APPENDIX N

NATURAL ENVIRONMENT STUDY

AECOM
150 Chestnut Street
San Francisco, CA 94111
www.aecom.com

415 955 2800 tel
415 788 4875 fax

Memorandum

To	Valerie Shearer	Page	1
CC			
Subject	Yerba Buena Island Ramps Improvement Project EIR/EIS Natural Environment Study Addendum Memorandum		
From	Angie Harbin-Ireland		
Date	July 26, 2011		

The YBI Ramps Improvement PDT, which is comprised of the lead (Caltrans and SFCTA), cooperating, and responsible agencies, held a meeting on April 12, 2011 to consider and identify the preferred alternative. The unanimous decision was that Alternative 2b would best meet the purpose and need of the YBI Ramps Improvement Project. The relocation site for Quarters 10/Building 267 was determined following the identification of the preferred alternative.

The purpose of this memorandum is to confirm that preparation of the relocation of Quarters 10/Building 267 site and relocation of the buildings would not result in new significant impacts. After the buildings are relocated, any future use of the site will be evaluated through a separate environmental process initiated by the City and County of San Francisco and/or TIDA.

The following analysis is based on a field survey conducted for the relocation site on May 10, 2011. Vegetation communities and wildlife habitats within the relocation site on YBI can generally be described as landscaped/disturbed areas and a gravel parking area bordered by a strip of native and non-native vegetation (Figure 1). Vegetation communities found on-site are Mixed broadleaf-conifer forest (0.42 acres), landscaped/disturbed (0.72 acres), and graveled areas (0.16 acres) as presented in the Table 1 below and, Figure 1. The majority of the site was developed as an informal picnic area near Clipper Cove by the California Youth Conservation Corps in 1978, and consists of a combination of lawn areas with scattered trees and several picnic tables. However, now the gravel lot portion of the area is used as a pull over spot for cars and buses. Along the border of the picnic area, following the curvature of Macalla Road as it runs northeast from Treasure Island Road is a wide strip of mixed broadleaf-conifer forest. Each of the dominant vegetation communities, which are similar to the vegetation described in the NES, is described separately below (Table 1), and includes descriptions of the native elements found therein.

Figure 1

Quarters 10 and Building 267 Relocation Site - Habitat Map

Table 1: Habitat Type and Area

Habitat Type	Total Area
Mixed broadleaf-conifer forest	0.42 acres
Landscaped/Disturbed	0.72 acres
Graveled Parking Area	0.16 acres

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.

Mixed broadleaf-conifer forest totaling approximately 0.42 acres are located within the relocation area. The canopy is a mixture of Tasmanian blue gum (*Eucalyptus globulus*) trees 12.2 – 18.3 meters (40 - 60 feet) in height, and Monterey pine. The understory supports a combination of ruderal, nonnative shrubs and herbs such as broom (*Genista* spp.), English ivy (*Hedera helix*), and natives such as California buckeye (*Aesculus californica*). Herbaceous understory species that were observed include native miner's lettuce (*Claytonia perfoliata*), bee plant (*Scrophularia californica*), Nasturtium (*Tropaeolum* sp), sweet fennel (*Foeniculum vulgare*), and California blackberry (*Rubus ursinus*). This community intergrades with the landscaped/disturbed area making up the picnic area near Clipper Cove, and shares tree species with that vegetation community. Mixed broadleaf conifer forest provides cover and nesting habitat for a variety of birds. 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 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).

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 relocation site totaling approximately 0.72 acres are made up primarily of maintained lawn and scattered trees including Monterey cypress (*Callitropsis macrocarpa*), eucalyptus, elm and Canary island palm (*Phoenix canariensis*). Such areas are not expected to support any naturally occurring vegetation, although invasive native and nonnative plant species frequently colonize disturbed sites. There are additional areas of landscaped/ disturbed habitat on site that are characterized by ornamental lava rock. 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 associated within close contact to urban areas such as raccoon (*Procyon lotor*), opossum (*Didelphus virginianus*), house finch, European starling (*Sturnus vulgaris*), and mourning dove (*Zenaida macroura*).

Wetlands and Other Waters

No evidence of wetlands or aquatic features was found within the relocation site. The site is in close proximity to Clipper Cove and the San Francisco Bay, accessible from Treasure Island Road through the site via a stairway located adjacent to the northeast. As with the proposed ramps, tidal waters would not be affected by temporary construction activities due to implementation of standard construction BMPs to treat and minimize discharge into the Bay. The avoidance and minimization measures to implement construction BMPs identified in the Section 3.17.2.4 would be implemented as applicable to the site. Wetlands and other water impacts would not be adverse.

