
12	34.95	< 0.01
Total:	1536.56 sq ft	0.03 ac.
Grand Total:	1,852.45 sq ft	0.04 ac.

Vegetation Communities

- Central Coast Riparian Scrub (.028 ac)
- Eucalyptus Woodland (4.110 ac)
- Landscaped/Disturbed (3.788 ac)
- Mixed Broadleaf-Conifer Forest (3.326 ac)
- Nonnative Scrub/Shrubland (1.181 ac)
- Northern Foredune (.440 ac)
- Ruderal/Disturbed (1.065 ac)
- Urban (19.615 ac)

- Study Area
- Mean High Tide Line
- BCDC Jurisdiction

0 150 300 Feet

Image: Google 2008
Data: DMJM Harris, AECOM

N

Figure 5a:
Special Status Species (Plants)

Yerba Buena Island
Ramps Improvement Project

Accuracy Class 1
Reported occurrence is a point; location considered accurate to within the minimum mappable unit of 80 meters

Accuracy Class 2
Reported location is an area with defined boundaries

Accuracy Class 3
Reported location is a non-specific area; buffer added to represent degree of uncertainty in reported location

Accuracy Class 4-9
Reported location considered accurate within the radius shown

Study Area

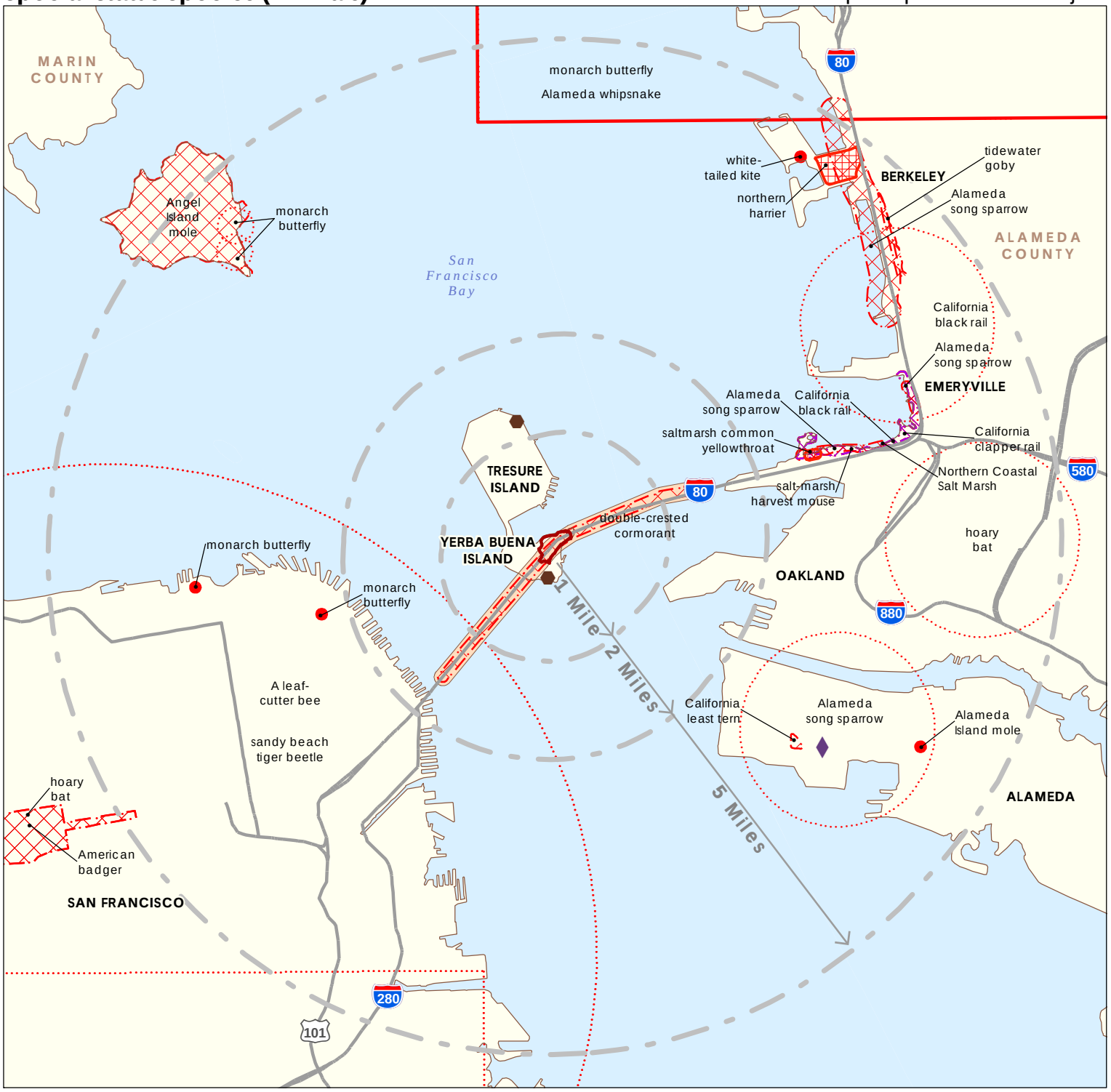
Source: CNDDB; October, 2008

0 1 2 Miles

6/09

Figure 5b:
Special Status Species (Animals)

Yerba Buena Island
Ramps Improvement Project



Accuracy Class 1
Reported occurrence is a point; location considered accurate to within the minimum mappable unit of 80 meters

Accuracy Class 2
Reported location is an area with defined boundaries

Accuracy Class 3
Reported location is a non-specific area; buffer added to represent degree of uncertainty in reported location

Accuracy Class 4-9
Reported location considered accurate within the radius shown

Terrestrial Community (non-specific)

Study Area

Non-CNDDB Sensitive Species

Peregrine Falcon Nesting Site

Active Harbor Seal Haul Out Site

Burrowing Owl

0 1 2 Miles

N

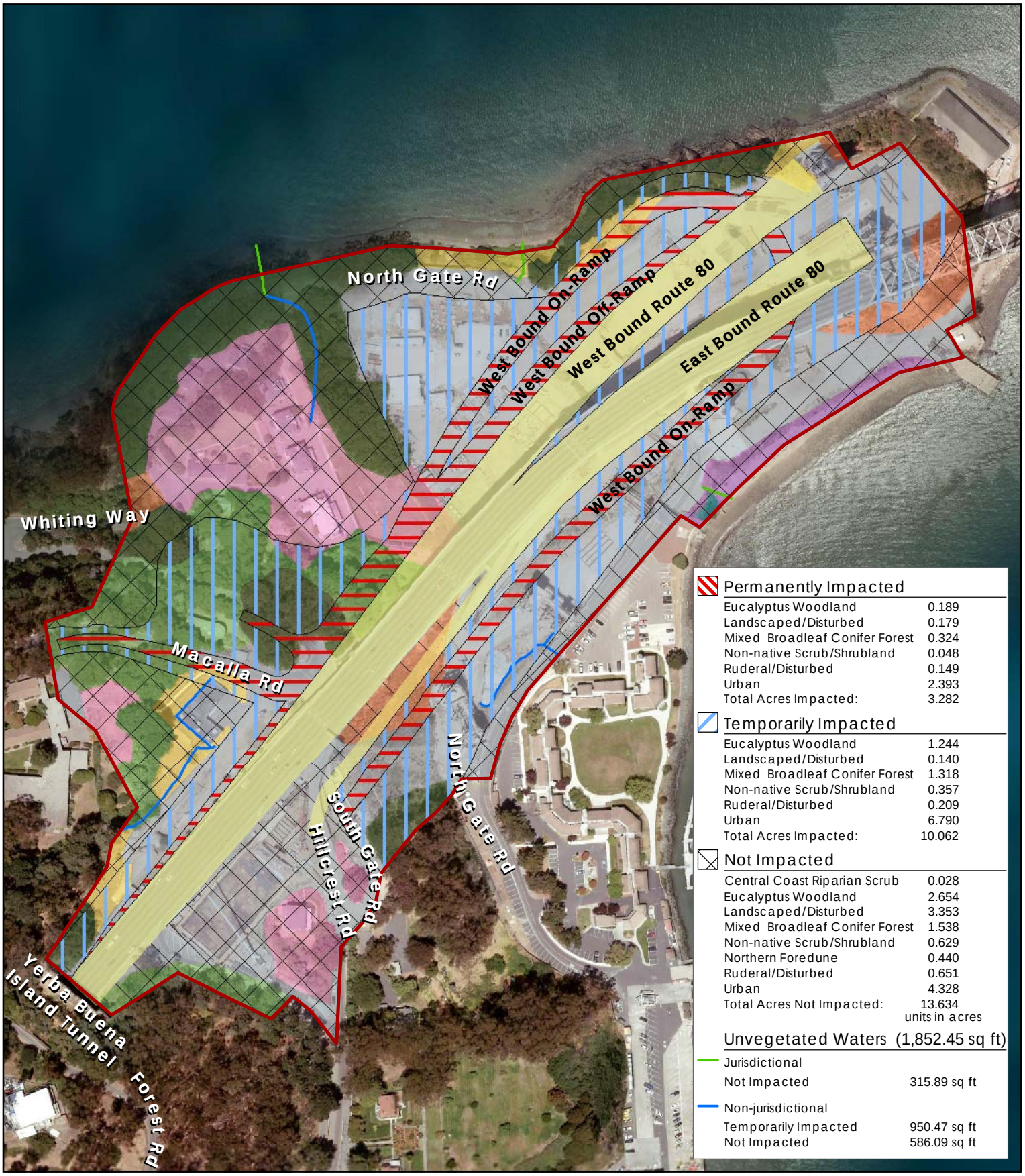
Source: CNDDB; October, 2008

SFOBB Bird Monitoring Memo, April, 2007; SFOBB Marine Mammal Monitoring Plan, May, 2002; Susan Euwing, personal communication, 2008

1/11

Figure 6a: Alternative 4
Impacts to Vegetation Communities and Aquatic Habitats

Yerba Buena Island
Ramps Improvement Project



Vegetation Communities

- Central Coast Riparian Scrub (.028 ac)
- Eucalyptus Woodland (4.110 ac)
- Landscaped/Disturbed (3.788 ac)
- Mixed Broadleaf Conifer Forest (3.326 ac)
- Non-native Scrub/Shrubland (1.181 ac)
- Northern Foredune (.440 ac)
- Ruderal/Disturbed (1.065 ac)
- Urban (19.615 ac)

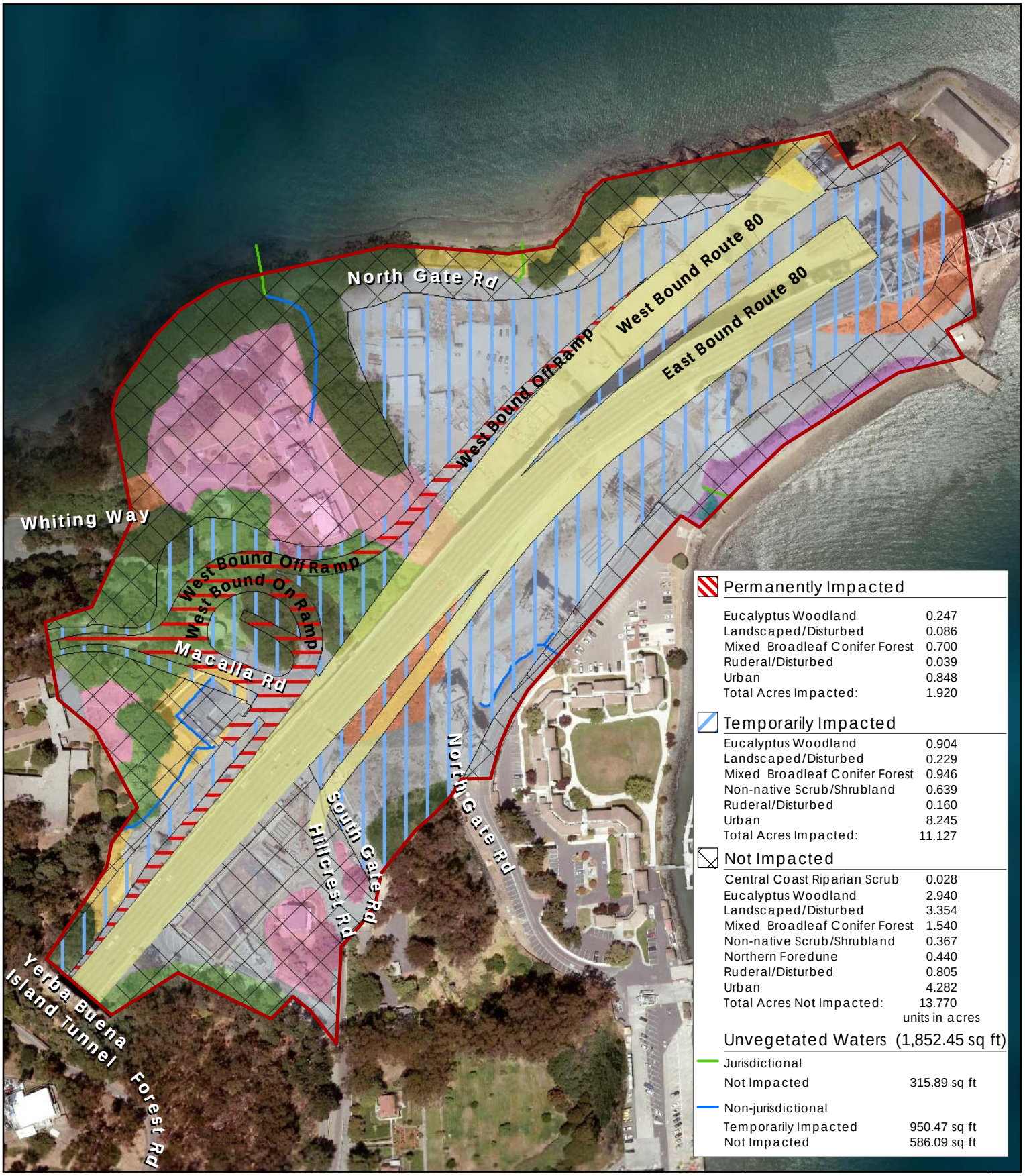
Study Area

0 150 300 Feet

Image: Google 2008
Data: DMJM Harris, AECOM

Figure 6b: Alternative 2b
Impacts to Vegetation Communities and Aquatic Habitats

Yerba Buena Island
Ramps Improvement Project



Vegetation Communities

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- Northern Foredune (.440 ac)
- Ruderal/Disturbed (1.065 ac)
- Urban (19.615 ac)

Study Area

0 150 300 Feet

Image: Google 2008
Data: DMJM Harris, AECOM

Because of the recent Supreme Court decision in Solid Waste Agency of Northern Cook County v. USACE (SWANCC), the USACE no longer takes jurisdiction over "isolated" wetlands and waters. The USACE does take jurisdiction over "adjacent wetlands," which are hydrologically connected to navigable waters or tributaries of navigable water, even if such wetlands appear to otherwise be "isolated." The Regional Water Quality Control Board (RWQCB) has authority over "waters of the State" under the Porter-Cologne Water Quality Control Act. In creek or river systems, RWQCB takes jurisdiction similar to California Department of Fish and Game (CDFG), from top of bank to top of bank. The RWQCB also asserts that it has authority over all wetlands, including isolated wetlands.

Any discharge of dredged or fill material into waters of the United States must be approved by the USACE pursuant to Section 404 of the CWA. Two permit types are possible:

1. Individual Permits; or

2. Nationwide Permits (NWP), which cover specific categories of activities. NWP are generally less time-consuming than an Individual Permit. NWP may be grouped together or "stacked" with certain limitations.

For linear transportation projects a standard Individual Permit is required if there are:

1. Discharges that will result in the fill of more than one-third acre of tidal waters or wetlands; or

2. Impacts to more than one-half acre of non-tidal waters or wetlands, including creeks (either perennial intermittent or ephemeral), arroyos or vegetated and unvegetated tributaries.

In contrast, such projects that result in impacts of less than one-half acre of non-tidal and/or less than one-third acre of non-tidal waters or wetlands may be authorized under one of the existing USACE NWP if they meet all of the NWP General Conditions.

River and Harbors Act

Under Section 10 of the Rivers and Harbors Act of 1899, the construction of structures in, over, or under, excavation of material from, or deposition of material

into “navigable waters” is regulated by USACE. Navigable waters of the United States are defined as those waters subject to the ebb and flow of the tide shoreward to the mean high-water mark or those that are currently used, have been used in the past, or may be used to transport interstate or foreign commerce. A Letter of Permission or permit from USACE is required before any work can be performed in navigable waters.

U.S. Fish and Wildlife Service

Federal Endangered Species Act

Section 9 of the Federal Endangered Species Act (FESA) prohibits “take” of federally listed threatened or endangered wildlife species (USFWS 1996, 1997, 2001, 2004). The FESA defines “take” to mean “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or attempt to engage in any such conduct” 16 U.S.C. §1532(19). Federally listed plant species are not protected against “take” under the FESA. However, the FESA prohibits the removal and collection of endangered plants from lands under Federal jurisdiction. In addition, FESA prohibits the removal, cutting, digging, damage, or destruction of endangered plants on any other lands in knowing violation of state laws or regulations.

The FESA requires that actions authorized, funded or carried out by federal agencies do not jeopardize the continued existence of a federally listed species or adversely modify designated Critical Habitat (CH) for such species. If a federal agency determines that a proposed federal action (i.e., issuance of a CWA Section 404 permit for wetland fill) “may affect” a listed species and/or designated CH, the agency must consult with the USFWS and/or the National Oceanic and Atmospheric Administration – National Marine Fisheries Service (NOAA-Fisheries). If take of a federally listed species may occur, the applicant may be required to consult with the USFWS and obtain a Biological Opinion and Incidental Take Statement. Such take authorization is available through the Section 7 consultation process for projects involving a federal action, or through the Section 10 process (requiring development of a Habitat Conservation Plan (HCP) for other projects. The Incidental Take Statement allows taking of federally listed species if the take is “incidental to and not the purpose of, the carrying out of an otherwise lawful activity” 16 U.S.C. §1539(a)(1)(B). Formal consultation in a Section 7 is between the USFWS and/or NOAA-Fisheries and the lead federal agency, such as the Federal Highway

Administration (FHWA). FHWA, through NEPA delegation, has delegated Section 7 consultation to Caltrans for most projects.

As noted in the Endangered Species Consultation Handbook (USFWS and NMFS 1998), which was jointly prepared by the USFWS and NMFS and dated March 1998, Section 7 requires minimization of the level of take. It is not appropriate to require mitigation for the impacts of incidental take. In consulting with the Services for federally listed species, reasonable and prudent measures to minimize take of listed wildlife species may be required, consistent with the minor change rule. Reasonable and prudent measures can only include actions that occur within the action area, involve only minor changes to the project, and reduce the level of take of wildlife associated with project activities. These measures should minimize incidental take to the extent reasonable and prudent. Measures are considered reasonable and prudent when they are consistent with the proposed action's basic design, location, scope, duration, and timing. The test for reasonableness is whether the proposed measure would cause more than a minor change to the project.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) is domestic legislation which serves to implement international agreements entered into with England, Mexico, Japan and the Former Soviet Union, to protect migratory bird species. The MBTA, as amended, prohibits killing, possessing, or trading in migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. All birds, except European starlings, English house sparrows, rock doves (pigeons), and non-migratory game birds such as quail, pheasant, and grouse, are protected under the MBTA. This act applies to whole birds, parts of birds, and bird nests and eggs. The MBTA does not provide protection for habitat of migratory birds, but does prohibit the destruction or possession of individual birds, eggs, or nest in active use without a permit from USFWS.

Marine Mammal Protection Act

The Marine Mammal Protection Act (MMPA) of 1972 establishes a federal responsibility for the protection and conservation of marine mammal species by prohibiting the harassment, hunting, capture, or killing of any marine mammal. The primary authority for implementing the act belongs to the USFWS and NOAA-Fisheries.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (Eagle Act), first enacted in 1940 and amended several times since then, prohibits the taking or possession of and commerce in bald and golden eagles, including their parts, nests, or eggs, with limited exceptions. The Eagle Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb" (16 USC 668–668d). USFWS has defined "disturb" under the Eagle Act as follows (72 Federal Register [FR] 31132–31140, June 5, 2007):

> Disturb means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle; (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior; or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.

In addition to immediate impacts, this definition also covers impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle's return, such alterations agitate or bother an eagle to a degree that injures an eagle or substantially interferes with normal breeding, feeding, or sheltering habits and causes, or is likely to cause, a loss of productivity or nest abandonment. USFWS has proposed new permit regulations to authorize the take of bald and golden eagles under the Eagle Act, generally when the take to be authorized is associated with otherwise lawful activities (72 FR 31141–31155, June 5, 2007). With the delisting of the bald eagle in 2007, the Eagle Act is the primary law protecting bald eagles, as well as golden eagles.

National Oceanic and Atmospheric Administration - National Marine Fisheries Service

Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) of 1976 applies to fisheries resources and fishing activities in federal waters within the 200 nautical miles offshore exclusive economic zone. Conservation and management of fisheries, development of domestic fisheries, and phasing out of foreign fishing activities are the main objectives of the legislation. When the MSFCMA was amended in 1996 to include habitat conservation issues, the designation of "essential

fish habitat" (EFH) was created. EFH is broadly defined by the MSFCMA as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity."

California Department of Fish and Game

California Endangered Species Act

Pursuant to the California Endangered Species Act (CESA) and Section 2081 of the Fish and Game Code, a permit from CDFG is required for projects that could result in the "take" of a species that is State listed as threatened or endangered (CDFG 2008b,c). Under CESA, "take" is defined as an activity that would directly or indirectly kill an individual of a species, but the definition does not include "harm" or "harass," as the Federal act does. As a result, the threshold for take is higher under CESA than under FESA.

If a federal incidental take statement pursuant to a federal Section 7 consultation or a federal Section 10(a) incidental take permit has been issued for a project, a consistency determination (pursuant to Fish and Game Code 2080.1) can be made by CDFG for State listed species. In the case where CDFG determines the conditions of the federal opinion are consistent with CESA, CDFG will issue a letter documenting the consistency. If the CDFG determines the federal statement/permit is not consistent with CESA, the applicant must apply for a State Incidental Take Permit under section 2081(b) of the Fish and Game Code. In order for CDFG to make a consistency determination or issue a 2081 permit, the following criteria must be met:

1. The authorized take is incidental to an otherwise lawful activity;
2. The impacts of the authorized take are minimized and fully mitigated;
3. The measures required to minimize and fully mitigate the impacts of the authorized take:
    a. are roughly proportional in extent to the impact of the taking on the species,
    b. maintain the applicant's objectives to the greatest extent possible, and
    c. are capable of successful implementation;
4. Adequate funding is provided to implement the required minimization and mitigation measures and to monitor compliance with and the effectiveness of the measures; and
5. Issuance of the permit will not jeopardize the continued existence of a State-listed species.

Fish and Game Code

Sections 1600-1607

The CDFG exercises jurisdiction over wetland and riparian resources associated with rivers, streams, and lakes under Fish and Game Code Sections 1600 to 1607. The CDFG has the authority to regulate work that will:

1. divert, obstruct, or change the natural flow of a river, stream, or lake;
2. change the bed, channel, or bank of a river, stream, or lake; or
3. use material from a streambed.

CDFG asserts that its jurisdictional area along a river, stream or creek is usually bounded by the top-of-bank or the outermost edges of riparian vegetation. Typical activities regulated by CDFG under Sections 1600-1607 authority include installing outfalls, stabilizing banks, creek restoration, implementing flood control projects, constructing river and stream crossings, diverting water, damming streams, gravel mining, logging operations and jack-and-boring.

Sections 1900–1913

Sections 1900–1913 of the Fish and Game Code codify the Native Plant Protection Act (NPPA), which is intended to preserve, protect, and enhance endangered or rare native plants in the state. The act directs CDFG to establish criteria for determining which native plants are rare or endangered. Under Section 1901, a species is endangered when its prospects for survival and reproduction are in immediate jeopardy from one or more causes. A species is rare when, although not threatened with immediate extinction, it is in such small numbers throughout its range that it may become endangered if its present environment worsens. Under the act, the Fish and Game Commission may adopt regulations governing the taking, possessing, propagation, or sale of any endangered or rare native plant.

The California Native Plant Society (CNPS) has developed and maintains lists of plants of special concern in California as described above under “Special-Status Species.” CNPS-listed species have no formal legal protection, but the values and importance of these lists are widely recognized. Plants listed on CNPS Lists 1A, 1B, and 2 (CNPS 2008) meet the definitions of Section 1901 of the Fish and Game Code and may qualify for State listing. Therefore, for purposes of this analysis, they are considered rare plants pursuant to Section 15380 of CEQA.

Sections 3503 and 3513—Protection of Birds

Section 3503 of the Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Section 3503.5 specifically states that it is unlawful to take, possess, or destroy any raptors (i.e., eagles, hawks, owls, and falcons), including their nests or eggs. Section 3513 provides for adoption of the MBTA's provisions. It states that it is unlawful to take or possess any migratory nongame bird as designated in the MBTA or any part of such migratory nongame bird. These State codes offer no statutory or regulatory mechanism for obtaining an incidental take permit for the loss of nongame, migratory birds. Typical violations include destruction of active raptor nests resulting from removal of vegetation in which the nests are located. Violation of Sections 3503.5 and 3513 could also include disturbance of nesting pairs that results in failure of an active raptor nest.

Fully Protected Species under Fish and Game Code

Protection of fully protected species is described in four sections of the Fish and Game Code that list 37 fully protected species (Fish and Game Code Sections 3511, 4700, 5050, and 5515). These statutes prohibit take or possession at any time of fully protected species. CDFG is unable to authorize incidental take of fully protected species when activities are proposed in areas inhabited by those species. CDFG has informed non-Federal agencies and private parties that they must avoid "take" of any fully protected species in carrying out projects. The following special-status wildlife species known or with potential to occur in the BSA are fully protected species under the Fish and Game Code: American peregrine falcon (*Falco peregrinus anatum*) and white-tailed kite (*Elanus leucurus*; nesting).

California Department of Fish and Game Species Designations

CDFG maintains an informal list of species called "species of special concern." These are broadly defined as plant and wildlife species that are of concern to CDFG because of population declines and restricted distributions and/or because they are associated with habitats that are declining in California. These species are listed in Remsen (1978), Williams (1986), and CDFG (2008c), and others are on a CDFG Watch List (CDFG 2008c) and are inventoried in the California Natural Diversity Database (CNDDB) regardless of their legal status. Although California Species of Special Concern, CDFG Watch List species, and species that are tracked by the CNDDB are afforded no official legal status, they may receive special consideration during the environmental review process.

San Francisco Bay Conservation and Development Commission

McAteer-Petris Act

The McAteer-Petris Act (MPA) protects Bay from indiscriminate filling. The MPA established the San Francisco Bay Conservation and Development Commission (BCDC) as the agency charged with preparing a plan for the long-term use of the Bay and regulating development in and around the Bay. BCDC's mission is dedicated to the protection and enhancement of Bay and to the encouragement of the Bay's responsible use. To this end, BCDC prepared the San Francisco Bay Plan (Bay Plan), which includes findings and policies on eight issues about the Bay as a resource and 21 findings and policies on development of the Bay and shoreline. In addition to the findings and policies, the Bay Plan contains maps that apply these policies to the Bay and shoreline. BCDC conducts the regulatory process in accord with the Bay Plan policies and maps, which guide the protection and development of the Bay and its tributary waterways, marshes, managed wetlands, salt ponds, and shoreline.

BCDC regulates filling and dredging in the Bay including San Pablo Bay, Suisun Bay, Suisun Marsh, and sloughs, and certain creeks and tributaries that are part of the Bay system. BCDC also has jurisdiction over a 100-foot shoreline band surrounding the Bay that extends from the mean high tide line inland. The Coastal Zone Management Act of 1972 (CZMA) requires that all applicants for federal permits and federal agency sponsors obtain certification from the state's approved coastal program that the proposed project is consistent with the state's program. In the Bay, BCDC is charged with making this consistency determination. The BCDC has given Yerba Buena Island a park priority use designation.

The build alternatives would not conflict with the BCDC park priority use designation as it would not affect public access within the 30.5 meter (100 foot) shoreline band. Water-oriented recreational facilities would continue to be accessible to the public and consistent with the BCDC's Bay Plan policies and park priority use designation.

Regional Water Quality Control Board

CWA and Porter Colognes Water Quality Protection Act

Pursuant to Section 401 of the CWA and EPA 404(b)(1) guidelines, a USACE federal permit applicant desiring to conduct any activity which may result in discharge into navigable waters, they must obtain a certification from RWQCB that

such discharge will comply with the state water quality standards. RWQCB has a policy of "no-net-loss" of wetlands and typically requires mitigation for all impacts to wetlands before it will issue water quality certification.

Under the Porter-Cologne Water Quality Control Act (Cal. Water Code §§13000-14920), RWQCB is authorized to regulate the discharge of waste that could affect the quality of the State's waters. Therefore, even if a project does not require a federal permit (i.e., a NWP from the USACE), it may still require review and approval of RWQCB. In light of the approval of the new NWPs by the USACE on March 12, 2007 and the SWANCC decision. RWQCB, in response to this, issued guidance for regulation of discharges to "isolated" water on June 25, 2004. The guidance states:

> Discharges subject to CWA section 404 receive a level of regulatory review and protection by the USACE and are also subject to streambed alteration agreements issued by the CDFG; whereas discharges to waters of the State subject to SWANCC receive no federal oversight and usually fall out of CDFG jurisdiction. Absent of RWQCB attention, such discharges will generally go entirely unregulated. Therefore, staffing constraints require RWQCB to regulate some dredge and fill discharges of similar extent, severity, and permanence to federally protected waters of similar value. Dredging, filling, or excavation of "isolated" waters constitutes a discharge of waste to Waters of the State, and prospective dischargers are required to submit a report of waste discharge to RWQCB and comply with other requirements of Porter-Cologne.

When reviewing applications, RWQCB focuses on ensuring that projects do not adversely affect the "beneficial uses" associated with waters of the State. Generally, RWQCB defines beneficial uses to include all of the resources, services and qualities of aquatic ecosystems and underground aquifers that benefit the State. In most cases, RWQCB seeks to protect these beneficial uses by requiring the integration of water quality control measures into projects that will result in discharge into waters of the State. For most construction projects, RWQCB requires the use of construction and post-construction Best Management Practices (BMPs).

To meet RWQCB standards for water quality protection as well as the broader jurisdiction generally asserted by them, it has become necessary to prepare a report addressing all hydrologic issues related to a project application. The report involves an analysis of pre-project watershed and water quality conditions (e.g., before and

after percent impervious surface analysis, before and after runoff analysis, design alternatives to address post-project changes in the watershed, and minimization of these changes BMPs). Additionally, the report should include a discussion of impacts to waters of the State and biological resources and how the project avoided those impacts to the maximum extent feasible, stressed minimization of impacts and proposed mitigation for unavoidable impacts.

California Environmental Quality Act

Guidelines Section 15380

This section provides that a species not listed on the FESA or CESA may be considered rare or endangered under specific criteria. These criteria have been modeled after the definition in FESA and CESA. Section 15380 was included in the CEQA Guidelines primarily to deal with situations in which a public agency is reviewing a project that may have a significant effect on a candidate species that has not yet been listed by either USFWS or CDFG. Thus, Section 15380 provides an agency with the ability to protect a species from a project's potential impacts until the respective government agencies have an opportunity to designate the species as protected, if warranted.

An example would be the vascular plants listed as rare or endangered by the CNPS, but which may have no designated status or protection under FESA or CESA. The CNPS (CNPS 2008) created five lists:

- List 1A: Plants Presumed Extinct
- List 1B: Plants Rare, Threatened, or Endangered in California and elsewhere
- List 2: Plants Rare, Threatened, or Endangered in California, but more numerous elsewhere
- List 3: Plants About Which More Information is Needed – A Review List
- List 4: Plants of Limited Distribution – A Watch List

In general, plants appearing on CNPS List 1A, 1B, or 2 are considered to meet the criteria of Section 15380. Additional plant species that are locally or regionally rare are described for the Bay Area by local CNPS chapters and Lake (2004). Plants of

local concern and those listed on CNPS List 1A, 1B or List 2 meet the definition of NPPA and CESA.

Local Ordinances

It is important to note, that Caltrans right-of-way is not subject to local land use regulations. In addition, based on the federal ownership of YBI, sovereign immunity applies to the project. The tree ordinance described below was nonetheless used as guidance in developing the project description which includes replacement of removed trees.

San Francisco General Plan

The San Francisco General Plan (SFGP) provides general policies and objectives to guide land use decisions. The Environmental Protection Element of the SFGP focuses on giving appropriate consideration to natural environment amenities and values while also giving consideration to economic and social issues. YBI is part of District 6 of the City and County of San Francisco, and as such is included in the scope of the SFGP. It is important to note, however, that Caltrans right-of-way is not subject to local land use regulations. Therefore, further analysis of the project's consistency with the SFGP in regard to biological resources is not included in this document.

Significant Trees

Per Ordinance 0017-06 "Public Works Code- Landmark Trees, Significant Trees, and penalties for Violations" and the San Francisco Department of Public Works Code Section 8.01-8.11, the City of San Francisco defines a significant tree as the following: (1) on property under the jurisdiction of the Department of Public Works or (2) on privately owned-property with any portion of its trunk within 10 feet of the public right-of-way, and (3) that satisfies at least one of the following criteria: (a) a diameter at breast height (DBH) in excess of twelve (12) inches, (b) a height in excess of twenty (20) feet, or (c) a canopy in excess of fifteen (15) feet. Tree removal requires an arborist survey to address the following:

c) As part of the Director's determination to authorize removal of a significant tree, the Director shall consider the following factors related to the tree;

(1) Size, age, and species;

(2) Visual and aesthetic characteristics, including the tree's form and whether it is a prominent landscape feature or part of a streetscape;

(3) Cultural or historic characteristics, including whether the tree has significant ethnic appreciation or historical association or whether the tree was part of a historic planting program that defines neighborhood character;

(4) Ecological characteristics, including whether the tree provides important wildlife habitat, is part of a group of interdependent trees, provides erosion control, or acts as a wind or sound barrier;

(5) Locational characteristics, including whether the tree is in a high traffic area or low tree density area, or provides shade or other public benefits.

2.2. Studies Required

The SFOBB - East Span Seismic Safety Project Natural Environment Study (Woodward-Clyde 1998) included the YBI ramps project area within the YBI touchdown portion of the project area; however, an update of the biological resource evaluation was warranted for the current project given that the previous surveys were conducted more than 10 years ago and conditions may have changed since that time.

To assess the sensitivity of habitats on the project site, EDAW/AECOM (now AECOM) conducted a reconnaissance-level biological resources assessment and formal jurisdictional determination for the approximate 33.553 acre YBI Ramp Improvement BSA on YBI, located between PM 7.6 and 8.1 beginning at the east portal of the YBI tunnel at Macalla Road and ending before the SFOBB Transition Structure (Figure 2). The YBI Ramp Improvement BSA includes the portion of block 1939 lot 002 of San Francisco Assessors Volume #15 located on the northeastern extent of YBI, as depicted on the Oakland West USGS 7.5-minute topographic quadrangle. The BSA is based on the extent of potential permanent and temporary disturbance areas for Alternatives 2b and 4. Figure 2 depicts the limits of the BSA which includes the proposed project area alternatives and adjacent natural areas that may not be directly affected by the project but are in close enough proximity to warrant evaluation. Project features and activities are not proposed within the waters of the Bay. To adequately encompass habitats adjacent to the project disturbance area, upland areas up to the shoreline were included in the BSA (Figure 2a).

Additional surveys for potentially occurring special-status plants (Table 1) were conducted during the target species' blooming periods in spring/summer 2009. As described above, a tree survey was deemed unnecessary for the project as it is exempt from the City ordinances which apply to significant trees based upon the federal ownership of YBI (sovereign immunity) (Malamut 2009) and because the Caltrans right-of-way is not subject to local land use regulations.

2.3. Personnel and Survey Dates

Consulting biologists Kristin Asmus (botanist and wetlands specialist), Angie Harbin-Ireland (senior wildlife biologist), Hildie Spautz (biologist), and Veronica Wunderlich (wildlife biologist) conducted a site reconnaissance of the project site on November 10, 2008 between the hours of 10:30 and 17:30. Temperatures during the site visit ranged from 55°F to 60°F, with winds from 0 – 10 mph blowing west-southwest.

The entire BSA was surveyed on foot and all distinct plant and wildlife habitats were described and mapped. Trees and shrubs were searched with binoculars for potential avian nest sites. Understory vegetation and open areas were surveyed for evidence of mammal activity, including potential woodrat houses and nests. Buildings and other structures were inspected for evidence of bat usage. Aquatic habitat characteristics were qualitatively assessed for their potential to support the various life history stages of aquatic species. All wildlife species observed or detected by sign were recorded. This report presents the results of the assessment and is intended to assist Caltrans in the review process for the YBI Improvement Project. The survey was intended as an evaluation of on-site habitat types and an assessment of the potential for occurrence of special-status plant and wildlife species, and does not include any species-specific focused surveys.

Concurrent with the site reconnaissance, EDAW biologists Kristin Asmus and Hildie Spautz conducted a wetland delineation and preliminary jurisdictional determination of the project site in accordance with the procedures outlined in the USACE Wetlands Delineation Manual (Environmental Laboratory 1987) and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 2008). The entire BSA was surveyed on foot and all distinct plant communities were visited and described. Locations of potential wetlands and waters of the United States and State were recorded and mapped on a 1"=50' aerial map of the project area.

AECOM botanist Kristin Asmus and biologists Hildie Spautz and Josh Meidav performed focused botanical surveys on March 18, June 2, and August 19, 2009 (AECOM 2009).

During field surveys, the entire BSA was traversed on foot. All distinct upland and wetland plant communities were visited and described, and all plant species detected were identified and recorded. A complete plant species inventory for the BSA is presented in Appendix A. The entire BSA was surveyed during all seasons necessary for the detection and proper identification of any potentially occurring special-status plant species. Survey methods conformed to CDFG Guidelines for Assessing the Effects of Proposed Developments on Rare and Endangered Plants and Plant Communities (CDFG 2000) as well as the USFWS Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants (USFWS 2000).

2.4. Agency Coordination and Professional Contacts

Prior to conducting fieldwork, existing biological resource studies were reviewed for the project area, and adjacent project areas, as were CDFG, USFWS, and CNPS sensitive species occurrence databases. Information on special-status plant and animal species, as well as soils and wetlands, was compiled through a review of the following sources:

- Soil Survey of San Mateo County, Eastern Part, and San Francisco County, California (USDA 1991)
- Web Soil Survey (NRCS 2008)
- CNDDB for the Oakland West and Briones Valley, Hunters Point, Oakland East, Oakland West, Richmond, San Francisco North, San Francisco South, San Leandro, and San Quentin 7.5-minute topographic quadrangles (CDFG 2008a)USFWS's Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Oakland West and Eight Surrounding U.S.G.S. 7 1/2 Minute Quads and San Francisco County. Database Last Updated: April 29, 2010. Document Number: 100624034334. (USFWS 2010).USFWS's Endangered and Threatened Wildlife and Plants (USFWS 1998, 2008).
- CDFG's *State and Federally Listed Endangered and Threatened Animals of California* (CDFG 2008b) and *Special Animals List* (CDFG 2008c)

- CNPS's *Inventory of Rare and Endangered Plants of California* (CNPS 2001, 2008)
- CDFG's *Special Vascular Plants, Bryophytes, and Lichens List* (CDFG 2009a), *Changes to Special Vascular Plants, Bryophytes, and Lichens List* (CDFG 2009b) and *State and Federally Listed Endangered, Threatened, and Rare Plants of California* (CDFG 2009c)
- *Yerba Buena Chapter Rare Plant List – Presidio and San Francisco* (CNPS 2005a, 2005b)
- *Angel Island Native Plant Checklist* (CNPS 1993)
- *Rare Plants of San Francisco. List of Special Status Plants of the Presidio. Yerba Buena Chapter* (CNPS 2005a)
- *Unusual and Significant Plants of Alameda and Contra Costa Counties* (Lake 2004)
- *Distribution and Ecology of Stream Fishes in the San Francisco Bay Drainage* (Leidy 1984)

Additional documents prepared for the area and adjacent projects were reviewed:

- *Special Status Plant Survey and Habitat Assessment for Naval Station Treasure Island, Yerba Buena Island, California* (Wood 1996)
- *Preliminary Checklist of the Flora of Yerba Buena Island, San Francisco County* (Wood Biological Consulting 2007)
- *Hidden in Plain Sight: The Treasure of Yerba Buena Island* (Wood 2008)
- *San Francisco Oakland Bay Bridge - East Span Seismic Safety Project Natural Environment Study* (Woodward-Clyde 1998)
- *San Francisco Oakland Bay Bridge - East Span Seismic Safety Project Final Environmental Impact Statement/Statutory Exemption and Final Section 4(f) Evaluation* (USDT - FHWA 2001)
- *Treasure Island Ferry Terminal Location Study* (Concept Marine Associates 2003)

- *Final Natural Environment Study: Doyle Drive, South Access to the Golden Gate Bridge* (ESA 2005)
- *Yerba Buena Island Habitat Management Plan – Stakeholder Interview Background Information. And Appendix – Existing Habitats and Special-Status Species on Yerba Buena Island* (Garcia and Associates 2008)
- *Transfer and Reuse of Naval Station Treasure Island: Final Environmental Impact Report Vol 1: Chapters 1 to 10* (San Francisco Planning Department 2006)
- *Marine Mammal Monitoring Plan: San Francisco – Oakland Bay Bridge East Span Seismic Safety Project* (Parsons Brinckerhoff 2002)
- *Revised Marine Mammal Monitoring Plan: San Francisco – Oakland Bay Bridge East Span Seismic Safety Project* (SRS Technologies 2004)
- *Final Preliminary Bird Monitoring Protocol: San Francisco – Oakland Bay Bridge East Span Seismic Safety Project* (LSA 2002)
- *San Francisco-Oakland Bay Bridge East Span Seismic Safety Project Fisheries and Hydroacoustic Monitoring Program - Work Plan* (Strategic Environmental 2002)
- *YBI Ramp Improvements – PEAR* (EDAW 2007)
- *USCG Bridge Permit – Proposed San Francisco Oakland Bay Bridge Replacement East of the Yerba Buena Island.* (USCG 2001)
- *Distribution and Ecology of Stream Fishes in the San Francisco Bay Drainage.* (Leidy, R.A. 1984)

The SFCTA is submitting a request for verification of USACE jurisdiction. USACE conducted a preliminary review of photos and the jurisdictional determination map and indicated via e-mail correspondence on January 4th, 2011, that several of the unvegetated waters features appear to have been constructed in uplands, drain only uplands, and are therefore not jurisdictional. However, USACE stated that the remaining features may fall under their jurisdiction as natural ephemeral drainages.