Special Status Plants and Wildlife

No special-status plant or wildlife species were encountered during the reconnaissance-level biological resources assessment. Species that have a potential to occur within the relocation site are consistent with those that could occur on other portions of YBI evaluated as part of the YBI Ramps Improvement Project, and are discussed in detail in the Natural Environment Study (NES) and included as Appendix N of this Final EIR/EIS. If necessary, the avoidance, minimization, and/or mitigation measures identified in Section 3.17.3.4 (Stinging Phacelia, Large Flowered Sand-Spurrey), Section 3.17.4.4 (Sandy Beach Tiger Beetle, Monarch Butterfly, Gummifera Leaf-Cutter Bee, San Francisco Lacewing, American Peregrine Falcon, Cooper’s Hawk, Golden Eagle, White-tailed Kite, and Other Nesting Raptors, Passerines and Nonpasserine Landbirds, Shorebirds, Marshbirds, and Waterbirds, California Brown Pelican, Double-Crested Cormorant, Special Status Bats, San Francisco Dusky Footed Woodrat, and Bank Swallow) would be implemented as applicable to the site. By implementing the applicable avoidance, minimization, and mitigation measures, special status plants and wildlife impacts would not be adverse.

Invasive Species

YBI’s location in the central part of San Francisco Bay provides a hospitable habitat for invasive species due to its location at the crossroads of a busy marine port and interstate freeway thoroughfare. As a direct result of the relocation site grading, land disturbance, and debris generated from construction, YBI would be subject to the potential increased spread of invasive plant and wildlife species. The avoidance and minimization measures to prevent the introduction and spread of

exotic and invasive plant and wildlife species identified in Section 3.17.6.4 would be implemented as applicable to the site. Impacts related to invasive species would not be adverse.

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

No changes have occurred since the USFWS List was generated on June 24, 2010 that would affect the biological resource analysis.

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825

July 21, 2011

Document Number: 110721040746

Angie Harbin-Ireland
AECOM
1422 Kettner Blvd., Suite 500
San Diego, CA 92101

Subject: Species List for Yerba Buena Island Ramps Project

Dear: Ms. Harbin-Ireland

We are sending this official species list in response to your July 21, 2011 request for information about endangered and threatened species. The list covers the California counties and/or U.S. Geological Survey 7½ minute quad or quads you requested.

Our database was developed primarily to assist Federal agencies that are consulting with us. Therefore, our lists include all of the sensitive species that have been found in a certain area *and also ones that may be affected by projects in the area*. For example, a fish may be on the list for a quad if it lives somewhere downstream from that quad. Birds are included even if they only migrate through an area. In other words, we include all of the species we want people to consider when they do something that affects the environment.

Please read Important Information About Your Species List (below). It explains how we made the list and describes your responsibilities under the Endangered Species Act.

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 October 19, 2011.

Please contact us if your project may affect endangered or threatened species or if you have any questions about the attached list or your responsibilities under the Endangered Species Act. A list of Endangered Species Program contacts can be found at www.fws.gov/sacramento/es/branches.htm.

Endangered Species Division

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: 110721040746

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)

**The California brown pelican has been delisted since this list was generated.

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)

**The California brown pelican has been delisted since this list was generated.

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)

**The California brown pelican has been delisted since this list was generated.

OAKLAND EAST (465C)
RICHMOND (466A)
SAN QUENTIN (466B)
SAN FRANCISCO NORTH (466C)
OAKLAND WEST (466D)

County Lists

No county species lists requested.

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.

**The California brown pelican has been delisted since this list was generated.

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

**The California brown pelican has been delisted since this list was generated.

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) 414-6520.

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 October 19, 2011.

**The California brown pelican has been delisted since this list was generated.

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

STATE OF CALIFORNIA
Department of Transportation

San Francisco County Transportation Authority

Prepared By: _____ Date: 01/14/11
Angie Harbin-Ireland
(510) 622-6600
AECOM

Reviewed By: _____ Date: 01/14/11
Stefan Galvez-Abadia, SFOBB Environmental Compliance Manager
(510) 867-6785
Office of Biological Sciences and Permits
District 4, California Department of Transportation

Approved By: _____ Date: 01/14/11
Jeffrey G. Jensen, District Office Chief
(510) 622-8729
Office of Biological Sciences and Permits
District 4, California Department of Transportation

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

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

Image: Google 2008
Data: DMJM Harris, EDAW

Study Area

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

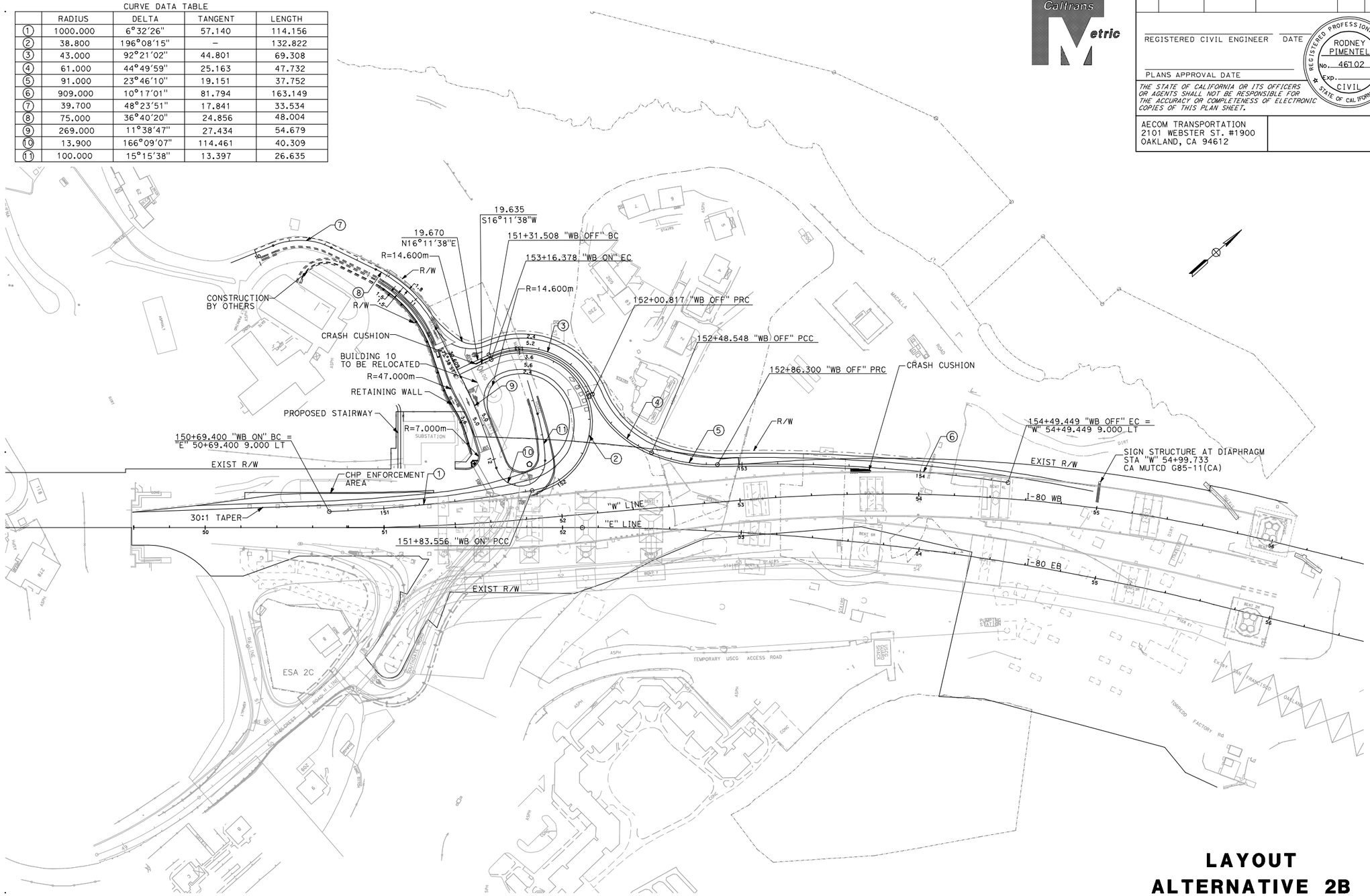
[2] The SFOBB Transition Structure is the name of a section of the new Bay Bridge. The Transition Structure will connect the Self-Anchored Suspension (SAS) span to Yerba Buena Island, and will transition the East Span's side-by-side road decks to the upper and lower decks of the YBI tunnel and West Span.