If jurisdiction is confirmed and impacts are at threshold where notification or permits are necessary the appropriate notifications and/or applications (e.g., 404 CWA permit

from USACE and 401 Certification from RWQCB) would be submitted. It is anticipated the project would qualify under NWP 14 (Linear Transportation Projects) given minimal potentially jurisdictional acreage within the BSA.

2.5. Limitations That May Influence Results

While the studies employed in this investigation were designed to give a comprehensive overview of the biological resources found within the BSA, no focused surveys for wildlife were conducted during this survey effort. As such, the methods employed would not necessarily rule out some special-status species. However, based on the surveys conducted to date, an assessment of habitats on the site, and populations in the region, certain special-status animal species are not expected to occur or can be entirely ruled out. Surveys for special-status plant species were conducted and those results are included herein. As described in Section 2.3 a tree inventory is not required for the BSA, thus size data is not provided in this report.

Botanical nomenclature used throughout this report conforms to Hickman (1993) except for recent changes in circumscriptions in the family Asteraceae (Baldwin 1999), and other recent changes in nomenclature. Plant community names conform to Holland (1986) and Sawyer and Keeler-Wolf (1995) where applicable; wetland community names conforming to Cowardin et al. (1979) are also given where appropriate. Nomenclature for special-status plant species conforms to the CDFG (CDFG 2009c) and the CNPS (CNPS 2001, 2008). Nomenclature for sensitive natural communities conforms to the CDFG (CDFG 2003, Holland 1986). Nomenclature for wildlife conforms to Sibley (2003) for birds, Stebbins (2003) for reptiles and amphibians, and Jameson Jr. and Peeters (2004) for mammals.

Chapter 3. Results: Environmental Setting

3.1. Description of the Existing Biological and Physical Conditions

YBI is an approximately 577-acre natural island located between San Francisco and Oakland in the Bay (Figure 1). The island has been known by several different names including Seabird Island, Wood Island, and Goat Island, but was officially named as YBI in 1850 when it was included in the formal boundaries of San Francisco County. While the island was used for non-military purposes including the raising of goats and placement of a lighthouse for maritime navigation, the island has also been used for military purposes throughout its more recent history. YBI was used as a military post during the Civil War era and became a U.S. Naval training station in the early 20th century (Boyes 1936). While the training station was closed in 1916, portions of the island continued to fall under U.S. Navy (USN) control on and off until 1993 (NPS 2009), when Treasure Island, which was constructed immediately adjacent to YBI, and the portions of YBI that were under the jurisdiction of the USN were decommissioned. In addition to the USN facilities, a USCG facility was established in 1939 on the southwest side of the island, and remains active to this day. Because of the long history of military and civilian use of the island, including the harvesting of native trees and large number of goats that were kept on the island, the natural habitats found on the island are generally disturbed. Despite the disturbed nature of the communities on-site, however, there is potential for some sensitive plant and wildlife species to occur within the BSA, located on the northern end of the island. The BSA is discussed in more detail below.

3.1.1. BSA

The BSA, located within the Oakland West 7.5' USGS Quadrangle, encompasses the northeastern tip of YBI, from the first dry structural footing for the west side of the eastern span of the SFOBB, to the eastern YBI tunnel entrance, and borders active USCG facilities to the south, the Bay to the north and east, and the YBI tunnel, former USN Station structures, and current residential development to the west (Figure 2). Current construction activities, as well as associated trailers and staging areas, for the SFOBB East Span Seismic Safety Project are ongoing on the eastern side of the BSA, and as such a large portion of the BSA is currently characterized by active construction, and is largely unvegetated (Figure 4). The western portion of the BSA is a mixture of landscaped and developed areas, roadways, and disturbed natural

communities. These communities are described in detail in section 4.1 and are depicted on Figure 4.

3.1.2. Physical Conditions

The BSA ranges in elevation from 5 feet above mean sea level near the water's edge on the eastern border of the site, to as high as 230 feet above mean sea level near the tunnel entrance at the western border of the site. The slopes range from moderate to steep, with very steep embankments characterizing the north edge of the BSA (Figure 2b). The BSA consists of approximately 35 percent Candlestick-Kron-Buriburi complex soils (hard-fractured residuum weathered from sandstone) on the slopes, with the remainder consisting of orthents (recently eroded soils with virtually no diagnostic horizons) and urban land, much of which is fill (NRCS 2008).

The climate at Yerba Buena Island, like much of California, is characterized by a Mediterranean climate with mild, wet winters and dry summers. The climate at Yerba Buena Island is heavily influenced by the cool temperatures of San Francisco Bay which moderates temperature swings. Most rain falls from October-April, with a yearly average of 20 inches (51 cm). Yearly average high temperatures hover around 63 degrees Fahrenheit (17 degrees Celsius), with peak temperatures occurring in September and low temperatures occurring in January. Fog, a ubiquitous constant within the San Francisco Bay Area, may blanket Yerba Buena Island often, especially in the morning before ambient temperatures have risen. The steep topography of Yerba Buena Island has helped to create diverse micro-climates and hence micro-habitats.

3.1.3. Biological Conditions in the BSA

Vegetation communities and wildlife habitats within the BSA on YBI can generally be described as a mosaic of nonnative ornamental and invasive vegetation with relatively small patches of remnant native species (Figure 4). Vegetation communities found on-site are eucalyptus woodland (4.110 acres), mixed broadleaf-conifer forest (3.326 acres), nonnative scrub/shrubland (1.181 acres), northern foredune (0.440 acre), central coast riparian scrub (0.028 acre), landscaped/disturbed (3.788 acres), and ruderal/disturbed (1.065 acres) as presented in the Table 1 below and, Figure 4. The majority of the site has been disturbed and developed and consists of urban hardscape land and bare ground (paved roads, buildings, parking lots, and construction areas) totaling 19.615 acres. The developed area is currently being used for construction of the SFOBB. Remnant patches of native communities found within

the larger communities are northern (Franciscan) coastal scrub, northern coastal bluff scrub, and Coast live oak woodland. These remnant patches were not discretely mapped due to lack of functional value. Each of the dominant vegetation communities is described separately below (Table 1), and includes descriptions of the native elements found therein.

Table 1. Habitat Type and Area

Habitat Type	Total Area
Eucalyptus Woodland	4.110 acres
Mixed Broadleaf-Conifer Forest	3.326 acres
Nonnative Scrub/Shrubland	1.181 acres
Northern Foredune	0.440 acre
Central Coast Riparian Scrub	0.028 acre
Landscaped/Disturbed	3.788 acres
Ruderal/Disturbed	1.065 acres
Urban	19.615 acres

Eucalyptus Woodland

Eucalyptus woodland has naturalized in California since eucalyptus trees were first brought to the state in the mid 1880s. Numerous species of the genus were imported for their horticultural interest and their potential utility as a fast-growing hardwood. Because climatic conditions in the western half of the state are very similar to the range of many of the imported species of eucalyptus in Australia, the planted groves managed to persist and spread without cultivation. It is estimated that there are between 600 and 800 species of eucalyptus, about 18 of which have become fairly widespread in California. The most common and widely grown species is Tasmanian blue gum (*Eucalyptus globulus*), which is the dominant species in the BSA. Because

the so-called gum trees form dense, expanding groves, drop a tremendous amount of bark and leaf litter, and greatly alter the chemistry of the soil, eucalyptus have contributed to the loss of native plant communities which typically cannot persist in the understory. Eucalyptus has had an especially adverse effect on native coastal scrub and coast grassland communities and often presents a fire hazard.

Eucalyptus woodlands totaling approximately 4.110 acres are located within the BSA. The canopy is dominated by Tasmanian blue gum trees 40 - 60 feet in height. The understory mostly supports ruderal, nonnative shrubs and herbs such as broom (*Genista* spp.), English ivy (*Hedera helix*), and Himalayan blackberry (*Rubus discolor*). Gaps and edges of these stands are dominated by ornamental nonnative trees, including blackwood acacia (*Acacia melanoxylon*) and a few native understory species, including wild lilac (*Ceanothus* spp., including planted horticultural varieties) and snowberry (*Symphoricarpus albus*), among others. This community intergrades with mixed broadleaf-conifer forest. Eucalyptus woodland is not defined in Holland (1986). On-site, eucalyptus woodland conforms to the eucalyptus series as described in Sawyer and Keeler-Wolf (1995) and would be classified as an upland following Cowardin, et al. (1979).

Eucalyptus woodland provides cover and nesting habitat for a variety of birds and overwintering habitat for the monarch butterfly (*Danaus plexippus*). Large

(e.g. > 9”) diameter trees may provide nesting habitat for raptors, including great horned owl (*Bubo virginianus*), red-tailed hawk (*Buteo jamaicensis*), and red-shouldered hawk (*Buteo lineatus*). A variety of passerine species can be expected to occur and nest in this habitat such as Anna’s hummingbird (*Calypte anna*), white-crowned sparrow (*Zonotrichia leucophrys*), song sparrow (*Melospiza melodia*), and house finch (*Carpodacus mexicanus*).

Mixed Broadleaf-Conifer Forest

Mixed broadleaf-conifer forest is a general description for a vegetation community dominated by both conifers and broadleaf trees (non-conifers, either deciduous or non-deciduous). In coastal central California, native mixed broadleaf-conifer forests include mixed evergreen forest dominated by Douglas fir (*Pseudotsuga mensesii*) and coast live oak (*Quercus agrifolia*); and Monterey pine forest, which includes Monterey pine (*Pinus radiata*), coast live oak, and native understory shrub and ground cover species also found in coast live oak forests.

Within the BSA, mixed broadleaf-conifer forest totals approximately 3.326 acres and is characterized by Monterey pine, Monterey cypress (*Callitropsis macrocarpa*), and coast live oak with other nonnative trees such as Tasmanian blue gum, blackwood acacia and Victorian box (*Pittosporum undulatum*). The understory is dominated by brooms (*Genista* and *Cytisus* spp.), English ivy, Himalayan blackberry, and periwinkle (*Vinca major*). Small patches of native species associated with remnant coast live oak woodland persist in the understory and include coyote brush (*Baccharis pilularis*), snowberry, poison oak (*Toxicodendron diversilobum*), toyon (*Heteromeles arbutifolia*), and blue elderberry (*Sambucus mexicana*). Herbaceous understory species that were observed include native miner's lettuce (*Claytonia perfoliata*), California blackberry (*Rubus ursinus*), and nonnative smilo grass (*Piptatherum miliaceum*). This community intergrades with eucalyptus, landscaped/disturbed, and ruderal/disturbed, and as such wildlife species associated with this habitat would be similar to those found in those habitats as discussed in this section.

Mixed broadleaf conifer forest is not defined in Holland (1986). On-site, mixed broadleaf conifer forest resembles a combination of Monterey pine series, eucalyptus series, and coast live oak series as described in Sawyer and Keeler-Wolf (1995) and would be classified as an upland following Cowardin, *et al.* (1979).

Nonnative Scrub/Shrubland

Non –native scrub/shrubland is a general term for a vegetation community dominated by nonnative shrubs. These shrub communities may be early seral (i.e., developing after disturbance has completely removed pre-existing vegetation) or may have developed by a gradual invasion and replacement of native vegetation, often by nonnative, invasive, and naturalized garden escapee species such as French broom (*Genista monspessulana*). Plants in this community are adapted to site conditions similar to the native communities they replaced, e.g., dry and exposed slopes with shallow soils, and the community typically includes a low woody shrub layer and a mixture of perennial and annual herbaceous ground cover. There may also be native plant species present, and these species may be remnant representatives of the natural communities present prior to disturbance and/or invasion by nonnative plants, or native invasive species not typically found in the region.

On-site nonnative scrub/shrubland encompasses approximately 1.181 acres of the BSA and contains remnant elements of northern (Franciscan) coastal scrub and northern coastal bluff scrub. Northern (Franciscan) coastal scrub consists of a dense

cover of low shrubs up to six feet high with a well-developed herbaceous or low woody understory. Northern (Franciscan) coastal scrub is most extensive on windy, exposed sites with shallow, rocky soils. Northern coastal bluff scrub is comprised of low, often prostrate scrub species two to 20 inches high and forming continuous or scattered mats. It is made up of dwarf shrubs, herbaceous perennials, and annuals and, occasionally, succulent species. This plant community develops on exposed coastal bluffs above the high tide line and is subject to strong winds and salt spray. Soils are usually rocky and poorly developed (Holland 1986).

Within the BSA, nonnative scrub/shrubland is dominated by sweet fennel (*Foeniculum vulgare*) and brooms, with primarily nonnative ground cover herbaceous and grass species, including mustard (*Brassica* spp.), cheeseweed (*Malva parviflora*), and smilo grass. The nonnative shrub community intergrades in some places with eucalyptus woodland and landscaped/disturbed, and differs from these communities by the relatively higher proportion of shrubs and the absence of a tall tree canopy.

Elements of northern (Franciscan) coastal scrub occur on the exposed rocky slopes found on the most northeastern point of the island beneath the existing east span of the SFOBB (this area was identified as northern coastal scrub in the Final Environmental Impact Report ([FEIR]; SFPD 2006). Characteristic species present include or may include poison oak, toyon, California broom (*Lotus scoparius*), oso berry (*Oemleria cerasiformis*), western bracken fern (*Pteridium aquilinum* var. *pubescens*), blue elderberry, bee plant (*Scrophularia californica*), and blue-eyed grass (*Sisrynchium bellum*) among others. Within the BSA, northern coastal bluff scrub elements also occur on the bluffs beneath the existing eastern span of the SFOBB, on the northeastern-most point of the island. Characteristic species with potential to be present in this habitat include seaside daisy (*Erigeron glaucus*), bluff lettuce (*Dudleya farinosa*), bentgrass (*Agrostis* spp.), and yarrow (*Achillea millefolium*), among others.

Nonnative scrub/shrubland is not defined in Holland (1986). Nonnative scrub/shrubland as found on-site corresponds most closely to the Broom series as classified by Sawyer and Keeler-Wolf (1995). The northern (Franciscan) coastal scrub Holland type corresponds to the coyote brush series as classified by Sawyer and Keeler-Wolf (1995). The northern coastal bluff scrub Holland type as found on-site does not correspond to any particular series as described by Sawyer and Keeler-Wolf (1995). Nonnative scrub/shrubland would be classified as upland (non-wetland) following Cowardin *et al.* (1979).

Scrub communities, interspersed with other habitats such as those on-site, provide foraging and nesting habitat for bird species that are attracted to edges of communities, including California quail (*Callipepla californica*), white-crowned sparrow, and California towhee (*Pipilo crissalis*), among others. These species forage among the leaf litter for invertebrates. Avian species that use the canopy of scrub for catching insects includes white-crowned sparrow and wrentit (*Chamaea fasciata*). Besides creating habitat for insect prey, flowering scrub vegetation provides nectar for bird species such as Anna's hummingbird.

Mammals, including striped skunk (*Mephitis mephitis*), use this habitat for protection and foraging grounds, feeding off new shoots of plants. Mule (black-tailed) deer (*Odocoileus hemionus*) often feed in scrubs but this habitat supports a lower density of deer than oak savannahs. Small mammals that are expected to occur within the scrub include brush rabbits (*Sylvilagus bachmani*), Botta's pocket gophers (*Thomomys bottae*), and deer mice (*Peromyscus maniculatus*). Small mammals attract predators such as hawks owls, and coyotes (*Canis latrans*).

Northern Foredune

Northern foredune is generally found behind active beaches and in front of more stabilized back dune coastal scrubs. This plant community is similar to active coastal dunes but is somewhat more sheltered from wind and may have a greater supply of groundwater. This zone is also referred to as coastal strand vegetation. This pioneer habitat typically has low species diversity, being dominated by prostrate herbs and grasses with creeping stems or rhizomes. These salt tolerant plants are also tolerant of repeated burial by shifting sands and contribute to dune stabilization. Northern foredune vegetation occurs in areas of sand accumulation along the immediate coast from Monterey County to Oregon (Holland 1986).

Within the BSA, a narrow 0.440 acre strip of northern foredune vegetation occurs along the northwestern portion of the site. In addition there is an approximately 5-meter (15 foot) wide patch of invasive, nonnative *Spartina alterniflora* hybrid on the northeastern portion of the site, north of the SFOBB. This species is more typical of northern coastal salt marsh but its invasive nature warrants mention here. The patch was treated with herbicide by the Invasive *Spartina* Project in September 2008 (Hogel 2008). Wave action in the BSA appears to be too strong to allow substantial northern coastal salt marsh vegetation to develop.

The northern foredune vegetation on-site is dominated by nonnative iceplant (*Carpobrotus edulis*) and sweet fennel. Diagnostic foredune species present include sea rocket (*Cakile maritima*) and iceplant, although additional species may be present and observable during other seasons. Native species observed include alkali heath (*Frankenia salina*), saltgrass (*Distichlis spicata*), and spearscale (*Atriplex triangularis*). Other nonnative species present include cheeseweed, dill daisy (*Argyranthemum* sp.), Russian thistle (*Salsola soda*), and seedlings of wild radish (*Raphanus sativa*). Wood's plant list (2007) indicates that other foredune species are present on the island, including several special-status species, but these have been primarily documented on the less-disturbed western portion of YBI. These species include dune gilia (*Gilia capitata* ssp. *capitata*, CNPS 1B.1), woolly-sunflower (*Eriophyllum staechadifolium*), yellow bush lupine (*Lupinus arboreus*), and beach bursage (*Ambrosia chamissonis*).

Within the BSA, northern foredune most closely corresponds to the iceplant series as classified by Sawyer and Keeler-Wolf (1995) and is upland following Cowardin *et al.* (1979). Northern foredune habitat in undisturbed areas such as outer Point Reyes is used for nesting and foraging by several bird species including western snowy plover (*Charadrius alexandrinus nivosus*), federally listed Threatened, and a California Species of Special Concern. However, remnant small patches of northern foredune habitat such as that found on-site are unlikely to be used for nesting by most avian species, due to the prevalence of iceplant and lack of sandy dunes. These patches are more likely to be used only for foraging and roosting by shorebirds and waterbirds, particularly gulls (*Larus* spp.), and generalist landbirds nesting in other habitats nearby.

Central Coast Riparian Scrub

Central coast riparian scrub typically consists of a scrubby streamside, with open to impenetrable thickets composed of any of several species of willows (*Salix* spp). This plant community occurs close to river channels and near the coast on fine-grained sand and gravel bars with a high water table. It is distributed along and at the mouths of most perennial and many intermittent streams of the southern coast ranges, from the Bay Area to near Point Conception (Holland 1986). Central coast riparian scrub is generally regarded as early seral, meaning that it typically precedes the development of other riparian woodland or forest communities in the absence of severe flooding. However, outside of riparian situations, that is, near groundwater seeps, willow-

dominated scrub represents a relatively stable plant community and is not considered seral.

Within the BSA, an approximate 0.028 acres patch of central coast riparian scrub occurs at the southern end of the northern foredune community where a culvert empties into the bay. A patch of vegetation referred to as riparian scrub was also noted in SFOBB FEIR (SFPD 2006) in this area. The sole species occurring in the BSA is arroyo willow (*Salix lasiolepis*). This species generally indicates the presence of fresh water. On-site, central coast riparian scrub conforms to the arroyo willow series as described in Sawyer and Keeler-Wolf (1995) and palustrine shrub-scrub wetland following Cowardin *et al*. (1979).

Wildlife species found in central coast riparian scrub would be similar to that found in other scrub communities as noted above. Additionally, the thick stands of willow species that characterize central coast riparian scrub habitat provides cover and nesting habitat for a variety of birds, including white-crowned sparrow, song sparrow, and house finch.

Landscaped/Disturbed

Landscaped lands are disturbed in that all or most of the native vegetation has been removed and replaced with horticultural species. Disturbed landscaped areas have little potential to support significant botanical resources.

Landscaped/disturbed lands within the BSA totaling approximately 3.788 acres surround residential buildings and paved areas. Such areas are not expected to support any naturally occurring vegetation, although invasive native and nonnative plant species frequently colonize disturbed sites. Ornamental species found within the BSA include cheesewood (*Pittosporum* spp.), cotoneaster (*Cotoneaster* spp.), shrub roses (*Rosa* spp.), Indian hawthorn (*Rhaphiolepis indica),* juniper *(Juniperus* spp.), English ivy, and butterfly bush (*Buddleja davidii),* among others. Several native species were planted in the landscaped areas as well, including wild lilac, western red cedar (*Thuja plicata),* Monterey cypress, and Monterey pine. These tree species are also included in the areas described as mixed broadleaf conifer forest, above, where they contribute to a continuous canopy. Landscaped/disturbed lands as they occur on-site are not specifically described by Sawyer and Keeler-Wolf (1995) and would be classified as upland following Cowardin *et al*. (1979).

Wildlife species associated with landscaped/disturbed lands are often those often associated with close contact to urban areas such as raccoon (*Procyon lotor*), opossum (*Didelphus virginianus*), house finch, European starling (*Sturnus vulgaris*), and mourning dove (*Zenaida macroura*).

Ruderal/Disturbed

Ruderal/disturbed vegetation is typical of disturbed lands on which the native vegetation has been completely removed by human activities such as grading, disking, cultivation, or other surface disturbances. Disturbed areas, if left undeveloped, may become recolonized by exotic species as well as native species. Native vegetation may ultimately become at least partially restored if the soils are left intact and there is no further disturbance. Ruderal vegetation comprises approximately 1.065 acre of the BSA and is scattered throughout the site in disturbed areas, including areas that have been graded, are adjacent to construction, on which there is limited regular vehicle traffic, and along the edges of roads.

Ruderal vegetation on-site characteristically supports nonnative annual grasses and forbs typical of local nonnative annual grassland. Plant species likely to be found on-site and which would be classified as ruderal include nonnative species such as sweet fennel, black mustard (*Brassica nigra*), and wild radish. Common nonnative grasses and forbs that are likely to be present but were not apparent during the fall 2008 visit include Italian ryegrass (*Lolium multiflorum*), rip-gut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceous*), little quaking grass (*Briza minor*), bur-clover (*Medicago polymorpha*), prickly ox-tongue (*Picris echioides*), and common vetch (*Vicia sativa*), all of which have been previously identified on YBI (Wood Biological Consulting 2007). Ruderal vegetation as it occurs on-site is not specifically described by Sawyer and Keeler-Wolf (1995), although portions of it conform to the California annual grassland series. Ruderal vegetation on-site would be classified as upland following Cowardin *et al*. (1979).

Wildlife species generally associated with disturbed ruderal lands include raccoon, opossum, European starling, and mourning dove. Killdeer (*Charadrius vociferus*) are also often associated with open disturbed substrates. Wildlife species that feed on seeds or other parts of the vegetation, including finches, goldfinches, sparrows, and a variety of rodents, occur in this habitat type. Insects present in disturbed habitats provide food for species such as western meadowlark (*Sturnella neglecta*),

blackbirds, loggerhead shrike (*Lanius ludovicianus*), and western fence lizard (*Sceloporus occidentalis*). This community can support a variety of predators, including snakes, various raptors, red fox (*Vulpes vulpes*) and coyote.

Aquatic Features

No evidence of wetlands was found in the BSA. Aquatic habitats on-site consist solely of unvegetated waters flowing in concreted or roadside swales totaling 0.04 acre (1,852 square feet) (Figure 4). When water is present, they may provide drinking water for wildlife and refuge for common amphibian species, such as pacific tree frog (*Hyla regilla*). The waters of the Bay are just beyond the boundary of the BSA (Figure 4).

Climate

From the California Data Exchange Center (http://cdec.water.ca.gov/), the San Francisco West Bay station (SF WB AP) has recorded yearly precipitation values of 19.9” and a monthly average of 1.66” with peak in January (4.41”) and a low in July (0.03”). Most rain (96%) falls within the months of October-April, indicative of a Mediterranean climate characterized by cool, wet winters and warm, dry summers. Average temperature is 60 degrees Fahrenheit (http://www.weatherbase.com/).

3.2. Regional Species and Habitats of Concern

Habitats identified above that are of special concern are northern foredune, central coast riparian scrub, and aquatic features. Special-status species with potential to occur within the BSA are identified in Table 2. For the purpose of this document, special-status species are plant and wildlife species that are legally protected under the FESA, CESA, or other State regulations, and species that are considered sufficiently rare by the scientific community to warrant conservation concern. Several special-status species which occur in the region or vicinity of the site are not expected to be present due to a lack of suitable habitat or connectivity to known populations. The BSA boundary does not extend into the Bay and aquatic habitats on-site are limited consisting of roadside swales. The active construction staging areas and historic disturbance of vegetation on-site have diminished the habitat quality on this portion of YBI. All species considered as part of this analysis and their habitat requirements are listed in Appendix A for wildlife and Appendix B for plants. Appendix C provides a list of special-status species reported to the CNDDB for the U.S. Geological Survey (USGS) Oakland West quadrangle and 8 surrounding

quadrangles (San Quentin, Richmond, Briones Valley, San Francisco North, Oakland East, San Francisco South, Hunter's Point, and San Leandro). Figures 5a and 5b show locations of sensitive biological resources within approximately five miles of the BSA. Appendix D presents a list provided by USFWS of special-status species reported in the area covered by the above listed USGS quadrangles. A full discussion of sensitive natural communities and sensitive species with some potential for occurrence within the BSA is provided in Chapter 4.

Table 2: Listed, Proposed Species, and Critical Habitat Potentially Occurring or Known to Occur in the Project Area.

Common Name	Scientific Name	Status	Habitat Present/Absent	Potential for Occurrence and Rationale
Plants				
Coast rock cress	*Arabis blepharophylla*	CNPS 4; YBC	HP	Low: Marginally suitable scrub habitat present. Would have been detectable during focused surveys – presumed absent.
Nuttall's milk-vetch	*Astragalus nuttallii* var. *nuttallii*	CNPS 4.2	HP	Very Low: Marginally suitable habitat present. Would have been detectable.
Coastal bluff morning-glory	*Calystegia purpurata* ssp. *saxicola*	CNPS 1B.2	HP	Moderate: Marginally suitable habitat present. Would have been detectable during focused surveys – presumed absent.
Franciscan thistle	*Cirsium andrewsii*	CNPS 1B.2; YBC	HP	Low: Marginally suitable habitat present. Would have been detectable during focused surveys – presumed absent.
Compact cobwebby thistle	*Cirsium occidentale* var. *compactum*	CNPS 1B.2	HP	Very Low: Marginally suitable habitat present. Would have been detectable during focused surveys –presumed absent.
San Francisco Bay spineflower	*Chorizanthe cuspidata* var. *cuspidata*	CNPS 1B.2; YBC	HP	Low: Marginally suitable habitat present. Would have been detectable during focused surveys – presumed absent.
Robust spineflower	*Chorizanthe robusta* var. *robusta*	FE; CNPS 1B.1	HP	Very Low: Marginally suitable habitat present. Would have been detectable during focused surveys – presumed absent.
San Francisco collinsia	*Collinsia multicolor*	CNPS 1B.2; YBC	HP	Low: Marginally suitable habitat present. Would have been detectable during focused surveys – presumed absent.
Pt. Reyes bird's-beak	*Cordylanthus maritimus* ssp. *palustris*	CNPS 1B.2; YBC	HP	Low: Marginally suitable habitat present. Would have been detectable during focused surveys – presumed absent.
Western leatherwood	*Dirca occidentalis*	CNPS 1B.2	HP	Low: Marginally suitable habitat present. Would have been detectable during focused surveys – presumed absent.

Common Name	Scientific Name	Status	Habitat Present/Absent	Potential for Occurrence and Rationale
San Francisco wallflower	*Erysimum franciscanum*	CNPS 4.2; YBC	HP	Low: Marginally suitable habitat present. Would have been detectable during focused surveys – presumed absent.
Fragrant fritillary	*Fritillaria liliacea*	CNPS 1B.2	HP	Low: Marginally suitable habitat present. Would have been detectable during focused surveys – presumed absent.
Dune gilia	*Gilia capitata* ssp. *chamissonis*	CNPS 1B.1; YBC	HP	Moderate: Marginally suitable habitat present. Would have been detectable during focused surveys – presumed absent.
Dark-eyed gilia	*Gilia millefoliata*	CNPS 1B.2	HP	Very Low: Marginally suitable habitat present. Would have been detectable during focused surveys – presumed absent.
San Francisco gum-plant	*Grindelia hirsutula* var. *maritima*	CNPS 1B.2; YBC	HP	Moderate: Suitable habitat present. Would have been detectable during focused surveys – presumed absent.
Diablo helianthella	*Helianthella castanea*	CNPS 1B.2	HP	Very Low: Marginally suitable habitat present. Would have been detectable during focused surveys – presumed absent.
Short-leaved evax	*Hesperevax sparsiflora* var. *brevifolia*	CNPS 1B.2	HP	Low: Marginally suitable habitat present. Would have been detectable during focused surveys – presumed absent.
Kellogg's horkelia	*Horkelia cuneata* ssp. *sericea*	CNPS 1B.1; YBC	HP	Very Low: Suitable habitat present. Would have been detectable during focused surveys – presumed absent.
Beach layia	*Layia carnosa*	FE; SE; CNPS 1B.1	HP	Very Low: Marginally suitable habitat present. Would have been detectable during focused surveys – presumed absent.
Large-flowered linanthus	*Leptosiphon grandiflorus*	CNPS 4.2	HP	Low: Marginally suitable habitat present. Would have been detectable during focused surveys – presumed absent.
Rose linanthus	*Leptosiphon rosaceus*	CNPS 1B.1	HP	Low: Marginally suitable habitat present. Would have been detectable during focused surveys – presumed absent.
San Francisco lessingia	*Lessingia germanorum*	FE; SE; CNPS 1B.1; YBC	HP	Very Low: Marginally suitable habitat present. Would have been detectable during focused surveys – presumed absent.

Common Name	Scientific Name	Status	Habitat Present/Absent	Potential for Occurrence and Rationale
Woolly-headed lessingia	*Lessingia hololeuca*	CNPS 3	HP	Very Low: Marginally suitable habitat present. Would have been detectable during focused surveys – presumed absent.
Coast lily	*Lillium maritimum*	CNPS 1B.1	HP	Low: Marginally suitable habitat present. Would have been detectable.
Slender trefoil	*Lotus formosissimus*	CNPS 4.2	HP	Low: Marginally suitable habitat present. Would have been detectable during focused surveys – presumed absent.
Mount Diablo cottonweed	*Micropus amphibolus*	CNPS 3.2	HP	Low: Marginally suitable habitat present. Would have been detectable during focused surveys – presumed absent.
Marsh microseris	*Microseris paludosa*	CNPS 1B.2	HP	Very Low: Marginally suitable habitat present. Would have been detectable during focused surveys – presumed absent.
Curly-leaved monardella	*Monardella undulata*	CNPS 4.2	HP	Low: Marginally suitable habitat present. Would have been detectable during focused surveys – presumed absent.
Stinging phacelia	*Phacelia malvifolia*	EBCNPS A2	HP	Detected: Suitable habitat present.
Choris's popcorn-flower	*Plagiobothrys chorisianus* var. *chorisianus*	CNPS 1B.2	HP	Very Low: Marginally suitable habitat present. Would have been detectable during focused surveys – presumed absent.
Michael's rein orchid	*Piperia michaelii*	CNPS 4.2	HP	Low: Marginally suitable habitat present. Would have been detectable during focused surveys – presumed absent.
San Francisco campion	*Silene verecunda* ssp. *verecunda*	CNPS 1B.2; YBC	HP	Low: Marginally suitable habitat present. Would have been detectable during focused surveys – presumed absent.
Large flowered sand-spurry	*Spergularia macrotheca* var. *macrotheca*	EBCNPS A2	HP	Detected: Suitable habitat present
Santa Cruz microseris	*Stebbinsoseris decipiens*	CNPS 1B.2	HP	Low: Marginally suitable habitat present. Would have been detectable during focused surveys – presumed absent.
Beach starwort	*Stellaria littoralis*	CNPS 4; YBC	HP	Low: Marginally suitable habitat present. Would have been detectable during focused surveys – presumed absent.

Common Name	Scientific Name	Status	Habitat Present/Absent	Potential for Occurrence and Rationale
California seablite	*Suaeda california*	FE; CNPS 1B.1; YBC	HP	Low: Marginally suitable habitat present. Would have been detectable during focused surveys – presumed absent.
Dune tansy	*Tanacetum camphoratum*	YBC	HP	Low: Marginally suitable habitat present. Would have been detectable during focused surveys – presumed absent.
Triquetrella	*Triquetrella californica*	CNPS 1B.2	HP	Low: Marginally suitable habitat present. Would have been detectable during focused surveys – presumed absent.
Wildlife				
Invertebrates				
Sandy beach tiger beetle	*Cicindela hirticollis gravida*	CNDDB	HP	Very Low: Marginally suitable habitat present in BSA. Nearest Occurrence: within 5 miles to the southwest.
Monarch butterfly (overwintering)	*Danaus plexippus*	CNDDB	HP	Moderate: Suitable habitat present in BSA Observed on-site
San Francisco lacewing	*Nothochrysa californica*	CNDDB	HP	Very Low: Marginally suitable habitat present in BSA. Nearest Occurrence: within 10 miles to the south.
A leaf-cutter bee (*Gummifera* leaf-cutter bee)	*Trachusa gummifera*	CNDDB	HP	Very Low: Marginally suitable habitat present in BSA. Nearest Occurrence: within 5 miles to the southwest.
Birds				
Cooper's hawk (nesting site only)	*Accipiter cooperii*	WL	HP	Moderate: Suitable habitat present in BSA Nearest Occurrence: within 10 miles to the northeast.
Allen’s hummingbird	*Selasphorus sasin*	CNDDB	HP	Moderate: Suitable habitat present in BSA.

Common Name	Scientific Name	Status	Habitat Present/Absent	Potential for Occurrence and Rationale
Alameda song sparrow	*Melospiza melodia pusillula*	SSC	HP foraging only	Moderate: Suitable habitat present in BSA Reported on-site.
Bank swallow	*Riparia riparia*	ST	HP	Low: Suitable habitat present in BSA.
California least tern	*Sternula antillarum browni*	FE; SE/FP	A	Not Expected: No suitable nesting or foraging habitat in the project area, although potential to forage in waters of Bay adjacent to the site.
Golden eagle (nesting/wintering sites only)	*Aquila chrysaetos*	FP; WL	HP	Very Low: Marginally suitable habitat present in BSA. Nearest Occurrence: within 5 miles to the east.
Great egret (nesting colony)	*Ardea alba*	CNDDB	HP	Moderate: Suitable habitat present in BSA.
Great blue heron (nesting colony)	*Ardea herodias*	CNDDB	HP	Moderate: Suitable habitat present in BSA.
Snowy egret (nesting colony)	*Egretta thula*	CNDDB	HP	Moderate: Suitable habitat present in BSA.
White-tailed kite (nesting sites)	*Elanus leucurus*	FP	HP	Moderate: Suitable habitat present in BSA. Nearest Occurrence: within 5 miles to the north.
American peregrine falcon (nesting)	*Falco peregrinus anatum*	FP	HP	High: Suitable habitat present in BSA. Documented nesting on both spans of SFOBB.
California gull (nesting colony)	*Larus californicus*	WL	HP	Moderate: Suitable habitat present in BSA.
Western gull	*Larus occidentalis*	MBTA	HP	Moderate: Suitable habitat present in BSA. Nesting documented on western Span of SFOBB.
Black-crowned night heron (rookery)	*Nycticorax nycticorax*	CNDDB	HP	Moderate: Suitable habitat present in BSA. Nearest Occurrence: Rookery on YBI 0.25 mile south of the BSA.
California brown pelican (overwintering)	*Pelecanus occidentalis californicus*	FP	HP	High: Suitable habitat present in BSA.
Double-crested cormorant	*Phalacrocorax auritus*	WL	HP	High: Suitable habitat present in BSA.
Mammals				

Common Name	Scientific Name	Status	Habitat Present/Absent	Potential for Occurrence and Rationale
Western red bat	*Lasiurus blossevillii*	SSC	HP	Moderate: Marginally suitable habitat present in BSA.
Hoary bat	*Lasiurus cinereus*	CNDDB	HP	Moderate: Suitable habitat present in BSA.
Long-eared myotis bat	*Myotis evotis*	CNDDB	HP	Moderate: Suitable habitat present in BSA.
Fringed myotis bat	*Myotis thysanodes*	CNDDB	HP	Moderate: Suitable habitat present in BSA.
Long-legged myotis bat	*Myotis volans*	CNDDB	HP	Moderate: Suitable habitat present in BSA.
San Francisco dusky-footed woodrat	*Neotoma fuscipes annectens*	SSC	HP	Moderate: Suitable habitat present in BSA.

Absent [A] - no habitat present and no further work needed. Habitat Present [HP] -habitat is, or may be present. The species may be present. Present [P] - the species is present. [CH] - project footprint is located within a designated CH unit, but does not necessarily mean that appropriate habitat is present. Status: Federal Endangered (FE); Federal Threatened (FT); Federal Proposed (FP, FPE, FPT); Federal Candidate (FC), Federal Species of Concern (FSC); State Endangered (SE); State Threatened (ST); Fully Protected (FP); State Rare (SR); State Species of Special Concern (SSC); CDFG Watch List (WL); CNPS, East Bay Chapter CNPS (EBCNPS); Yerba Buena Chapter CNPS (YBC); Tracked by CNDDB (CNDDB).

Chapter 4. Results: Biological Resources, Discussion of Impacts and Mitigation

4.1. Natural Communities of Special Concern

Natural communities of special concern are those that are considered rare in the region or receive regulatory protection (i.e., §404 of the CWA and/or the §§1600 et seq. of the Fish and Game Code). The CNDDB has designated a number of communities as rare; these communities are given the highest inventory priority (Holland 1986, CDFG 2003).

As discussed in the previous section, vegetation communities occurring on-site (Figure 4) that are typical of the region include:

- Eucalyptus woodland
- Mixed broadleaf conifer forest
- Nonnative scrub/shrubland
- Ruderal/landscaped
- Ruderal/disturbed

Remnant sensitive natural communities are present in small patches on-site including:

- Northern foredune
- Central Coast riparian scrub

4.1.1. Discussion of Aquatic Features

The entire BSA (Figure 2), covering the footprint of potential construction access, staging areas, and project alternatives, was surveyed on foot for any evidence of wetland indicators including wetland vegetation, or wetland hydrology, which includes standing water, depressions, evidence of saturation, or ordinary high water marks, and other hydrologic indicators (Environmental Laboratory 1987).

4.1.1.1. SURVEY RESULTS FOR AQUATIC FEATURES

No evidence of wetlands was found in the BSA. Potential federal or state jurisdictional waters on-site consist solely of unvegetated waters flowing in concrete or roadside swales (Figure 4). Nearly all of these unvegetated waters demonstrate a direct connection to the bay through culvert outlets on the shoreline. Due to the steep gradient, only the outer few feet of these waters, where they empty into the Bay, are below mean high tide (approximately 5 feet in elevation) and are tidally influenced. The mean high tide water level corresponds to federally jurisdictional tidal waters of the Bay (Figure 4). The southeast edge of the BSA boundary runs at or slightly above the mean high tide line. On the northern edge of the BSA the boundary is well above the mean high tide line. There is a total of 0.04 acre (1,852 square feet) of unvegetated waters within the BSA which may be regulated by the USACE and RWQCB under the CWA and/or CDFG under Fish and Game Code. Based on a preliminary review of photos and the jurisdictional determination map the USACE indicated via e-mail correspondence on January 4th, 2011, that several of the unvegetated waters features appear to have been constructed in uplands, drain only uplands, and are therefore not jurisdictional. USACE stated that the remaining features (Location ID's 1, 2, 4, 5, and 6), based on their position in the landscape (topography), would indicate that they may be natural ephemeral drainages, although some of them have been armored with concrete or filled with debris over the years.

BCDC permit jurisdiction includes waters of the Bay and extends 100 feet onto the shore from the mean high tide line encompassing any aquatic habitats as well as uplands. The downstream portions of unvegetated waters within 100 feet of the mean high tide line, which includes the segments under tidal influence, are under the jurisdiction of BCDC, along with the entire shoreline (Figure 2a). Of the total 1,852 square feet of unvegetated waters within the BSA, 386 square feet may also be regulated by the BCDC. Approximately 4.39 total acres (primarily uplands) falling under BCDC jurisdiction are located within the BSA.

4.1.1.2. AVOIDANCE AND MINIMIZATION EFFORTS FOR AQUATIC FEATURES

For both alternatives, the tidal waters of the Bay will be avoided by temporary construction features and permanent project features, as standard construction BMP's will be implemented to treat and minimize discharge into the Bay (Figures 6a and 6b). Existing SFOBB project staging areas that are present within the BSA addressed herein will be largely utilized for construction staging and access. Standard construction BMPs including placement of straw wattles or silt fencing along the boundary of the project area will be implemented according to an erosion control plan that will be prepared to avoid discharge into the waters of the Bay during staging and construction of the ramps. Catch basin inlet protection and installation of

straw wattles (fiber rolls) will be implemented throughout the site during construction. Other construction BMPs that will be reviewed and coordinated with the RWQCB and BCDC, as necessary, for implementation during work near the Bay waters include:

1. All concrete dust generated as part of the work within 100 feet the Bay will be vacuumed away immediately.
2. No litter, debris, or sidecasts shall be dumped into aquatic habitats. Trash and debris shall be removed from the site daily.
3. Vehicles and equipment shall only be driven within established roads and crossings. Routes and boundaries shall be clearly marked and will be located outside of aquatic areas.
4. Equipment staging and parking of vehicles will occur on established access roads and laydown yards avoiding aquatic habitats.
5. The boundary of aquatic habitats that are to be avoided will be clearly marked with brightly colored fencing, staking, or flagging for work crew avoidance.
6. Worker education and awareness training will be conducted for work crews regarding aquatic habitats and sensitive species that they support. The integrity and effectiveness of construction fencing and erosion control measures will be inspected on a daily basis. Corrective actions and repairs will be carried out immediately for fence breaches and ineffective BMP's. Fueling, washing, and maintenance of vehicles will occur 100 feet away from aquatic habitats. Equipment will be regularly maintained to avoid fluid leaks. Any leaks shall be captured in containers until equipment is moved to a repair location. Hazardous materials shall be stored more than 100 feet away from aquatic habitats. Containment and clean up plans will be prepared and put in place for immediate clean up of fluid or hazardous materials spills.
7. SWPP inspections will occur at appropriate intervals.
8. Additional impervious surface treatment measures will be implemented and may include bioswales, filters, and/or detention ponds.