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

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

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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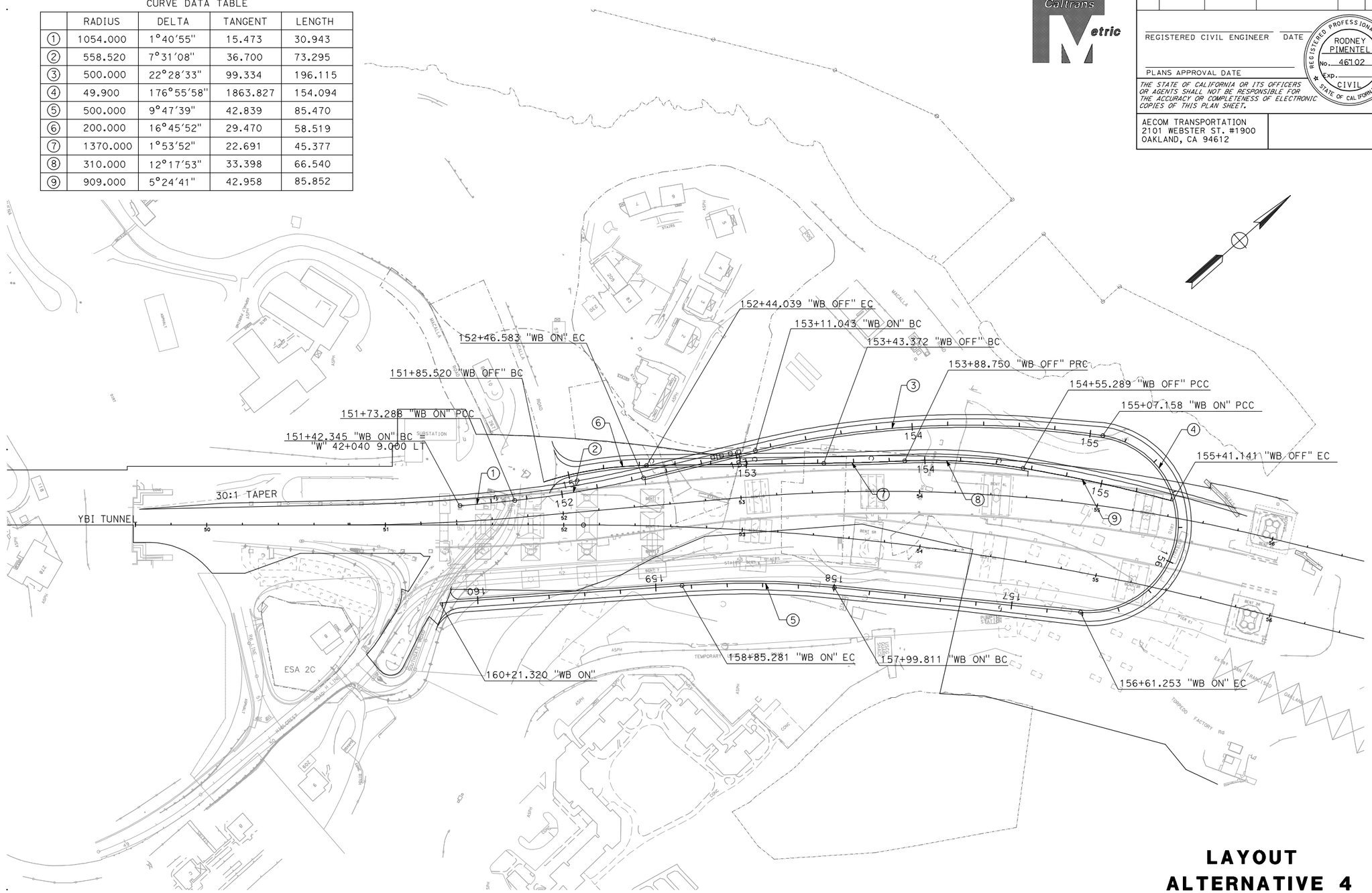
Figure 3b:
Alternative 4

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

Caltrans Metric

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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.

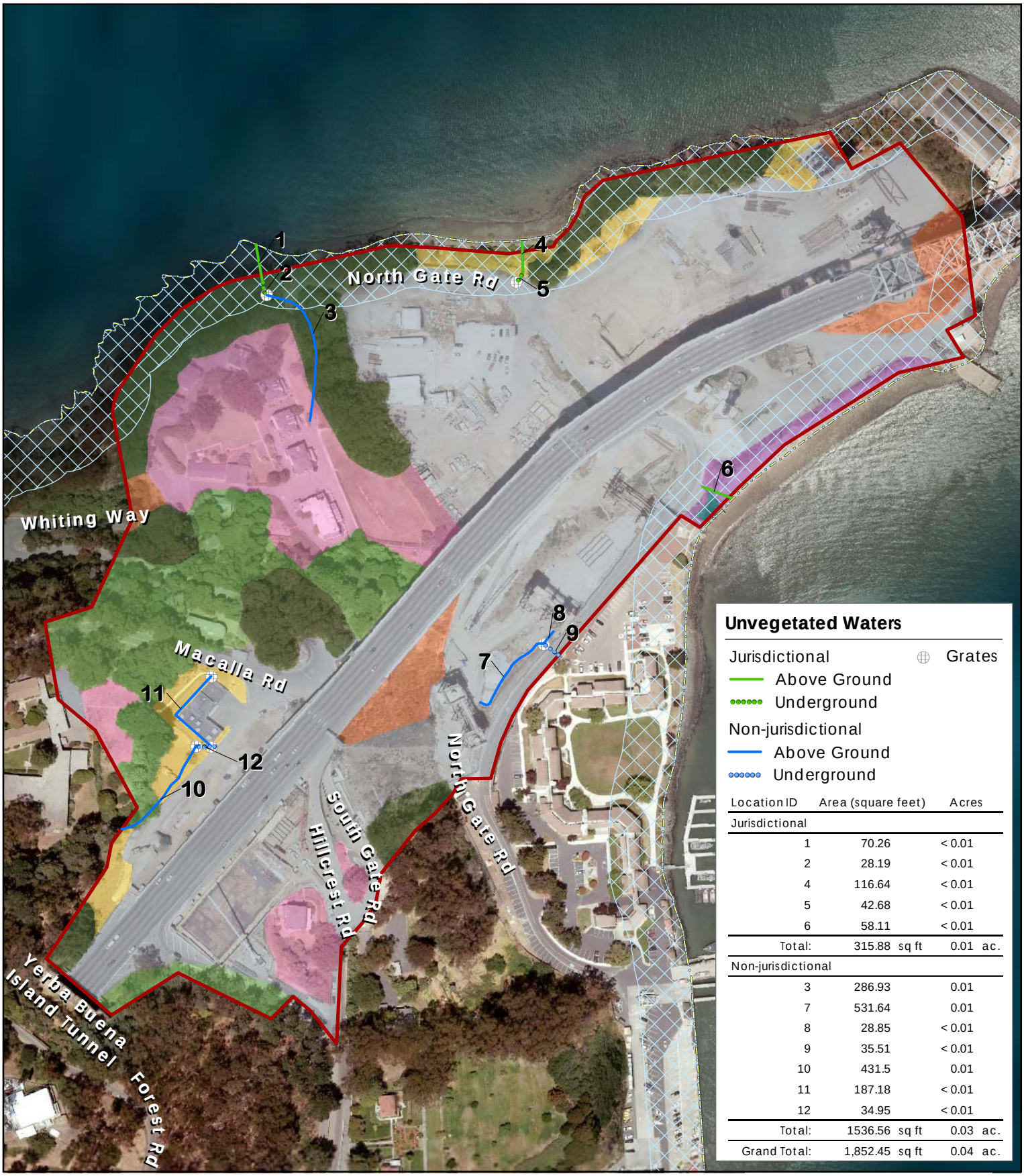
Waters of the United States include:

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



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

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

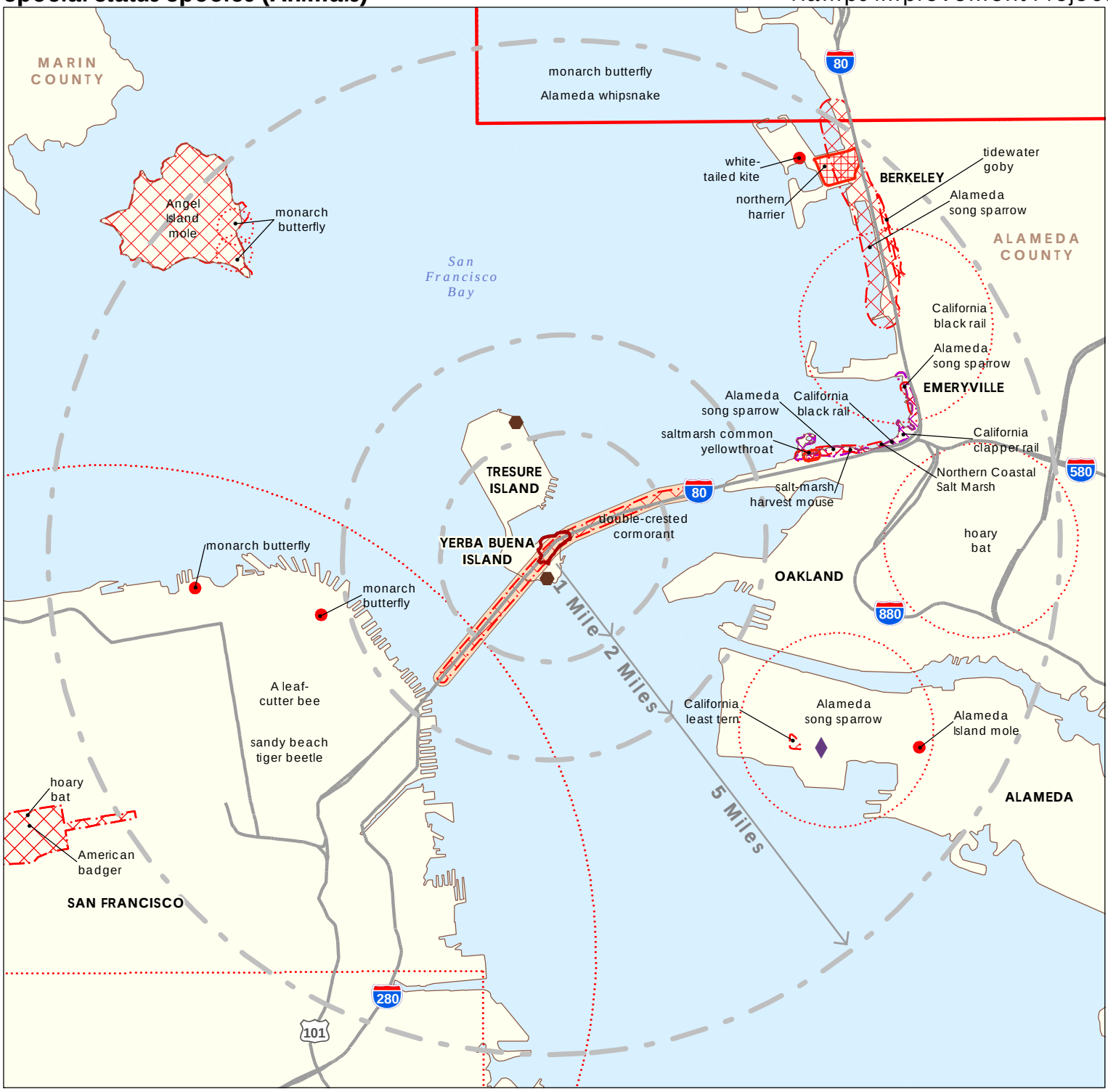
Source: CNDDB; October, 2008

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

Source: CNDDB; October, 2008

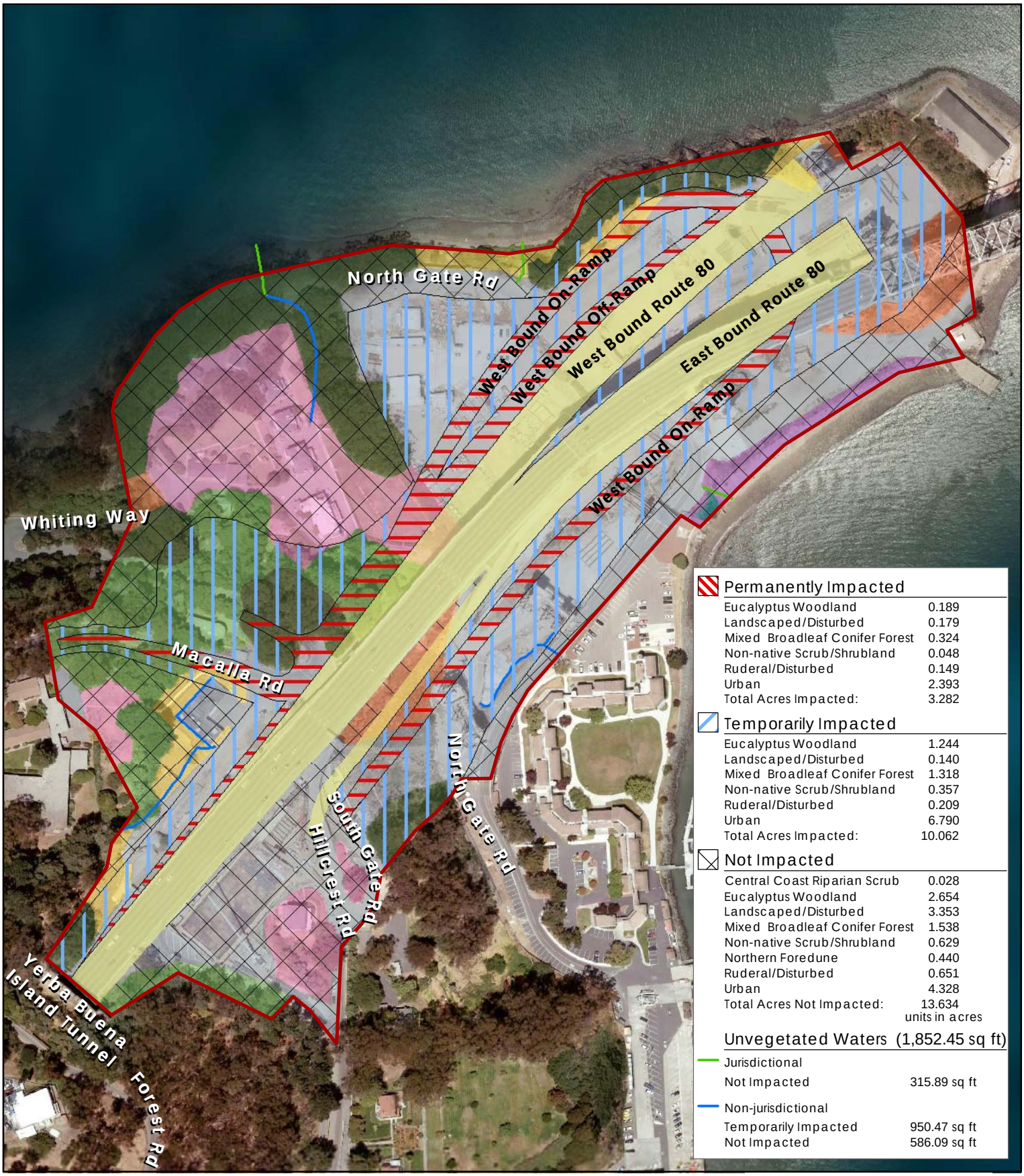
SFOBB Bird Monitoring Memo, April, 2007; SFOBB Marine Mammal Monitoring Plan, May, 2002; Susan Euwing, personal communication, 2008