4.1.1.3. PROJECT IMPACTS FOR AQUATIC FEATURES

Approximately 0.01 acre (586 square feet) of non-jurisdictional unvegetated waters will be temporarily disturbed during project construction where they coincide with potential staging and access areas for both project alternatives (Figures 6a and 6b). These drainages are concrete lined and convey stormwater runoff; therefore they have minimal value as aquatic habitat. There will be no permanent impacts to unvegetated waters under either project

alternative. These features will be restored to their current condition after construction staging is complete. The constructed project will be elevated above these features; therefore post construction impacts are not expected. The outer 100 feet of these drainages is under the jurisdiction of BCDC; however no temporary or permanent construction impacts are anticipated to these drainages within BCDC jurisdiction. Jurisdictional features will be avoided by permanent and temporary construction activities under both alternatives (Table 3). Only the non-jurisdictional features will be disturbed by temporary construction activities as described above.

The remaining lands within 100 feet of the mean high tide that will be permanently or temporarily affected are considered uplands. Under Alternative 2b there will be no permanent or temporary impacts to lands falling under the permit authority of BCDC (Table 4). Alternative 4 will involve permanent impacts to 0.25 acres and temporary disturbance to lands totaling 0.36 acres which fall under the permitting authority of BCDC (Table 4). Temporarily disturbed habitats will be restored, to the extent feasible, to their natural condition after completion of the project.

Table 3. Jurisdictional Waters

Potential Jurisdictional Agency	Jurisdictional Feature	Total Within Study Area	Not Impacted	Temporary Impacts	Permanent Impacts
RWQCB and/ CDFG (Waters of the State)	Unvegetated Waters	0.04 acres	2b - 0.04 acres 4 - 0.04 acres	2b - 0 acres 4 - 0 acres	0
USACE (Waters of the US)	Unvegetated Waters	0.04 acres	2b - 0.04 acres 4 - 0.04 acres	2b - 0 acres 4 - 0 acres	0

Table 4. BCDC Jurisdiction

Jurisdictional Agency	Jurisdictional Area	Total Within Study Area	Not Impacted	Temporary Impacts[1]	Permanent Impacts[1]
BCDC	Within 100 feet of Mean High Tide	4.39 acres	2b - 4.38 acres 4 - 4.03 acres	2b - 0 acres 4 - 0.36 acres	2b - 0 acres 4 - 0.25 acres

[1]Lands affected by project alternatives falling within BCDC jurisdiction are considered uplands.

4.1.1.4. COMPENSATORY MITIGATION FOR AQUATIC FEATURES

The project will not result in a permanent loss of aquatic features. Compensatory mitigation for aquatic features is not proposed.

4.1.1.5. CUMULATIVE IMPACTS TO AQUATIC FEATURES

With implementation of construction BMP's, there will be no cumulative impacts to aquatic features associated with this project.

4.1.2. Discussion of Northern Foredune

Northern foredune vegetation is generally behind active beaches and in front of the more stabilized back dune coastal scrubs. This plant community is similar to active coastal dunes but is somewhat more sheltered from wind and may have a greater supply of groundwater. This zone is often described as coastal strand. This pioneer habitat typically has low species diversity, being dominated by prostrate herbs and grasses with creeping stems or rhizomes. These salt tolerant plants are also tolerant of repeated burial by shifting sands and contribute to dune stabilization. Northern foredune vegetation occurs in areas of sand accumulation along the immediate coast from Monterey County to Oregon (Holland 1986). This community is considered to be of high inventory priority by the CNDDB.

4.1.2.1. SURVEY RESULTS FOR NORTHERN FOREDUNE

Within the BSA, approximately 0.440 acre of northern foredune vegetation occurs on the southeast edge between the shoreline and active construction staging areas for the SFOBB project (Figure 4). On-site, this plant community would intergrade with northern coastal bluff scrub though these communities are currently separated by a wide dirt access road. Characteristic species present include or may include beach bursage (Ambrosia chamissonis), sand verbena (Abronia maritima), sea rocket, and saltgrass, among others. Within the BSA, northern foredune most closely corresponds to the sand verbena - beach bursage series as classified by Sawyer and Keeler-Wolf (1995) and is upland following Cowardin et al. (1979).

4.1.2.2. AVOIDANCE AND MINIMIZATION EFFORTS FOR NORTHERN FOREDUNE

Permanent project features will entirely avoid the northern foredune vegetation community on-site (Figure 6a and 6b). Temporary staging and construction access will occur directly adjacent to its location. Potential impacts during construction activities will be avoided by placement of ESA exclusion fencing 10 feet from the perimeter of the foredune community. Contractor education will be conducted, bright colored ESA fencing and signage will be implemented, and a construction monitor will confirm the fence integrity on a daily basis to protect the area from accidental equipment damage. Fence repair and/or reinforcements will be completed immediately.

4.1.2.3. PROJECT IMPACTS FOR NORTHERN FOREDUNE

There will be no project impacts to the northern foredune natural community (Figure 6 a, 6b).

4.1.2.4. COMPENSATORY MITIGATION FOR NORTHERN FOREDUNE

The project will not result in a loss of this natural community. Compensatory mitigation for northern foredune is not proposed.

4.1.2.5. CUMULATIVE IMPACTS TO NORTHERN FOREDUNE

The project will avoid the northern foredune, thus there are no cumulative impacts to this community.

4.1.3. Discussion of Central Coast Riparian Scrub

Central coast riparian scrub typically consists of a scrubby streamside, open to impenetrable thickets composed of any of several species of willows (*Salix* spp). This plant community occurs close to river channels and near the coast on fine-grained sand and gravel bars with a high water table. It is distributed along and at the mouths of most perennial and many intermittent streams of the southern coast ranges, from the Bay Area to near Point Conception (Holland 1986). Central coast riparian scrub is generally regarded as early seral, meaning that it typically precedes the development of other riparian woodland or forest communities in the absence of severe flooding. However, outside of riparian situations, that is, near groundwater seeps, willow-dominated scrub represents a relatively stable plant community and is not considered seral. This community is considered to be of high inventory priority by the CNDDB and typically falls under state jurisdiction (CDFG and RWQCB) as riparian vegetation. When rooted below the high water mark it falls within federal jurisdiction.

4.1.3.1. SURVEY RESULTS FOR CENTRAL COAST RIPARIAN SCRUB

Within the BSA, a small remnant patch of central coast riparian scrub (0.028 acre), which may be considered state jurisdictional, occurs on the south east boundary adjacent to northern foredune where a culvert outlets onto the beach (Figure 4). Characteristic plant species of central coast riparian scrub occurring within the study include arroyo willow. On-site, central coast riparian scrub conforms to the arroyo willow series as described in Sawyer and Keeler-Wolf (1995) and palustrine shrub-scrub wetland following Cowardin *et al*. (1979).

4.1.3.2. AVOIDANCE AND MINIMIZATION EFFORTS FOR CENTRAL COAST RIPARIAN SCRUB

Permanent project features will entirely avoid central coast riparian scrub vegetation on-site (Figure 6a and 6b). Temporary staging and construction access will occur directly adjacent to its location. Potential impacts during construction activities will be avoided by placement of ESA exclusion fencing 10 feet from the perimeter of the riparian vegetation. Contractor education will be conducted, bright colored ESA fencing and signage will be implemented, and a construction monitor will confirm the fence integrity on a daily basis to protect the area from accidental equipment damage. Fence repair and/or reinforcements will be completed immediately.

4.1.3.3. PROJECT IMPACTS FOR CENTRAL COAST RIPARIAN SCRUB

There will be no project impacts to central coast riparian scrub (Figure 6a, 6b).

4.1.3.4. COMPENSATORY MITIGATION FOR CENTRAL COAST RIPARIAN SCRUB

The project will not result in a loss of this natural community. Compensatory mitigation for Central Coast riparian scrub is not proposed.

4.1.3.5. CUMULATIVE IMPACTS TO CENTRAL COAST RIPARIAN SCRUB

The project will avoid Central Coast riparian scrub, thus there are no cumulative impacts to this community.

4.2. Special Status Plant Species

Special-status plant species include those listed as endangered, threatened, rare, or as candidates for listing by the USFWS (USFWS 1996a, b, 2008), the CDFG (CDFG 2008a, b), and the CNPS (CNPS 2008). Federally listed plant species are not protected against “take” under the FESA. However, the FESA prohibit the removal and collection of endangered plants from lands under Federal jurisdiction. In addition, FESA prohibits the removal, cutting, digging, damage, or destruction of endangered plants on any other lands in knowing violation of state laws or regulations.

Under provision of Section 15380(d) of CEQA non-listed plant species which satisfy the minimum biological criteria for listing must be treated equivalent to listed species in making a determination of significance. CNPS List 1A, 1B and List 2 species are considered eligible for state listing as endangered or threatened under the CDFG Code and therefore qualify for consideration under this CEQA provision. CNPS List 3 and List 4 species are considered to be either plants about which more information is needed or are uncommon enough that their

status should be monitored regularly. Such plants may be eligible or may become eligible for state listing, but generally do not, qualify for protection under this CEQA provision.

Based on a review of special-status plant species in Alameda and San Francisco counties (CDFG 2006a, CNPS 2001 and 2008) and a broad knowledge of the regional flora, a total of 105 special-status plant species were determined to have at least some potential to occur within the region of the BSA. Of these, 67 special-status plant species could be eliminated due to lack of suitable habitat such as chenopod scrub, vernal pools, montane coniferous forest, pinyon and juniper woodland, intertidal flats, or lake margins to support individuals and/or populations. The remaining 38 plant species were considered to be "target species" for the purpose of site-specific focused surveys (Table 2). These 38 species were considered target species due to their having a potential for occurrence on-site ranging from very low to moderate. A summary of the status, habitat affinities, blooming period, and potential for occurrence on-site for each of the 105 regionally occurring special-status plant species is presented in Appendix B. An explanation of sensitivity status codes is provided in Appendix C.

Two special-status plant species, large flowered sand-spurrey (*Spergularia macrotheca* var. *macrotheca*) and stinging phacelia (*Phacelia malvifolia*), both CNPS East Bay Chapter List A2, were detected within the BSA during botanical surveys (Figure 7a and 7b; AECOM 2010). List A2 ranking indicates that these species occur in only three to five botanical regions in Alameda and Contra Costa counties (Lake 2004). As these species are not listed under the ESA or regarded as sensitive statewide by CDFG or CNPS they do not qualify for protection under provisions of Section 15380(d) of CEQA. However, these taxa are considered "unusual and significant" in the two counties. Species listed as "unusual or significant" include those deemed by CNPS's East Bay Chapter to be rare, threatened or endangered in the two counties but not in the rest of California. Plants listed include those occurring in limited or threatened habitats, those occurring in isolated populations or having a narrow geographic range in the East Bay, plants found only in small, stressed, or declining populations, plants reaching their range limits in the East Bay, or plants that are in some way threatened or endangered in the East Bay, among other considerations.

A discussion of large flowered sand-spurrey and stinging phacelia is provided below. The location of the distribution of these two species in the BSA in relation to proposed project impacts is included in Figure 7a and 7b. None of the remaining target species were considered to have any potential to occur within the BSA due to a lack of suitable habitat or they were presumed absent based on negative findings of the comprehensive focused plant surveys.

The additional 12 species discussed below are those target species that were considered to have a moderate potential to occur, or those that are listed under the FESA or have been documented within five miles of the BSA (Figure 5a). Focused botanical surveys resulted in negative findings for these species, therefore they are presumed absent from the site.

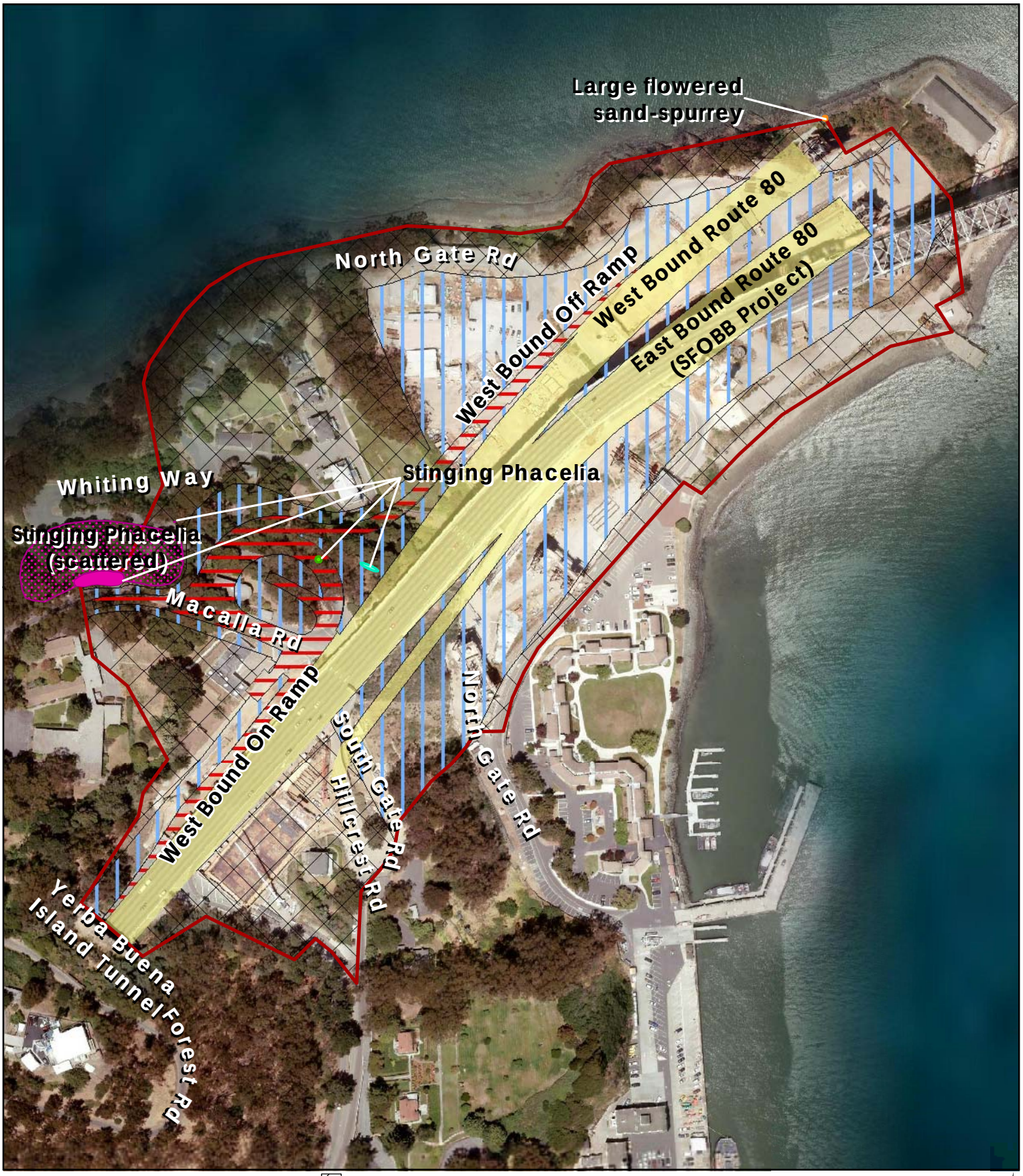
The following 13 special-status plant species have been documented between five and ten miles from the BSA (Figure 5a), and were considered to have a low or very low potential to occur within marginally suitable habitats present on-site:

- San Francisco Bay spineflower (*Chorizanthe cuspidata* var. *cuspidata*), CNPS List 1B.2 and considered rare by the Yerba Buena Chapter of the CNPS
- Franciscan thistle (*Cirsium andrewsii*), CNPS List 1B.2 and considered rare by the Yerba Buena Chapter of the CNPS
- Compact cobwebby thistle (*Cirsium occidentale* var. *compactum*), CNPS List 1B.2
- San Francisco collinsia (*Collinsia multicolor*), CNPS List 1B.2 and considered rare by the Yerba Buena Chapter of the CNPS
- Western leatherwood (*Dirca occidentalis*), CNPS List 1B.2
- Dark-eyed gilia (*Gilia millefoliata*), CNPS List 1B.2
- Diablo helianthella (*Helianthella castanea*), CNPS List 1B.2
- Short-leaved evax (*Hesperevax sparsiflora* var. *brevifolia*), CNPS List 1B.2
- Kellogg's horkelia (*Horkelia cuneata* ssp. *sericea*), CNPS List 1B.1 and considered rare by the Yerba Buena Chapter of the CNPS
- Rose linanthus (*Leptosiphon rosaceus*), CNPS List 1B.1
- Marsh microseris (*Microseris paludosa*), CNPS List 1B.2
- Michael’s rein orchid (*Piperia michaelii*), CNPS List 4.2
- Triquetrella (*Triquetrella californica*), CNPS List 1B.2

Based on negative findings during focused botanical surveys in spring/summer 2009 they are presumed absent from the site, therefore these 13 species are not addressed further in this report.

Figure 7a: Alternative 2b
Impacts to Special-status Plants

Yerba Buena Island
Ramps Improvement Project



Permanently Impacted
- Stinging Phacelia 113 sq ft

Temporarily Impacted
- Stinging Phacelia 215 sq ft

Not Impacted
- Large flowered sand-spurrey 79 sq ft
- Stinging Phacelia 2,445 sq ft
- Stinging Phacelia (scattered) 34,869 sq ft

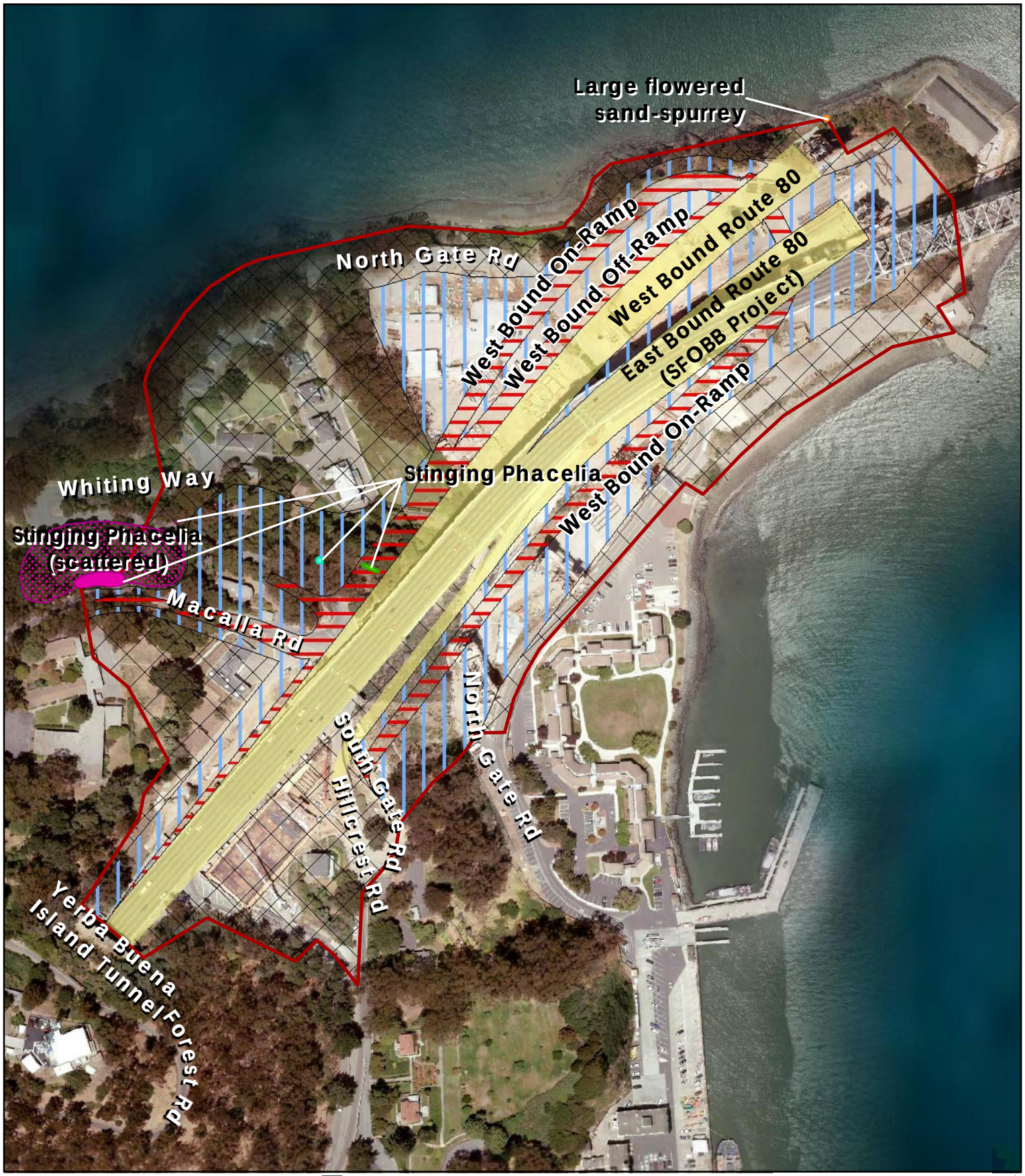
Study Area

0 150 300 Feet

Image: Google 2008
Data: DMJM Harris, AECOM

Figure 7b: Alternative 4
Impacts to Special-status Plants

Yerba Buena Island
Ramps Improvement Project



Permanently Impacted
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Study Area

0 150 300 Feet

Image: Google 2008
Data: DMJM Harris, AECOM

4.2.1. Discussion of Potentially Occurring Special-Status Plant Species Documented Within Five Miles of the Site

Stinging Phacelia

4.2.1.1. Life History and Habitat Requirements for Stinging Phacelia

Stinging phacelia (*Phacelia malvifolia*) is an annual herb in the waterleaf family (Hydrophyllaceae) with hairy/bristly foliage and flowers that may cause dermatitis when touched. The leaves are wide and lobed and the flowers are pale cream. Stinging phacelia grows to three feet tall. It occurs on sandy or gravelly soils along the coast from Santa Barbara north to Oregon in redwood forest, mixed evergreen forest, closed-cone pine forest, and northern coastal scrub. It has been documented on YBI during previous botanical surveys (Wood Biological Consulting 2007).

Stinging phacelia is not listed or on the CNPS List. However, it is listed as a Rare, Unusual, or Significant plant of local concern (A2) by the East Bay Chapter of the CNPS indicating that it is currently found in three to five regions of the two-county area (Lake 2004).

4.2.1.2. Survey Results for Stinging Phacelia

Suitable habitat on-site includes nonnative scrub/shrublands on sandy soil. Stinging phacelia was found within the BSA during focused botanical surveys. It exists as uncommon herbaceous understory within the mixed broadleaf conifer and eucalyptus woodland forest north and northwest of the hairpin turn where Macalla Road becomes North Gate Drive (Figures 7a and 7b). Two proximal zones (within 200 feet of each other) located along the slope contour, for a total area of 0.86 acre (37,315 square feet), define the spatial extent of stinging phacelia.

4.2.1.3. Project Impacts on Stinging Phacelia

Both project alternatives propose permanent and temporary impacts to areas where stinging phacelia was documented during focused surveys (Figures 7a and 7b). The total area of potential impact to stinging phacelia is provided below for each alternative:

- Alternative 2b
    - 113 square feet (0.003 acre) permanent, 215 square feet (0.005 acre) temporary

- Alternative 4
    - 215 square feet (0.005 acre) permanent, 113 square feet (0.003 acre) temporary

4.2.1.4. Avoidance and Minimization Efforts for Stinging Phacelia

Stinging phacelia shall be avoided to the extent feasible by the chosen project alternative and protected during construction. Potential impacts during construction activities shall be avoided by placement of exclusion fencing 10 feet from the perimeter of the stinging phacelia stands outside the temporary and permanent impact area. Contractor education shall be conducted, bright-colored ESA fencing and signage shall be implemented, and a construction monitor shall confirm the fence integrity on a daily basis to protect the area from accidental equipment damage. Fence repair and/or reinforcements shall be completed immediately.

4.2.1.5. Compensatory Mitigation for Stinging Phacelia

The SFCTA will offset unavoidable impacts to stinging phacelia by implementing woodland habitat revegetation plan as described in Section 1.2, as part of its Project Description. Stinging phacelia plants removed in permanent and temporary disturbance areas will be replanted at a 1:1 ratio. Compensatory mitigation is not proposed.

4.2.1.6. Cumulative Impacts for Stinging Phacelia

With implementation of avoidance and minimization measures as well as revegetation of woodland habitat, including stinging phacelia plants, which has been incorporated into the project description, cumulative impacts to stinging phacelia are not anticipated.

Large Flowered Sand-Spurrey

4.2.2.1. Life History and Habitat Requirements for Large Flowered Sand-Spurrey

Large flowered sand-spurrey (*Spergularia macrotheca* var. *macrotheca*) is a stout, taprooted perennial herb in the pink family (Caryophyllaceae). The species is low-growing, from 2 to 14 inches tall, with fleshy leaves with sometimes conspicuous dull-white to tan, narrowly triangular stipules. The inflorescence is glandular hairy and the flowers are pink to rosy and can appear year-round. Large flowered sand-

spurrey is found in salt flats and marshes, dunes, rocky outcrops, sandy or rocky coastal bluffs, gravelly ridges, and alkaline fields from Humboldt to San Diego county and inland in Alameda and Contra Costa Counties, from the coast inland to the Great Central Valley and the Mojave Desert.

Large flowered sand-spurrey has no official state or federal status as a protected species but is an East Bay Chapter CNPS List A-2. A-ranking indicates that it is known from only five or fewer regions of the East Bay or it is otherwise endangered here. These A-ranked species are required for consideration under CEQA guidelines when they occur in areas where development or land use changes are proposed.

4.2.2.2. Survey Results for Large Flowered Sand-Spurrey

Within the BSA, large flowered sand-spurrey is found on the north side of the east point as low clumps on a sparsely populated sandstone cliff, occurring just above the high tide line and below the scrub vegetation. This population is comprised of approximately 20 individuals covering approximately 78.53 square feet (0.002 acre). The plants are located outside of the proposed temporary and permanent impact areas for both Alternative 2b and Alternative 4 (Figures 7a and 7b). They are, however, located within 100 feet of the temporary disturbance areas and there is potential for incidental impacts during construction.

4.2.2.3. Project Impacts on Large Flowered Sand-Spurrey

Large flowered sand-spurrey shall be avoided to the extent feasible and protected during construction (Figure 7a and 7b).

4.2.2.4. Avoidance and Mitigation Efforts for Large Flowered Sand-Spurrey

Potential impacts during construction activities shall be avoided by placement of exclusion fencing 10 feet from the perimeter of the large flowered sand-spurrey stand outside the temporary and permanent impact area. Contractor education shall be conducted, bright-colored ESA fencing and signage shall be implemented, and a construction monitor shall confirm the fence integrity on a daily basis to protect the area from accidental equipment damage. Fence repair and/or reinforcements shall be completed immediately.

4.2.2.5. Compensatory Mitigation for Large Flowered Sand-Spurrey

Loss of individuals is not anticipated. Compensatory mitigation is not proposed.

4.2.2.6. CUMULATIVE IMPACTS FOR LARGE FLOWERED SAND-SPURREY

With implementation of avoidance and minimization measures, cumulative impacts to large flowered sand-spurrey are not anticipated.

Beach Layia

4.2.3.1. LIFE HISTORY AND HABITAT REQUIREMENTS FOR BEACH LAYIA

Beach layia (Layia carnosa) is a small, glandular annual herb with spreading stems and fleshy, oblong leaves in the sunflower family (Asteraceae). Depending on conditions, there can be a single stem or multiple stems up to six inches tall and more than 16 inches in breadth. The inflorescences include white-liguled ray flowers (composing the outer “petals”) and yellow-petaled disk flowers with purple anthers; there are persistent, plumose pappus bristles. The blooming period is March to July. Required habitat consists of sparsely vegetated, semi-stabilized coastal dunes with recent wind erosion, usually in the nearshore dunes.

Historical distribution included Humboldt, Monterey, Marin, Santa Barbara, and San Francisco Counties. The species was extirpated from San Francisco with the development of the dunes and has not been documented in the Bay region since 1904. Twenty (20) extant populations are found in Humboldt County, Point Reyes National Seashore in Marin County, Monterey County, and Santa Barbara County. Beach Layia is federally listed as Endangered and is on CNPS List 1B.1. No CH has been designated.

4.2.3.2. SURVEY RESULTS FOR BEACH LAYIA

Beach layia is considered to have very low potential to occur within the BSA. Suitable habitat on-site includes northern foredune on the northeast portion of the BSA. Beach layia was not observed in the BSA during focused botanical surveys and would have been detectable had it been present. Thus beach layia is presumed absent within the BSA.

4.2.3.3. PROJECT IMPACTS ON BEACH LAYIA

Due to its presumed absence within the BSA and avoidance of northern foredune habitat, project impacts to beach layia are not anticipated.

4.2.3.4. Avoidance and Minimization Efforts for Beach Layia

Beach layia is presumed absent from the BSA. Therefore, avoidance measures are not proposed.

4.2.3.5. Compensatory Mitigation for Beach Layia

Under both alternatives, the project would not result in loss of any potential or occupied beach layia habitat. Compensatory mitigation is not proposed.

4.2.3.6. Cumulative Impacts on Beach Layia

Under both alternatives, the project would not result in loss of any potential or occupied beach layia habitat. Therefore, cumulative impacts to beach layia are not anticipated.

California Sea-Blite

4.2.4.1. Life History and Habitat Requirements for California Sea-Blite

California sea-blite (*Suaeda californ*ia) is a low perennial semi-woody shrub in the goosefoot family (previously Chenopodiaceae, now Amaranthaceae) with numerous sprawling branches, fleshy linear leaves, and inconspicuous pale green flowers. The blooming period is July to October. Suitable habitat is confined to sandy upper salt marshes and sandy or shell estuarine beaches in the high tide line.

The historic distribution of California sea-blite included Central and South Bay, Petaluma River, and Central Coast marshes. Documented historical CNDDB occurrences include Bayfarm Island (Alameda), Albany, and San Leandro, Alameda County; these populations have been extirpated. Current known locations include Morro Bay and Cayucos Point in San Luis Obispo County, several reintroduced populations on the San Francisco Peninsula (Pier 94 and Pier 98), and in Emeryville at Eastshore State Park (Bloom 2007). Additional reintroductions are planned for Berkeley, Oakland, and San Leandro, in Alameda County (Baye 2007). California sea-blite is federally listed as Endangered and is on CNPS List 1B.1 (indicating that the species is severely endangered in California), but no CH has been designated.

4.2.4.2. Survey Results for California Sea-Blite

California sea-blite is considered to have low potential to occur within the BSA. Suitable habitat on-site includes northern foredune on the northeast portion of the

BSA, which includes small patches of salt-marsh species associated with the required habitat of California sea-blite. California sea-blite was not observed in the BSA during focused botanical surveys and would have been detectable had it been present. Thus California sea-blite is presumed absent within the BSA.

4.2.4.3. Project Impacts on California Sea-Blite

Due to its presumed absence within the BSA, and avoidance of northern foredune habitat, project impacts to California sea-blite are not anticipated.

4.2.4.4. Avoidance and Mitigation Efforts for California Sea-Blite

California sea-blite is presumed absent from the BSA. Therefore, avoidance measures are not proposed.

4.2.4.5. Compensatory Mitigation for California Sea-Blite

Under both alternatives, the project would not result in loss of any potential or occupied California sea-blite habitat. Compensatory mitigation is not proposed.

4.2.4.6. Cumulative Impacts for California Sea-Blite

Under both alternatives, the project would not result in loss of any potential or occupied California sea-blite habitat. Therefore, cumulative impacts to California sea-blite are not anticipated.

Choris's Popcorn Flower

4.2.5.1. Life History and Habitat Requirements for Choris's Popcorn Flower

Choris's popcorn flower (*Plagiobothrys chorisianus* var. *chorisianus*) is an annual herb in the borage family (Boraginaceae). Less than 40 centimeters tall and sparsely short-strigose, the stems are decumbent to erect and branched from the upper axils. The lower leaf pairs are generally fused at the bases, loosely sheathing the stem. The inflorescence pedicel is generally larger than the calyx and the flowers are five to six millimeters wide, all white or yellow inside the tube. The blooming period is March to June. Choris's popcorn flower is associated with mesic habitats.

Choris's popcorn flower is found in chaparral, coastal scrub, and coastal prairie on the Central Coast and southwest Bay Area. Extant populations are recorded only in Santa Cruz, San Mateo, and San Francisco counties. Choris's popcorn flower

intergrades with *P. c.* var. *hickmanii* and the differences may be environmentally induced. If so, recognition of two varieties may not be warranted. The species is threatened by development. Choris's popcorn flower is on the CNPS List 1B.2 and is a California endemic. It is fairly endangered in California but has no formal state or federal status.

4.2.5.2. Survey Results for Choris's popcorn flower

Suitable habitat for Choris's popcorn flower on-site includes nonnative scrub/shrubland on the south- and northeast portion of the BSA. Choris's popcorn flower was not observed in the BSA during focused botanical surveys and would have been detectable had it been present. Thus Choris's popcorn flower is presumed absent within the BSA.

4.2.5.3. Project Impacts on Choris's popcorn flower

Due to its presumed absence within the BSA, project impacts to Choris's popcorn flower are not anticipated.

4.2.5.4. Avoidance and Mitigation Efforts for Choris's popcorn flower

Choris's popcorn flower is presumed absent from the BSA. Therefore, avoidance measures are not proposed.

4.2.5.5. Compensatory Mitigation for Choris's popcorn flower

Under both alternatives, the project would not result in loss of any occupied Choris's popcorn flower habitat. Compensatory mitigation is not proposed.

4.2.5.6. Cumulative Impacts for Choris's popcorn flower

Under both alternatives, the project would not result in loss of any occupied Choris's popcorn flower habitat. Therefore, cumulative impacts to Choris's popcorn flower are not anticipated.

Coastal Bluff Morning-Glory

4.2.6.1. Life History and Habitat Requirements for Coastal Bluff Morning-Glory

Coastal bluff morning-glory (*Calystegia purpurata* ssp. *saxicola*) is a perennial, trailing herb in the morning-glory family (Convolvulaceae). The stems are weakly climbing, generally less than 3 feet long, and glabrous. The leaves are ovate-triangular to reniform and the flowers white or cream-colored to purple. The blooming period is May to September.

Coastal bluff morning-glory is endemic to California and is found in rocky coastal scrub and dunes along the north and central coast and the Bay area. It is also associated with north coast coniferous forest. The species is threatened by development, foot traffic, and nonnative plants. Coastal bluff morning-glory has no formal state or federal status but is on the CNPS List 1B.2 and is fairly endangered in California.

4.2.6.2. Survey Results for Coastal Bluff Morning-Glory

Coastal bluff morning-glory is considered to have moderate potential to occur within the BSA. Suitable habitat on-site includes nonnative scrub/shrubland and northern foredune on the south- and northeast portions of the BSA. Coastal bluff morning-glory was not observed in the BSA during focused botanical surveys and would have been detectable had it been present. Thus coastal bluff morning-glory is presumed absent within the BSA.

4.2.6.3. Project Impacts on Coastal Bluff Morning-Glory

Due to its presumed absence within the BSA, project impacts to coastal bluff morning-glory are not anticipated.

4.2.6.4. Avoidance and Mitigation Efforts for Coastal Bluff Morning-Glory

Coastal bluff morning-glory is presumed absent from the BSA. Therefore, avoidance measures are not proposed.

4.2.6.5. Compensatory Mitigation for Coastal Bluff Morning-Glory

Under both alternatives, the project would not result in loss of any occupied coastal bluff morning-glory habitat. Compensatory mitigation is not proposed.

4.2.6.6. CUMULATIVE IMPACTS FOR COASTAL BLUFF MORNING-GLORY

Under both alternatives, the project would not result in loss of any occupied coastal bluff morning glory habitat. Therefore, cumulative impacts to coastal bluff morning glory are not anticipated.

Dune Gilia

4.2.7.1. LIFE HISTORY AND HABITAT REQUIREMENTS FOR DUNE GILIA

Dune gilia or blue coast gilia (*Gilia capitata* ssp. *chamissonis*) is a low annual herb in the phlox family (Polemoniaceae). It has basal, pinnately lobed leaves with a skunk-like odor. It produces bright blue-violet flowers up to one half inch across from April through July. Dune gilia is restricted to coastal sand hills, on dunes and coastal scrub habitat, from San Francisco to Bodega Bay. Although it was once very common on the San Francisco dunes, it is now restricted to three locations in the Presidio near Baker Beach and one location in the Sunset District. Dune gilia is also recorded on the Point Reyes Peninsula and Angel Island, Marin County. Dune gilia is endemic to California and classified as CNPS List 1B.1, indicating that it is endangered throughout its range.

4.2.7.2. SURVEY RESULTS FOR DUNE GILIA

Dune gilia is considered to have moderate potential to occur within the BSABSA. Suitable habitat on-site includes northern foredune on the northeast portion of the BSA. It has been documented on sandy soils on the eastern portion of YBIBSA. Dune gilia was not observed in the BSA during focused botanical surveys and would have been detectable had it been present. Thus dune gilia is presumed absent within the BSA.

4.2.7.3. PROJECT IMPACTS ON DUNE GILIA

Due to its presumed absence within the BSA, and avoidance of northern foredune habitat, project impacts to dune gilia are not anticipated.

4.2.7.4. AVOIDANCE AND MITIGATION EFFORTS FOR DUNE GILIA

Dune gilia is presumed absent from the BSA. Therefore, avoidance measures are not proposed.

4.2.7.5. COMPENSATORY MITIGATION FOR DUNE GILIA

Under both alternatives, the project would not result in loss of any potential or occupied dune gilia habitat. Compensatory mitigation is not proposed.

4.2.7.6. CUMULATIVE IMPACTS FOR DUNE GILIA

Under both alternatives, the project would not result in loss of any potential or occupied dune gilia habitat. Therefore, cumulative impacts to dune gilia are not anticipated.

Fragrant Fritillary

4.2.8.1. LIFE HISTORY AND HABITAT REQUIREMENTS FOR FRAGRANT FRITILLARY

Fragrant fritillary (*Fritillaria liliacea*) is a perennial herb in the lily family (Liliaceae) with nodding flowers with white petals with a greenish stripe that bloom from February to April. The plant grows to 14 inches and, as the name implies, typically has a sweet scent (but may be odorless). Fragrant fritillary grows in heavy soils, including serpentine, on open hills and fields near the coast including woodlands, coastal prairie, coastal scrub, and valley and foothill grassland. Fragrant fritillary is on the CNPS List 1B.2, indicating that it is considered fairly endangered throughout its range. It is also listed as a rare plant of San Francisco by the Yerba Buena Chapter of the CNPS.

4.2.8.2. SURVEY RESULTS FOR FRAGRANT FRITILLARY

Fragrant fritillary is considered to have low potential to occur within the BSA. Suitable habitat on-site includes nonnative scrub/shrublands and on the edges of the mixed broadleaf forest. Fragrant fritillary was not observed in the BSA during focused botanical surveys and would have been detectable had it been present. Thus fragrant fritillary is presumed absent within the BSA.

4.2.8.3. PROJECT IMPACTS ON FRAGRANT FRITILLARY

Due to its presumed absence within the BSA, project impacts to fragrant fritillary are not anticipated.

4.2.8.4. Avoidance and Mitigation Efforts for Fragrant Fritillary

Fragrant fritillary is presumed absent from the BSA. Therefore, avoidance measures are not proposed.

4.2.8.5. Compensatory Mitigation for Fragrant Fritillary

Under both alternatives, the project would not result in loss of any occupied fragrant fritillary habitat. Compensatory mitigation is not proposed.

4.2.8.6. Cumulative Impacts for Fragrant Fritillary

Under both alternatives, the project would not result in loss of any occupied fragrant fritillary habitat. Therefore, cumulative impacts to fragrant fritillary are not anticipated.

Pt. Reyes Birds-Beak

4.2.9.1. Life History and Habitat Requirements for Pt. Reyes Birds-beak

Pt. Reyes birds-beak (*Cordylanthus maritimus* ssp. *palustris*) is an annual herb in the figwort family (Scrophulariaceae). It is a low-growing hemi-parasite found in coastal salt marshes. It produces spikes of white to cream flowers from June through October. Habitat of the subspecies has been greatly reduced as a result of development and it has been adversely affected by foot traffic, invasive nonnative plants, altered hydrology and cattle grazing. Pt. Reyes birds-beak is believed to be extant in Humboldt, Marin, and Sonoma counties and is believed possibly extirpated in Alameda, Santa Clara, and San Mateo counties. Pt. Reyes birds-beak is on the CNPS's List 1B.2, indicating that it is considered to be rare, threatened, or endangered in California.

4.2.9.2. Survey Results for Pt. Reyes Birds-beak

The species is considered to have low potential to occur within the BSA. Suitable habitat on-site includes northern foredune in the northeast portion of the BSA, which includes salt-marsh species associated with the required habitat of Pt. Reyes birds-beak. Pt. Reyes birds-beak was not observed in the BSA during focused botanical surveys and would have been detectable had it been present. Thus Pt. Reyes birds-beak is presumed absent within the BSA.

4.2.9.3. PROJECT IMPACTS ON PT. REYES BIRDS-BEAK

Due to its presumed absence within the BSA, and avoidance of northern foredune habitat, project impacts to Pt. Reyes birds-beak are not anticipated.

4.2.9.4. AVOIDANCE AND MITIGATION EFFORTS FOR PT. REYES BIRDS-BEAK

Pt. Reyes birds-beak is presumed absent from the BSA. Therefore, avoidance measures are not proposed.

4.2.9.5. COMPENSATORY MITIGATION FOR PT. REYES BIRDS-BEAK

Under both alternatives, the project would not result in loss of any potential or occupied Pt. Reyes birds-beak habitat. Compensatory mitigation is not proposed.

4.2.9.6. CUMULATIVE IMPACTS FOR PT. REYES BIRDS-BEAK

Under both alternatives, the project would not result in loss of any potential or occupied Pt. Reyes birds-beak habitat. Therefore, cumulative impacts to Pt. Reyes birds-beak are not anticipated. With implementation of avoidance and minimization measures for northern foredune, cumulative effects to Pt. Reyes birds-beak are not anticipated.

Robust Spineflower

4.2.10.1. LIFE HISTORY AND HABITAT REQUIREMENTS FOR ROBUST SPINEFLOWER

Robust spineflower (*Chorizanthe robusta* var. *robusta*) is a low annual herb with small, grayish, hairy leaves and clusters of small, hairy, jagged-lobed pale pink flowers, in the buckwheat family (Polygonaceae). The blooming period is April to September. Suitable habitat is confined to coastal dunes, sandy coastal scrub, chaparral, and cismontane woodland. Its historic distribution included coastal regions of central California and the Bay. Documented historical CNDDB occurrences include the Cities of Alameda, South San Francisco and Ocean View district in San Francisco; the species is believed extirpated from these areas, including all of Alameda County. Populations have been recently documented in Monterey, Santa Cruz, and San Mateo Counties. Robust spineflower is federally listed as Endangered and is on CNPS List 1B.1. No critical habitat has been designated.

4.2.10.2. Survey Results for Robust Spineflower

Robust spineflower is considered to have very low potential to occur within the BSA. Suitable habitat on-site includes northern foredune, nonnative scrub/shrublands, and on the edges of the mixed broadleaf forest. Robust spineflower was not observed in the BSA during focused botanical surveys and would have been detectable had it been present. Thus robust spineflower is presumed absent within the BSA.

4.2.10.3. Project Impacts on Robust Spineflower

Due to its presumed absence within the BSA, project impacts to robust spineflower are not anticipated.

4.2.10.4. Avoidance and Mitigation Efforts for Robust Spineflower

Robust spineflower is presumed absent from the BSA. Therefore, avoidance measures are not proposed.

4.2.10.5. Compensatory Mitigation for Robust Spineflower

Under both alternatives, the project would not result in loss of any occupied robust spineflower habitat. Compensatory mitigation is not proposed.

4.2.10.6. Cumulative Impacts for Robust Spineflower

Under both alternatives, the project would not result in loss of any occupied robust spineflower habitat. Therefore, cumulative impacts to robust spineflower are not anticipated.

San Francisco Campion

4.2.11.1. Life History and Habitat Requirements for San Francisco Campion

San Francisco campion (*Silene verecunda* ssp. *verecunda*) is a perennial herb in the pink family (Caryophyllaceae). There are typically multiple fuzzy stems up to 1.5 feet tall. The flowers have tubular sepals and lobed pinkish petals. The blooming period is March to June. San Francisco campion occurs on coastal bluffs, coastal scrub, chaparral, and dunes, on sandy or rocky soils. The species is known from fewer than 20 occurrences in Santa Cruz, San Mateo, San Francisco, and Sutter counties. In San Francisco populations have been documented on Mt. Davidson and at Baker Beach.

San Francisco campion is on the CNPS's List 1B.2, indicating that it is considered fairly endangered throughout its range.

4.2.11.2. Survey Results for San Francisco Campion

San Francisco campion is considered to have low potential to occur within the BSA. Suitable habitat on-site includes nonnative scrub/shrublands and bluffs. San Francisco campion was not observed in the BSA during focused botanical surveys and would have been detectable had it been present. Thus San Francisco campion is presumed absent within the BSA.

4.2.11.3. Project Impacts on San Francisco Campion

Due to its presumed absence within the BSA, project impacts to San Francisco campion are not anticipated.

4.2.11.4. Avoidance and Mitigation Efforts for San Francisco Campion

San Francisco campion is presumed absent from the BSA. Therefore, avoidance measures are not proposed.

4.2.11.5. Compensatory Mitigation for San Francisco Campion

Under both alternatives, the project would not result in loss of any occupied San Francisco campion habitat. Compensatory mitigation is not proposed.

4.2.11.6. Cumulative Impacts for San Francisco Campion

Under both alternatives, the project would not result in loss of any occupied San Francisco campion habitat. Therefore, cumulative impacts to San Francisco campion are not anticipated.

San Francisco Gumplant

4.2.12.1. Life History and Habitat Requirements for San Francisco Gumplant

San Francisco gumplant (*Grindelia hirsutula* var. *maritima*) is a perennial shrub in the sunflower family (Asteraceae) that grows up to 1.5 feet tall. The inflorescences have yellow outer “petals” and the stems are reddish brown. The species is found in coastal bluff scrub, coastal scrub, and valley/foothill grassland habitats, on sandy or serpentine slopes. San Francisco gumplant is found along the coast from San Luis Obispo to Marin County. The closest occurrences are from the Presidio, other open

space areas in San Francisco, and Mt. Bruno. Many populations documented in the 1980's in San Francisco are presumed extant, and more surveys are needed. Remaining populations are threatened by coastal development and nonnative invasive plants. San Francisco gumplant is on the CNPS List 1B.2, indicating that it is considered fairly endangered throughout its range. It is also listed as a rare plant of San Francisco and a rare plant of the Presidio by the Yerba Buena Chapter of the CNPS.

4.2.12.2. SURVEY RESULTS FOR SAN FRANCISCO GUMPLANT

San Francisco gumplant is considered to have moderate potential to occur within the BSA. Suitable habitat on-site includes nonnative scrub/shrublands on sandy soil and on bluffs. San Francisco gumplant was not observed in the BSA during focused botanical surveys and would have been detectable had it been present. Thus San Francisco gumplant is presumed absent within the BSA.

4.2.12.3. PROJECT IMPACTS ON SAN FRANCISCO GUMPLANT

Due to its presumed absence within the BSA, project impacts to for San Francisco gumplant are not anticipated.

4.2.12.4. AVOIDANCE AND MITIGATION EFFORTS FOR SAN FRANCISCO GUMPLANT

San Francisco gumplant is presumed absent from the BSA. Therefore, avoidance measures are not proposed.

4.2.12.5. COMPENSATORY MITIGATION FOR SAN FRANCISCO GUMPLANT

Under both alternatives, the project would not result in loss of any occupied San Francisco gumplant habitat. Compensatory mitigation is not proposed.

4.2.12.6. CUMULATIVE IMPACTS FOR SAN FRANCISCO GUMPLANT

Under both alternatives, the project would not result in loss of any occupied San Francisco gumplant; therefore, cumulative impacts to San Francisco gumplant are not anticipated.

San Francisco Lessingia

4.2.13.1. Life History and Habitat Requirements for San Francisco Lessingia

San Francisco lessingia (*Lessingia germanorum*) is an annual herb in the sunflower family (Asteraceae). It forms a low crown of thin, interwoven branches with entire to pinnately lobed and toothed leaves up to one inch long. Inflorescences are mostly solitary, up to one half inch high and consisting of deep yellow disk flowers with a reddish-brown band in the throat. Flowering generally occurs from August through November although it sometimes begins as early as July. San Francisco lessingia is restricted to coastal scrub in openings on sandy flats and remnant dunes. It is known from only five natural occurrences (four in the Presidio and one in Daly City). It has been reintroduced at a sixth location in the Presidio. Historically, San Francisco lessingia is only known from San Francisco and San Mateo counties. San Francisco lessingia is federally and state-listed endangered. It is on the CNPS's List 1B:1, indicating that it is considered severely endangered in California. It is also on the list of rare plants for the San Francisco area by the Yerba Buena Chapter of the CNPS.

4.2.13.2. Survey Results for San Francisco Lessingia

San Francisco lessingia is considered to have very low potential to occur within the BSA. Suitable habitat on-site includes nonnative scrub/shrubland and northern foredune habitat. San Francisco lessingia was not observed in the BSA during focused botanical surveys and would have been detectable had it been present. Thus San Francisco lessingia is presumed absent within the BSA.

4.2.13.3. Project Impacts on San Francisco Lessingia

Due to its presumed absence within the BSA, project impacts to for San Francisco lessingia are not anticipated.

4.2.13.4. Avoidance and Mitigation Efforts for San Francisco Lessingia

San Francisco lessingia is presumed absent from the BSA. Therefore, avoidance measures are not proposed.

4.2.13.5. Compensatory Mitigation for San Francisco Lessingia

Under both alternatives, the project would not result in loss of any occupied San Francisco lessingia habitat. Compensatory mitigation is not proposed.

4.2.13.6. CUMULATIVE IMPACTS FOR SAN FRANCISCO LESSINGIA

Under both alternatives, the project would not result in loss of any occupied San Francisco lessingia; therefore, cumulative impacts to San Francisco lessingia are not anticipated.

Santa Cruz Microseris

4.2.14.1. LIFE HISTORY AND HABITAT REQUIREMENTS FOR SANTA CRUZ MICROSERIS

Santa Cruz microseris (*Stebbinsoseris decipiens*) is an annual herb in the sunflower family (Asteraceae) with yellow inflorescences and mostly basal leaves. It grows to approximately one foot tall and blooms between April and May. It occurs in open, sandy and shaly sites, in broadleafed upland forest, closed-cone coniferous forest, chaparral, coastal prairie, coastal scrub, valley and foothill grasslands, and sometimes on serpentine soils. It is documented from Monterey, Santa Cruz, and Marin counties, including on Angel Island. Santa Cruz microseris is on the CNPS List 1B.2, indicating that it is considered fairly endangered throughout its range.

4.2.14.2. SURVEY RESULTS FOR SANTA CRUZ MICROSERIS

Santa Cruz microseris is considered to have low potential to occur within the BSA. Suitable habitat on-site includes openings in mixed broadleaf forest or nonnative scrub/shrubland. Santa Cruz microseris was not observed in the BSA during focused botanical surveys and would have been detectable had it been present. Thus Santa Cruz microseris is presumed absent within the BSA.

4.2.14.3. PROJECT IMPACTS ON SANTA CRUZ MICROSERIS

Due to its presumed absence within the BSA, project impacts to for Santa Cruz microseris are not anticipated.

4.2.14.4. AVOIDANCE AND MITIGATION EFFORTS FOR SANTA CRUZ MICROSERIS

Santa Cruz microseris is presumed absent from the BSA. Therefore, avoidance measures are not proposed.

4.2.14.5. COMPENSATORY MITIGATION FOR SANTA CRUZ MICROSERIS

Under both alternatives, the project would not result in loss of any occupied Santa Cruz microseris habitat. Compensatory mitigation is not proposed.

4.2.14.6. CUMULATIVE IMPACTS FOR SANTA CRUZ MICROSERIS

Under both alternatives, the project would not result in loss of any occupied Santa Cruz microseris; therefore, cumulative impacts to Santa Cruz microseris are not anticipated.

4.3. Special Status Animal Species

Special-status animal species are included in the following categories:

- Species listed, species proposed for listing, or candidates for possible future listing as threatened or endangered under the FESA
- Species listed or proposed for listing by the State of California as threatened or endangered under CESA
- Wildlife species considered species of special concern by CDFG
- Wildlife species designated as fully protected by the Fish and Game Code
- Birds which receive protection under the Eagle Act (e.g., bald eagle, golden eagle) and the MBTA. All birds, except European starlings, English house sparrows, rock doves (pigeons), and non-migratory game birds such as quail, pheasant, and grouse, are protected under the MBTA.

Based on a literature review and a familiarity with the fauna within the project region, a total of 105 special-status wildlife species were considered to have at least some potential to occur within the region, have been recorded historically in the project vicinity, or were evaluated during biological resource assessments for other projects occurring on or near YBI or the SFOBB (Appendix A). Of these 105 species, 78 are not expected to occur within the BSA due to a lack of suitable habitat, or the fact that the BSA lies outside of the species' current range.

4.3.1. Discussion of Special-Status Invertebrates

Based on a literature review, previous biological reports for projects on or near YBI or the SFOBB, and a familiarity with the fauna within the project region, a total of 26 special-status invertebrate species were initially considered for this report. Of these species, 22 are not expected to occur on-site due to a lack of suitable habitat, the fact that the project site lies outside of their range, and/or isolation from known

populations (see Appendix A). The four remaining special-status invertebrate species that have potential to occur within the BSA are discussed in further detail below.

4.3.1.1 SANDY BEACH TIGER BEETLE

4.3.1.1.1. Life History and Habitat Requirements for Sandy Beach Tiger Beetle

The sandy beach tiger beetle, *Cicindela hirticollis gravida*, a species tracked by the CNDDB, is a subspecies of *Cicindela hirticollis* tiger beetles. *Cicindela* tiger beetles are usually brownish colored beetles with lighter patterned areas, ranging in size from 12-15 mm in length. They are found occupying moist sand near the ocean, for example in swales behind dunes or upper beaches beyond normal high tides. They are generally a spring/fall species with a one or two-year lifecycle, that had a historical distribution ranging along the immediate coast from north of San Francisco south slightly into Mexico. The sandy beach tiger beetle is now extirpated from most of the sites where it previously occurred (NatureServe 2008, USGS 2008).

4.3.1.1.2. Survey Results for Sandy Beach Tiger Beetle

On-site, the sandy beach tiger beetle is considered to have a very low potential to occur due to the availability of marginally suitable habitat on the strip of sandy beach on the east side of BSA, adjacent to the USCG facility. The nearest known occurrence of the sandy beach tiger beetle is within ten miles to the southwest.

4.3.1.1.3. Avoidance and Minimization Measures for Sandy Beach Tiger Beetle

Exclusion fencing will be placed around sandy dune habitats and contractor education will be conducted to prevent encroachment of construction activities.

4.3.1.1.4. Project Impacts on Sandy Beach Tiger Beetle

Sandy beach tiger beetle have the potential to occur within the BSA. As described in Section 4.2.2, the project will employ avoidance measures for the northern foredune community which lies outside of the proposed permanent and temporary construction footprint for both alternatives. Thus impacts to potential sandy beach tiger beetle habitat are not anticipated.

4.3.1.1.5. Compensatory Mitigation for Sandy Beach Tiger Beetle

Impacts to potential sandy beach tiger beetle habitat are not anticipated. In addition, the potential habitat within the BSA is considered marginal and the species has a very low potential to be present based on habitat quality and lack of occurrences in the vicinity. Compensatory mitigation is not proposed.

4.3.1.1.6. Cumulative Impacts for Sandy Beach Tiger Beetle

In addition to the current project, several other construction projects are being undertaken or are in the planning stages in the immediate vicinity. These projects include the construction of the new SFOBB East Span, and the Treasure Island and YBI Redevelopment Plan. The combined construction efforts will likely have negligible effects on potential habitat for sandy beach tiger beetle on the eastern portion of YBI as well as the total available potential habitat on the island.

4.3.1.2 MONARCH BUTTERFLY

4.3.1.2.1 Life History and Habitat Requirements for Monarch Butterfly

The monarch butterfly, a species tracked by the CNDDB, is a large, familiar orange butterfly in the family Nymphalidae, or brush-footed butterflies. Monarchs are a migratory species, with successive generations making long-distance migrations to the same overwintering sites year after year. These overwintering sites occur in very specific microclimates which are vulnerable to human disturbance, particularly through the destruction or alteration of wind-protected, coastal tree groves. Upon hatching, monarch caterpillars feed on their host plant, milkweed (*Asclepias* sp.), before pupating and becoming adults. Monarchs arrive at the coast and begin forming colonies in trees in late September (Lane 1993). They do not have persistent colony formations. Temporary colonies tend to break up early October to early December, and then disperse to other permanent sites where they will spend the winter. The date in which the colonies break up depends on the weather. In warmer, drier years, mating occurs earlier and colonies may break up as early as late January. In colder, wetter years, colony breakup can be delayed into March. Several generations may be produced during the spring and summer before adults begin their migration to overwintering sites. The adults mate just before leaving overwintering sites in mid- to late winter, and then disperse widely to areas where their host plant is present to lay eggs.

The western population of monarchs breeds in areas with milkweed throughout the United States west of the Rockies (Brower 1995), but virtually all of the overwintering sites used by the western population are located along the California coast, from northern Mendocino County south to San Diego County. Overwintering sites are almost always coastal, though small numbers of monarchs have been reported overwintering as far east as Inyo County (Lane 1993). Most sites are located within a half mile of the coast, in areas of dense tree cover where the butterflies are protected from the wind. Typical overwintering sites are found near natural

watercourses, and include areas at or near sea level in shallow canyons, gullies, or the leeward side of hills, where a combination of dense tree canopy, vegetation cover, and local topography provide strong wind protection (Lane 1993). Dense canopy cover also provides insulation from cold temperatures and protection from winter rains, both of which can cause lethal freezing in monarchs (Anderson and Brower 1996).

Although monarch overwintering sites do not receive specific protection under federal or state laws, in many cases they are protected locally by city or county ordinances. They are also included on CDFG's special animal list with a conservation status rank of G5S3 (globally secure; subnationally vulnerable). CDFG tracks the locations of Monarch overwintering sites through the California Natural Diversity Data Base (CNDDB). Individual monarchs do not receive this consideration outside of overwintering sites. Other federal projects in the City of San Francisco, such as the Presidio Recycled Water Project, have included mitigation measures to protect monarch butterfly overwintering sites (Presidio Trust 2002).

4.3.1.2.2. Survey Results for Monarch Butterfly

Two individual monarch butterflies were observed in flight during the site visit, within the BSA. Four reported monarch butterfly overwintering sites occur within five miles of the BSA, on Angel Island to the northwest, and within the city of San Francisco to the west (CDFG 2008a, Figure 5b). Suitable habitat for overwintering monarchs is present among the tall, wind-protected trees within the eucalyptus woodland and mixed broadleaf conifer forest in BSA (Figure 2). Based on the presence of suitable habitat and the known presence of individuals in the BSA, overwintering monarch butterflies are considered to utilize habitats within the BSA and have a moderate potential to roost within these habitats.

4.3.1.2.3. Avoidance and Minimization Measures for Monarch Butterfly

Prior to the onset of construction activities, a qualified biologist will conduct focused surveys for monarch butterfly to determine presence or absence within the proposed project areas. If monarch butterfly winter roost sites are determined to be present during focused surveys, occupied habitat will be avoided to the extent feasible, or it will be disturbed outside of the winter roost season which is typically from September through March. ESA exclusion fencing will be placed around avoided habitats and contractor education will be conducted to prevent encroachment of construction activities. Bright colored ESA fencing and signage will be implemented and a construction monitor will confirm the fence integrity on a daily basis to protect the

area from accidental equipment damage. Fence repair and/or reinforcements will be completed immediately. If a new roost site is discovered during construction, the biological monitor will be contacted to implement avoidance procedures before construction resumes in the area. CDFG will be notified in the event a monarch butterfly winter roost site is found or disturbed.

4.3.1.2.4. Project Impacts on Monarch Butterfly

Both project alternatives propose permanent and temporary impacts to eucalyptus woodland and mixed broadleaf conifer forest (Figures 6a and 6b) which provide potential habitat for monarch butterfly. The total area of potential impact to this habitat is small for each alternative:

- Alternative 4
    - eucalyptus woodland = 0.21 acre permanent, 1.19 acre temporary
    - mixed broadleaf conifer forest = 0.47 acre permanent, 1.29 acres temporary
- Alternative 2b
    - eucalyptus woodland = 0.26 acre permanent, 1.14 acre temporary
    - mixed broadleaf conifer forest = 0.82 acre permanent, 0.94 acre temporary

4.3.1.2.5. Compensatory Mitigation for Monarch Butterfly

The SFCTA will offset the removal of eucalyptus woodland and mixed broadleaf conifer forest habitat that may provide roost sites for monarch butterfly by implementation of the woodland habitat revegetation plan as described in Section 1.2, as part of its Project Description. Trees removed will be replaced at a 1:1 ratio providing potential habitat that may benefit the species longer term. Compensatory mitigation is not proposed.

4.3.1.2.6. Cumulative Impacts for Monarch Butterfly

In addition to the current project, several other construction projects are being undertaken or are in the planning stages in the immediate vicinity. These projects include the construction of the new SFOBB East Span, and the Treasure Island and YBI Redevelopment Plan. The combined construction efforts may temporarily reduce

availability of potential habitat for monarch butterflies on the eastern portion of YBI as well as the total available potential habitat on the island.

4.3.1.3 GUMMIFERA LEAF-CUTTER BEE

4.3.1.3.1. Life History and Habitat Requirements for Gummifera Leaf-Cutter Bee

The gummifera leaf cutter bee (*Trachusa gummifera*), a species tracked by the CNDDB, has been reported to use the leaves on rosebushes (Crenshaw 1997, Kulzer 1996) as well as a number of native and nonnative plants for nest building activities. The gummifera leaf cutter bee has been reported from San Francisco, San Mateo, and Marin Counties. This species is included on CDFG's special animal list with a conservation status rank of G1S1 (critically imperiled globally and subnationally).

4.3.1.3.2. Survey Results for Gummifera Leaf-Cutter Bee

Although the nearest known occurrence is over five miles to the southwest (CDFG 2008a), due to the presence of some potentially suitable plants within the landscaped portions of the BSA, including a row of roses, the gummifera leaf-cutter bee is considered to have a very low potential to occur on-site.

4.3.1.3.3. Avoidance and Minimization Measures for Gummifera Leaf-Cutter Bee

Prior to the onset of construction activities, a qualified biologist will conduct focused surveys for gummifera leaf-cutter bee to determine presence or absence within the proposed project areas. If any gummifera leaf-cutter bees are determined to be present during focused surveys, occupied habitat will be avoided to the extent feasible. ESA exclusion fencing will be placed around avoided habitats and contractor education will be conducted to prevent encroachment of construction activities. Bright colored ESA fencing and signage will be implemented and a construction monitor will confirm the fence integrity on a daily basis to protect the area from accidental equipment damage. Fence repair and/or reinforcements will be completed immediately. If the species is discovered during construction, the biological monitor will be contacted to implement avoidance procedures before construction resumes in the area

4.3.1.3.4. Project Impacts on Gummifera Leaf-Cutter Bee

Both project alternatives propose permanent and temporary impacts to landscaped/disturbed areas (Figures 6a and 6b) which may provide potential habitat

for gummifera leafcutter bee, including rose bushes. The total area of potential impact to this habitat is small for each alternative:

- Alternative 4
    - Landscaped/disturbed = 0.30 acre permanent, 0.58 acre temporary
- Alternative 2b
    - Landscaped/disturbed = 0.20 acre permanent, 0.67 acre temporary

4.3.1.3.5. Compensatory Mitigation for Gummifera Leaf-Cutter Bee

The SFCTA will offset removal of vegetation that may provide habitat for the gummifera leaf-cutter bee will be offset by implementing a revegetation plan as described in Section 1.2, as part of its Project Description. Vegetation removed, including nonnative trees, will be replaced at a 1:1 ratio providing potential habitat that may benefit the species longer term if it occurs in the area. Compensatory mitigation is not proposed,

4.3.1.3.6. Cumulative Impacts for Gummifera Leaf-Cutter Bee

In addition to the current project, several other construction projects are being undertaken or are in the planning stages in the immediate vicinity. These projects include the construction of the new SFOBB East Span, and the Treasure Island and YBI Redevelopment Plan. The combined construction efforts may temporarily reduce availability of potential habitat for gummifera leaf-cutter bees on the eastern portion of YBI as well as the total available potential habitat on the island.

4.3.1.4 SAN FRANCISCO LACEWING

4.3.1.4.1. Life History and Habitat Requirements for San Francisco lacewing

The San Francisco lacewing (*Nothochrysa californica*), a species tracked by the CNDDB, inhabits moist woodlands near the coast with live oak, bay, or pine. They are included on CDFG's special animal list with a conservation status rank of G1S1S3 (critically imperiled globally; critically imperiled to vulnerable subnationally).

4.3.1.4.2. Survey Results for San Francisco lacewing

The nearest known occurrence of the San Francisco lacewing is over five miles away, to the southwest (CDFG 2008a). Due to the presence of marginally suitable habitat within the BSA, the San Francisco lacewing is considered to have a very low potential to occur.

4.3.1.4.3. Avoidance and Minimization Measures for San Francisco lacewing

Prior to the onset of construction activities, a qualified biologist will conduct focused surveys for San Francisco lacewing to determine presence or absence within the proposed project areas. If any individuals are determined to be present during focused surveys, occupied habitat will be avoided to the extent feasible. ESA exclusion fencing will be placed around avoided habitats and contractor education will be conducted to prevent encroachment of construction activities. Bright colored ESA fencing and signage will be implemented and a construction monitor will confirm the fence integrity on a daily basis to protect the area from accidental equipment damage. Fence repair and/or reinforcements will be completed immediately. If the species is discovered during construction, the biological monitor will be contacted to implement avoidance procedures before construction resumes in the area.

4.3.1.4.4. Project Impacts on San Francisco lacewing

Both project alternatives propose permanent and temporary impacts to eucalyptus woodland and mixed broadleaf conifer forest (Figures 6a and 6b) which provide potential habitat for San Francisco lacewing. The total area of potential impact to this habitat is small for each alternative:

- Alternative 4
    - eucalyptus woodland = 0.21 acre permanent, 1.19 acre temporary
    - mixed broadleaf conifer forest = 0.47 acre permanent, 1.29 acres temporary
- Alternative 2b
    - eucalyptus woodland = 0.26 acre permanent, 1.14 acre temporary
    - mixed broadleaf conifer forest = 0.82 acre permanent, 0.94 acre temporary

4.3.1.4.5. Compensatory Mitigation for San Francisco lacewing

The SFCTA will offset the removal of eucalyptus woodland and mixed broadleaf conifer forest habitat that may provide habitat for San Francisco lacewing by implementing a woodland habitat revegetation plan as described in Section 1.2, as part of its Project Description. Trees removed will be replaced at a 1:1 ratio providing potential habitat that may benefit the species longer term. Compensatory mitigation is not proposed.

4.3.1.4.6. Cumulative Impacts for San Francisco lacewing

In addition to the current project, several other construction projects are being undertaken or are in the planning stages in the immediate vicinity. These projects include the construction of the new SFOBB East Span, and the Treasure Island and YBI Redevelopment Plan. The combined construction efforts may temporarily reduce availability of potential habitat for San Francisco lacewing on the eastern portion of YBI as well as the total available potential habitat on the island.

4.3.2. Discussion of Special-Status Fish

A total of 9 special-status fish species were considered during the preparation of this report because the BSA falls within or in the vicinity of the historical range of these species, including:

- Green sturgeon – southern Distinct Population Segment (DPS) (*Acipenser medirostris*), federally listed threatened and a California Species of Special Concern
- Sacramento perch (*Archoplites interruptus*), a California Species of Special Concern
- Tidewater goby (*Eucyclogobius newberryi*), federally listed endangered and a California Species of Special Concern
- Delta smelt (*Hypomesus transpacificus*), federally and state-listed threatened
- Longfin smelt (*Spirinchus thaleichthys*), state-listed threatened
- Coho salmon – Central California ESU (Evolutionarily Significant Unit) (*Oncorhynchus kisutch*), federally and state-listed endangered
- Steelhead – Central California Coast ESU (*Oncorhynchus mykiss*), federally listed threatened

- Steelhead – Central Valley California ESU, federally listed threatened
- Chinook salmon – Central Valley spring-run ESU (*Oncorhynchus tshawytcha*), federally and state-listed threatened
- Chinook salmon – winter-run ESU, federally and state-listed threatened

4.3.2.1 Survey Results for Special-Status Fish

Leidy (2007) and Moyle (2002) consider the tidewater goby to be extirpated from San Francisco Bay and its tributaries. Delta smelt rarely occur in central or South San Francisco Bay and are normally restricted to areas north of San Pablo Bay (Moyle 2002). CH for Sacramento River winter-run Chinook, Central Valley spring-run Chinook, Central Coast coho, Central Valley steelhead is located in the Bay adjacent to the north side of the BSA. Furthermore, EFH is located in the Bay adjacent to the BSA for winter run Chinook, Central Valley spring run Chinook, Central Valley fall run Chinook, late fall run Chinook, and Central Coast coho (USDT - FHWA 2001, SFPD 2006). CH for California coastal steelhead is also located to the south of the BSA. Although the BSA is located immediately adjacent to the Bay, the only aquatic habitat present within the BSA are concrete lined drainage swales adjacent to roadsides. These features are designed to convey stormwater (therefore they are intermittent), a few feet wide, and unvegetated. They do not provide habitat for the special-status fish species that have potential to occur in the adjacent waters of the Bay. Based on the absence of suitable aquatic habitat, no fish species are expected to occur on-site (see Appendix A).

4.3.2.2 Project Impacts on Special-Status Fish

Project construction activities that involve loud equipment such as pile driving have the potential to cause barotrauma to fish species occurring within waters adjacent to the site. However, none of these activities will occur within aquatic habitats. All construction activities, including pile driving of piers for installation of the ramps, will occur on land in soils that are not saturated. H-piles (steel piles) will be driven into the ground; the other type of piles to be used are concrete piles which are to be placed, not driven (a hole is augered and the concrete is placed inside). The closest H-piles will be driven approximately 300 feet from the shoreline under Alternative 2B and 90 feet from the shoreline under Alternative 4. The primary source of underwater noise would be ground borne vibration released into the bay. Illingworth & Rodkin, Inc. prepared a hydro-acoustic analysis for pile driving activities under both project alternatives **(**Illingworth & Rodkin, Inc. 2011a**).** Predictions for distances to adopted NMFS, USFWS, and CDFG (FHWG 2008) injury threshold criteria were made using

actual measurements taken by Illingworth & Rodkin, Inc. from similar pile driving experiences. Injury threshold criteria for fish are as follows:

- Peak Sound Pressure, unweighted (dB)
  206 dB re: 1µPa (for all size of fish)
- Cumulative Sound Exposure Level (SEL), dB re 1 µPa2 sec

  187 dB re: 1µPa2-sec – for fish size of two grams or greater.

  183 dB re: 1µPa2-sec – for fish size of less than two grams.

NMFS does not consider events that produce a SEL per strike of less than 150 dB to accumulate and cause injury. The data used in Illingworth & Rodkin, Inc.'s analysis is based primarily on data measured for installation of a temporary crane platform on YBI in November 2008. Therefore soil types and transmission loss through the soils would be similar to the project area, providing a reasonable comparison. For the crane platform, piles were driven approximately 40 feet from the water's edge producing maximum underwater sound levels of 174 dB peak and 147 dB SEL at underwater measurement locations of 131 feet. This was the closest location that measurements could be made due to the shallowness of the water. The closest pile for Alternative 4 is located 90 feet from the shoreline. Given that this pile will be farther away from fisheries habitat than those installed for the crane platform, underwater noise levels are expected to be even lower for construction of the YBI Ramps under both alternatives. Thus, project construction noise levels are not expected to reach the minimum established injury threshold of 183 dB SEL or 206 dB peak for fish (Illingworth & Rodkin, Inc. 2011a).

The project is designed so that construction activities are located an adequate distance from the bay and therefore fish would be not be affected by construction activities. Construction noise levels, including pile driving, would be well below established thresholds to avoid potential injury to fish located in aquatic habitats adjacent to the site.

4.3.2.3 Avoidance and Minimization Measures for Special-Status Fish

Implementation of BMP's during construction as described in Section 4.1.1.2 will minimize potential water quality impacts to waters of the Bay and avoid indirect impacts to critical habitat and Essential Fish Habitat adjacent to the site.

4.3.2.4 Compensatory Mitigation for Special-Status Fish

Based on the hydroacoustic analysis, the project would not result in the loss of any Essential Fish Habitat or Critical Habitat. Avoidance and minimization or compensatory measures are not proposed.

4.3.2.5 Cumulative Impacts for Special-Status Fish

It is unlikely that the project would have an adverse cumulative effect on special-status fish as there are no components of the project that are in occur in the waters of the Bay and fish habitat is not present on site. There are several other projects in the immediate vicinity that are on-going or proposed and when combined cumulative water quality impacts could be significant. However, all projects are implementing BMP's to minimize potential impacts to the water quality of the Bay.

4.3.3. Discussion of Special-Status Reptiles and Amphibians

A total of 3 special-status amphibian species and 7 special-status reptile species were considered during the preparation of this report because the BSA falls within or in the vicinity of the historical range of these species. These include:

- California tiger salamander (*Ambystoma californiense*), federally listed threatened and a California Species of Special Concern
- California red-legged frog (*Rana* [=*aurora draytonii*] *draytonii*), federally listed threatened and a California Species of Special Concern
- Foothill yellow-legged frog (*Rana boylii*), a California Species of Special Concern
- Western pond turtle (*Actinemys* [=*Clemmys*] *marmorata*), a California Species of Special Concern
- Loggerhead turtle (*Caretta caretta*), federally listed threatened
- Green turtle (*Chelonia mydas*), federally listed threatened
- Leatherback (*Dermochelys coriacea*), federally listed endangered
- Olive ridley sea turtle (*Lepidochelys olivacea*), federally listed threatened
- Alameda whipsnake (*Masticophis lateralis euryxanthus*), federally and state-listed threatened

- San Francisco garter snake (*Thamnophis sirtalis tetrataenia*), federally and state-listed endangered and a California Fully Protected Species

Of these 10 species, all were eliminated from consideration due to their range, isolation from known populations, or lack of suitable habitat. The BSA lacks freshwater aquatic habitat in the form of streams or ponds, making it unsuitable for California tiger salamander, California red-legged frog, foothill yellow legged frog, western pond turtle, and San Francisco garter snake. The concrete lined drainages are not considered suitable habitat for these species due to lack of cover, suitable substrate, and ponded water. The fact that YBI is an island also isolates it from all known populations of these species, as well as populations of Alameda whipsnake (Figure 5b). The four species of sea turtle range very widely throughout the Pacific and other oceans, are typically found far out to sea during migrations, forage in suitable nearshore habitats, and lay their eggs on suitable beaches. Sea turtles do not nest in California, and although they may occur in coastal waters, sea turtles are not expected to enter the San Francisco Bay. There are no reported observations in the Bay and higher quality foraging opportunities are present in coastal waters and lagoons outside of the Bay. Therefore, they are not expected to occur within the waters adjacent to the project area (see Appendix A).

4.3.4. Discussion of Special-Status Raptors

Most raptors, such as golden eagle (*Aquila chrysaetos*), white-tailed kite, red-tailed hawk, red-shouldered hawk, and Cooper's hawk (*Accipiter cooperii*), nest in mature, large coniferous or deciduous trees and use twigs or branches as nesting material. Smaller raptors such as American kestrel (*Falco sparverius*) and western screech-owl (*Otus kennicottii*) may nest in cavities in anthropogenic structures and trees. Short-eared owl (*Asio flammeus*), and northern harrier (*Circus cyaneus*), nest on the ground in grassland, marshes, and agricultural fields with tall vegetation. Western burrowing owl (*Athene cunicularia hypugaea*) typically nest in small mammal burrows in open dry lands, but have been known to utilize any ground cavity of similar size as well as anthropogenic structures. Common raptors such as American kestrel, great horned owl, common barn owl (*Tyto alba*), Cooper's hawk, and red-tailed hawk could nest on-site and are afforded protection under the MBTA and CDFG code. The nesting period for raptors generally occurs between December 15 and August 31.

A total of eight special-status raptor species were considered during the preparation of this report because the BSA falls within or in the vicinity of the historical range of these species, including:

- Cooper's hawk, a CDFG Watch List species
- Golden eagle, a CDFG Watch List species and California Fully Protected species
- Western burrowing owl, a California Species of Special Concern
- Northern harrier, a California Species of Special Concern
- White-tailed kite, a California Fully Protected species
- American peregrine falcon, a California Fully Protected species
- Bald eagle (*Haliaeetus leucocephalus*), state-listed endangered and a California Fully Protected species
- Osprey (*Pandion haliaetus*), a CDFG Watch List species

Four of these species are not expected to occur or nest on-site. Although the closest known occurrence of western burrowing owl is less than four miles to the southeast, on Alameda Island (S. Euing 2007, 2008a, 2008b) (Figure 5b), based on the isolation of the island from suitable open habitat areas and lack of such habitat on-site, western burrowing owl is not expected to occur. Northern harrier has been reported to occur within five miles to the northeast of the BSA; however, due to a lack of open grassland, marsh, or agricultural habitats on-site, northern harrier is not expected to occur on-site. The nearest reported occurrence of bald eagle is over five miles away (CDFG 2008a). Bald eagle pairs have recently established nest sites on watershed lands adjacent to Bay Area reservoirs including Calaveras, Del Valle, and San Pablo; however they are not known to nest in trees or structures adjacent to the Bay preferring lands with minimized human activity. Therefore, bald eagles are not expected to occur on-site (see Appendix A). Similarly, osprey may occasionally forage in the Bay adjacent to the BSA, and although they are also known to nest on Bay Area water shed lands adjacent to reservoirs, they are not expected to use the BSA for nesting.

The large trees within the eucalyptus woodland and mixed forest on-site including coastal redwood, coast live oak, Monterey pine, eucalyptus, acacia, and canary palms (*Phoenix canariensis*) provide suitable nesting habitat for Cooper's hawk, white-tailed kite, and golden eagle as well as common raptor species such as red-tailed hawk and great horned owl. Large trees within landscaped areas also provide potential raptor nesting habitat. Furthermore, the SFOBB structure within and adjacent to the project

area provides suitable nesting habitat for American peregrine falcon. See Table 2 for the potential for each of these species to occur on-site.

Because of their prominence in today's regulatory environment and/or the likelihood that they could occur on-site, Cooper's hawk, golden eagle, white-tailed kite, and American peregrine falcon are addressed in further detail below.

4.3.4.1 COOPER'S HAWK

4.3.4.1.1. Life History of Cooper's Hawk

Cooper's hawk is a medium sized raptor distributed year-round throughout California, and much of the contiguous United States. Cooper's hawk occupies open forested areas, oak woodland, and riparian areas, nesting in conifers or deciduous trees. Primarily an ambush hunter, Cooper's hawks feed on small birds and mammals, and on occasion, fish (Alsop 2001). Cooper's hawks lay four to six eggs per year, with chicks hatching after 32-36 days. This species is found in residential areas in portions of the Bay Area, especially in the East Bay, where they are becoming increasingly common (Pericoli & Fish 2004). They have been known to hunt near houses, backyard ponds, and bird feeders.

4.3.4.1.2. Survey Results for Cooper's Hawk

The nearest known occurrence is approximately five miles to the east within the city of Oakland (CDFG 2008a). The common birds and mammals which occur on-site provide a potential prey base. Based upon the relatively close proximity to known occurrences and the suitable nest trees present within the landscaped areas, eucalyptus woodland, and mixed forest found on portions of the site, Cooper's hawk is considered to have a moderate potential to occur.

4.3.4.1.3. Avoidance and Mitigation Efforts for Cooper's Hawk

Cooper's hawks have the potential to nest within habitats on-site. Any removal of trees, buildings, or other structures, or construction activities within the vicinity of active raptor nests could result in nest abandonment, nest failure, or premature fledging. Destruction or disturbance of active nests would be in violation of the MBTA and Fish and Game Code. Therefore, the following measures will be implemented to avoid project related impacts to potentially nesting raptors:

1. To the extent feasible, potential nest trees will be avoided.

2. To the extent feasible, the necessary removal of any trees or structures will occur from September 1 through December 15, outside the breeding season. If removal of trees or structures occurs, or construction begins between December 15 and August 31 (the nesting season), a nesting bird survey will be performed by a qualified biologist within 15 days prior to the removal of potential nesting trees or structures, or prior to disturbance of areas in the vicinity of potential nest sites

3. All trees or structures with active nests will be flagged and a non-disturbance buffer zone established around the nest site in coordination with CDFG. Additionally, if any nests are found on the SFOBB or other structures within the project area or within 500 feet of the project area boundary, these nests shall be flagged and a non-disturbance buffer zone established. Buffer zones typically range between 200 feet to 500 feet depending on the species involved, site conditions, nesting stage, and type of work in proximity. Contractor education will be conducted for nesting bird avoidance. Observations will be conducted by a qualified biologist to confirm that work occurring outside of the buffer zone is not disturbing nesting pairs. If necessary, buffer zones will be adjusted to reduce distress to birds.

4. Active nests will be regularly monitored by a qualified biologist to determine when the young have fledged and are feeding on their own. CDFG will be consulted for clearance before construction activities resume within the buffer zone. CDFG will be notified if any nest is disturbed.

5. ESA exclusion fencing will be placed around avoided habitats and contractor education will be conducted to prevent encroachment of construction activities. Bright colored ESA fencing and signage will be implemented and a construction monitor will confirm the fence integrity on a daily basis to protect the area from accidental equipment damage. Fence repair and/or reinforcements will be completed immediately. If a new nest site is discovered during construction, the biological monitor will be contacted to implement avoidance procedures, in coordination with CDFG, before construction resumes in the area.

4.3.4.1.4. Project Impacts on Cooper's Hawk

Project construction activities have the potential to disturb Cooper's hawks that attempt nesting within the project area and those that may be nesting adjacent to the

site. Under both project alternatives, temporary and permanent project impacts are proposed to eucalyptus woodland and mixed broadleaf conifer forest. Removal of trees will result in a loss of potential Cooper's hawk nesting habitat. Under proposed Alternative 4 approximately 0.68 acre of woodland and forest habitat will be permanently affected by placement of the ramp structures and approximately 2.48 acres will be temporarily disturbed for construction staging and access. Under proposed Alternative 2b approximately 1.08 acre of woodland and forest habitat will be permanently affected by placement of the ramp structures and approximately 2.08 acres will be temporarily disturbed for construction staging and access.

4.3.4.1.5. Compensatory Mitigation for Cooper's Hawk

Temporarily disturbed woodland and forested areas will be restored after completion of construction activities. The SFCTA will offset the removal of eucalyptus woodland and mixed broadleaf conifer forest habitat that may provide nest sites for Cooper's hawk by implementing a woodland habitat revegetation plan as described in Section 1.2, as part of its Project Description. Trees removed will be replaced at a minimum 1:1 ratio, with natives to the island replaced at a 3:1 ratio. Compensatory mitigation is not proposed.

4.3.4.1.6. Cumulative Impacts on Cooper's Hawk

In addition to the current project, several other construction projects are being undertaken or are in the planning stages in the immediate vicinity. These projects include the construction of the new SFOBB East Span, and the Treasure Island and YBI Redevelopment Plan. The combined construction efforts may temporarily reduce nesting success of Cooper's hawk on the eastern portion of YBI as well as the total available woodland habitat on the island.

4.3.4.2. GOLDEN EAGLE

4.3.4.2.1. Life History of Golden Eagle

Golden eagle is a large raptor that is widely distributed throughout western North America. Primarily found in grasslands and open mountainous areas, golden eagles are solitary birds that nest on cliff ledges and tall trees, and feed primarily on small mammals. Golden eagles nest throughout the hills of the East Bay and prefer remote nest sites with a low level of human disturbance.