0 1 2 Miles

N

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)

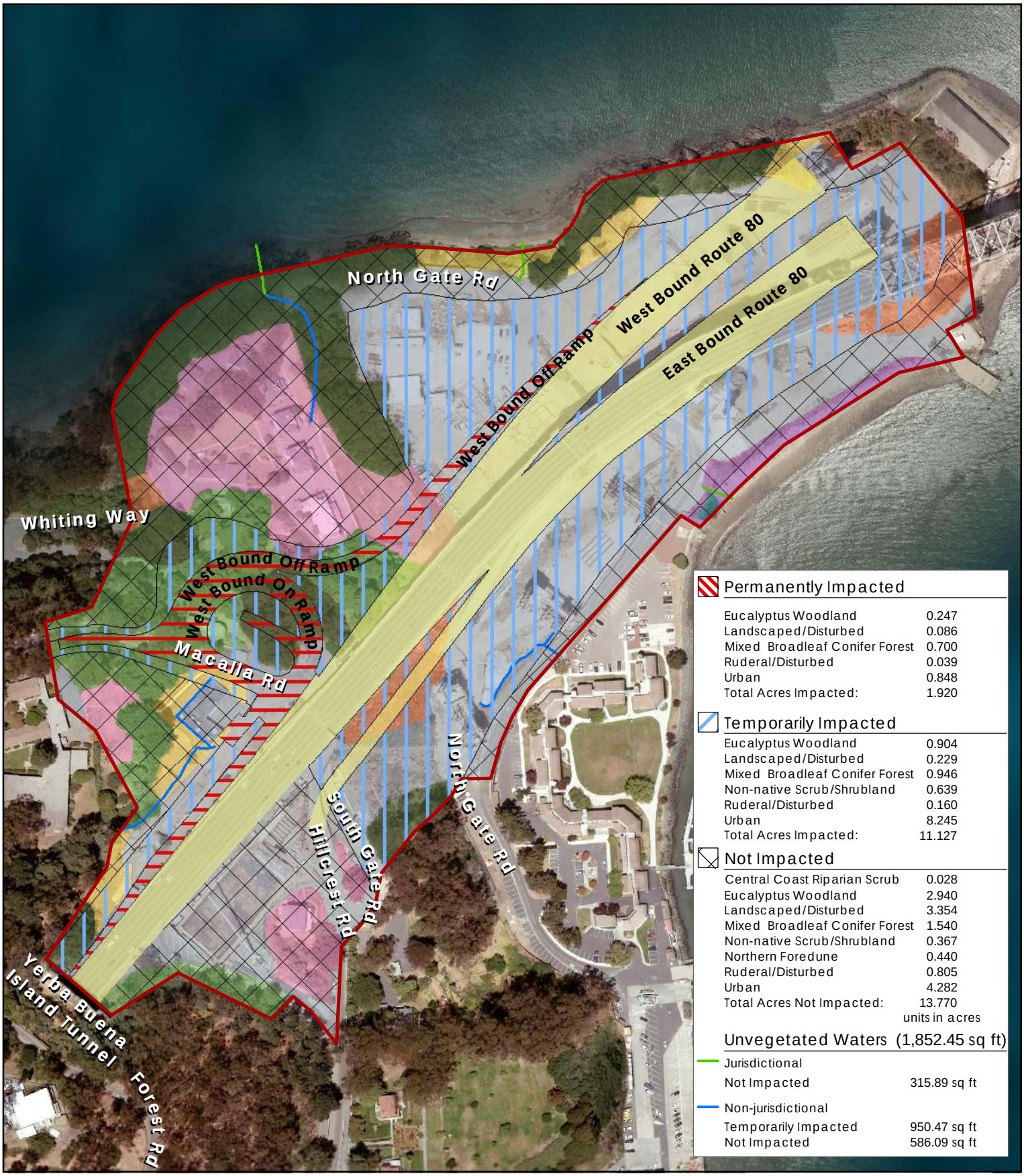
Study Area

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

- 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

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.