4.3.4.2.2. Survey Results for Golden Eagle

Large trees within the wooded portions of the site provide potential nesting habitat although these areas are adjacent to heavy and regular disturbances from SFOBB construction activities, boat, and SFOBB traffic. The nearest recorded occurrence is approximately ten miles to the east (CDFG 2008a), and due to the on-going site disturbances, golden eagle is considered to have a very low potential to occur.

4.3.4.2.3. Avoidance and Mitigation Efforts for Golden Eagle

Golden eagles have the potential to nest within habitats on-site. Any removal of trees, buildings, or other structures, or construction activities within the vicinity of active raptor nests could result in nest abandonment, nest failure, or premature fledging. Destruction or disturbance of active nests would be in violation of the MBTA and Fish and Game Code. Therefore, the following measures will be implemented to avoid project related impacts to potentially nesting raptors:

1. To the extent feasible, potential nest trees will be avoided.

2. To the extent feasible, the necessary removal of any trees or structures will occur from September 1 through December 15, outside the breeding season. If removal of trees or structures occurs, or construction begins between December 15 and August 31 (the nesting season), a nesting bird survey will be performed by a qualified biologist within 15 days prior to the removal of potential nesting trees or structures, or prior to disturbance of areas in the vicinity of potential nest sites

3. All trees or structures with active nests will be flagged and a non-disturbance buffer zone established around the nest site in coordination with CDFG. Additionally, if any nests are found on the SFOBB or other structures within the project area or within 500 feet of the project area boundary, these nests shall be flagged and a non-disturbance buffer zone established. Buffer zones typically range between 200 feet to 500 feet depending on the species involved, site conditions, nesting stage, and type of work in proximity. Contractor education will be conducted for nesting bird avoidance. Observations will be conducted by a qualified biologist to confirm that work occurring outside of the buffer zone is not disturbing nesting pairs. If necessary, buffer zones will be adjusted to reduce distress to birds.

4. Active nests will be regularly monitored by a qualified biologist to determine when the young have fledged and are feeding on their own. CDFG will be consulted for clearance before construction activities resume within the buffer zone. CDFG will be notified if any nest is disturbed.

5. ESA exclusion fencing will be placed around avoided habitats and contractor education will be conducted to prevent encroachment of construction activities. Bright colored ESA fencing and signage will be implemented and a construction monitor will confirm the fence integrity on a daily basis to protect the area from accidental equipment damage. Fence repair and/or reinforcements will be completed immediately. If a new nest site is discovered during construction, the biological monitor will be contacted to implement avoidance procedures, in coordination CDFG, before construction resumes in the area.

4.3.4.2.4. Project Impacts on Golden Eagle

Project construction activities have the potential to disturb golden eagles that attempt nesting within the project area and those that may be nesting adjacent to the site. Under both project alternatives, temporary and permanent project impacts are proposed to eucalyptus woodland and mixed broadleaf conifer forest. Removal of trees will result in a loss of potential golden eagle nesting habitat. Under proposed Alternative 4 approximately 0.68 acre of woodland and forest habitat will be permanently affected by placement of the ramp structures and approximately 2.48 acres will be temporarily disturbed for construction staging and access. Under proposed Alternative 2b approximately 1.08 acre of woodland and forest habitat will be permanently affected by placement of the ramp structures and approximately 2.08 acres will be temporarily disturbed for construction staging and access.

4.3.4.2.5. Compensatory Mitigation for Golden Eagle

Temporarily disturbed woodland and forested areas will be restored after completion of construction activities. The SFCTA will offset the removal of eucalyptus woodland and mixed broadleaf conifer forest habitat that may provide nest sites for golden eagle by implementing a woodland habitat revegetation plan as described in Section 1.2, Project Description. Trees removed will be replaced at a minimum 1:1 ratio, with natives to the island replaced at a 3:1 ratio. Compensatory mitigation is not proposed.

4.3.4.2.6. Cumulative Impacts on Golden Eagle

In addition to the current project, several other construction projects are being undertaken or are in the planning stages in the immediate vicinity. These projects include the construction of the new SFOBB East Span, and the Treasure Island and YBI Redevelopment Plan. The combined construction efforts may temporarily reduce nesting success of golden eagles on the eastern portion of YBI as well as the total available woodland habitat on the island.

4.3.4.3 WHITE-TAILED KITE

4.3.4.3.1. Life History of White-Tailed Kite

White-tailed kite is a medium-sized raptor that is distributed across much of the western part of California. The white-tailed kite occupies low-elevation grassland, agricultural, wetland, oak woodland, and savanna habitats and nests in a wide variety of trees and shrubs, either isolated or in larger stands. Nearby open areas are required for foraging, including certain types of agricultural fields. Food habit studies have demonstrated that voles make up a large proportion of its diet, although other small mammals, birds and insects are also preyed upon (Alsop 2001). This species hunts during the day primarily by hovering and searching for prey. White-tailed kites in California are generally resident, although they may occupy different areas during the non-breeding and breeding seasons. Typically, four eggs are laid in February and March and chicks hatch after 30-32 days. Juveniles are dependent on parents for two to three months before they fledge. During the non-breeding season, this species roosts communally.

4.3.4.3.2. Survey Results for White-Tailed Kite

Suitable nesting habitat for white-tailed kite is present within the mixed broadleaf conifer forest located on the northeast side of the BSA, and the closest documented occurrence is within five miles to the northeast (CDFG 2008a). With its placement up against the hillside, the forested area is somewhat buffered from the construction and traffic activity to the southwest. White-tailed kites are relatively tolerant of human disturbances if suitable trees are available for nesting providing adequate shelter, noise buffers, and wind protection. Trees within the forest are well developed with adequate limbs and canopy for nesting. Common rodents present on-site provide an adequate prey base. Therefore, white tailed kites are considered to have a moderate potential to occur on-site.

4.3.4.3.3. Avoidance and Mitigation Efforts for White-Tailed Kite

White-tailed kites have the potential to nest within habitats on-site. Any removal of trees, buildings, or other structures, or construction activities within the vicinity of active raptor nests could result in nest abandonment, nest failure, or premature fledging. Destruction or disturbance of active nests would be in violation of the MBTA and Fish and Game Code. Therefore, the following measures will be implemented to avoid project related impacts to potentially nesting raptors:

1. To the extent feasible, potential nest trees will be avoided.

2. To the extent feasible, the necessary removal of any trees or structures will occur from September 1 through December 15, outside the breeding season. If removal of trees or structures occurs, or construction begins between December 15 and August 31 (the nesting season), a nesting bird survey will be performed by a qualified biologist within 15 days prior to the removal of potential nesting trees or structures, or prior to disturbance of areas in the vicinity of potential nest sites

3. All trees or structures with active nests will be flagged and a non-disturbance buffer zone established around the nest site in coordination with CDFG. Additionally, if any nests are found on the SFOBB or other structures within the project area or within 500 feet of the project area boundary, these nests shall be flagged and a non-disturbance buffer zone established. Buffer zones typically range between 200 feet to 500 feet depending on the species involved, site conditions, nesting stage, and type of work in proximity. Contractor education will be conducted for nesting bird avoidance. Observations will be conducted by a qualified biologist to confirm that work occurring outside of the buffer zone is not disturbing nesting pairs. If necessary, buffer zones will be adjusted to reduce distress to birds.

4. Active nests will be regularly monitored by a qualified biologist to determine when the young have fledged and are feeding on their own. CDFG will be consulted for clearance before construction activities resume within the buffer zone. CDFG will be notified if any nest is disturbed.

5. ESA exclusion fencing will be placed around avoided habitats and contractor education will be conducted to prevent encroachment of construction activities. Bright colored ESA fencing and signage will be implemented and a construction monitor will confirm the fence integrity on a daily basis to

protect the area from accidental equipment damage. Fence repair and/or reinforcements will be completed immediately. If a new nest site is discovered during construction, the biological monitor will be contacted to implement avoidance procedures, in coordination with CDFG, before construction resumes in the area.

4.3.4.3.4. Project Impacts on White-Tailed Kite

Project construction activities have the potential to disturb white-tailed kites that attempt nesting within the project area and those that may be nesting adjacent to the site. Under both project alternatives, temporary and permanent project impacts are proposed to eucalyptus woodland and mixed broadleaf conifer forest. Removal of trees will result in a loss of potential white-tailed kite nesting habitat. Under proposed Alternative 4 approximately 0.68 acre of woodland and forest habitat will be permanently affected by placement of the ramp structures and approximately 2.48 acres will be temporarily disturbed for construction staging and access. Under proposed Alternative 2b approximately 1.08 acre of woodland and forest habitat will be permanently affected by placement of the ramp structures and approximately 2.08 acres will be temporarily disturbed for construction staging and access.

4.3.4.3.5. Compensatory Mitigation for White-Tailed Kite

Temporarily disturbed woodland and forested areas will be restored after completion of construction activities. The SFCTA will offset the removal of eucalyptus woodland and mixed broadleaf conifer forest habitat that may provide nest sites for white-tailed kite by implementing a woodland habitat revegetation plan as described in Section 1.2, Project Description. Trees removed will be replaced at a minimum 1:1 ratio, with natives to the island replaced at a 3:1 ratio. Compensatory mitigation is not proposed.

4.3.4.3.6. Cumulative Impacts on White-Tailed Kite

In addition to the current project, several other construction projects are being undertaken or are in the planning stages in the immediate vicinity. These projects include the construction of the new SFOBB East Span, and the Treasure Island and YBI Redevelopment Plan. The combined construction efforts may temporarily reduce nesting success of white-tailed kites on the eastern portion of YBI as well as the total available woodland habitat on the island.

4.3.4.4 AMERICAN PEREGRINE FALCON

4.3.4.4.1. Life History of American Peregrine Falcon

The peregrine falcon is one of the most widely spread bird species, found on all continents except Antarctica. In California, the peregrine falcon is found year-round along the coast from the Oregon border south to Pt. Conception (Sibley 2003). Peregrine falcons require open areas for foraging, and for nesting uses cliffs in isolated areas, or bridges and buildings in urban areas. Other potential but rare nest sites include abandoned nests of ravens, hawks, or cormorants. Peregrine falcons generally begin nesting in late March, laying between three and four eggs per clutch. Incubation lasts approximately 33 days, during which time the female incubates while the males forages and brings food back to the nest. Peregrine falcons will re-nest if the first attempt is unsuccessful. The peregrine falcon is known for its high speed flight; it is a foraging specialist, feeding primarily on birds ranging in size from swallows to small ducks or pigeons, which it often catches in flight.

Listed in 1973 as an endangered species under the FESA, the peregrine was delisted in 1999 after a successful recovery program that included banning DDT and other chlorinated hydrocarbons, protection from shooting and trapping, and captive breeding. The species was delisted under the CESA in 2009, but it retains its status as a Fully Protected Species. At its lowest, the population had been reduced to several hundred breeding pairs in the USA, and only two of these nested in California in 1970; now the population numbers approximately 2,000 breeding pairs, with 271 active breeding sites known in California as of 2006 (SCPBRG 2009).

Peregrine falcons have been known to nest in urban areas within the Bay Area, with pairs nesting in San Jose, Redwood Shores, and San Francisco. The peregrines in San Jose have nested on the city hall building in 2007, 2008, and 2009, and have successfully fledged three to four offspring each of those years. The peregrines in Redwood Shores nested on the roof of building 400 on the Oracle campus from 2000 to 2002 and again in 2007. In 2007 the Oracle peregrines successfully fledged four offspring. The peregrines in downtown San Francisco nested on the Pacific Gas and Electric (PGE) building from 2003 until 2005, successfully fledging two offspring in 2004 and three offspring in 2005. The peregrines that had nested on the PGE building in downtown San Francisco moved temporarily to an adjacent building in 2006, fledging a single offspring, and to the west span of the SFOBB in 2007 producing two viable eggs, which were collected and incubated by Santa Cruz Predatory Bird Research Group (SCPBRG) biologists. Of the two viable eggs, only one survived to

fledging. In 2007, the peregrines returned to the PGE building for a second nesting attempt, which produced a second successful hatchling (SCPBRG 2009 a). A different pair of peregrines successfully nested at the PGE building in 2009. However, shortly after fledgling, one fledgling was killed when it hit a skyscraper window, a second was severely injured and taken into captivity for rehabilitation, and the third disappeared and may have successfully left the area (SCPRG 2009b).

4.3.4.4.2. Survey Results for American Peregrine Falcon

Peregrine falcons are known to nest on existing piers on the SFOBB (Woodward-Clyde 1998, USDT - FHWA 2001), and known peregrine nesting areas on the SFOBB are currently being monitoring as part of the mitigation requirements for the SFOBB East Span Seismic Safety Plan (LSA 2003). The peregrines nested on pier E3, located approximately 1,600 feet east of the BSA, in 2004 and 2007, and on pier E2, located approximately 260 feet east of the BSA, in 2005 and 2006 (Parsons Brinkerhoff Quade & Douglas 2004, 2005, 2006, 2007 and 2008). In 2004 and 2005 the nesting attempts failed, and no viable offspring were produced (Parsons Brinkerhoff Quade & Douglas 2004, 2005). In 2006, a first nesting attempt in March failed, however a second nesting attempt in June produced a single hatchling, which was removed from the nest by SCPBRG biologists on July 31 (Parsons Brinkerhoff Quade & Douglas 2006). In 2007, the peregrines successfully hatched two eggs, which were removed from the nest by SCPBRG biologists on May 15. The falcons did not attempt to nest on the east span of the SFOBB in 2008. A pair of peregrine falcons, nested and hatched two chicks on the west span of the SFOBB in April of 2008, however the chicks did not successfully fledge. In May 2009, a pair of peregrine falcons successfully hatched three chicks at the pier E2 nesting site on the existing SFOBB. All three nestlings fledged in June of 2009. Two of the three juveniles were observed flying and roosting repeatedly on and around the existing and new SFOBB. The third juvenile was not observed since fledging on June 18, 2009 (LSA 2009).While there are several structures within the BSA, none of them provide the cliff-like habitat preferred by peregrine falcons. Furthermore, the portion of the SFOBB structure that is within the BSA does not have the unobstructed views, or high ledges that would make it likely appealing to a nesting peregrine falcon. Therefore, it is unlikely that peregrine falcons would nest within the BSA. However, due to the close proximity of known past nesting sites on the eastern span SFOBB piers, and the availability of adequate foraging habitat on-site, the peregrine falcon is considered to have a high potential to occur and forage on-site.

4.3.4.4.3. Avoidance and Mitigation Efforts for American Peregrine Falcon

Peregrine falcons have the potential to nest in close proximity to the BSA, and have a high potential to use the BSA for foraging. Construction activities within the vicinity of active raptor nests could result in nest abandonment, nest failure, or premature fledging. Destruction or disturbance of active nests would be in violation of the MBTA and Fish and Game Code. In addition, due to its Fully Protected status under Fish and Game Code, incidental take of individuals or nests is not authorized. Therefore, the following measures will be implemented to avoid project related impacts to potentially nesting peregrine falcons:

1. Throughout project construction, monitoring of the potential peregrine falcon nest sites on the piers of the existing SFOBB will be continued following the methodology outlined in the Final Revised Bird Monitoring and Management Plan (LSA 2003).

2. If removal of structures occurs, or construction begins between December 15 and August 31 (the nesting season), a nesting bird survey will be performed by a qualified biologist within 15 days prior to the removal of potential nesting structures, or prior to disturbance of areas in the vicinity of potential nest sites.

3. If an active peregrine falcon nest is discovered on the SFOBB or other structures within the project area or within 1,500 feet of the project area boundary, a non-disturbance buffer zone will be established in coordination with CDFG, as appropriate. Contractor education will be conducted by a qualified biologist for nesting bird avoidance. Observations will be conducted by a qualified biologist to confirm that work occurring outside of the buffer zone is not disturbing the nesting pair. If necessary, buffer zones will be adjusted to reduce distress to birds.

4. The CDFG will be consulted for clearance before construction activities resume within the buffer zone. CDFG will be notified if any nest is disturbed.

4.3.4.4.4. Project Impacts on American Peregrine Falcon

Project construction activities have the potential to disturb peregrine falcons that attempt nesting within the project area and those that may be nesting adjacent to the site. Construction related noise and vibration could potentially impact the success of

nests that are within line of site or near enough to disturb the normal activities of the adult birds.

4.3.4.4.5. Compensatory Mitigation for American Peregrine Falcon

No compensatory mitigation is proposed for this species.

4.3.4.4.6. Cumulative Impacts on American Peregrine Falcon

In addition to the current project, several other construction projects are being undertaken or are in the planning stages in the immediate vicinity. These projects include the construction of the new SFOBB East Span, and the Treasure Island and YBI Redevelopment Plan. The combined construction efforts may cause peregrine falcons to abandon nesting attempts on the SFOBB. However, peregrine nest sites on urban buildings in the region have been more successful than bridge nests in number of successfully fledged chicks. Given the ability of this species to utilize a variety of urban structures for nesting the project is not anticipated to contribute to negative cumulative effects on the population.

4.3.5. Discussion of Special Status Birds (Non-Raptors)

A total of 24 non-raptor special-status bird species were considered during the preparation of this report because the BSA falls within or in the vicinity of the historical range of these species. Based on the location of the site (beyond the species current range) or absence of suitable habitat, 14 of these species are not expected to occur (see Appendix A). Several of these species including the California brown pelican (*Pelecanus occidentalis californicus*), a California Fully Protected species, and double-crested cormorant (*Phalacrocorax auritus*), a CDFG Watch List species, are discussed below in more detail.

4.3.5.1. PASSERINES AND NON-PASSERINE LANDBIRDS

4.3.5.1.1. Life History for Passerines and Non-Passerine Landbirds

Passerines (perching birds) are a taxonomic grouping that consists of several families including swallows (Hirundinidae), larks (Alaudidae), crows, ravens and jays (Corvidae), shrikes (Laniidae), vireos (Vireonidae), finches (Fringillidae) and Emberizids (Emberizidae; warblers, sparrows, blackbirds, etc.), among others. Non-passerine land birds are a non-taxonomic based grouping typically used by ornithologists to categorize a loose assemblage of birds. Families grouped into this category include kingfishers (Alcedinidae), woodpeckers (Picidae), swifts

(Apodidae), hummingbirds (Trochilidae), and pigeons and doves (Columbidae), among others.

Habitat, nesting, and foraging requirements for these species are wide ranging, therefore outlining generic habitat requirements for this grouping is difficult. These species typically use most habitat types and are known to nest on the ground, in shrubs and trees, on buildings, under bridges, and within cavities, crevices, and manmade structures. Many of these species migrate long distances and all species except starlings, English house sparrows, and rock doves (pigeons), are protected under the federal MBTA and Fish and Game Code. The nesting period for non-raptors occurs between February 1 and August 31.

Mature woodlands and scrub communities provide ample nesting and foraging habitats for a wide variety of species including sparrows, scrub jays, crows, warblers, bushtits, and hummingbirds. Allen's hummingbird (*Selasphorus sasin*), a species tracked by the CNDDB, has a moderate potential to nest within natural and landscaped vegetation found throughout the BSA.

4.3.5.1.2. Survey Results for Passerines and Non-Passerine Landbirds

Several common passerine and non-passerine landbird species could nest within habitats present on-site including natural vegetation, structures, and disturbed areas. Ruderal, disturbed, landscaped and grassland areas could provide nesting habitat for such opportunistic birds as killdeer, as well as foraging habitat for a wide variety of birds. Structures within the BSA such as the existing SFOBB structure provide nesting habitat for species such as house finch and barn swallow. Exposed vertical banks such as are found on the northern boundary of the BSA provide potential nesting habitat for species such as bank swallow (*Riparia riparia*), state-listed threatened, which excavate tunnel nests into exposed sandbanks. Nesting bank swallows have not been recorded at YBI and the closest known nest colony is located approximately 9 miles southwest at Fort Funston/Lake Merced (Garrison 1998). Alameda song sparrow (*Melospiza melodia pusillula*), a California species of special concern, nests in tidal marsh habitat and uses this habitat year-round. This species has been reportedly observed foraging on-site (USDT - FHWA 2001), however this occurrence is not noted in the CNDDB, and there is no suitable nesting habitat within the BSA. Because the song sparrow subspecies are difficult to visually tell apart, except by habitat use and location, the song sparrow seen at YBI may have been the upland subspecies, not Alameda song sparrow. Therefore while Alameda song

sparrow is considered to have a moderate potential to occur, it is not expected to nest within the BSA.

4.3.5.1.3. Avoidance and Mitigation Measures for Passerines and Non-Passerine Landbirds

Several special-status and common passerine and non-passerine landbirds, listed above, have at least some potential to nest and forage on-site. Any removal of structures, trees or shrubs, or construction activities in the vicinity of active nests could result in nest abandonment, nest failure, or premature fledging. Destruction or disturbance of active nests would be in violation of the MBTA and Fish and Game Code. Therefore, the following measures will be implemented to avoid project related impacts to potentially nesting passerine and non-passerine landbirds:

1. The removal of any structures, trees or shrubs will occur from September 1 through February 1, outside the passerine and non-passerine landbird breeding season. If removal of trees or shrubs occurs, or construction begins between February 1 and August 31 (the nesting season), a nesting bird survey will be performed by a qualified biologist within 15 days prior to the removal of potential nesting structures, trees or shrubs, or prior to disturbance of areas in the vicinity of potential nest sites, i.e. trees and shrubs.

2. All active nests will be flagged and a non-disturbance buffer zone established around the nesting tree (or other nesting substrate) in coordination with the CDFG. Buffer zones for passerines and non-passerine land birds typically range between 50 feet to 90 feet depending on the species involved, site conditions, and type of work proposed in the vicinity. Contractor education will be conducted for nesting birds, including a discussion of avoidance and protection measures.

3. Active nests will be monitored by a qualified biologist in coordination with CDFG to determine when the young have fledged and are feeding on their own. The project biologist will be consulted for clearance before construction activities resume in the vicinity. CDFG will be notified if any nest is disturbed.

4. If a new nest site is discovered during construction, the biological monitor would be contacted to implement avoidance procedures, in coordination with CDFG, before construction resumes in the area.

4.3.5.1.4. Project Impacts on Passerines and Non-Passerine Landbirds

Special-status passerine and non-passerine landbird species including bank swallow and Allen's hummingbird, have the potential to nest within the BSA. The remaining special-status bird species, as well as other common bird species that may nest on-site could be temporarily disturbed or unable to nest due to construction activity. The hillside which provides potential nesting habitat for bank swallow will be avoided; therefore permanent impacts to this species are not anticipated. Permanent removal of existing structures is not anticipated to have a long term affect on habitat availability as the project will create new structures providing additional habitat for nesting birds such as house finches and swallows.

Under both project alternatives, temporary and permanent project impacts are proposed to potential landbird nesting habitat including central coast riparian scrub, eucalyptus woodland, landscaped/disturbed, mixed broadleaf conifer forest, nonnative scrub/shrubland, northern foredune, and ruderal/disturbed habitat. Under proposed Alternative 4 approximately 1.32 acre of these habitat types will be permanently affected by placement of the ramp structures and approximately 4.17 acres will be temporarily disturbed for construction staging and access. Under proposed Alternative 2b approximately 1.50 acre of these habitats will be permanently affected by placement of the ramp structures and approximately 4.00 acres will be temporarily disturbed for construction staging and access.

4.3.5.1.5. Compensatory Mitigation for Passerines and Non-Passerine Landbirds

No compensatory mitigation is proposed for these species.

4.3.5.1.6. Cumulative Impacts on Passerines and Non-Passerine Landbirds

In addition to the current project, several other construction projects are being undertaken or are in the planning stages in the immediate vicinity. These projects include the construction of the new SFOBB East Span, and the Treasure Island and YBI Redevelopment Plan. The combined construction efforts may temporarily reduce nesting success of passerine and non-passerine landbirds on the eastern portion of YBI as well as the total natural vegetation available as nesting habitat on the island.

4.3.5.2. SHOREBIRDS, MARSHBIRDS, AND WATERBIRDS

4.3.5.2.1 Life History for Shorebirds, Marshbirds, and Waterbirds

Shorebirds and water birds encompass species that are strongly dependent upon aquatic and wetland habitat, and include such families as loons (Gaviidae), grebes (Podicipedidae), pelicans (Pelecanidae), herons and egrets (Ardeidae), swans, geese and ducks (Anatidae), Gruiformes (Gruidae; cranes, Rallidae; rails, coots, moorhens), gulls (Laridae), non-sandpiper shorebirds (Charadriidae, Haematopodidae, Recurvirostridae; plovers, oystercatchers, stilts and avocets), and sandpipers (Scolopacidae). Despite their common association with aquatic habitat, these species have diverse nesting and foraging habits. Many build nests in dense marsh vegetation while others nest in trees as well as open areas with little or low vegetation. Their diets range from vegetation to insects, aquatic invertebrates, fish, amphibians, reptiles, and small mammals.

4.3.5.2.2. Survey Results for Shorebirds, Marshbirds, and Waterbirds

Suitable nesting and foraging habitat is present on-site for special-status wading birds found in near-shore habitats such as snowy egret (*Egretta thula*), great blue heron (*Ardea herodias*), great egret (*Ardea alba*), and black-crowned night-heron (*Nycticorax nycticorax*). Rookery sites of all of these species are tracked by the CNDDB. These species are considered to have a moderate potential to occur on-site. A small black-crowned night-heron rookery has been documented on a cliff face on the southern end of YBI, approximately 0.25 mile south of the BSA (Kelly et al. 2006). The eucalyptus woodland and mixed forest within the BSA provides potential roost and nesting habitat for these species. Great blue herons, great egrets, and double-crested cormorants often roost and nest in stands of nonnative trees. In Santa Cruz County, these species have been reported to only nest in eucalyptus groves (Suddjian 2004).

Birds that inhabit salt marsh habitats of the Bay and require dense vegetation for shelter and nesting including black rail (*Laterallus jamaicensis coturniculus*), state-listed threatened and a California Fully Protected species, and California clapper rail (*Rallus longirostris obsoletus*), federally and state-listed endangered, and a California Fully Protected species, are not expected to occur on-site. Although they are known to occur within five miles (Figure 5b), no suitable marsh habitat is present within the boundaries of the BSA for these species.

The California least tern (*Sterna antillarum browni*), federally and state-listed endangered, and a California Fully Protected species, western snowy plover (*Charadrius alexandrinus nivosus*), federally-listed threatened and a California species of special concern, and other sensitive beach nesting birds are not expected to nest on-site due to an absence of suitable habitat. These species nest on protected sand dunes, beaches, or other open but sheltered habitats adjacent to water. Northern foredune habitat on-site is minimal (0.440 acre) and exposed to wave action, making it unsuitable for nest establishment and the remainder of the site is unsuitable due to ongoing construction or dense vegetation; therefore California least tern and western snowy plover are not expected to occur on-site.

Foraging habitat for California least tern is available adjacent to the study area in shallow bay waters and occurrences have been recorded in the region (Figure 5). California least tern foraging habitat is not expected to be impacted by project construction activities given the avoidance of tidal aquatic habitat by project features and construction activities. For both alternatives, the tidal waters of the Bay will be avoided by temporary construction features and permanent project features, and will not be affected by temporary construction activities as standard construction BMP's will be implemented to treat and minimize discharge into the Bay. Implementation of BMP's as described in Section 4.1.1.2 for aquatic habitats will minimize the potential for least tern prey items (fish in the Bay) to be indirectly affected by project construction activities.

The California gull (*Larus californicus*), a CDFG Watch List species, and western gull (*Larus occidentalis*), are both known to nest and forage within San Francisco Bay. A large group of California gulls is known to nest on Alameda Naval Air Station (Goals Project 2000) which is located approximately two miles to the east from the BSA, with nests numbering over 100 in 1997. Western gulls have been reported to nest on the SFOBB structure near the Oakland touchdown (Parsons Brinkerhoff Quade & Douglas 2002). While both of these species nest near the BSA, the close proximity of the on-site portion of the SFOBB structure is unlikely to be attractive as a nesting site for western gulls due to its orientation over land as opposed to being over water. Moreover, California gulls are unlikely to nest within the BSA as there is no undisturbed open habitat that would support a colony. Both species of gulls could forage within the project area as they are opportunistic feeders that will forage in areas with human garbage such as school yards and dumps (Goals Project 2000); therefore, they are considered to have a moderate potential to occur on-site. Additional foraging habitat for California gull and western gull is available adjacent

to the BSA in shallow bay waters. This habitat is not likely to be impacted by project construction activities. Implementation of BMP's as described in Section 4.1.1.2 for aquatic habitats will ensure that gull fish prey in the Bay are not indirectly affected by project construction activities.

4.3.5.2.3. Avoidance and Mitigation Measures for Shorebirds, Marshbirds, and Waterbirds

Suitable nesting and foraging habitat is present on-site for several species of wading birds, including snowy egret, great blue heron, great egret, and black-crowned night-heron. Therefore, the following measures will be implemented to avoid project related impacts to potentially nesting birds:

1. The removal of any structures, trees or shrubs will occur from September 1 through February 1, outside the breeding season. If removal of trees or shrubs occurs, or construction begins between February 1 and August 31 (the nesting season), a nesting bird survey will be performed by a qualified biologist within 15 days prior to the removal of potential nesting structures, trees or shrubs, or prior to disturbance of areas in the vicinity of potential nest sites, *i.e*. trees and shrubs.

2. All active nests will be flagged and a non-disturbance buffer zone established around the nesting tree in coordination with the CDFG. Buffer zones for wading birds typically range between 100 feet to 200 feet depending on the species involved, site conditions, and type of work proposed in the vicinity. Contractor education will be conducted for nesting birds, including a discussion of avoidance and protection measures.

3. Active nests will be monitored by a qualified biologist to determine when the young have fledged and are feeding on their own. The project biologist will be consulted for clearance before construction activities resume in the vicinity. CDFG will be notified if any nest is disturbed.

4. ESA exclusion fencing will be placed around avoided habitats and contractor education will be conducted to prevent encroachment of construction activities. Bright colored ESA fencing and signage will be implemented and a construction monitor will confirm the fence integrity on a daily basis to protect the area from accidental equipment damage. Fence repair and/or reinforcements will be completed immediately. If a new roost site is

discovered during construction, the biological monitor will be contacted to implement avoidance procedures before construction resumes in the area.

4.3.5.2.4. Project Impacts on Shorebirds, Marshbirds, and Waterbirds

Project construction activities have the potential to disturb wading bird species that nest in mature woodlands, such as egrets and herons that attempt nesting within the project area and those that may be nesting adjacent to the site. Under both project alternatives, temporary and permanent project impacts are proposed to eucalyptus woodland and mixed broadleaf conifer forest. Removal of trees will result in a loss of potential nesting habitat. Under proposed Alternative 4 approximately 0.68 acre of woodland and forest habitat will be permanently affected by placement of the ramp structures and approximately 2.48 acres will be temporarily disturbed for construction staging and access. Under proposed Alternative 2b approximately 1.08 acres of woodland and forest habitat will be permanently affected by placement of the ramp structures and approximately 2.08 acres will be temporarily disturbed for construction staging and access.

There will likely be negligible effects on California least tern foraging habitat due to the avoidance of tidal aquatic habitat by project features and construction activities.

4.3.5.2.5. Compensatory Mitigation for Shorebirds, Marshbirds, and Waterbirds

Temporarily disturbed woodland and forested areas will be restored, to the extent feasible after completion of construction activities. The SFCTA will offset the removal of eucalyptus woodland and mixed broadleaf conifer forest habitat that may provide nest sites for waterbirds such as herons and egrets by implementing a woodland habitat revegetation plan as described in Section 1.2, as part of its Project Description. Trees removed will be replaced at a minimum 1:1 ratio, with natives to the island replaced at a 3:1 ratio. Compensatory mitigation is not proposed.

4.3.5.2.6. Cumulative Impacts on Shorebirds, Marshbirds, and Waterbirds

In addition to the current project, several other construction projects are being undertaken or are in the planning stages in the immediate vicinity. These projects include the construction of the new SFOBB East Span, and the Treasure Island and YBI Redevelopment Plan. The combined construction efforts may temporarily reduce nesting success of wading birds on the eastern portion of YBI as well as the total available woodland habitat on the island.

4.3.5.3 CALIFORNIA BROWN PELICAN

4.3.5.3.1. Life History for California Brown Pelican

The California brown pelican occurs in estuarine, marine, sub-tidal, and marine pelagic waters from the Gulf of California north to Washington and southern British Columbia. They breed exclusively on islands from the Channel Islands off the coast of southern California south to islands off the coast of Baja California. When not breeding, California brown pelicans roost on the open ocean, offshore or mainland rocks, mudflats, sandy beaches, wharfs, and jetties throughout coastal California.

California brown pelicans are plunge divers that fly over water bodies scanning the surface for the shimmer of schooling fish. In California, they feed mainly on sardines (family Clupeidae), mackerels (family Scombridae) and anchovies (family Engraulididae). Pelicans breed in colonies on islands without mammallian predators along the Baja peninsula and in the Gulf of California in Mexico. They build nests of sticks on the ground, usually laying a clutch of three eggs in March or April.

4.3.5.3.2. Survey Results for California Brown Pelican

Pelicans are present in the Bay Area as they disperse after breeding in southern California as early as April. By July, thousands of pelicans are seen and remain in the region through September. Pelicans usually retreat to the south by about December (Jaques-Strong 1994).

California brown pelicans utilize Breakwater Island (part of the former Naval Air Station, Alameda) east of the BSA as the “key roost in San Francisco Bay”. They congregate and roost on this disconnected island and use the surrounding waters to forage. At peak density there may be over 8,500 pelicans utilizing Breakwater Island, and hundreds are regularly present (Euing 2007).

Numerous brown pelicans have been observed foraging in the Bay near the BSA (Garcia and Associates 2008), and several pelicans were observed roosting on pilings in the bay immediately adjacent to the site during the site reconnaissance survey. California brown pelicans have been observed immediately adjacent to the BSA and marginally suitable roosting habitat is present on the narrow sandy shoreline rimming the BSA and the small pier which is partially within the BSA, therefore California brown pelicans are considered to have a high potential to roost within or immediately adjacent to the BSA. Brown pelicans are not expected to nest within the BSA, however, as they are only known to nest on Southern California coastal islands.

4.3.5.3.3. Avoidance and Mitigation Measures for California Brown Pelican

California brown pelicans have a high potential to roost adjacent to the construction envelope. Construction activities immediately adjacent to their roosting habitat could cause disturbance or flushing of individuals. Therefore, the following measures will be implemented to avoid project related impacts to California brown pelican:

Exclusion fencing will be placed around the construction footprint to prevent construction equipment from entering areas where the pelicans may roost. Contractor education will be conducted, including a discussion of avoidance and protection measures. A construction monitor will confirm the fence integrity on a daily basis to protect the area from accidental equipment damage. Fence repair and/or reinforcements will be completed immediately. If a new roost site is discovered during construction, the biological monitor will be contacted to implement avoidance procedures before construction resumes in the area. CDFG will be notified if any new roost site is found, or any roost site is disturbed.

4.3.5.3.4 Project Impacts on California Brown Pelican

California brown pelican has the potential to occur within the BSA and roost on piers and the sandy shoreline just outside the temporary and permanent project construction areas. Temporary disturbance to roosting pelicans could occur if construction activities encroach upon occupied roosting habitat. No permanent impacts to potential roosting areas are anticipated as the project construction footprint will avoid the piers in the Bay and the shoreline including the northern foredune community.

4.3.5.3.5. Compensatory Mitigation for California Brown Pelican

No compensatory mitigation is proposed due to the lack of permanent impacts.

4.3.5.3.6. Cumulative Impacts on California Brown Pelican

In addition to the current project, several other construction projects are being undertaken or are in the planning stages in the immediate vicinity. These projects include the construction of the new SFOBB East Span, and the Treasure Island and YBI Redevelopment Plan. If the combined disturbance is great enough, pelicans may abandon roost sites around YBI and Treasure Island.

4.3.5.4 DOUBLE-CRESTED CORMORANT

4.3.5.4.1. Life History for Double-Crested Cormorant

The double-crested cormorant is a common resident in waterways and water bodies throughout California. They may forage for fish at almost any significant water source, from ponds and streams to the open ocean. They nest on steep slopes, cliff faces, tall trees, and tall human-made structures such as transmission towers beside water (CDFG 2005).

4.3.5.4.2. Survey Results for Double-Crested Cormorant

During the site reconnaissance survey, double-crested cormorants were observed foraging in the Bay. Furthermore, double crested cormorants are known to nest on bridges, including the Richmond-San Rafael Bridge (Wunderlich per. obs.) and the SFOBB (Woodward-Clyde 1998, USDT - FHWA 2001) and have been observed on YBI (Garcia and Associates 2008) (Figure 5b). On the Richmond-San Rafael Bridge, cormorants general nest below the roadway on the supporting steel structure, and will roost nearby on the SFOBB structure as well as on any exposed rocks in the bay. Based on the presence of suitable roosting habitat such as exposed pilings, piers and rocks immediately adjacent to the eastern edge of the BSA, and their known presence in the vicinity, double-crested cormorant are considered to have a high potential to roost within the BSA and a low potential to nest within the SFOBB structure on-site.

4.3.5.4.3 Avoidance and Mitigation Measures for Double-Crested Cormorant

Double-crested cormorants have potential to nest and forage on-site. Construction activities on or adjacent to the existing SFOBB structure or the eastern border of the BSA could potentially disturb cormorants. Therefore, the following measures are recommended to avoid project related impacts to double-crested cormorants:

1. Throughout project construction, monitoring of the potential cormorant nest sites on the existing SFOBB will be continued following the methodology outlined in the Final Revised Bird Monitoring and Management Plan (LSA 2003).

2. If construction activities begins between February 1 and August 31 (the nesting season), a nesting bird survey of the on-site SFOBB structure will be performed by a qualified biologist within 15 days prior to onset of

construction to ensure that no cormorants have begun to nest in the structure or within 200 feet of the project disturbance footprint.

3. All active nests will be flagged or mapped and a non-disturbance buffer zone established around the nest in coordination with the. Buffer zones for typically range between 100 feet to 200 feet for wading and waterbirds depending on the species involved, site conditions, and type of work proposed.

4. Active nests will be monitored by a qualified biologist to determine when the young have fledged and are feeding on their own. The CDFG will be consulted for clearance before construction activities resume. CDFG will be notified if any nest is disturbed.

5. Exclusion fencing will be placed around the construction footprint to prevent construction equipment for entering areas where the cormorants may roost. A construction monitor will confirm the fence integrity on a daily basis to protect the area from accidental equipment damage. Fence repair and/or reinforcements will be completed immediately.

6. If a new roost or nest site is discovered during construction, the biological monitor will be contacted to implement avoidance procedures before construction resumes in the area.

4.3.5.4.4. Project Impacts on Double-Crested Cormorant

Double-crested cormorants have the potential to occur within the BSA. Construction activities on or adjacent to the existing SFOBB structure could potentially disturb nesting cormorants, and cause nest failure or abandonment. Construction activities along the eastern border of the BSA could potentially temporarily disturb roosting cormorants, if construction activities move outside of the construction envelope. The project will have no permanent impact to cormorant roosting, nesting or foraging habitat.

4.3.5.4.5. Compensatory Mitigation for Double-Crested Cormorant

No compensatory mitigation is proposed for this species.

4.3.5.4.6. Cumulative Impacts on Double-Crested Cormorant

In addition to the current project, several other construction projects are being undertaken or are in the planning stages in the immediate vicinity. These projects include the construction of the new SFOBB East Span, and the Treasure Island and

YBI Redevelopment Plan. If the combined disturbance is great enough, cormorants may abandon nest and roost sites around the SFOBB, YBI, and Treasure Island.

4.3.6 Discussion of Special-Status Terrestrial Mammals

A total of 16 special-status terrestrial mammal species were considered during the preparation of this report because of the presence of occurrences nearby, or because the BSA falls within or in the vicinity of the historical range of these species, including:

- Pallid bat (*Antrozous pallidus*), a California Species of Special Concern
- Berkeley kangaroo rat (*Dipodomys heermanni berkeleyensis*), a species tracked by the CNDDB
- Silver-haired bat (*Lasionycteris noctivagans*), a species tracked by the CNDDB
- Western red bat (*Lasiurus blossevillii*), a California Species of Special Concern
- Hoary bat (*Lasiurus cinereus*), a species tracked by the CNDDB
- San Pablo vole (*Microtus californicus sanpabloensis*), a species tracked by the CNDDB
- Long-eared myotis bat (*Myotis evotis*), a species tracked by the CNDDB
- Fringed myotis bat (*Myotis thysanodes*), a species tracked by the CNDDB
- Long-legged myotis bat (*Myotis volans*), a species tracked by the CNDDB
- San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*), a California Species of Special Concern
- Salt marsh harvest mouse (*Reithrodontoyms raviventris*), federally and state-listed endangered and a California Fully Protected Species
- Angel Island mole (*Scapanus latimanus insularis*), a California Species of Special Concern
- Alameda Island mole (*Scapanus latimanus parvus*), a California Species of Special Concern
- Salt marsh wandering shrew (*Sorex vagrans halicoetes*), a California Species of Special Concern

- American badger (*Taxidea taxus*), a California Species of Special Concern
- Point Reyes jumping mouse (*Zapus trinotatus orarius*), a California Species of Special Concern

Based on the absence of suitable salt marsh habitat and isolation from known occurrences (Figure 5b), salt marsh harvest mouse and salt marsh wandering shrew are not expected to occur within the BSA. YBI is isolated from known occurrences and populations of San Pablo vole, Point Reyes jumping mouse, Angel Island mole, Alameda island mole, American badger, and Berkeley kangaroo rat by the waters of the Bay (CDFG 2008a) (Figure 5b), and therefore these species are not expected to occur (see Appendix A). Special-status terrestrial mammal species that have potential to occur on-site are discussed in more detail below.

4.3.6.1 SPECIAL-STATUS BATS

4.3.6.1.1 Life History of Special-Status Bats

There are 24 known species of bats in California. Of those, 11 are classified as California Species of Special Concern (CDFG 2008c). Five special-status bat species have a moderate potential to occur within the BSA, including western red bat, hoary bat, long-eared myotis bat, fringed myotis bat, and long-legged myotis bat.

These species variously use mature trees, snags, crevices, and human-made structures (such as buildings) for roosting, either for winter roosting (hibernacula) or for forming nursery colonies. Bats are generally site faithful and will not abandon an established roosting area unless disturbed.

4.3.6.1.2. Survey Results for Special-Status Bats

Several species of bats have a potential to use structures and trees on-site for roosting. Structures such as the existing SFOBB roadway structure, between the YBI landing and YBI tunnel, have crevices and nooks that provide potential refuge for bats as temporary night roosts. Additionally there are several uninhabited buildings within the BSA that could provide adequate day and night roosting habitat in gaps beneath roof tiles or exterior trim, or within the structures themselves, and several potential access points for bats to enter and leave these structures were identified. The study site also contains stands of mature trees, which could provide roosting habitat within the canopy, cavities in the trees, or beneath loose bark. Foraging habitat is available throughout the BSA, wherever insects may congregate, such as near nighttime light sources. An acoustical bat survey was conducted as part of the biological resources

analysis for the Treasure Island/Yerba Buena Island Redevelopment Project by ESA in 2009. Calls recorded overnight on two occasions indicated that Mexican free-tailed bats (*Tadarilia brasiliensis*) are the predominant species present on the island (City of San Francisco 2010). However, the survey was not exhaustive and other species that may be considered special-status were not ruled out.

4.3.6.1.3. Avoidance and Minimization Efforts for Special-Status Bats

A pre-construction survey for roosting bats will be performed by a qualified biologist within 30 days prior to any removal of trees or structures on the site. If no active roosts are found, then no further action would be proposed. If either a maternity roost or hibernacula (structures used by bats for hibernation) is present, the following minimization measures will be implemented:

- If active maternity roosts or hibernacula are found in trees or structures which will be removed or disturbed as part of project construction, the roost will be avoided by construction activities to the extent feasible. If an active maternity roost is located and avoidance of the occupied tree or structure is not feasible, demolition can commence before maternity colonies form (i.e., prior to March 1) or after young are volant (flying) (i.e., after July 31). Disturbance-free buffer zones as determined by a qualified biologist in coordination with CDFG will be observed during the maternity roost season (March 1 - July 31). CDFG will be notified if any maternity roost or hibernacula is disturbed.

- ESA exclusion fencing will be placed around avoided habitats and contractor education will be conducted to prevent encroachment of construction activities. Bright colored ESA fencing and signage will be implemented and a construction monitor will confirm the fence integrity on a daily basis to protect the area from accidental equipment damage. Fence repair and/or reinforcements will be completed immediately. If a new roost site is discovered during construction, the biological monitor will be contacted to implement avoidance procedures before construction resumes in the area.

- If a non-breeding bat hibernacula is found in a tree or structure scheduled for removal, the individuals will be safely evicted, under the direction of a qualified biologist (as determined by possession of a Memorandum of Understanding (MOU) with CDFG typically amended to the individual's scientific collecting permit), by opening the roosting area to allow airflow through the cavity. Demolition can then follow at least one night after initial

disturbance for airflow. This action should allow bats to leave during darkness, thus increasing their chance of finding new roosts with a minimum of potential predation during daylight. Trees or structures with roosts that need to be removed will first be disturbed at dusk, just prior to removal that same evening, to allow bats to escape during the darker hours.

4.3.6.1.4. Project Impacts on Special-Status Bats

Project construction activities have the potential to directly affect bats roosting within the project area and indirectly disturb those that may be roosting adjacent to the site. Under both project alternatives, temporary and permanent project impacts are proposed to eucalyptus woodland and mixed broadleaf conifer forest that provide potential roost sites. Removal of trees will result in a loss of potential bat roosting habitat. Under proposed Alternative 4 approximately 0.68 acre of woodland and forest habitat will be permanently affected by placement of the ramp structures and approximately 2.48 acres will be temporarily disturbed for construction staging and access. Under proposed Alternative 2b approximately 1.08 acre of woodland and forest habitat will be permanently affected by placement of the ramp structures and approximately 2.08 acres will be temporarily disturbed for construction staging and access. In addition the SFOBB structure and portions of the road way will be disturbed and modified during construction. This may result in a loss of potential roost sites. No buildings are proposed for removal under Alternative 4; however, implementation of Alternative 2b would require removal of one unoccupied building that provides potential roost habitat.

4.3.6.1.5. Compensatory Mitigation for Special-Status Bats

If special-status bats are found roosting within trees or structures on-site that require removal or if occupied habitat is accidentally damaged during construction, the SFCTA will create appropriate replacement roosts at a suitable location on-site or off site in coordination with a qualified biologist, Caltrans, and/or CDFG.

4.3.6.1.6. Cumulative Impacts on Special-Status Bats

In addition to the current project, several other construction projects are being undertaken or are in the planning stages in the immediate vicinity. These projects include the construction of the new SFOBB East Span, and the Treasure Island and YBI Redevelopment Plan. If bat roosts are present, particularly a maternity roost site, the combined construction efforts may result in the loss of local bat populations.

4.3.6.2 DUSKY FOOTED WOODRAT

4.3.6.2.1. Life History of Dusky Footed Woodrat

The San Francisco dusky-footed wood rat is a medium-sized rat which builds large stick nests at the bases of trees and shrubs. These nests average 46 inches high, and contain multiple chambers and openings (Carraway 1991). They prefer forested habitat with a moderate to complete canopy cover and brushy understory, and are often found on the upper banks of riparian forests. However, wood rats will also nest in chaparral, coastal sage-scrub and mixed coniferous forests (Carraway 1991). Nesting locations are determined based on a combination of dark, cool surroundings, low to moderate humidity and dense cover (Linsdale 1957). San Francisco dusky-footed wood rats feed on a variety of woody plants, fungi, flowers and seeds (Jameson and Peeters 2004), but prefer evergreen vegetation high in fiber, tannins and polyphenolics such as oaks, California bay, alders, willows, coffeeberry, toyon, coyote brush, and Douglas fir, among others (Atsatt and Ingram 1983, Carraway 1991). Home ranges average ½ acre with males having slightly larger home ranges, all of which overlap from 15 to 62 percent depending on breeding activity (Carraway 1991).

Wood rats are commonly preyed on by weasels, coyotes, bobcats, and rattlesnakes as well as several raptors such as barn owls, great horned owls, and red-tailed hawks (Carraway 1991). Most notably, wood rats are the preferred prey of the Northern spotted owl. Wood rats and their nests provide food and cover for a wide range of species including parasitic mouse (*Peromyscus californicus*), deer mouse, harvest mouse (*Reithrodontomys megalotis*), ornate shrew (*Sorex ornatus*), brush rabbit, western fence lizard, garter snake (*Thamnophis* spp.), California whipsnake (*Masticophis lateralis*), gopher snake (*Pituophis melanoleucus*), ensatina (*Ensatina eschscholtzii*), California slender salamander (*Batrachoseps attenuatus*), and California newt (*Taricha torosa*), among others (Carraway 1991).

4.3.6.2.2. Survey Results for Dusky Footed Woodrat

Thick understory beneath the eucalyptus and mixed broadleaf woodland canopies composed of ivy, as well as small acacia and other shrubby plants, provide potential habitat for San Francisco dusky-footed woodrat. Although no San Francisco dusky-footed woodrat houses were observed during the site visit, these structures can be quite cryptic, the site provides ample material for the building of these structures, and San Francisco dusky-footed woodrats have been known to build houses in stands of eucalyptus, such as those found on-site. They have also been observed using

eucalyptus leaves as food and nest making material (Hodge 2008). Therefore, San Francisco dusky-footed woodrat are considered to have a moderate potential to occur on-site.

4.3.6.2.3. Avoidance and Minimization Efforts for Dusky Footed Woodrat

A pre-construction survey for San Francisco dusky-footed woodrat and associated woodrat houses will be performed by a qualified biologist within 30 days prior to any removal of trees or other vegetation on the site and within 100 feet of planned construction activities. If no active houses are found, then no further action would be proposed. If active woodrat houses are found in or below trees and vegetation which will be removed or temporarily disturbed as part of project construction, the project will be redesigned to avoid the loss of the occupied habitat and disturbance to woodrats to the extent feasible. If the project cannot be redesigned to avoid removal of the occupied habitat, the woodrat house may be relocated to a suitable location as close to the original house as possible while maintaining an adequate buffer of construction activities in coordination with CDFG. Animal exclusion fencing will be placed around construction area, to prevent woodrat ingress, and contractor education will be conducted. A construction monitor will confirm the fence integrity on a daily basis to protect the area from accidental equipment damage. Fence repair and/or reinforcements will be completed immediately. If a new nest site is discovered during construction, the biological monitor will be contacted to implement avoidance procedures before construction resumes in the area, in coordination with CDFG. CDFG will be notified if any nest is disturbed.

4.3.6.2.4. Project Impacts on Dusky Footed Woodrat

Project construction activities have the potential to directly affect woodrats if they occur within the project area and indirectly disturb those that may be utilizing woodlands and/or forests adjacent to the site. Under both project alternatives, temporary and permanent project impacts are proposed to eucalyptus woodland and mixed broadleaf conifer forest that provide potential habitat. Removal of vegetation will result in a loss of potential foraging and nesting habitat. Under proposed Alternative 4 approximately 0.68 acre of woodland and forest habitat will be permanently affected by placement of the ramp structures and approximately 2.48 acres will be temporarily disturbed for construction staging and access. Under proposed Alternative 2b approximately 1.08 acre of woodland and forest habitat will be permanently affected by placement of the ramp structures and approximately 2.08 acres will be temporarily disturbed for construction staging and access.

4.3.6.2.5. Compensatory Mitigation for Dusky Footed Woodrat

If San Francisco dusky-footed woodrat houses are found within portions of the project site that require permanent or temporary disturbance or if occupied habitat is accidentally damaged during construction, the SFCTA will create appropriate replacement houses/nests at a suitable location on-site or off site in coordination with a qualified biologist, Caltrans, and/or CDFG. Follow-up monitoring efforts will be conducted to evaluate relocation success and additional mitigation may be necessary if relocated houses are not successful.

4.3.6.2.6. Cumulative Impacts on Dusky Footed Woodrat

In addition to the current project, several other construction projects are being undertaken or are in the planning stages in the immediate vicinity. These projects include the construction of the new SFOBB East Span, and the Treasure Island and YBI Redevelopment Plan. If present, the combined construction efforts may temporarily reduce the number of woodrats on the eastern portion of YBI as well as the total available woodland habitat on the island.

4.3.7 Discussion of Special-Status Marine Mammals

Potential project impacts to nine federally listed marine mammal species under the jurisdiction of NMFS were considered because the study area falls within or in the vicinity of the historical range of these species or the species have been identified as occurring near the study area, including:

- Guadalupe fur seal (*Arctocephalus townsendi*)
- Sei whale (*Balaenoptera borealis*)
- Blue whale (*Balaenoptera musculus*)
- Finback whale (*Balaenoptera physalus*)
- Southern sea otter (*Enhyrda lutris nereis*)
- Right whale (*Eubalaena glacialis*)
- Stellar sea lion (*Eumetopias jubatus*)
- Humpback whale (*Megaptera novaeangliae*)
- Sperm whale (*Physeter catadon*)

Several species of federally listed marine mammals occur off of the Central California Coast. However, only the humpback whale has been known to enter the

San Francisco Bay on occasion and it is not expected to occur in the vicinity of the project area. If a humpback whale were to move into waters of the Bay, implementation of construction BMPs for adjacent aquatic habitats as described in Section 4.1.1.2 would minimize the potential for indirect effects. Given that it is extremely unlikely for them to be present in San Francisco Bay, the project will have no affect on federally listed marine mammals.

Impacts to four marine mammal species which are not listed under the FESA, but which do receive protection under the MMPA were also evaluated. These species were considered because the study area falls within or in the vicinity of the historical range of these species or the species have been identified as occurring near the study area, including:

- Harbor seal (*Phoca vitulina*)
- Harbor porpoise (*Phocoena phocoena*)
- California sea lion (*Zalophus californicus*)
- Gray whale (*Eschrichtius robustus*)

Harbor seal, California sea lion, harbor porpoise, and gray whale, all have potential to occur in the vicinity of the study area. Although the study area is located immediately adjacent to the San Francisco Bay, no work would be conducted within the limits of the San Francisco Bay, and the only aquatic habitat present within the study area is limited to concrete-lined drainage swales adjacent to roadsides, which do not provide habitat for marine mammal species. Gray whales and harbor porpoises are entirely aquatic, ocean species, and the likelihood of them occurring in waters adjacent to the site is extremely low. There will be no direct project effects on these species. If gray whale and/or harbor porpoise were to occur in waters of the Bay on occasion, the potential for indirect effects would be minimized with the implementation of BMPs designed to protect adjacent aquatic habitats during construction.

Because of their presence in the Bay and potential to use surrounding shoreline habitats, harbor seals and California sea lions are discussed in more detail below.

4.3.7.1 HARBOR SEAL

4.3.7.1.1. Life History of Harbor Seal

Harbor seals are permanent residents in the San Francisco and San Pablo Bays. Harbor seals forage aquatically but use land to haul-out and pup. They feed on a

variety of fish including surf perch (Embiotocidae fishes) and plainfin midshipman (Porichthys notatus), with variation in the dominant fish taken both seasonally and based upon the portion of the bay in which they reside. Harbor seals are generally solitary, or in mother-pup pairs when in the water, although they will haul-out in groups ranging in size from a few individuals to several hundred (Riedman 1990). Harbor seals breed in the spring and early summer, giving birth 11 months later, to a single pup. Pups are weaned in four weeks.

Harbor seals haul out at 12 main sites in the SF Bay (Parsons Brinkerhoff 2002) with several smaller sites used as well, and had 8 known pupping sites in the early 1990's (Goals Project 2000). Haul-outs sites generally require several features to be suitable for harbor seals, such as sloping terrain, deep water immediately adjacent, and no disturbance from boats or land access. Seals are extremely sensitive to human disturbance, are extremely wary of their surroundings, and have been known to abandon haul out sites when disturbance increases and/or food resources decrease, as evidenced by the abandonment of Strawberry Spit near Marin (Grigg 2000). Many of the sites traditionally used are islands or completely surrounded by water, such as Brooks Island, and Castro Rocks, and there has been some limited use of a floating abandoned dock by Sausalito. Pupping sites are generally the most protected from disturbance, and harbor seals are slow to colonize new pupping sites. Harbor seals have been known to pup at Castro Rocks, Newark Slough and Mowry Slough (Goals Project 2000).

4.3.7.1.2. Survey Results for Harbor Seal

Harbor seals are known to haul-out on the southeast side of YBI 1,600 feet from the BSA (Parsons Brinkerhoff 2002, SRS 2004, Goals Project 2000) (Figure 5b). The haul out site on YBI is a small rocky beach in a cove just west of the lighthouse, surrounded by steep hillsides, making access by land difficult, and thereby minimizing disturbance. In 1999, the haul-out site at YBI had 72 seals and three pups reported (Goals Project 2000), although this site is not confirmed as an active pupping site, as no births have been observed at the site. While the YBI haul-out site is an active, and well used site, its relative isolation from disturbance distinguishes it from the rest of the island, and in particular the BSA.

The BSA does not immediately meet the water's edge, and does not include beach areas easily accessed by seals for haul out purposes, with the exception of the southeastern edge which is adjacent to a small area of sandy beach. This beach area is subject to a large amount of water-based human disturbance from the nearby USCG

facility as well as ongoing construction disturbance from the land, which would likely preclude harbor seals from hauling out at this location. Furthermore, there are no records of harbor seals using this area for hauling out. Based on the absence of suitable haul-out habitat, harbor seals are not expected to occur on-site (see Appendix A). However, harbor seals may forage in the Bay immediately offshore from the project area.

4.3.7.1.3. Avoidance and Minimization Efforts for Harbor Seal

The project design is such that harbor seal habitat and individuals will be avoided by construction activities. Based on the hydroacoustic analysis (Illingworth & Rodkin, Inc.2011), no avoidance and minimization or mitigation measures are proposed.

4.3.7.1.4. Project Impacts on Harbor Seal

Project construction activities that involve loud equipment such as pile driving have the potential to injure or disturb behavior patterns of harbor seals utilizing waters of the San Francisco Bay adjacent to the site. The project will employ pile driving techniques under both alternatives. However, none of these activities will occur within aquatic habitats. All construction activities, including pile driving of piers for installation of the ramps, will occur on land in soils that are not saturated. H-piles (steel piles) will be driven into the ground; the other type of piles to be used are concrete piles which are to be placed, not driven (a hole is augered and the concrete is placed inside). The closest H-piles will be driven approximately 300 feet from the shoreline under Alternative 2B and 90 feet from the shoreline under Alternative 4. The primary source of underwater noise would be ground borne vibration released into the bay. Illingworth & Rodkin, Inc. prepared a hydro-acoustic analysis for pile driving activities under both project alternatives **(**Illingworth & Rodkin, Inc. 2011a**).** Predictions for distances to accepted NMFS thresholds were made using actual measurements taken by Illingworth & Rodkin, Inc. from similar pile driving experiences. Injury and behavioral disturbance thresholds accepted by NMFS are described by root-mean-square pressure (RMS) for marine mammals as follows:

Table 5. Marine Mammal Disturbance Thresholds for Marine Construction Activities

	Airborne Noise Threshold (dB re: 20µPa)	Underwater Noise threshold (dB re: 1µPa)		
Species	**In Air Sound Pressure Levels (RMS)**	**Vibratory Pile Driving Disturbance Threshold**	**Impact Pile Driving Disturbance Threshold**	**Injury Threshold**
Harbor Seals	90 dB RMS[1] (un-weighted)	120 dB RMS	160 dB RMS	190 dB RMS
Sea Lions and Sea Otters	100 dB RMS[1] (un-weighted)	120 dB RMS	160 dB RMS	190 dB RMS
Cetaceans	NA	120 dB RMS	160 dB RMS	180 dB RMS

Source: (70 FR 1871), Southal et al. 2007: 71FR 3260 January 20, 2006; and WADOT.wa.gov/nr/rdonlyres/216F21DA../BA_Marine/Noisethreshold.pdf

The data used in Illingworth & Rodkin, Inc.'s analysis is based primarily on data measured for installation of a temporary crane platform on YBI in November 2008. Therefore soil types and transmission loss through the soils would be similar to the project area, providing a reasonable comparison. For the crane platform, piles were driven approximately 40 feet from the water's edge producing maximum underwater sound levels of 157 dB RMS at underwater measurement locations of 131 feet. This was the closest location that measurements could be made due to the shallowness of the water. The closest pile for Alternative 4 is located 90 feet from the shoreline. Given that this pile will be farther away from marine mammal foraging habitat than those installed for the crane platform, underwater noise levels are expected to be even lower for construction of the YBI Ramps under both alternatives. Thus, project construction noise levels are not expected to reach the minimum established injury threshold of 190 dB RMS nor the minimum established disturbance threshold of 160 dB RMS for harbor seals (Illingworth & Rodkin, Inc. 2011a).

Although there is an active haul-out, and potential pupping site on YBI, this haul-out site is located over 1,600 feet from the study area and is characteristically distinct from the study area. The haul out site is not within line of site of the study area and is protected from the study area by the surrounding hillsides. Illingworth & Rodkin, Inc (2011b) calculated the distance to the airborne noise disturbance limit for harbor seals (90 dB RMS) to be 700 feet for L_{max}/RMS (maximum sound level) and 250 feet for L_{eq}/RMS during pile driving activities. Given the distance of the haul out site, the airborne noise threshold of 90 dB RMS will not be reached at that location during pile driving activities. Sound levels of air-borne construction noise may approach these

levels at the water's surface adjacent to the site however any foraging harbor seals could avoid disruption by swimming under water where sound levels are not expected to reach disturbance thresholds as described above.

Based on the absence of suitable haul-out habitat on site, distance and topographic position of the known haul out site on YBI, the absence of construction activity within the San Francisco Bay, and the above hydroacoustic analysis no affects to harbor seals are expected from either project alternative.

4.3.7.1.5. Compensatory Mitigation for Harbor Seal

The project will not result in loss of any harbor seal habitat. Compensatory mitigation is not proposed.

4.3.7.1.6. Cumulative Impacts on Harbor Seal

It is unlikely that the project would have an adverse cumulative effect on the seals as there are no components of the project that are in or immediately adjacent to the water and haul out areas are not present on site. The known haul out site on YBI is far enough away that construction noise will have no cumulative impact on pupping or resting seals.

4.3.7.2 CALIFORNIA SEA LION

4.3.7.2.1. Life History of California Sea Lion

California sea lions occur along the entire California coast, and occur year-round in the Bay. California sea lions breed from San Luis Obispo County south to the Gulf of California, Baja California, Mexico, although they have been known to breed further north or rare occasions. Pups are born between May and June. California sea lions feed primarily on schooling fish species such as anchovies, midshipman and Pacific herring (Goals Project 2000). In the San Francisco Bay populations of California sea lion peak during the winter herring run from December to February. California sea lions are only known to haul out in three places in the Bay, Pier 39 in San Francisco (Parsons Brinkerhoff 2002, Goals Project 2000), Angel Island, and Seal Rock, which is located just beyond the Golden Gate Bridge.

4.3.7.2.2. Survey Results for California Sea Lion

While California sea lions could potentially forage near the BSA, it is unlikely that any individuals would haul-out near the BSA. Based on the absence of suitable haul-out habitat and the absence of work within the bay, California sea lions are not

expected to occur on-site (see Appendix A), or be adversely affected by the construction activities.

4.3.7.2.3. Avoidance and Minimization Efforts for California Sea Lion

The project design is such that sea lion habitat and individuals will be avoided by construction activities. Based on the hydroacoustic analysis (Illingworth & Rodkin, Inc. 2011), no avoidance and minimization or mitigation measures are proposed.

4.3.7.2.4. Project Impacts on California Sea Lion

Project construction activities that involve loud equipment such as pile driving have the potential to injure or disturb behavior patterns of sea lions utilizing waters of the San Francisco Bay adjacent to the site. The project will employ pile driving techniques under both alternatives. However, none of these activities will occur within aquatic habitats. All construction activities, including pile driving of piers for installation of the ramps, will occur on land in soils that are not saturated. H-piles (steel piles) will be driven into the ground; the other type of piles to be used are concrete piles which are to be placed, not driven (a hole is augered and the concrete is placed inside). The closest H-piles will be driven approximately 300 feet from the shoreline under Alternative 2B and 90 feet from the shoreline under Alternative 4. The primary source of underwater noise would be ground borne vibration released into the bay. Illingworth & Rodkin, Inc. prepared a hydro-acoustic analysis for pile driving activities under both project alternatives **(**Illingworth & Rodkin, Inc. 2011a**).** Predictions for distances to accepted NMFS thresholds were made using actual measurements taken by Illingworth & Rodkin, Inc. from similar pile driving experiences. Injury and behavioral disturbance thresholds accepted by NMFS are described by root-mean-square pressure (RMS) for marine mammals as follows:

Table 6. Marine Mammal Disturbance Thresholds for Marine Construction Activities

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Cetaceans	NA	120 dB RMS	160 dB RMS	180 dB RMS

Source: (70 FR 1871), Southal et al. 2007: 71FR 3260 January 20, 2006; and WADOT.wa.gov/nr/rdonlyres/216F21DA../BA_Marine/Noisethreshold.pdf

The data used in Illingworth & Rodkin, Inc.'s analysis is based primarily on data measured for installation of a temporary crane platform on YBI in November 2008. Therefore soil types and transmission loss through the soils would be similar to the project area, providing a reasonable comparison. For the crane platform, piles were driven approximately 40 feet from the water's edge producing maximum underwater sound levels of 157 dB RMS at underwater measurement locations of 131 feet. This was the closest location that measurements could be made due to the shallowness of the water. The closest pile for Alternative 4 is located 90 feet from the shoreline. Given that this pile will be farther away from marine mammal foraging habitat than those installed for the crane platform, underwater noise levels are expected to be even lower for construction of the YBI Ramps under both alternatives. Thus, project construction noise levels are not expected to reach the minimum established injury threshold of 190 dB RMS nor the minimum established disturbance threshold of 160 dB RMS for sea lions (Illingworth & Rodkin, Inc. 2011a).

Illingworth & Rodkin, Inc (2011b) calculated the distance to the airborne noise disturbance limit for seal lions (100 dB RMS) to be 230 feet for L_{max}/RMS (maximum sound level) and 80 feet for L_{eq}/RMS during pile driving activities. Sound levels of air-borne construction noise may approach the airborne noise threshold of 100 dB RMS at the water's surface immediately adjacent to the site for Alternative 4 where pile driving will occur within 90 feet of the shoreline; however, any foraging sea lions could avoid disruption by swimming under water where sound levels are not expected to reach disturbance thresholds.

Based on the absence of suitable haul-out habitat on site, the absence of construction activity within the San Francisco Bay, and the above hydroacoustic analysis no affects to sea lions are expected from either project alternative.

4.3.7.2.5. Compensatory Mitigation for California Sea Lion

The project will not result in loss of any harbor seal habitat. Compensatory mitigation is not proposed.

4.3.7.2.6. Cumulative Impacts on California Sea Lion

It is unlikely that the project would have an adverse cumulative effect on the seals as there are no components of the project that are in or immediately adjacent to the water and haul out areas are not present on site. Known haul out sites in the region are far enough away that construction noise will have no cumulative impact on resting sea lions.

Chapter 5. Results: Permits and Technical Studies for Special Laws or Conditions

5.1. FESA (Federal Endangered Species Act) Consultation Summary

Based on an absence of suitable habitat and isolation from know populations in the region, terrestrial species listed under the FESA are not expected to occur on-site. Fish species falling under the purview of the USFWS or NOAA-Fisheries are not expected to occur in waters adjacent to the site. Therefore, it has been determined that the project will have no affect on federally listed species regulated by the USFWS or NOAA-Fisheries.

5.2. Federal Fisheries and EFH (Essential Fish Habitat) Consultation Summary

Based on the Alternative 2B project design which avoids sensitive aquatic habitats, restricts pile driving to a minimum of 300 feet from the shoreline and implements BMPs, this alternative will have no affect on fisheries or marine mammals. Alternative 4 will also implement BMPs and avoid direct impacts to aquatic habitats however it will involve pile driving within 90 feet of the shoreline. It is also anticipated that this alternative will have no affect on fisheries or marine mammal behavior patterns in the area based on the hydroacoustical analysis.

5.3. CESA (California Endangered Species Act) Consultation Summary

Proposed avoidance and minimization measures will reduce potential project impacts to species listed under the CESA that occur in the vicinity of the project area or have potential to occur on-site including the bank swallow. Bank swallow have not been documented on YBI however, the project has been designed to avoid impacts to potential habitat within the BSA and a pre-construction survey will be conducted for nesting birds prior to construction to avoid take of any individuals. Thus a 2081 permit from CDFG will not be necessary.

5.4. Wetlands and Other Waters Coordination Summary

Concurrent with the site reconnaissance, EDAW biologists Kristin Asmus and Hildie Spautz conducted a wetland delineation and preliminary jurisdictional determination of the project site in accordance with the procedures outlined in the USACE Wetlands Delineation Manual (Environmental Laboratory 1987) and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 2008). The entire BSA was surveyed on foot and all distinct plant communities were visited and described. Locations of potential wetlands and waters of the United States and State were recorded and mapped on a 1"=50' aerial map of the project area.

A request for verification of their jurisdiction is being submitted to the USACE. USACE conducted a preliminary review of photos and the jurisdictional determination map and indicated via e-mail correspondence on January 4th, 2011, that several of the unvegetated waters features appear to have been constructed in uplands, drain only uplands, and are therefore not jurisdictional. However, USACE stated that the remaining features may fall under their jurisdiction as natural ephemeral drainages. These jurisdictional features will be avoided by permanent and temporary construction activities under both alternatives. Only .01 acre (586 square feet) of non-jurisdictional features will be disturbed by temporary construction activities. Therefore notifications or permits are not anticipated (e.g., 404 CWA permit from USACE and 401 Certification from RWQCB). The unvegetated non-jurisdictional features will be restored at a 1:1 ratio on-site post construction, therefore compensatory mitigation is not anticipated.

Regardless of the jurisdictional outcome over the drainages on-site, the project will be reviewed with the RWQCB to ensure adequate water quality protection during and post construction. A SWPPP will be developed and standard construction BMP's implemented to meet RWQCB standards. The SWPPP will be submitted for approval to the RWQCB.

5.5. County Tree Ordinance Coordination Summary

A tree removal permit is not necessary for the project as it is exempt from the City ordinances which apply to significant trees via sovereign immunity based upon the federal ownership of YBI (Malamut 2009).

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Appendix A Regionally Occurring Special-Status Animal Species

Scientific Name	Common Name	Federal Status	State Status	Habitat	Potential for Occurrence	
Invertebrates						
Banksula incredula	Incredible harvestman	None	CNDDB	Only known species in the genus not found in caves. Known in only one locality in the San Francisco area, on the north slope of San Bruno Mountain ridge, just south of San Francisco. Found on talus slope consisting of Franciscan sandstone with a dense chaparral canopy.	Not Expected	No habitat in study area
Branchinecta lynchi	Vernal pool fairy shrimp	FT	None	Inhabits vernal pools in grasslands in the Central Valley, Coast Ranges and South Coast mountains, specifically the Slanted Rocks Area, west of Byron Hot Springs, in Contra Costa County. Occur in small depressions in sandstone outcrops surrounded by foothill grasslands. Other common habitat is a swale, earth slump, or basalt-flow depression basin with a grassy or muddy bottom; found in unplowed grasslands. Occurrences are noted in the Central Valley, Coast Ranges, and South Coast mountains. Active between December and May.	Not Expected	No habitat in BSA
Caecidotea tomalensis	Tomales isopod	None	CNDDB	Found in still or slow-moving vegetated water such as streams and ponds. Found from Sonoma to San Mateo counties.	Not Expected	No habitat in BSA
Calicina diminua	Marin blind harvestman	None	CNDDB	Found under rocks in serpentine grassland. Known only from Marin county.	Not Expected	No habitat in BSA
Callophrys (=Incisalia) mossii bayensis	San Bruno elfin butterfly	FE	None	Coastal, mountainous areas with grassy ground cover, mainly in the vicinity of San Bruno Mountain, San Mateo County. The adult flight period is late February to mid-April, with the peak flight period occurring in March and early April. Eggs are laid in small clusters or strings on the upper or lower surface of stonecrop (*Sedum spathulifolium)* .	Not Expected	No habitat in BSA
Cicindela hirticollis gravida	Sandy beach tiger beetle	None	CNDDB	Found in moist sand near the ocean, for example in swales behind dunes or upper beaches beyond normal high tides. Metapopulations known from San Diego through Marin Counties.	Very Low	Marginally suitable habitat present in BSA
Danaus plexippus	Monarch butterfly	None	CNDDB	Roosts located in wind-protected tree groves (eucalyptus, monterey pine, cypress), with nectar and water sources nearby. Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico.	Moderate	Suitable habitat present in BSA
Desmocerus californicus dimorphus	Valley elderberry longhorn beetle	FT	None	Typically inhabits oak savanna and riparian forests in the Central Valley below 3,000 feet elevation. Requires elderberry (Sambucus spp.) as host plant for all stages of its life cycle.	Not Expected	Outside of range
Dufourea stagei	Stage's dufourine bee	None	CNDDB	Found from San Bruno Mountain south to the Santa Cruz Mountains.	Not Expected	Outside of range

Scientific Name	Common Name	Federal Status	State Status	Habitat	Potential for Occurrence	
Euphydryas editha bayensis	Bay checkerspot butterfly	FT	None	Restricted to Santa Clara and San Mateo Counties in California. Habitat exists on shallow, serpentine-derived or similar soils, which support the butterfly's larval food plant, California plantain (*Plantago erecta*) and nectar plants including desert-parsely (*Lomatium* spp.) and California goldfields (*Lasthenia californica*), among others.	Not Expected	No habitat in BSA
Haliotes cracherodii	Black abalone	FC	None	High intertidal zone to 6 m depth, most abundant intertidally; Coos Bay (Oregon) to Cabo San Lucas (Baja California)	Not Expected	No habitat in BSA
Haliotes sorenseni	White abalone	FE	None	Found in open low and high relief rock or boulder habitat that is interspersed with sand channels from Point Conception, California, USA, to Punta Abreojos, Baja California, Mexico.	Not Expected	Outside of range
Helminthoglypta nickliniana bridgesii	Bridges' Coast Range shoulderband snail	None	CNDDB	Known from Contra Costa and Alameda Counties from Berkeley and San Pablo to the eastern base of Mount Diablo. Typically found in moist, often riparian areas under rocks, logs, woody debris, or accumulations of leaf mould.	Not Expected	Outside of range
Hydroporus leechi	Leech's skyline diving beetle	None	CNDDB	San Mateo County, California. May be endemic to San Francisco peninsula. Found in freshwater ponds, shallow water of streams, marshes, and lakes.	Not Expected	No habitat in BSA
Incisalia mossii bayensis	San Bruno elfin butterfly	FE	None	Found on rocky outcrops, woody canyons, cliffs; limited to the San Bruno Mountains in San Mateo County, California and a few nearby sites.	Not Expected	No habitat in BSA
Ischnura gemina	San Francisco forktail damselfly	None	CNDDB	Frequents streams and ponds, does not stray far from water. Known only from isolated spots within the San Francisco Bay Area.	Not Expected	No habitat in BSA
Lichnanthe ursina	Pacific sand bear (=Bumblebee scarab beetle)	None	CNDDB	Inhabits coastal sand dunes from Sonoma County south to San Mateo County.	Not Expected	No habitat in study area
Microcina leei	Lee's microblind harvestman	None	CNDDB	Found beneath sandstone rocks in open oak grassland. Only known from two occurrences in the Oakland-Berkeley Hills, near the UC Berkeley campus.	Not Expected	Outside of range
Microcina tiburona	Tiburon microblind harvestman	None	CNDDB	Known from Marin County. Closely associated with serpentine grasslands and outcroppings and found primarily underneath medium to large, undisturbed rocks in contact with the soil. It is believed that this type of habitat provides the ideal humidity and thermal conditions.	Not Expected	Outside of range
Nothochrysa californica	San Francisco lacewing	None	CNDDB	Coastal sage scrub to riparian and oak woodlands.	Very Low	Marginally suitable habitat present in BSA
Plebejus (=Icaricia) icariodes missionensis	Mission blue butterfly	FE	None	Majority of colonies known to occur in San Mateo county. Also known to occur at the Mission District of San Francisco and Fort Baker, Marin County. Habitat consists of coastal chaparral and coastal grasslands supporting the Mission blue butterfly's larval food plants, silverbush lupine (*Lupinus albifrons*), summer lupine (*L. formosus*), and varied lupine (*L. variicolor*).	Not Expected	No habitat in BSA
Speyeria callippe callippe	Callippe silverspot butterfly	FE	None	Inhabits grasslands containing larval host plant johnny-jump-up (*Viola pedunculata*). Known from three locations, including San Bruno Mountain (on the San Francisco Peninsula), Joaquin Miller Park in Alameda County, and in the vicinity of American Canyon, Solano County.	Not Expected	No habitat in BSA
Speyeria zerene myrtleae	Myrtle's silverspot butterfly	FE	None	Found in coastal dune or prairie habitat in western Marin and southwestern Sonoma counties, including the Point Reyes National Seashore. Adult butterflies are typically found in areas that are sheltered from the wind, below 820 feet elevation, and within 3 miles of the coast. Females are single-brooded and lay their eggs in the debris and dried stems of violets (typically *Viola adunca*), the larval food plants.	Not Expected	No habitat in BSA

Scientific Name	Common Name	Federal Status	State Status	Habitat	Potential for Occurrence	
Trachusa gummifera	A leaf-cutter bee (*Gummifera* leaf-cutter bee)	None	CNDDB	Found in San Francisco, Marin, and San Mateo Counties.	Very Low	Marginally suitable habitat present in BSA
Trynoia imitator	Mimic tryonia (California brackishwater snail)	None	CNDDB	Inhabits coastal lagoons, estuaries, and salt marshes. Found only in permanently submerged areas in a variety of sediment types, and is able to withstand a wide range of salinities. Known from the	Not Expected	No habitat in BSA
Vespericola marinensis	Marin hesperian	None	CNDDB	Found throughout the Point Reyes Peninsula and surrounding region.	Not Expected	Outside of range
Fish*						
Acipenser medirostris	Green sturgeon (Southern DPS)	FT	CSC	Anadromous. Inhabits the coastal Pacific Ocean and estuaries of large rivers. Migrates far inland to spawn. Spawns during spring in rivers in deep, cold, fast-moving water. Estuaries serve as nurseries. Adults are mostly marine, spending limited time in estuaries and rivers. The Southern DPS i l d ll l i h f b i l di h E l Ri Th l k i	Not Expected	BSA does not include suitable aquatic habitat
Archoplites interruptus	Sacramento perch	None	CSC	Historically found in the sloughs, slow-moving rivers, and lakes of the Central Valley. Prefer warm water. Aquatic vegetation is essential for young. Tolerant of wide ranges of physio-chemical water conditions.	Not Expected	BSA does not include suitable aquatic habitat
Eucyclogobius newberryi	Tidewater goby	FE	CSC	Occurs in tidal streams associated with coastal wetlands. Typically occurs in loose aggregations of a few to several hundred individuals on the substrate of shallow water less than three feet deep. Occurs along the entire California coast.	Not Expected	BSA does not include suitable aquatic habitat
Hypomesus transpacificus	Delta smelt	FT	ST	Historically found throughout the lower and middle reaches of the Sacramento - San Joaquin Delta. Spawning takes place between December - April in side channels and sloughs in the middle reaches of the Delta.	Not Expected	BSA does not include suitable aquatic habitat
Oncorhynchus kisutch	Coho salmon (Central California Coast ESU)	FE	SE	Critical habitat is designated to include all river reaches accessible to listed coho salmon from Punta Gorda south to the San Lorenzo River, including Mill Valley and Corte Madera Creeks, tributaries to San Francisco Bay. Also known from stream surveys in Aptos Creek.	Not Expected	BSA does not include suitable aquatic habitat
Oncorhynchus mykiss irideus	Steelhead (Central California Coast ESU)	FT	None	The ESU includes all naturally spawned populations of steelhead (and their progeny) in California streams from the Russian River to Aptos Creek, and the drainages of San Francisco and San Pablo Bays eastward to the Napa River (inclusive), excluding the Sacramento-San Joaquin River Basin.	Not Expected	BSA does not include suitable aquatic habitat
Oncorhynchus mykiss irideus	Steelhead (Central Valley, California ESU)	FT	None	The ESU includes all naturally spawned populations of steelhead (and their progeny) in the Sacramento and San Joaquin Rivers and their tributaries. Excluded are steelhead from San Francisco and San Pablo Bays and their tributaries. Little historical data exists for the San Joaquin River Basin. McEwan and Jackson (1996) reported a small remnant run in the Stanislaus River. Steelhead reported in Tuolumne River in 1983 and in Merced River. May have historically been in many of the San Joaquin River tributaries, especially during wet years.	Not Expected	BSA does not include aquatic habitat
Oncorhynchus tshawytscha	Chinook salmon (Central Valley spring-run ESU)	FT	ST	The ESU includes all naturally spawned populations of spring-run chinook salmon in the Sacramento River and its tributaries in California. These salmon are anadromous, inhabiting open ocean and coastal streams. Adults move upstream March-July and begin spawning in August.	Not Expected	BSA does not include suitable aquatic habitat

Scientific Name	Common Name	Federal Status	State Status	Habitat	Potential for Occurrence	
Oncorhynchus tshawytscha	Chinook salmon (winter-run)	FE	SE	This salmon is anadromous, inhabiting open ocean and coastal streams. Adults move upstream January-June and begin spawning in April. Downstream migrant smolts move past Red Bluff August-October.	Not Expected	BSA does not include suitable aquatic habitat
Amphibians						
Ambystoma californiense	California tiger salamander (Central Valley)	FT	CSC	Breeds in temporary or semi-permanent pools. Seeks cover in rodent burrows in grasslands and oak woodlands. This DPS inhabits the Coast Ranges north of Santa Barbara County and south of Sonoma County, as well as the Central Valley from Tulare to Colusa County.	Not Expected	No habitat in BSA
Rana (=aurora draytonii) draytonii	California red-legged frog	FT	CSC	Prefers semi-permanent and permanent stream pools, ponds, and creeks with emergent and/or riparian vegetation. Will occupy upland areas during the wet winter months.	Not Expected	No habitat in BSA
Rana boylii	Foothill yellow-legged frog	None	CSC	Inhabits permanent, slow-moving stream courses in the Coast Ranges and Sierra Nevada foothills. These streams usually contain a cobble substrate and a mixture of open canopy riparian vegetation.	Not Expected	No habitat in BSA
Reptiles						
Actinemys (=Clemmys) marmorata	Western pond turtle	None	CSC	Prefers permanent, slow-moving creeks, streams, ponds, rivers, marshes, and irrigation ditches with basking sites and a vegetated shoreline. Needs upland sites for egg laying. Occurs from the Oregon border to the San Francisco Bay, inland throughout the Sacramento Valley, and south along the coastal zone to San Diego County.	Not Expected	No habitat in BSA
Caretta caretta	loggerhead turtle	FT	None	Ranges throughout temperate oceans worldwide, though in our area rarely found north of Southern California.	Not Expected	Outside of range
Chelonia mydas	green turtle	FT	None	Ranges worldwide in warmer seas. Rarely found north of Baja California in our area.	Not Expected	Outside of range
Dermochelys coriacea	leatherback turtle	FE	None	Ranges worldwide in temperate to cool seas.	Not Expected	Outside of range
Lepidochelys olivacea	olive ridley sea turtle	FT	None	Ranges in warmer parts of oceans worldwide, nests in more tropical areas.	Not Expected	Outside of range
Masticophis lateralis euryxanthus	Alameda whipsnake (striped racer)	FT	ST	Restricted to chaparral and coastal scrub of the Alameda and Contra Costa Counties. Uses rock outcrops for refugia. Inhabits appropriate habitat on south, southwest- and southeast-facing slopes and ravines where the shrubs form a vegetative mosaic with grasses. Uses rodent burrows. Feeds on a number of items including fence lizards (Sceloporus spp.).	Not Expected	Outside of range
Thamnophis sirtalis tetrataenia	San Francisco garter snake	FE	SE/CFP	Largest population occurs in San Mateo County. Smaller populations occur along the coast from Sharp Park to Ano Nuevo and east through the Santa Cruz Mountains. Use freshwater marshes, ponds and slow-moving streams and surrounding upland areas.	Not Expected	Outside of range
Birds						
Accipiter cooperii	Cooper's hawk (nesting site only)	None	WL	Nests primarily in deciduous riparian forests. May also occupy dense canopied forests from gray pine-oak woodland to ponderosa pine. Forages in open woodlands. Occurs throughout the San Francisco Bay Area.	Moderate	Suitable habitat present in BSA
Aquila chrysaetos	Golden eagle (nesting/wintering sites only)	None	CFP/WL	Forages in a variety of habitats including grasslands, chaparral, and oak woodland supporting abundant mammals. Nests on cliffs and escarpments, and tall trees. Occurs throughout the San Francisco Bay Area.	Very Low	Marginally suitable habitat present in BSA
Ardea alba	Great egret	None	CNDDB	Nests in colonies with other species, in shrubs and trees over water, and on islands. Feeds in Variety of wetlands, including marshes, swamps, streams, rivers, ponds, lakes, tide flats, canals, and flooded fields.	Moderate	Suitable habitat present in study area
Ardea herodias	Great blue heron	None	CNDDB	Colonial nester in tall trees, cliffsides, and sequestered spots on marshes. Common over most of North America.	Moderate	Suitable habitat present in study

Scientific Name	Common Name	Federal Status	State Status	Habitat	Potential for Occurrence	
Athene cunicularia hypugea	Burrowing owl (burrow sites)	None	CSC	Open, dry grasslands, deserts, prairies, farmland and scrublands with abundant active and abandoned mammal burrows. Occurs in lowlands throughout California.	Not Expected	No suitable open habitat in BSA
Brachyramphus marmorata	Marbled murrelet	FT	SE	Occurs year-round in marine subtidal and pelagic habitats from the Oregon border to Point Sal, Santa Barbara County. Breeding individuals in California largely concentrated on coastal waters off Del Norte and Humboldt Counties, and in lesser numbers off San Mateo and Santa Cruz Counties. In the nonbreeding season, recorded as far south as Imperial Beach, San Diego County. Partial to coastlines with stands of mature redwood and Douglas-fir; uses these trees for nesting and probably roosting. Also noted in such habitats in winter.	Not Expected	Outside of range
Branta hutchinsii leucopareia	Cackling (=Aleutian Canada) goose	FD	CNDDB	Nests in the Aleutian islands, winters in the Central Valley south to Merced.	Not Expected	Outside of range
Charadrius alexandrinus nivosus	Western snowy plover (nesting)	FT	CSC	Breed primarily on coastal beaches from southern Washington to Baja California. Sand spits, dune-backed beaches, unvegetated beach strands, open areas around estuaries, and beaches at river mouths are preferred nesting habitat.	Not Expected	No nesting habitat in BSA. Northern foredune habitat is minimal (0.44 acre) and exposed to wave action. Rest of site is unsuitable due to ongoing construction or dense vegetation.
Circus cyaneus	Northern harrier (nesting)	None	CSC	Nests and forages in grasslands and agricultural fields. Nests on ground in shrubby vegetation, dense grass, or crops such as wheat and barley, often at the edge of marshes. Occurs throughout the San Francisco Bay Area.	Not Expected	No suitable open habitats in BSA
Egretta thula	snowy egret	None	CNDDB	Colonial nester, with nest sites situated in protected beds of dense tules. Feeds in variety of wetlands, including marshes, swamps, streams, rivers, ponds, lakes, tide flats, canals, and flooded fields.	Moderate	Suitable habitat present in BSA
Elanus leucurus	White-tailed kite (nesting sites)	None	CFP	Inhabits agricultural areas, low rolling foothills, valley margins with scattered oaks and river bottomlands, or marshes adjacent to deciduous woodlands. Prefers open grasslands, meadows, marshes, and agricultural fields for foraging. Occurs throughout the San Francisco Bay Area.	Moderate	Suitable habitat present in BSA
Falco peregrinus anatum	American peregrine falcon (nesting)	None	CFP	Nests and roosts on protected ledges of high cliffs and bridges, usually adjacent to lakes, rivers, or marshes. Permanent resident in the North and South Coast Ranges. Winters in the Central Valley southward through the Transverse and Peninsular Ranges. Feeds almost exclusively on birds. Known to breed on SFOBB.	High	Nests on both spans of SFOBB
Geothlypis trichas sinuosa	Salt marsh common yellowthroat	None	CSC	Known throughout the Bay Area from Napa to Santa Cruz Counties. Nests in freshwater marshes in the spring and summer and moves into tidal sloughs and channels during the winter. Requires contiguous freshwater and salt water marsh habitats.	Not Expected	No suitable marsh habitat in BSA
Haliaeetus leucocephalus	Bald eagle	FD	CFP/SE	Typically forage over large bodies of water, or large free-flowing rivers. Fish are their primary prey item, but they will also feed on waterfowl. Nests are built in tall trees near water bodies that support fish and waterfowl populations.	Not Expected	No suitable habitat in BSA

Scientific Name	Common Name	Federal Status	State Status	Habitat	Potential for Occurrence	
Hydroprogne caspia	Caspian tern	None	CNDDB	Nests on sandy or gravely beaches and shell banks in small colonies inland and along the coast. Known from Solano, Contra Costa, and Imperial Counties.	Not Expected	No nesting habitat in BSA.
Larus californicus	California gull (nesting colony)	None	WL	Nests at inland water bodies east of the Sierra Nevada Mountains such as Mono Lake. Small nesting colonies present in San Francisco Bay.	Moderate	Suitable habitat present in BSA
Larus occidentalis	western gull	None	None	Common along Pacific Coast, extremely rare more than a few miles inland. Known to nest on western span of SFOBB.	Moderate	Suitable habitat present in BSA
Laterallus jamaicensis coturniculus	California black rail	None	ST/CFP	Secretive marsh bird found in tidal and non-tidal wetlands with dense vegetation. Nests near the ground, typically in dense pickleweed or low grass. Highly vulnerable to predation during high tide events. Year-round resident in the greater Bay Area and recently recorded in smaller populations in isolated freshwater marshes in the Sierra foothills.	Not Expected	No suitable marsh habitat in BSA
Melospiza melodia maxillaris	Suisun song sparrow	None	CSC	Inhabits marshes of the Suisun Bay area from Martinez eastward along the south bayshore of Suisun Bay to Pittsburg, then north of Suisun Bay throughout the extensive Suisun marshlands. The only remaining wetlands supporting these birds in the Carquinez Strait apparently is at the north end of Southampton Bay (Benicia Marsh).	Not Expected	No suitable marsh habitat in BSA
Melospiza melodia pusillula	Alameda (South Bay) song sparrow	None	CSC	Occurs only along the southern and eastern fringes of the San Francisco Bay. Inhabits salt marsh habitats with dense vegetation, and upland habitats for refugia. Known from suitable salt marsh habitats on YBI.	Moderate	No suitable marsh habitat for nesting in BSA. May forage on-site.
Melospiza melodia samuelis	San Pablo song sparrow	None	CSC	Distributed in marshes around San Pablo Bay continuously from Gallinas Creek in the west, along the northern San Pablo bayshore, and throughout the extensive marshes along the Petaluma, Sonoma and Napa Rivers. All along the southeast shoreline of San Pablo Bay, isolated populations occur in small marshes between Wilson Point and Pinole Point, and at the mouths of	Not Expected	Outside of range
Nycticorax nycticorax	Black-crowned night heron (rookery)	None	CNDDB	Found in lowlands and foothills throughout most of California. Nests in trees with dense foliage and in wetlands with dense emergent vegetation.	Moderate	Suitable habitat present in BSA
Pandion haliaetus	Osprey (nesting)	None	WL	Nests in snags or on man-made structures such as telephone poles near fish-producing water bodies. Forages mainly on fish. Nests along the North Coast Range, Cascades, and Sierra Nevada's, and winters along the coast of central and southern California.	Very Low	Foraging habitat in Bay adjacent to site
Pelecanus occidentalis californicus	California brown pelican (nesting colony)	FE	CFP	Found in estuarine, marine subtidal, and marine pelagic waters along the California coast. Rare occurrence inland at the Salton Sea. Breeds on Channel Islands: Anacapa, Santa Barbara, and Santa Cruz. Usually rests on water or inaccessible rocks (either offshore or on mainland), but also uses mudflats, sandy beaches, wharfs, and jetties. Winters in the San Francisco Bay Area	High	Wintering and roosting only, not expected to nest in BSA
Phalacrocorax auritus	Double-crested cormorant	None	WL	Breeds colonially on coastal cliffs, offshore islands, bridges, and lake margins in the interior of the state. Known from sites throughout the San Francisco Bay Area and Sacramento River Delta. Forages in lakes, rivers, and bays.	High	Nests on SFOBB

Scientific Name	Common Name	Federal Status	State Status	Habitat	Potential for Occurrence	
Phoebastria (=Diomedea) albatrus	Short-tailed albatross	FE	None	Pelagic; often in regions of high productivity. Ranges from Alaska to Southern California. Nests on the ground on small oceanic islands; on volcanic ash slopes with sparse vegetation, formerly on level open areas adjacent to tall clumps of the grass. Nesting sites restricted to outlying islands of Japan in the western Pacific.	Not Expected	Outside of range
Rallus longirostris obsoletus	California clapper rail	FE	SE/CFP	Inhabits tidal salt marshes of the greater San Francisco Bay, although some individuals use brackish marshes during the spring breeding season. It formerly occurred at Humboldt Bay in Humboldt County, Elkhorn Slough in Monterey County, and Morro Bay in San Luis Obispo County. Requires well developed marshes with dense vegetation for nesting and access to tidal sloughs or exposed mud for foraging.	Not Expected	No suitable marsh habitat in BSA
Riparia riparia	Bank swallow	None	ST	Nests in colonies on sandy cliffs near water, marshes, lakes, streams, and the ocean. Forages in fields. Largest remaining populations occur along the Sacramento River from Tehama County to Sacramento County. Also found along the Feather and lower American Rivers, and in the Owens Valley. Breeding populations also present in San Francisco County, and at Año Nuevo in southern San Mateo County.	Low	Suitable habitat present on hillside within BSA
Rynchops niger	Black skimmer	None	CSC	Neotropical migrant, ranges from South America to southern California coasts. Strays occasionally to San Francisco Bay Area, and has been sighted in Alameda County. Nests on gravel bars, low islets, and sandy beaches, in unvegetated sites. Nesting colonies usually less than 200 pairs.	Not Expected	No nesting habitat in BSA. Northern foredune habitat is minimal (0.44 acre) and exposed to wave action. Rest of site is unsuitable due to ongoing construction or dense vegetation.
Selasphorus sasin	Allen's hummingbird	None	CNDDB	Breeds throughout coastal California south to Santa Barbara. Chaparral, thickets, brushy hillsides, open coniferous woodlands, and gardens near the coast, often in ravines and canyons. Nests on twigs or forks of trees or shrubs, sometimes on stalks of plants, among vines, or occasionally in buildings.	Moderate	Potential habitat within scrub and wooded areas on-site.
Sternula antillarum browni	California least tern	FE	SE/CFP	Nests on sand dunes close to water. Mixes freely with other terns. Nesting sites range from San Francisco Bay to Baja California. Nests on the Oakland Army Base and Alameda Naval Air Station.	Not Expected	No nesting habitat in BSA. Northern foredune habitat is minimal (0.44 acre) and exposed to wave action. Rest of site is unsuitable due to ongoing construction or dense vegetation.

Scientific Name	Common Name	Federal Status	State Status	Habitat	Potential for Occurrence	
Xanthocephalus xanthocephalus	Yellow-headed blackbird	None	CSC	Nests in freshwater emergent wetlands with dense vegetation & deep water. Often along borders of lakes or ponds. Its range extends as far west as central-interior British Columbia, moving directly south through the central-interior west coast to northeastern Baja California.	Not Expected	No suitable marsh habitat in BSA
Mammals						
Antrozous pallidus	Pallid bat	None	CSC	Large range in western North America; fairly common in many areas; however, regional population trends are poorly known. Inhabits open, dry habitats such as deserts, grasslands, and shrublands with rocky areas for roosting. Roosts in caves, mine tunnels, crevices in rocks,	Not Expected	No suitable habitat in BSA
Dipodomys heermanni berkeleyensis	Berkeley kangaroo rat	None	CNDDB	Known from open grassy hilltops and open spaces in chaparral and blue oak/digger pine woodlands in Alameda and Contra Costa Counties. Needs fine, deep, well drained soil for burrowing.	Not Expected	Outside of range
Lasionycteris noctivagans	Silver-haired bat	None	CNDDB	Primarily a coastal & montane forest dweller feeding over streams, ponds & open brushy areas. Range from Alaska across southern Canada south through all the US states except Florida.	Not Expected	No suitable habitat in BSA
Lasiurus blossevillii	Western red bat	None	CSC	From Shasta County south to the Mexico, west of the Sierra Nevada/Cascade crest and deserts. The winter range includes western lowlands and coastal regions south of San Francisco Bay. Roosting habitat includes forests and woodlands from sea level up through mixed conifer forests.	Very Low	Suitable habitat present in study area
Lasiurus cinereus	Hoary bat	None	CNDDB	Found throughout California. Habitats suitable for bearing young include all woodlands and Forests with medium to large-size trees and dense foliage.	Moderate	Suitable habitat present in study area
Microtus californicus sanpabloensis	San Pablo vole	None	CSC	Saltmarshes of San Pablo Creek, on the south shore of San Pablo Bay. Previous sightings include the Point Pinole Regional Park, along Wildcat Creek, Giant Saltmarsh.	Not Expected	Outside of range
Myotis evotis	Long-eared myotis bat	None	CNDDB	Inhabits thinly forested areas around buildings or trees. Occasionally found in caves. Does not occur in large colonies. Distributed throughout the western U.S.	Moderate	Suitable habitat present in BSA
Myotis thysanodes	Fringed myotis bat	None	CNDDB	Roosts in colonies in caves and attics of old buildings. Distributed throughout the western U.S. and into Mexico. Most frequent in coastal and montane forests and around mountain meadows.	Moderate	Suitable habitat present in BSA
Myotis volans	Long-legged myotis bat	None	CNDDB	Roosts colonially in buildings, small pockets and crevices in rock ledges, and exfoliating tree bark and hollows within snags. Distributed throughout the western U.S., Mexico, and Canada.	Moderate	Suitable habitat present in study
Neotoma fuscipes annectens	San Francisco dusky-footed woodrat	None	CSC	Evergreen or live oaks and other dense, thick-leaved trees and shrubs are important habitat components for this species. In riparian areas, highest densities of woodrats and their houses are often encountered in willow thickets with an oak overstory. Typically build large houses on the ground in thickets made of twigs, leaves, and debris.	Moderate	Suitable habitat present in BSA
Reithrodontomys raviventris	Salt marsh harvest mouse	FE	SE/CFP	Restricted to saline emergent wetlands of San Francisco Bay and its tributaries. Habitat consists primarily of pickleweed. Does not burrow; builds loose nests. Requires high ground to escape high tides and floods.	Not Expected	No suitable salt marsh habitat in BSA
Scapanus latimanus insularis	Angel Island mole	None	CNDDB	Only known from Angel Island.	Not Expected	Outside of range
Scapanus latimanus parvus	Alameda Island mole	None	CSC	Only known from Alameda Island. Found in a variety of habitats, especially annual and perennial grasslands. Prefers moist, friable soils. Avoids flooded soils.	Not Expected	Outside of range

Sorex vagrans halicoetes	Salt marsh wandering shrew	None	CSC	Occur in the tidal salt marshes of the south San Francisco Bay.	Not Expected	No suitable salt marsh habitat in BSA
Scientific Name	**Common Name**	**Federal Status**	**State Status**	**Habitat**	**Potential for Occurrence**	
Taxidea taxus	American badger	None	CSC	Inhabits open grasslands, savannas, and mountain meadows near timberline. Requires abundant burrowing mammals, their principal food source, and loose, friable soils. Distributed throughout California except in the humid forests of the extreme northwest.	Not Expected	No suitable grassland habitat in BSA
Zapus trinotatus orarius	Point Reyes jumping mouse	None	CSC	Found in bunch grass marshes on the uplands of Point Reyes.	Not Expected	No suitable grassland habitat in BSA
Marine Mammals						
Arctocephalus townsendi	Guadalupe fur seal	FT	CFP/ST	Occurs on island shores with solid rock and large lava blocks, usually at the base of tall cliffs. Remains in vicinity of breeding area throughout the year, though wandering individuals are sighted regularly off the California coast.	Not Expected	No suitable aquatic habitat in BSA
Balaenoptera borealis	Sei whale	FE	None	Worldwide, but distribution and movements during much of year are poorly known. Coast of Mexico to Gulf of Alaska in the eastern North Pacific. Generally in deep water; along edge of continental shelf and in open ocean. Migrates between lower-latitude wintering grounds and higher-latitude feeding grounds. Movements in specific areas may be unpredictable.	Not Expected	No suitable aquatic habitat in BSA
Balaenoptera musculus	Blue whale	FE	None	Mainly pelagic; generally prefers cold waters and open seas, but young are born in warmer waters of lower latitudes. There may be a basically resident or short distance migratory population off California and Baja California. Generally seen off California coasts from early summer through autumn.	Not Expected	No suitable aquatic habitat in BSA
Balaenoptera physalus	Finback (=fin) whale	FE	None	Pelagic; usually found in largest numbers 25 miles or more from shore. Travels singly, in pairs, or in pods of 6-7. May concentrate in areas of abundant food. Seen off California coasts in summer and autumn.	Not Expected	No suitable aquatic habitat in BSA
Enhydra lutris nereis	Southern sea otter	FT	CFP	Coastal waters within 2 km of shore, especially shallows with kelp beds and abundant shellfish. In rough weather, takes refuge among kelp, or in coves and inlets. Rarely comes ashore. Range along the central California coast, south of Half Moon Bay to Point Conception.	Not Expected	No suitable aquatic habitat in BSA
Eschrichtius robustus	Gray whale	MMPA	None	Easter Pacific population seen off California coasts in summer and autumn during migration. Breeds during December – March in Baja coastal lagoons, then migrates north to summer feeding grounds in the Bering and Chukchi seas. Occasionally enters the San Francisco Bay during migration. Is a baleen whale, feeding primarily on benthic invertebrates.	Not Expected	No suitable aquatic habitat in BSA
Eubalaena glacialis	Right whale	FE	None	Inhabits nearshore and offshore waters. North Pacific animals concentrated in relatively warm, shallow (50 to 80 m deep), well-stratified water. Travels singly or in small groups of 2-3, though may aggregate in areas with high concentration of food.	Not Expected	No suitable aquatic habitat in BSA
Eumetopias jubatus	Steller (=northern) sea lion	FT	None	Known to breed on the Farallon Islands. Female sea lions tend to select locations for pupping that are gently sloping and protected from waves. The beaches can be sand, gravel, cobble, boulder, or bedrock. Marine habitats include coastal waters near shore and over the continental slope; sometimes rivers are ascended in pursuit of prey. When not on land, the sea lions may congregate at nearshore traditional rafting sites, or move out to the edge of the continental shelf. While offshore, the sea lions are most often found within 35 km of shore, but may range out to several hundred kilometers offshore. The distance sea lions move offshore varies seasonally, with fewer animals being sighted at sea during the summer.	Not Expected	No suitable aquatic habitat in BSA
Megaptera novaeangliae	Humpback whale	FE	None	Worldwide distribution. Feeds on krill and small fish. Humpbacks swim in pods of up to a dozen at calving grounds, and in smaller groups of three to four during migration. Found along California coast in summer and fall. Occasionally humpbacks have been noted in the San Francisco Bay.	Not Expected	No habitat in BSA

Phoca vitulina	Harbor seal	MMPA	None	Occur north of the equator in both the Atlantic and Pacific Oceans. In the Pacific they range from Alaska to Baja California, Mexico. Found in groups of as many as 500 individuals. Are known to haul out and pup in the San Francisco/San Pablo Bays.	Very Low	Known haul-out located onYBI; No suitable haul-out habitat on study site
Phocoena phocoena	Harbor porpoise	MMPA		Occur in Northern Pacific and Atlantic in shallow coastal waters. Range south to Vancouver/Seattle.	Not Expected	Outside of range
Scientific Name	**Common Name**	**Federal Status**	**State Status**	**Habitat**	**Potential for Occurrence**	
Physeter catodon	Sperm whale	FE	None	Worldwide distribution. Feeds on deep-water squid, octopus and fish. Found generally off-shore in deep water.	Not Expected	No suitable aquatic habitat in BSA
Zalophus californicus	California sea lion	MMPA	None	California sea lions are found from Vancouver Island, British Columbia to Baja California, Mexico. They breed mainly on offshore islands, ranging from southern California's Channel Islands south to Mexico, although a few pups have been born on Año Nuevo and the Farallon Islands in central California. They are found within the San Francisco Bay, and are known to haul out at Seal Rock and Pier 39 in San Francisco.	Very Low	No suitable haul-out habitat within the BSA
** Fish not expected to be affected due to all construction occurring on land*						

Appendix B Regionally Occurring Special-Status Plants

Family *Scientific Name* Common Name	Status[1]	Habitat Affinities and Reported Localities in the Project Area	Comments	Potential for Occurrence On Site
Apiaceae - Parsley Family				
Lilaeopsis masonii Mason's lilaeopsis	**Federal:** None **State:** CR **CNPS** 1B.1	Intertidal brackish and freshwater marshes along streambanks. Recorded in the San Joaquin and Sacramento River Delta and lower Napa River channel.	April-November perennial herb	Not expected: no suitable habitat present.
Sanicula maritima adobe sanicle	**Federal:** None **State:** CR **CNPS** 1B.1	Chaparral, coastal prairie, coastal meadows and valley/foothill grassland on clay or ultramafic soils. Restricted to San Luis Obispo and Monterey counties; presumed extirpated in Alameda and San Francisco counties.	April-May perennial herb	Not expected: no suitable habitat present.
Asteraceae - Sunflower Family				
Balsamorhiza macrolepis var. macrolepis big-scale balsamroot	**Federal:** None **State:** CEQA **CNPS** 1B.2	Cismontane woodland, valley/foothill grassland, sometimes on serpentinite. Occurs from the Bay Area to the northern Sacramento Valley and Sierra foothills.	March-June perennial herb	Not expected: no suitable habitat present.
Blepharizonia plumosa big tarplant	**Federal:** None **State:** CEQA **CNPS** 1B.1	Valley/foothill grasslands, on dry sites. Extant in Alameda, Contra Costa, and San Joaquin counties. Believed extirpated in Stanislaus and Solano counties.	July-October annual herb	Not expected: no suitable habitat present.
Centromadia parryi ssp. congdonii Congdon's tarplant	**Federal:** None **State:** CEQA **CNPS** 1B.2	Valley/foothill grasslands on alkaline soils. Restricted to San Luis Obispo, Monterey, Alameda, Contra Costa, San Mateo, and Santa Clara counties; presumed extirpated in Santa Cruz and Solano counties.	June-November annual herb	Not expected: no suitable habitat present.
Cirsium andrewsii Franciscan thistle	**Federal:** None **State:** CEQA **CNPS** 1B.2; YBC	Bluffs, ravines and seeps in broadleafed upland forest, coastal prairie, coastal bluff scrub/mesic, sometimes on serpentinite. Restricted to Marin, San Francisco, San Mateo, Contra Costa, and Sonoma counties.	March-July perennial herb	Low: marginally suitable habitat present. Would have been detectable - presumed absent.
Cirsium fontinale var. campylon Mount Hamilton thistle	**Federal:** None **State:** CEQA **CNPS** 1B.2	Chaparral, cismontane woodland, valley/foothill grassland, in serpentine seeps. Restricted to Alameda, Santa Clara and Stanislaus counties.	April-October perennial herb	Not expected: no suitable habitat present.

Family *Scientific Name* Common Name	Status[1]	Habitat Affinities and Reported Localities in the Project Area	Comments	Potential for Occurrence On Site
Cirsium occidentale var. compactum compact cobwebby thistle	**Federal:** None **State:** CEQA **CNPS** 1B.2	Chaparral, Coastal dunes, Coastal prairie, Coastal scrub, 5 - 150 meters Known from fewer than twenty occurrences. Monterey, San Francisco, San Luis Obispo.	Apr-Jun perennial herb	Very low: marginally suitable habitat present. Would have been detectable - presumed absent.
Deinandra bacigalupii Livermore tarplant	**Federal:** None **State:** CEQA **CNPS** 1B.2	Alkaline meadows. Known from fewer than five occurrences near Livermore, Alameda County.	June-October annual herb	Not expected: no suitable habitat present.
Grindelia hirsutula var. maritima San Francisco gum-plant	**Federal:** None **State:** CEQA **CNPS** 1B.2; YBC	Coastal bluff scrub, coastal scrub, valley/foothill grassland, on sandy or serpentine slopes. Found near the coast from San Luis Obispo to Marin counties.	August-September perennial herb	Moderate: suitable habitat present.Would have been detectable - presumed absent.
Helianthella castanea Diablo helianthella	**Federal:** None **State:** CEQA **CNPS** 1B.2	Broadleaf upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, and valley/foothill grassland. Occurs in Alameda, Contra Costa and San Mateo counties; presumed extirpated in Marin and San Francisco counties.	April-June perennial herb	Very low: marginally suitable habitat present. Would have been detectable - presumed absent.
Hemizonia congesta ssp. congesta pale yellow hayfield tarplant	**Federal:** None **State:** CEQA **CNPS** 1B.2	Valley and foothill grassland, sometimes roadsides Mendocino, Marin, San Francisco, Sonoma	April - November annual herb	Not expected: no suitable habitat present.
Hesperevax sparsiflora var. brevifolia short-leaved evax	**Federal:** None **State:** CEQA **CNPS** 1B.2	Coastal bluff scrub and dunes, in sandy soils. Recorded from Humboldt, Mendocino, Marin, Santa Cruz, San Francisco, and Sonoma counties and Oregon.	April-June annual herb	Low: marginally suitable habitat present. Would have been detectable - presumed absent.
Holocarpha macradenia Santa Cruz tarplant	**Federal:** FT **State:** CE **CNPS** 1B.1	Coastal prairie, valley/foothill grassland, often on heavy clay soils. Known from coastal areas of Contra Costa, Monterey and Santa Cruz counties; presumed extirpated in Alameda and Marin counties.	June-October annual herb	Not expected: no suitable habitat present.
Lasthenia conjugens Contra Costa goldfields	**Federal:** FE **State:** CEQA **CNPS** 1B.1	Mesic sites in valley/foothill grassland, vernal pools. Known from Napa, Solano, Sonoma, Marin and Monterey counties and recently rediscovered in Alameda and Contra Costa counties. Presumed extirpated in Mendocino, Santa Barbara and Santa Clara counties.	March-June annual herb	Not expected: no suitable habitat present.

Family *Scientific Name* Common Name	Status[1]	Habitat Affinities and Reported Localities in the Project Area	Comments	Potential for Occurrence On Site
Layia carnosa beach layia	**Federal:** FE **State:** CE **CNPS** 1B.1	Coastal dunes. Found from Humboldt to Monterey counties; presumed extirpated in San Francisco and Santa Barbara counties.	May-July annual herb	Very low: marginally suitable habitat present. Would have been detectable - presumed absent.
Lessingia germanorum San Francisco lessingia	**Federal:** FE **State:** CE **CNPS** 1B.1; YBC	Coastal scrub, sandy flats and remnant dunes. Restricted to San Francisco and San Mateo counties. Known from only four occurrences at the Presidio and one at western base of San Bruno Mountain.	August-November annual herb	Very low: marginally suitable habitat present. Would have been detectable - presumed absent.
Lessingia hololeuca woolly-headed lessingia	**Federal:** None **State:** CEQA **CNPS** 3	Coastal scrub, valley/foothill grasslands on clay and serpentinite. Found from Monterey to Napa counties.	June-October annual herb	Very low: marginally suitable habitat present. Would have been detectable - presumed absent.
Micropus amphibolus Mount Diablo cottonweed	**Federal:** None **State:** CEQA **CNPS** 3.2	Broadleaf upland forest, cismontane woodland, valley/foothill grassland. Known from Lake to Santa Cruz counties, San Francisco Bay Area. Documented on Angel Island.	April-May annual herb	Low: marginally suitable habitat present. Would have been detectable - presumed absent.
Microseris paludosa marsh microseris	**Federal:** None **State:** CEQA **CNPS** 1B.2	Moist grassland, open woods, closed-cone coniferous forest, and coastal scrub near the coast. Distributed from Monterey to Sonoma counties and the San Francisco Bay. Presumed extirpated from San Francisco Co.	May-June (July perennial herb	Very low: marginally suitable habitat present. Would have been detectable - presumed absent.
Pentachaeta bellidiflora white-rayed pentachaeta	**Federal:** FE **State:** CE **CNPS** 1B.1	Open dry rocky slopes, valley/foothill grassland, often on serpentinite. Restricted to San Mateo County; presumed extirpated in San Francisco, Marin, and Santa Cruz counties.	March-May annual herb	Not expected: no suitable habitat present.
Stebbinsoseris decipiens Santa Cruz microseris	**Federal:** None **State:** CEQA **CNPS** 1B.2	Broadleaf and coniferous forest, chaparral, coastal prairie, coastal scrub, in open areas, on loose soil, sometimes serpentinite. Recorded in Monterey, Marin, and Santa Cruz counties. Recorded on Angel Island.	April-May annual herb	Low: marginally suitable habitat present. Would have been detectable - presumed absent.

Family *Scientific Name* Common Name	Status[1]	Habitat Affinities and Reported Localities in the Project Area	Comments	Potential for Occurrence On Site
Symphyotrichum lentum (=Aster lentus) Suisun Marsh aster	**Federal:** None **State:** CEQA **CNPS** 1B.2	Freshwater and brackish marshes. Known from the Napa River and San Joaquin/Sacramento River Delta.	May-November perennial herb	Not expected: no suitable habitat present.
Tanacetum camphoratum dune tansy	**Federal:** None **State:** None **CNPS** YBC	Coastal dunes, coastal strand, on sandy flats. Found from the Central Coast to Oregon. Considered for listing by the CNPS but rejected: too common.	June-September perennial herb	Low: marginally suitable habitat present. Would have been detectable - presumed absent.
Boraginaceae - Borage Family				
Amsinckia grandiflora large-flowered fiddleneck	**Federal:** FE **State:** CE **CNPS** 1B.1	Cismontane woodland, valley/foothill grassland. Known from only three natural occurrences in Alameda and San Joaquin counties. Also known historically from Contra Costa County, where it has been recently re-introduced.	April-May annual herb	Not expected: no suitable habitat present.
Amsinckia lunaris bent-flowered fiddleneck	**Federal:** None **State:** CEQA **CNPS** 1B.2	Open woods, valley/foothill grasslands. Reported from the vicinity of the San Francisco Bay to Lake, Shasta and Siskiyou counties.	March-June annual herb	Not expected: no suitable habitat present.
Plagiobothrys chorisianus var. chorisianus Choris's popcorn-flower	**Federal:** None **State:** CEQA **CNPS** 1B.2	Chaparral, Coastal prairie, Coastal scrub /mesic. 0-150 m. Santa Cruz, San Francisco, San Mateo	Mar-Jun annual herb	Very low: marginally suitable habitat present. Would have been detectable - presumed absent.
Plagiobothrys diffusus San Francisco popcorn-flower	**Federal:** None **State:** CE **CNPS** 1B.1	Coastal prairie and possibly valley/Foothill grassland, on clay soils. Known from only 6 occurrences in Santa Cruz County; presumed to be extirpated in San Francisco County.	April-June annual herb	Not expected: no suitable habitat present.
Plagiobothrys glaber hairless popcorn-flower	**Federal:** None **State:** CEQA **CNPS** 1A	Alkaline meadows and vernal coastal saltmarshes. Presumed extinct. Once occurred in Alameda, Merced, Marin, San Benito, and Santa Clara counties.	April-May annual herb	Not expected: no suitable habitat present.

Family *Scientific Name* Common Name	Status[1]	Habitat Affinities and Reported Localities in the Project Area	Comments	Potential for Occurrence On Site
Brassicaceae - Mustard Family				
Arabis blepharophylla coast rock cress	**Federal:** None **State:** CEQA **CNPS** 4; YBC	Coastal prairie, coastal scrub, rocky coastal bluffs, grassy slopes, broadleaf upland forest. Known from Santa Cruz to Sonoma, including San Francisco and Contra Costa counties.	February-April perennial herb	Low: marginally suitable habitat present. Would have been detectable - presumed absent.
Caulanthus coulteri var. lemmonii Lemmon's jewelflower	**Federal:** None **State:** CEQA **CNPS** 1B.2	Pinyon and juniper woodland, valley and foothill grassland. Known from the San Joaquin Valley and the Central Coast. Extirpated in Alameda county.	March-May annual herb	Not expected: no suitable habitat present.
Erysimum franciscanum San Francisco wallflower	**Federal:** None **State:** CEQA **CNPS** 4.2; YBC	Coastal dunes, coastal scrub, valley/foothill grassland often on serpentinite or granitic soils. Restricted to near the coast from Santa Cruz to Sonoma counties, including San Francisco and Santa Clara Counties.	March-June perennial herb	Low: marginally suitable habitat present. Would have been detectable - presumed absent.
Streptanthus albidus ssp. peramoenus most beautiful jewel-flower	**Federal:** None **State:** CEQA **CNPS** 1B.2	Chaparral, cismontane woodland and valley/foothill grasslands on serpentinite. Known from Alameda, Santa Clara and Contra Costa counties.	April-June annual herb	Not expected: no suitable habitat present.
Streptanthus niger Tiburon jewel-flower	**Federal:** FE **State:** CE **CNPS** 1B.1	Valley/foothill grassland, on serpentinite. Known from only three occurrences in Marin County.	May-June annual herb	Not expected: no suitable habitat present.
Tropidocarpum capparideum caper-fruited tropidocarpum	**Federal:** None **State:** CEQA **CNPS** 1B	Valley/foothill grasslands, on alkaline hills. Known historically from Alameda, Contra Costa, Glenn, Santa Clara and San Joaquin counties; last seen in Contra Costa County in 1957. Once presumed extinct, but rediscovered in Monterey County in 2000 and subsequently in San Luis Obispo and Fresno counties.	March-April annual herb	Not expected: no suitable habitat present.
Campanulaceae - Bellflower Family				
Campanula exigua chaparral harebell	**Federal:** None **State:** CEQA **CNPS** 1B.2	Chaparral, rocky, usually serpentinitic sites. Known from Contra Costa county to San Benito County, and Stanislaus county.	May-June annual herb	Not expected: no suitable habitat present.

Family *Scientific Name* Common Name	Status[1]	Habitat Affinities and Reported Localities in the Project Area	Comments	Potential for Occurrence On Site
Caprifoliaceae - Honeysuckle Family				
Viburnum ellipticum oval-leaved viburnum	**Federal:** None **State:** CEQA **CNPS** 2.3	Chaparral, cismontane woodland, lower montane coniferous forests. Reported from the Coast Ranges in Contra Costa, Sonoma, Napa, Mendocino, Glen, and Humboldt counties; in the Sierra Nevada in Fresno and El Dorado counties; and Shasta County into Oregon and Washington.	May-June shrub (deciduous)	Not expected: no suitable habitat present.
Caryophyllaceae - Pink Family				
Arenaria paludicola marsh sandwort	**Federal:** FE **State:** CE **CNPS** 1B.1	Freshwater marsh and swamps. Last known extant population located on Nipomo Mesa, San Luis Obispo County. Presumed extirpated in Los Angeles, San Bernardino, Santa Cruz and San Francisco counties.	May-August perennial herb	Not expected: no suitable habitat present.
Silene verecunda ssp. verecunda San Francisco campion	**Federal:** None **State:** CEQA **CNPS** 1B.2; YBC	Coastal bluffs, coastal scrub, dunes, on sandy or rocky soils. Known from fewer than 20 occurrences in Santa Cruz, San Mateo and San Francisco counties.	March-June perennial herb	Low: marginally suitable habitat present. Would have been detectable - presumed absent.
Spergularia macrotheca var. macrotheca large flowered sand-spurry	**Federal:** None **State:** None **CNPS** EBCNPS - A2	Alkali areas; coastal bluff; rock, tallus or scree; wetlands; from sea level to 820 feet. Detected previously on Yerba Buena Is. Coastal Calfornia counties	perennial herb	Detected: suitable habitat present.
Stellaria littoralis beach starwort	**Federal:** None **State:** CEQA **CNPS** 4; YBC	Bogs, fens, marshes, swamps, coastal scrub and dunes Restricted to San Francisco to Sonoma counties and Humboldt County. Believed extirpated in Mendocino County.	March-July perennial herb	Low: marginally suitable habitat present. Would have been detectable - presumed absent.
Chenopodiaceae - Goosefoot Family				
Atriplex cordulata heartscale	**Federal:** None **State:** CEQA **CNPS** 1B.2	Chenopod scrub, valley/foothill grassland, on somewhat alkaline or saline hard packed soils. Widespread in the Central Valley from Glenn to Kern counties and into Alameda and Contra Costa counties. Presumed extirpated in Stanislaus, Yolo, and San Joaquin counties.	May-October annual herb	Not expected: no suitable habitat present.
Atriplex coronata var. coronata crownscale	**Federal:** None **State:** CEQA **CNPS** 4.2	Chenopod scrub, valley/foothill grassland on alkaline soils. Known from the northern San Joaquin Valley, Central Coast, and eastern San Francisco Bay.	April-October annual herb	Not expected: no suitable habitat present.

Family *Scientific Name* Common Name	Status[1]	Habitat Affinities and Reported Localities in the Project Area	Comments	Potential for Occurrence On Site
Atriplex depressa brittlescale	**Federal:** None **State:** CEQA **CNPS** 1B.2	Chenopod scrub, playas and valley/foothill grassland on alkaline and clay soils. Widespread in the Sacramento and San Joaquin Valleys, and into Alameda and Contra Costa counties. Presumed extirpated in Stanislaus County.	May-October annual herb	Not expected: no suitable habitat present.
Atriplex joaquiniana San Joaquin spearscale	**Federal:** None **State:** CEQA **CNPS** 1B.2	Chenopod scrub, valley/foothill grassland and alkali meadows. Widespread in the Sacramento and San Joaquin valleys, into Alameda and Contra Costa counties, north to Napa County and south to Monterey and San Benito counties. Presumed extirpated in Santa Clara, San Joaquin and Tulare counties.	April-September annual herb	Not expected: no suitable habitat present.
Suaeda californica California seablite	**Federal:** FE **State:** CEQA **CNPS** 1B.1; YBC	Coastal saltmarshes. Natural populations extirpated from San Francisco, Alameda, and Santa Clara counties. Recently reintroduced in San Francisco and Alameda Counties. Restricted to Morro Bay, San Luis Obispo County.	July-October shrub (evergreen)	Low: marginally suitable habitat present. Would have been detectable - presumed absent.
Convolvulaceae - Morning-glory Family				
Calystegia purpurata ssp. saxicola coastal bluff morning-glory	**Federal:** None **State:** CEQA **CNPS** 1B.2	Coastal dunes and scrub. Known from Mendocino, Marin, and Sonoma counties.	May-August perennial herb	Moderate: marginally suitable habitat present. Would have been detectable - presumed absent.
Ericaceae - Heath Family				
Arctostaphylos hookeri ssp. franciscana Franciscan manzanita	**Federal:** None **State:** CEQA **CNPS** 1A	Coastal scrub (serpentinite); elevation 60-300 meters. Last seen in 1942. Presumed extinct in the wild, plant now occurs only in cultivation.	February-April evergreen shrub	Not expected: no suitable habitat present.
Arctostaphylos hookeri ssp. ravenii Presidio manzanita	**Federal:** None **State:** CE **CNPS** 1B.1; YBC	Chaparral, coastal prairie, coastal scrub/ serpentinite outcrop; elevation 45-215 meters. Known from only one extant native occurrence at the Presidio in San Francisco; plants there belong to a single clone.	February-March evergreen shrub	Not expected: no suitable habitat present.
Arctostaphylos imbricata San Bruno Mt. manzanita	**Federal:** None **State:** CE **CNPS** 1B.1	Chaparral, rocky coastal scrub Known from 5 occurrences on San Bruno Mountain, San Mateo County.	February-May evergreen shrub	Not expected: no suitable habitat present.

Family *Scientific Name* Common Name	Status[1]	Habitat Affinities and Reported Localities in the Project Area	Comments	Potential for Occurrence On Site
Arctostaphylos montaraensis Montara manzanita	**Federal:** None **State:** CEQA **CNPS** 1B.2	Maritime chaparral and coastal scrub on slopes and ridges. Known from approximately 10 occurrences on San Bruno and Montara mountains, San Mateo County.	January-March evergreen shrub	Not expected: no suitable habitat present.
Arctostaphylos pacifica Pacific manzanita	**Federal:** None **State:** CE **CNPS** 1B.2	Chaparral, Coastal scrub; 330 meters Known only from San Bruno Mountain in San Mateo County.	Feb-Apr perennial shrub	Not expected: no suitable habitat present.
Arctostaphylos pallida pallid manzanita	**Federal:** FT **State:** CE **CNPS** 1B.1	Broadleaved upland forest, cismontane woodland, chaparral and coastal scrub, on siliceous shale, sandy and gravelly soils on uplifted Marine terraces. Restricted to Alameda and Contra Costa counties.	December-March evergreen shrub	Not expected: no suitable habitat present.
Fabaceae - Pea Family				
Astragalus nuttallii var. nuttallii Nuttall's milk-vetch	**Federal:** None **State:** CEQA **CNPS** 4.2	Coastal bluff scrub and coastal dunes. Known from San Mateo to Santa Barbara counties. Possibly extirpated in San Francisco and Alameda counties.	January-November perennial herb	Very low: marginally suitable habitat present. Would have been detectable - presumed absent.
Astragalus tener var. tener alkali milk-vetch	**Federal:** None **State:** CEQA **CNPS** 1B.2	Playas, valley and foothill grassland (adobe clay), vernal pools/ alkaline; elevation 1-60 meters. Once widespread from San Francisco to Monterey and San Benito counties and north to Napa and Yolo counties. Extirpated from much of its former range. Extant in Alameda, Napa, Merced, Yolo, and Solano counties.	March-June annual herb	Not expected: no suitable habitat present.
Hoita strobilina Loma Prieta hoita	**Federal:** None **State:** CEQA **CNPS** 1B.1	Chaparral, cismontane and riparian woodland, usually in mesic areas on serpentine soil. Recorded from Santa Clara and Santa Cruz counties. Believed extirpated in Alameda and Contra Costa counties.	May-October perennial herb	Not expected: no suitable habitat present.
Lathyrus jepsonii var. jepsonii Delta tule pea	**Federal:** None **State:** CEQA **CNPS** 1B.2	Freshwater and brackish marshes. Occurs throughout the Sacramento San Joaquin River delta, San Francisco Bay and Central Valley.	May-September perennial herb	Not expected: no suitable habitat present.

Family *Scientific Name* Common Name	Status[1]	Habitat Affinities and Reported Localities in the Project Area	Comments	Potential for Occurrence On Site
Lotus formosissimus slender trefoil	**Federal:** None **State:** CEQA **CNPS** 4.2	Broadleafed upland forest; Coastal bluff scrub; Closed-cone coniferous forest; Cismontane woodland; Coastal prairie; Coastal scrub; Meadows and seeps; Marshes and swamps; North Coast coniferous forest; Valley and foothill grassland /wetlands, roadsides; 0 - 700 meters. Coastal California counties from San Luis Obispo north through OR and WA	Mar-Jul rhizomatous herb	Low: marginally suitable habitat present. Would have been detectable - presumed absent.
Trifolium amoenum showy Indian clover	**Federal:** FE **State:** CEQA **CNPS** 1B.1	Valley/foothill grasslands, in sunny open sites, sometimes on serpentinite. Rediscovered in Sonoma County in 1993, believed extirpated in Alameda, Mendocino, Marin, Napa, Santa Clara and Solano counties.	April-June annual herb	Not expected: no suitable habitat present.
Trifolium depauperatum var. hydrophilum saline clover	**Federal:** None **State:** CEQA **CNPS** 1B.2	Marshes, swamps, valley and foothill grassland (mesic, alkaline), and vernal pools. Known from the San Francisco Bay area south to San Luis Obispo county. Possibly in Colusa county.	April-June annual herb	Not expected: no suitable habitat present.
Geraniaceae - Geranium Family				
California macrophylla round-leaved filaree	**Federal:** None **State:** CEQA **CNPS** 1B.1	Cismontane woodland, valley and foothill grasslands, on clay soil. Widespread throughout California, Baja California, Oregon, Utah, and other states.	March-May annual herb	Not expected: no suitable habitat present.
Hydrophyllaceae - Waterleaf Family				
Phacelia malvifolia stinging phacelia	**Federal:** None **State:** None **CNPS** EB-CNPS - A2	Redwood forest, mixed evergreen forest, closed-cone pine forest, northern coastal scrub; gravel; sand or sandstone. Coastal California counties. Observed on Yerba Buena Is. during previous botanical surveys.	annual herb	Detected: suitable habitat present.
Phacelia phacelioides Mount Diablo phacelia	**Federal:** SC **State:** CEQA **CNPS** 1B.2	Chaparral and cismontane woodland on rocky sites. Recorded from Contra Costa, San Benito, Santa Clara and Stanislaus counties.	April-May annual herb	Not expected: no suitable habitat present.

Family *Scientific Name* Common Name	Status[1]	Habitat Affinities and Reported Localities in the Project Area	Comments	Potential for Occurrence On Site
Lamiaceae - Mint Family				
Acanthomintha lanceolata Santa Clara thorn-mint	**Federal:** None **State:** CEQA **CNPS** 4.2	Chaparral, coastal scrub, and cismontane woodland on rocky sites, often on serpentinite. Recorded from Alameda, Fresno, Merced, Monterey, San Benito, Santa Clara, and Stanislaus counties.	March-June annual herb	Not expected: no suitable habitat present.
Monardella antonina ssp. antonina San Antonio Hills monardella	**Federal:** None **State:** CEQA **CNPS** 3	Chaparral and cismontane woodland. Recorded from Monterey County; possible also in Alameda, Contra Costa, San Benito and Santa Clara counties.	June-August perennial herb (rhizomatous)	Not expected: no suitable habitat present.
Monardella undulata curly-leaved monardella	**Federal:** None **State:** CEQA **CNPS** 4.2	Chaparral, coastal dunes, coastal scrub, lower montane coniferous forests (ponderosa pine sand hills), on sandy soils. Recorded from Sonoma to Santa Barbara counties.	May-July annual herb	Low: marginally suitable habitat present. Would have been detectable - presumed absent.
Monardella villosa ssp. globosa robust monardella	**Federal:** None **State:** CEQA **CNPS** 1B.2	Openings in chaparral, cismontane woodland. Occurs from the San Francisco Bay Area to Humboldt County.	June-July perennial herb (rhizomatous)	Not expected: no suitable habitat present.
Linaceae - Flax Family				
Hesperolinon congestum Marin western flax	**Federal:** FT **State:** CT **CNPS** 1B.1; YBC	Valley/foothill grassland and chaparral on serpentinite. Known from fewer than 20 occurrences in Marin, San Francisco and San Mateo counties.	May-July annual herb	Not expected: no suitable habitat present.
Malvaceae - Mallow Family				
Malacothamnus arcuatus arcuate bush mallow	**Federal:** None **State:** none **CNPS** 1B.2	Chaparral. Restricted to Santa Clara, Santa Cruz and San Mateo counties.	April-July shrub (evergreen)	Not expected: no suitable habitat present.
Sidalcea hickmanii ssp. viridis Marin checkerbloom	**Federal:** None **State:** CEQA **CNPS** 1B.3	Chaparral on dry coastal ridges on serpentinite. Known from Marin Napa, San Francisco, San Mateo and Sonoma counties.	May-June perennial herb	Not expected: no suitable habitat present.

Family *Scientific Name* Common Name	Status[1]	Habitat Affinities and Reported Localities in the Project Area	Comments	Potential for Occurrence On Site
Onagraceae - Evening Primrose Family				
Clarkia concinna ssp. automixa Santa Clara red-ribbons	**Federal:** None **State:** CEQA **CNPS** 4.3	Chaparral and cismontane woodland. Restricted to Santa Clara and Alameda counties.	April-July annual herb	Not expected: no suitable habitat present.
Clarkia franciscana Presidio clarkia	**Federal:** FE **State:** CE **CNPS** 1B.1; YBC	Coastal scrub, valley/foothill grassland, on serpentinite. Known from fewer than five occurrences in Alameda and San Francisco counties.	May-July annual herb	Not expected: no suitable habitat present.
Papaveraceae - Poppy Family				
Eschscholzia rhombipetala diamond-petaled California poppy	**Federal:** None **State:** CEQA **CNPS** 1B.1	Valley/foothill grassland on clay soils. Was presumed extinct before recent rediscovery in Corral Hollow in Alameda County, and in San Luis Obispo County. Also known historically from Contra Costa, Colusa, and Stanislaus counties.	March-April annual herb	Not expected: no suitable habitat present.
Meconella oregana Oregon meconella	**Federal:** None **State:** CEQA **CNPS** 1B.1	Coastal prairie and scrub. Known in California only from five occurrences in Contra Coasta and Santa Clara counties. Also recorded in Oregon Washington, andother states.	March-April annual herb	Not expected: no suitable habitat present.
Polemoniaceae - Phlox Family				
Gilia capitata ssp. chamissonis dune gilia	**Federal:** None **State:** CEQA **CNPS** 1B.1; YBC	Coastal dunes and scrub. Northern portion of the Central Coast from San Francisco to Bodega Bay. Once very common on the San Francisco dunes. Widespread in the Presidio on stabilized dunes. Documented on Yerba Buena Island outside study area during previous botanical surveys.	May-July annual herb	Moderate: marginally suitable habitat present. Would have been detectable - presumed absent.
Gilia millefoliata dark-eyed gilia	**Federal:** None **State:** CEQA **CNPS** 1B.2	Coastal strand, stabilized coastal dunes. Believed extirpated in San Francisco County. Distributed from the San Francisco Bay to Del Norte County.	April-June annual herb	Very low: suitable habitat present. Would have been detectable - presumed absent.
Leptosiphon grandiflorus (=Linanthus grandiflorus) large-flowered linanthus	**Federal:** None **State:** CEQA **CNPS** 4.2	Coastal bluff scrub, closed-cone coniferous forest, coastal dunes, coastal prairie, coastal scrub, valley/foothill grassland. Known from Sonoma to San Luis Obispo counties and the San Joaquin Valley.	April-July annual herb	Low: marginally suitable habitat present. Would have been detectable - presumed absent.

Family *Scientific Name* Common Name	Status[1]	Habitat Affinities and Reported Localities in the Project Area	Comments	Potential for Occurrence On Site
Leptosiphon rosaceus *(= Linanthus rosaceus)* rose linanthus	**Federal:** None **State:** CEQA **CNPS** 1B.1	Coastal bluff scrub; elevation 0-100 meters. Several populations documented in 2001-2003 near Point Reyes. Presumed extant in Marin and San Mateo counties, possibly extirpated in Sonoma and San Francisco counties.	April-June annual herb	Low: marginally suitable habitat present. Would have been detectable - presumed absent.
Polygonaceae - Buckwheat Family				
Chorizanthe cuspidata var. cuspidata San Francisco Bay spineflower	**Federal:** None **State:** CEQA **CNPS** 1B.2; YBC	Coastal bluff scrub, coastal dunes, coastal prairie, coastal scrub/ sandy; elevation 3-215 meters. Known from Marin, San Francisco and San Mateo counties. Possibly in Santa Clara and Sonoma counties. Considered extirpated from Alameda County.	April-August annual herb	Low: marginally suitable habitat present. Would have been detectable - presumed absent.
Chorizanthe robusta var. robusta robust spineflower	**Federal:** FE **State:** CEQA **CNPS** 1B.1	Openings and sandy locations in cismontane woodland, coastal dunes, and coastal scrub. Historically from Santa Cruz to Sonoma counties. Believed extirpated from San Francisco, Alameda, Santa Clara, and San Mateo counties.	May-September annual herb	Very low: marginally suitable habitat present.Would have been detectable - presumed absent.
Eriogonum luteolum var. caninum Tiburon buckwheat	**Federal:** None **State:** CEQA **CNPS** 1B.2	Chaparral, coastal prairie, valley/foothill grassland on serpentinite. Known from Colusa and Lake counties to San Mateo County.	June-September annual herb	Not expected: no suitable habitat present.
Primulaceae - Primrose Family				
Androsace elongata ssp. acuta California androsace	**Federal:** None **State:** CEQA **CNPS** 4.2	Chaparral, cismontane woodland and coastal scrub. Known from the Bay Area and Central Coast to Siskiyou and San Diego counties.	March-June annual herb	Not expected: no suitable habitat present.
Ranunculaceae - Buttercup Family				
Delphinium californicum ssp. interius Hospital Canyon larkspur	**Federal:** SC **State:** CEQA **CNPS** 1B.2	Cismontane woodland, possible on mesic sites. Recorded from Alameda, Contra Costa, Santa Clara, San Joaquin, and San Luis Obispo counties.	April-June perennial herb	Not expected: no suitable habitat present.
Delphinium recurvatum recurved larkspur	**Federal:** None **State:** CEQA **CNPS** 1B.2	Chenopod scrub, cismontane woodland and Valley/ foothill grassland, in alkaline places. Restricted to the Central Valley from Colusa to Kern counties, San Luis Obispo.	March-May perennial herb	Not expected: no suitable habitat present.

Family *Scientific Name* Common Name	Status[1]	Habitat Affinities and Reported Localities in the Project Area	Comments	Potential for Occurrence On Site
Myosurus minimus ssp. apus little mousetail	**Federal:** None **State:** CEQA **CNPS** 3.1	Alkaline vernal pools. Recorded throughout the Central Valley.	March-June annual herb	Not expected: no suitable habitat present.
Rosaceae - Rose Family				
Horkelia cuneata ssp. sericea Kellogg's horkelia	**Federal:** None **State:** CEQA **CNPS** 1B.1; YBC	Closed-cone coniferous forest, old dunes and coastal scrub. Restricted to coastal areas from Santa Barbara to San Mateo counties; presumed extirpated in San Francisco, Alameda, and Marin counties.	April-September perennial herb	Very low: suitable habitat present. Would have been detectable - presumed absent.
Scrophulariaceae - Figwort Family				
Castilleja affinis ssp. neglecta Tiburon Indian paint brush	**Federal:** FE **State:** CT **CNPS** 1B.2	Valley and foothill grassland, rocky serpentine sites. Known from only six occurrences in Marin, Napa, and Santa Clara counties.	April-June perennial herb	Not expected: no suitable habitat present.
Collinsia corymbosa round-headed Chinese houses	**Federal:** None **State:** CEQA **CNPS** 1B.2	Coastal dunes. Restricted to Humboldt, Mendocino, Sonoma and possibly Marin counties. Believed extirpated in San Francisco county.	April-June annual herb	Not expected: no suitable habitat present.
Collinsia multicolor San Francisco collinsia	**Federal:** None **State:** CEQA **CNPS** 1B.2; YBC	Closed cone coniferous forest and coastal scrub, on moist, more or more or less shady sites. Restricted to Monterey, Santa Cruz, San Francisco and San Mateo counties.	March-May annual herb	Low: marginally suitable habitat present. Would have been detectable - presumed absent.
Cordylanthus maritimus ssp. palustris Pt. Reyes bird's-beak	**Federal:** None **State:** CEQA **CNPS** 1B.2; YBC	Coastal saltmarsh. Believed extant in Humboldt, Marin and Sonoma counties; presumed extirpated in Alameda, Santa Clara and San Mateo counties. Reintroduced at Crissy Field in San Francisco in 2002.	May-October annual herb (hemiparasite)	Low: marginally suitable habitat present. Would have been detectable - presumed absent.
Triphysaria floribunda San Francisco owl's clover	**Federal:** None **State:** CEQA **CNPS** 1B.2; YBC	Coastal prairie, foothill/Valley grassland, on clay or serpentinite. Known from Marin, San Francisco and San Mateo counties.	April-May annual herb	Not expected: no suitable habitat present.

Family *Scientific Name* Common Name	Status[1]	Habitat Affinities and Reported Localities in the Project Area	Comments	Potential for Occurrence On Site
Thymelaeaceae - Mezereum Family				
Dirca occidentalis western leatherwood	**Federal:** None **State:** CEQA **CNPS** 1B.2	Broadleaf upland forest, closed cone Coniferous forest, chaparral, cismontane woodland, North Coast coniferous forest, riparian forest, and riparian woodland. Restricted to brushy slopes and mesic sites. Known from San Mateo to Sonoma counties.	January-April shrub (deciduous)	Low: marginally suitable habitat present. Would have been detectable - presumed absent.
Equisetaceae - Horsetail Family				
Equisetum palustre marsh horsetail	**Federal:** None **State:** CEQA **CNPS** 3	Marshes and swamps. Known from San Mateo, San Francisco and Lake counties and Oregon.	Unknown perennial herb (rhizomatous)	Not expected: no suitable habitat present.
Pteridaceae - Fern Family				
Aspidotis carlotta-halliae Carlotta Hall's lace fern	**Federal:** None **State:** CEQA **CNPS** 4.2	Chaparral, cismontane woodland, generally on serpentinite. Restricted to Alameda, Marin, Monterey, San Benito and San Luis Obispo counties.	January-December perennial herb (rhizomatous)	Not expected: no suitable habitat present.
Cyperaceae - Sedge Family				
Carex comosa bristly sedge	**Federal:** None **State:** CEQA **CNPS** 2.1	Marshes and swamps, lake margins. Believed extirpated in San Francisco, San Bernardino and Santa Cruz counties. Extant in Contra Costa, Lake, Shasta, San Joaquin and Sonoma counties.	May-September perennial herb (rhizomatous)	Not expected: no suitable habitat present.
Iridaceae - Iris Family				
Iris longipetala Coast iris	**Federal:** None **State:** CEQA **CNPS** 4.2	Coastal prairie, lower montane coniferous forest, meadows and seeps Known from central North Coast to central Central Coast, southern Outer North Coast Range, and San Francisco Bay Area.	March-May perennial herb (rhizomatous)	Not expected: no suitable habitat present.
Liliaceae - Lily Family				
Allium sharsmithiae Sharsmith's onion	**Federal:** None **State:** CEQA **CNPS** 1B.3	Chaparral, Cismontane woodland usually on serpentinite, rocky. 400 - 1200 meters Mt. Hamilton, Alameda County	Mar-May bulbiforous herb Known only from the Mt. Hamilton Range.	Not expected: no suitable habitat present.
Calochortus pulchellus Mount Diablo fairy-lantern	**Federal:** None **State:** CEQA **CNPS** 1B.2	Chaparral, cismontane woodland, valley/foothill grassland. Known from Contra Costa and possibly Solano counties.	April-June perennial herb (bulbiferous)	Not expected: no suitable habitat present.

Family *Scientific Name* Common Name	Status[1]	Habitat Affinities and Reported Localities in the Project Area	Comments	Potential for Occurrence On Site
Calochortus tiburonensis Tiburon Mariposa lily	**Federal:** FT **State:** CT **CNPS** 1B.1	Valley/foothill grassland, on serpentinite. Known only from Ring Mountain Preserve, Tiburon, Marin County.	March-June perennial herb (bulbiferous)	Not expected: no suitable habitat present.
Calochortus umbellatus Oakland star-tulip	**Federal:** None **State:** CEQA **CNPS** 4.2	Broadleafed and upland forest, chaparral, lower montane coniferous forest, valley/foothill grassland, often on serpentinite. Known from Alameda, Contra Costa, Marin, Santa Clara and San Mateo counties. Presumed extirpated in Santa Cruz County.	March-May perennial herb (bulbiferous)	Not expected: no suitable habitat present.
Fritillaria liliacea fragrant fritillary	**Federal:** None **State:** CEQA **CNPS** 1B.2; YBC	Coastal prairie, coastal scrub, valley/foothill grassland near the coast, on clay or serpentinite. Known from the Central Coast from Sonoma to Monterey counties and the San Francisco Bay Area.	February-April perennial herb (bulbiferous)	Low: marginally suitable habitat present. Would have been detectable - presumed absent.
Lilium maritimum coast lily	**Federal:** None **State:** CEQA **CNPS** 1B.1	Coastal prairie, coastal scrub, bogs, closed-cone coniferous forest, broadleafed upland forest, and North Coast coniferous forest. Restricted to Mendocino, Sonoma and possibly San Francisco counties; presumed extirpated in Marin and San Mateo counties.	June-July perennial herb (bulbiferous)	Low: marginally suitable habitat present. Would have been detectable - presumed absent.
Orchidaceae - Orchid Family				
Piperia michaelii Michael's rein orchid	**Federal:** None **State:** CEQA **CNPS** 4.2; YBC	Coastal bluff scrub, closed-cone coniferous forest, cismontane woodland and lower montane coniferous forest. Coastal from San Luis Obispo to Humboldt counties and the San Francisco Bay Area; expected in the Sierra foothills. Found on the Marin Islands.	May-August perennial herb	Low: marginally suitable habitat present. Would have been detectable - presumed absent.
Potamogetonaceae - Pondweed Family				
Potamogeton filiformis slender-leaved pondweed	**Federal:** None **State:** CEQA **CNPS** 2.2	Shallow freshwater marshes and swamps. Recorded from the San Joaquin Valley, central high Sierra Nevada and the San Francisco Bay Area.	May-July perennial herb (rhizomatous)	Not expected: no suitable habitat present.

Family *Scientific Name* Common Name	Status[1]	Habitat Affinities and Reported Localities in the Project Area	Comments	Potential for Occurrence On Site
Pottiaceae - Moss family				
Triquetrella californica triquetrella	**Federal:** None **State:** CEQA **CNPS** 1B.2	Coastal bluff scrub and coastal scrub. Known from Contra Costa, Mendocino, San Diego, and San Francisco counties and Oregon. Known in California from fewer than ten small coastal occurrences.	N/A moss	Low: marginally suitable habitat present. Would have been detectable - presumed absent.

[1] Explanation of sensitivity status codes provided in Appendix C.

Appendix C CNDDB Report

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Scientific Name - Portrait
YBI Ramp Improvement Project - Oakland West and 8 Surrounding (San Quentin, Richmond, Briones Valley, San Francisco North, Oakland East, San Francisco South, Hunter's Point, and San Leandro)

	Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	***Accipiter cooperii*** Cooper's hawk	ABNKC12040			G5	S3	
2	***Actinemys marmorata*** western pond turtle	ARAAD02030			G3G4	S3	SC
3	***Ambystoma californiense*** California tiger salamander	AAAAA01180	Threatened		G2G3	S2S3	SC
4	***Amsinckia lunaris*** bent-flowered fiddleneck	PDBOR01070			G2	S2.2	1B.2
5	***Antrozous pallidus*** pallid bat	AMACC10010			G5	S3	SC
6	***Aquila chrysaetos*** golden eagle	ABNKC22010			G5	S3	
7	***Archoplites interruptus*** Sacramento perch	AFCQB07010			G3	S1	SC
8	***Arctostaphylos hookeri ssp. franciscana*** Franciscan manzanita	PDERI040J3			G3TXC	SX	1A
9	***Arctostaphylos hookeri ssp. ravenii*** Presidio manzanita	PDERI040J2	Endangered	Endangered	G3T1	S1.1	1B.1
10	***Arctostaphylos imbricata*** San Bruno Mountain manzanita	PDERI040L0		Endangered	G1	S1.2	1B.1
11	***Arctostaphylos montaraensis*** Montara manzanita	PDERI042W0			G2	S2.2	1B.2
12	***Arctostaphylos pacifica*** Pacific manzanita	PDERI040Z0		Endangered	G1	S1.1	1B.2
13	***Arctostaphylos pallida*** pallid manzanita	PDERI04110	Threatened	Endangered	G1	S1.2	1B.1
14	***Ardea alba*** great egret	ABNGA04040			G5	S4	
15	***Ardea herodias*** great blue heron	ABNGA04010			G5	S4	
16	***Arenaria paludicola*** marsh sandwort	PDCAR040L0	Endangered	Endangered	G1	S1.1	1B.1
17	***Asio flammeus*** short-eared owl	ABNSB13040			G5	S3	SC
18	***Astragalus tener var. tener*** alkali milk-vetch	PDFAB0F8R1			G1T1	S1.1	1B.2
19	***Athene cunicularia*** burrowing owl	ABNSB10010			G4	S2	SC
20	***Atriplex joaquiniana*** San Joaquin spearscale	PDCHE041F3			G2	S2.1	1B.2
21	***Banksula incredula*** incredible harvestman	ILARA14100			G1	S1	
22	***Branta hutchinsii leucopareia*** cackling (=Aleutian Canada) goose	ABNJB05035	Delisted		G5T4	S2	
23	***Caecidotea tomalensis*** Tomales isopod	ICMAL01220			G2	S2	

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Natural Diversity Database
Selected Elements by Scientific Name - Portrait
YBI Ramp Improvement Project - Oakland West and 8 Surrounding (San Quentin, Richmond, Briones Valley, San Francisco North, Oakland East, San Francisco South, Hunter's Point, and San Leandro)

	Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24	***California macrophylla*** round-leaved filaree	PDGER01070			G3	S3.1	1B.1
25	***Callophrys mossii bayensis*** San Bruno elfin butterfly	IILEPE2202	Endangered		G4T1	S1	
26	***Calochortus pulchellus*** Mt. Diablo fairy-lantern	PMLIL0D160			G2	S2.1	1B.2
27	***Calochortus tiburonensis*** Tiburon mariposa-lily	PMLIL0D1C0	Threatened	Threatened	G1	S1.2	1B.1
28	***Calystegia purpurata ssp. saxicola*** coastal bluff morning-glory	PDCON040D2			G4T2	S2.2	1B.2
29	***Carex comosa*** bristly sedge	PMCYP032Y0			G5	S2?	2.1
30	***Castilleja affinis ssp. neglecta*** Tiburon paintbrush	PDSCR0D013	Endangered	Threatened	G4G5T1	S1.2	1B.2
31	***Centromadia parryi ssp. congdonii*** Congdon's tarplant	PDAST4R0P1			G4T3	S3.2	1B.2
32	***Charadrius alexandrinus nivosus*** western snowy plover	ABNNB03031	Threatened		G4T3	S2	SC
33	***Chorizanthe cuspidata var. cuspidata*** San Francisco Bay spineflower	PDPGN04081			G2T2	S2.2	1B.2
34	***Chorizanthe robusta var. robusta*** robust spineflower	PDPGN040Q2	Endangered		G2T1	S1.1	1B.1
35	***Cicindela hirticollis gravida*** sandy beach tiger beetle	IICOL02101			G5T2	S1	
36	***Circus cyaneus*** northern harrier	ABNKC11010			G5	S3	SC
37	***Cirsium andrewsii*** Franciscan thistle	PDAST2E050			G2	S2.2	1B.2
38	***Cirsium occidentale var. compactum*** compact cobwebby thistle	PDAST2E1Z1			G3G4T2	S2.1	1B.2
39	***Clarkia concinna ssp. automixa*** Santa Clara red ribbons	PDONA050A1			G5?T3	S3.3	4.3
40	***Clarkia franciscana*** Presidio clarkia	PDONA050H0	Endangered	Endangered	G1	S1.1	1B.1
41	***Coastal Terrace Prairie***	CTT41100CA			G2	S2.1	
42	***Collinsia corymbosa*** round-headed Chinese-houses	PDSCR0H060			G1	S1.2	1B.2
43	***Collinsia multicolor*** San Francisco collinsia	PDSCR0H0B0			G2	S2.2	1B.2
44	***Cordylanthus maritimus ssp. palustris*** Point Reyes bird's-beak	PDSCR0J0C3			G4?T2	S2.2	1B.2
45	***Danaus plexippus*** monarch butterfly	IILEPP2010			G5	S3	
46	***Dipodomys heermanni berkeleyensis*** Berkeley kangaroo rat	AMAFD03061			G3G4T1	S1	

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47	***Dirca occidentalis*** western leatherwood	PDTHY03010			G2G3	S2S3	1B.2
48	***Dufourea stagei*** Stage's dufourine bee	IIHYM22010			G1?	S1?	
49	***Egretta thula*** snowy egret	ABNGA06030			G5	S4	
50	***Elanus leucurus*** white-tailed kite	ABNKC06010			G5	S3	
51	***Enhydra lutris nereis*** southern sea otter	AMAJF09012	Threatened		G4T2	S2	
52	***Eriogonum luteolum var. caninum*** Tiburon buckwheat	PDPGN083S1			G5T3	S3.2	1B.2
53	***Eucyclogobius newberryi*** tidewater goby	AFCQN04010	Endangered		G3	S2S3	SC
54	***Euphydryas editha bayensis*** Bay checkerspot butterfly	IILEPK4055	Threatened		G5T1	S1	
55	***Fritillaria liliacea*** fragrant fritillary	PMLIL0V0C0			G2	S2.2	1B.2
56	***Geothlypis trichas sinuosa*** saltmarsh common yellowthroat	ABPBX1201A			G5T2	S2	SC
57	***Gilia capitata ssp. chamissonis*** blue coast gilia	PDPLM040B3			G5T2	S2.1	1B.1
58	***Gilia millefoliata*** dark-eyed gilia	PDPLM04130			G2	S2.2	1B.2
59	***Grindelia hirsutula var. maritima*** San Francisco gumplant	PDAST470D3			G5T2	S2.1	1B.2
60	***Haliaeetus leucocephalus*** bald eagle	ABNKC10010	Delisted	Endangered	G5	S2	
61	***Helianthella castanea*** Diablo helianthella	PDAST4M020			G3	S3.2	1B.2
62	***Helminthoglypta nickliniana bridgesi*** Bridges' coast range shoulderband	IMGASC2362			G2T1	S1	
63	***Hesperevax sparsiflora var. brevifolia*** short-leaved evax	PDASTE5011			G4T2T3	S2S3	1B.2
64	***Hesperolinon congestum*** Marin western flax	PDLIN01060	Threatened	Threatened	G2	S2.1	1B.1
65	***Hoita strobilina*** Loma Prieta hoita	PDFAB5Z030			G2	S2.1	1B.1
66	***Holocarpha macradenia*** Santa Cruz tarplant	PDAST4X020	Threatened	Endangered	G1	S1.1	1B.1
67	***Horkelia cuneata ssp. sericea*** Kellogg's horkelia	PDROS0W043			G4T1	S1.1	1B.1
68	***Hydroporus leechi*** Leech's skyline diving beetle	IICOL55040			G1?	S1?	
69	***Hydroprogne caspia*** Caspian tern	ABNNM08020			G5	S4	

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	Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
70	***Ischnura gemina*** San Francisco forktail damselfly	IIODO72010			G2	S2	
71	***Lasionycteris noctivagans*** silver-haired bat	AMACC02010			G5	S3S4	
72	***Lasiurus blossevillii*** western red bat	AMACC05060			G5	S3?	SC
73	***Lasiurus cinereus*** hoary bat	AMACC05030			G5	S4?	
74	***Lasthenia conjugens*** Contra Costa goldfields	PDAST5L040	Endangered		G1	S1.1	1B.1
75	***Laterallus jamaicensis coturniculus*** California black rail	ABNME03041		Threatened	G4T1	S1	
76	***Layia carnosa*** beach layia	PDAST5N010	Endangered	Endangered	G2	S2.1	1B.1
77	***Leptosiphon rosaceus*** rose leptosiphon	PDPLM09180			G1	S1.1	1B.1
78	***Lessingia germanorum*** San Francisco lessingia	PDAST5S010	Endangered	Endangered	G1	S1.1	1B.1
79	***Lichnanthe ursina*** bumblebee scarab beetle	IICOL67020			G2	S2	
80	***Malacothamnus arcuatus*** arcuate bush-mallow	PDMAL0Q0E0			G2Q	S2.2	1B.2
81	***Masticophis lateralis euryxanthus*** Alameda whipsnake	ARADB21031	Threatened	Threatened	G4T2	S2	
82	***Meconella oregana*** Oregon meconella	PDPAP0G030			G2G3	S1.1	1B.1
83	***Melospiza melodia maxillaris*** Suisun song sparrow	ABPBXA301K			G5T2	S2	SC
84	***Melospiza melodia pusillula*** Alameda song sparrow	ABPBXA301S			G5T2?	S2?	SC
85	***Melospiza melodia samuelis*** San Pablo song sparrow	ABPBXA301W			G5T2?	S2?	SC
86	***Microcina leei*** Lee's micro-blind harvestman	ILARA47040			G1	S1	
87	***Microcina tiburona*** Tiburon micro-blind harvestman	ILARA47060			G1	S1	
88	***Microseris paludosa*** marsh microseris	PDAST6E0D0			G2	S2.2	1B.2
89	***Microtus californicus sanpabloensis*** San Pablo vole	AMAFF11034			G5T1T2	S1S2	SC
90	***Monardella villosa ssp. globosa*** robust monardella	PDLAM180P7			G5T2	S2.2	1B.2
91	***Northern Coastal Salt Marsh***	CTT52110CA			G3	S3.2	
92	***Northern Maritime Chaparral***	CTT37C10CA			G1	S1.2	

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	Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
93	***Nycticorax nycticorax*** black-crowned night heron	ABNGA11010			G5	S3	
94	***Nyctinomops macrotis*** big free-tailed bat	AMACD04020			G5	S2	SC
95	***Pentachaeta bellidiflora*** white-rayed pentachaeta	PDAST6X030	Endangered	Endangered	G1	S1.1	1B.1
96	***Phalacrocorax auritus*** double-crested cormorant	ABNFD01020			G5	S3	
97	***Plagiobothrys chorisianus var. chorisianus*** Choris' popcorn-flower	PDBOR0V061			G3T2Q	S2.2	1B.2
98	***Plagiobothrys diffusus*** San Francisco popcorn-flower	PDBOR0V080		Endangered	G1Q	S1.1	1B.1
99	***Plagiobothrys glaber*** hairless popcorn-flower	PDBOR0V0B0			GH	SH	1A
100	***Plebejus icarioides missionensis*** Mission blue butterfly	IILEPG801A	Endangered		G5T1	S1	
101	***Potamogeton filiformis*** slender-leaved pondweed	PMPOT03090			G5	S1S2	2.2
102	***Rallus longirostris obsoletus*** California clapper rail	ABNME05016	Endangered	Endangered	G5T1	S1	
103	***Rana boylii*** foothill yellow-legged frog	AAABH01050			G3	S2S3	SC
104	***Rana draytonii*** California red-legged frog	AAABH01022	Threatened		G4T2T3	S2S3	SC
105	***Reithrodontomys raviventris*** salt-marsh harvest mouse	AMAFF02040	Endangered	Endangered	G1G2	S1S2	
106	***Riparia riparia*** bank swallow	ABPAU08010		Threatened	G5	S2S3	
107	***Rynchops niger*** black skimmer	ABNNM14010			G5	S1S3	SC
108	***Sanicula maritima*** adobe sanicle	PDAPI1Z0D0		Rare	G2	S2.2	1B.1
109	***Scapanus latimanus insularis*** Angel Island mole	AMABB02032			G5T1	S1	
110	***Scapanus latimanus parvus*** Alameda Island mole	AMABB02031			G5T1Q	S1	SC
111	***Serpentine Bunchgrass***	CTT42130CA			G2	S2.2	
112	***Silene verecunda ssp. verecunda*** San Francisco campion	PDCAR0U213			G5T2	S2.2	1B.2
113	***Sorex vagrans halicoetes*** salt-marsh wandering shrew	AMABA01071			G5T1	S1	SC
114	***Speyeria callippe callippe*** callippe silverspot butterfly	IILEPJ6091	Endangered		G5T1	S1	
115	***Stebbinsoseris decipiens*** Santa Cruz microseris	PDAST6E050			G2	S2.2	1B.2

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116	***Sternula antillarum browni*** California least tern	ABNNM08103	Endangered	Endangered	G4T2T3Q	S2S3	
117	***Streptanthus albidus ssp. peramoenus*** most beautiful jewel-flower	PDBRA2G012			G2T2	S2.2	1B.2
118	***Streptanthus niger*** Tiburon jewel-flower	PDBRA2G0T0	Endangered	Endangered	G1	S1.1	1B.1
119	***Suaeda californica*** California seablite	PDCHE0P020	Endangered		G1	S1.1	1B.1
120	***Symphyotrichum lentum*** Suisun Marsh aster	PDASTE8470			G2	S2.2	1B.2
121	***Taxidea taxus*** American badger	AMAJF04010			G5	S4	SC
122	***Thamnophis sirtalis tetrataenia*** San Francisco garter snake	ARADB3613B	Endangered	Endangered	G5T2	S2	
123	***Trachusa gummifera*** A leaf-cutter bee	IIHYM80010			G1	S1	
124	***Trifolium amoenum*** two-fork clover	PDFAB40040	Endangered		G1	S1.1	1B.1
125	***Trifolium depauperatum var. hydrophilum*** saline clover	PDFAB400R5			G5T2?	S2.2?	1B.2
126	***Triphysaria floribunda*** San Francisco owl's-clover	PDSCR2T010			G2	S2.2	1B.2
127	***Triquetrella californica*** coastal triquetrella	NBMUS7S010			G1	S1.2	1B.2
128	***Tryonia imitator*** mimic tryonia (=California brackishwater snail)	IMGASJ7040			G2G3	S2S3	
129	***Valley Needlegrass Grassland***	CTT42110CA			G1	S3.1	
130	***Vespericola marinensis*** Marin hesperian	IMGASA4140			G2G3	S2S3	
131	***Xanthocephalus xanthocephalus*** yellow-headed blackbird	ABPBXB3010			G5	S3S4	SC
132	***Zapus trinotatus orarius*** Point Reyes jumping mouse	AMAFH01031			G5T1T3Q	S1S3	SC

Appendix D USFWS List

U.S. Fish & Wildlife Service

Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 100624034334

Database Last Updated: April 29, 2010

Quad Lists

Listed Species

Invertebrates

Branchinecta lynchi
vernal pool fairy shrimp (T)

Euphydryas editha bayensis
Critical habitat, bay checkerspot butterfly (X)

Haliotes cracherodii
black abalone (E) (NMFS)

Haliotes sorenseni
white abalone (E) (NMFS)

Icaricia icarioides missionensis
mission blue butterfly (E)

Speyeria callippe callippe
callippe silverspot butterfly (E)

Speyeria zerene myrtleae
Myrtle's silverspot butterfly (E)

Fish

Acipenser medirostris
green sturgeon (T) (NMFS)

Eucyclogobius newberryi
tidewater goby (E)

Hypomesus transpacificus
Critical habitat, delta smelt (X)
delta smelt (T)

Oncorhynchus kisutch
coho salmon - central CA coast (E) (NMFS)
Critical habitat, coho salmon - central CA coast (X) (NMFS)

Oncorhynchus mykiss
Central California Coastal steelhead (T) (NMFS)
Central Valley steelhead (T) (NMFS)
Critical habitat, Central California coastal steelhead (X) (NMFS)
Critical habitat, Central Valley steelhead (X) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
Critical habitat, winter-run chinook salmon (X) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)

Rana draytonii
California red-legged frog (T)
Critical habitat, California red-legged frog (X)

Reptiles

Caretta caretta
loggerhead turtle (T) (NMFS)

Chelonia mydas (incl. agassizi)
green turtle (T) (NMFS)

Dermochelys coriacea
leatherback turtle (E) (NMFS)

Lepidochelys olivacea
olive (=Pacific) ridley sea turtle (T) (NMFS)

Masticophis lateralis euryxanthus
Alameda whipsnake [=striped racer] (T)
Critical habitat, Alameda whipsnake (X)

Thamnophis sirtalis tetrataenia
San Francisco garter snake (E)

Birds

Brachyramphus marmoratus
marbled murrelet (T)

Charadrius alexandrinus nivosus
western snowy plover (T)

Diomedea albatrus
short-tailed albatross (E)

Pelecanus occidentalis californicus
California brown pelican (E)

Rallus longirostris obsoletus
California clapper rail (E)

Sternula antillarum (=Sterna, =albifrons) browni
California least tern (E)

Mammals

Arctocephalus townsendi
Guadalupe fur seal (T) (NMFS)

Balaenoptera borealis
sei whale (E) (NMFS)

Balaenoptera musculus
blue whale (E) (NMFS)

Balaenoptera physalus
finback (=fin) whale (E) (NMFS)

Enhydra lutris nereis
southern sea otter (T)

Eubalaena (=Balaena) glacialis
right whale (E) (NMFS)

Eumetopias jubatus
Critical Habitat, Steller (=northern) sea-lion (X) (NMFS)
Steller (=northern) sea-lion (T) (NMFS)

Physeter catodon (=macrocephalus)
sperm whale (E) (NMFS)

Reithrodontomys raviventris
salt marsh harvest mouse (E)

Plants

Arctostaphylos hookeri ssp. ravenii
Presidio (=Raven's) manzanita (E)

Arctostaphylos pallida
pallid manzanita (=Alameda or Oakland Hills manzanita) (T)

Calochortus tiburonensis
Tiburon mariposa lily (T)

Castilleja affinis ssp. neglecta
Tiburon paintbrush (E)

Clarkia franciscana
Presidio clarkia (E)

Hesperolinon congestum
Marin dwarf-flax (=western flax) (T)

Holocarpha macradenia
Critical habitat, Santa Cruz tarplant (X)
Santa Cruz tarplant (T)

Lasthenia conjugens
Contra Costa goldfields (E)

Lessingia germanorum
San Francisco lessingia (E)

Streptanthus niger
Tiburon jewelflower (E)

Suaeda californica
California sea blite (E)

Proposed Species

Amphibians

Rana draytonii
Critical habitat, California red-legged frog (PX)

Quads Containing Listed, Proposed or Candidate Species:

SAN LEANDRO (447B)
HUNTERS POINT (448A)
SAN FRANCISCO SOUTH (448B)
BRIONES VALLEY (465B)
OAKLAND EAST (465C)
RICHMOND (466A)
SAN QUENTIN (466B)
SAN FRANCISCO NORTH (466C)
OAKLAND WEST (466D)

County Lists

Listed Species

Invertebrates

Haliotes cracherodii
black abalone (E) (NMFS)

Haliotes sorenseni
white abalone (E) (NMFS)

Icaricia icarioides missionensis
mission blue butterfly (E)

Incisalia mossii bayensis
San Bruno elfin butterfly (E)

Fish

Acipenser medirostris
green sturgeon (T) (NMFS)

Eucyclogobius newberryi
tidewater goby (E)

Oncorhynchus kisutch
coho salmon - central CA coast (E) (NMFS)

Oncorhynchus mykiss
Central California Coastal steelhead (T) (NMFS)
Critical habitat, Central California coastal steelhead (X) (NMFS)
Critical habitat, Central Valley steelhead (X) (NMFS)

Oncorhynchus tshawytscha
Critical habitat, winter-run chinook salmon (X) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Rana draytonii
California red-legged frog (T)

Reptiles

Caretta caretta
loggerhead turtle (T) (NMFS)

Chelonia mydas (incl. agassizi)
green turtle (T) (NMFS)

Dermochelys coriacea
leatherback turtle (E) (NMFS)

Lepidochelys olivacea
olive (=Pacific) ridley sea turtle (T) (NMFS)

Birds

Charadrius alexandrinus nivosus
western snowy plover (T)

Diomedea albatrus
short-tailed albatross (E)

Pelecanus occidentalis californicus
California brown pelican (E)

Rallus longirostris obsoletus
California clapper rail (E)

Mammals

Arctocephalus townsendi
Guadalupe fur seal (T) (NMFS)

Balaenoptera borealis
sei whale (E) (NMFS)

Balaenoptera musculus
blue whale (E) (NMFS)

Balaenoptera physalus
finback (=fin) whale (E) (NMFS)

Eubalaena (=Balaena) glacialis
right whale (E) (NMFS)

Eumetopias jubatus
Critical Habitat, Steller (=northern) sea-lion (X) (NMFS)
Steller (=northern) sea-lion (T) (NMFS)

Megaptera novaeangliae
humpback whale (E) (NMFS)

Physeter catodon (=macrocephalus)
sperm whale (E) (NMFS)

Reithrodontomys raviventris
salt marsh harvest mouse (E)

Plants

Arctostaphylos hookeri ssp. ravenii
Presidio (=Raven's) manzanita (E)

Clarkia franciscana
Presidio clarkia (E)

Hesperolinon congestum
Marin dwarf-flax (=western flax) (T)

Lessingia germanorum
San Francisco lessingia (E)

Key:

(E) *Endangered* - Listed as being in danger of extinction.
(T) *Threatened* - Listed as likely to become endangered within the foreseeable future.
(P) *Proposed* - Officially proposed in the Federal Register for listing as endangered or threatened.
(NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service.

Consult with them directly about these species.
Critical Habitat - Area essential to the conservation of a species.
(PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.
(C) *Candidate* - Candidate to become a proposed species.
(V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
(X) *Critical Habitat* designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, **or may be affected by** projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist and/or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list. See our Protocol and Recovery Permits pages.

For plant surveys, we recommend using the Guidelines for Conducting and Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

> Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that

may result in take, then that agency must engage in a formal consultation with the Service.

During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

  Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our Map Room page.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. More info

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6580.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you

address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be September 22, 2010.