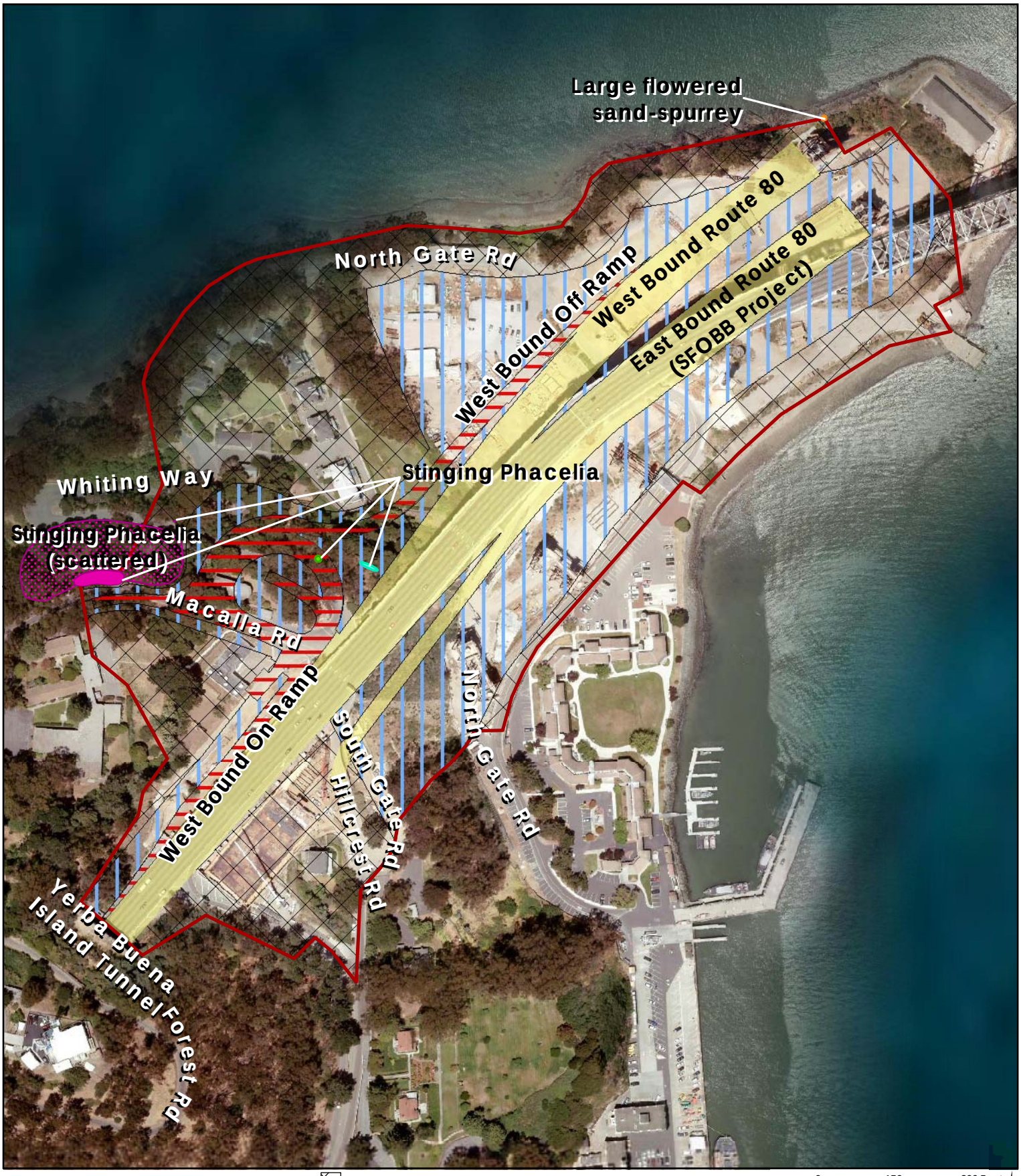
The following 13 special-status plant species have been documented between five and ten miles from the BSA (Figure 5a), and were considered to have a low or very low potential to occur within marginally suitable habitats present on-site:

- 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

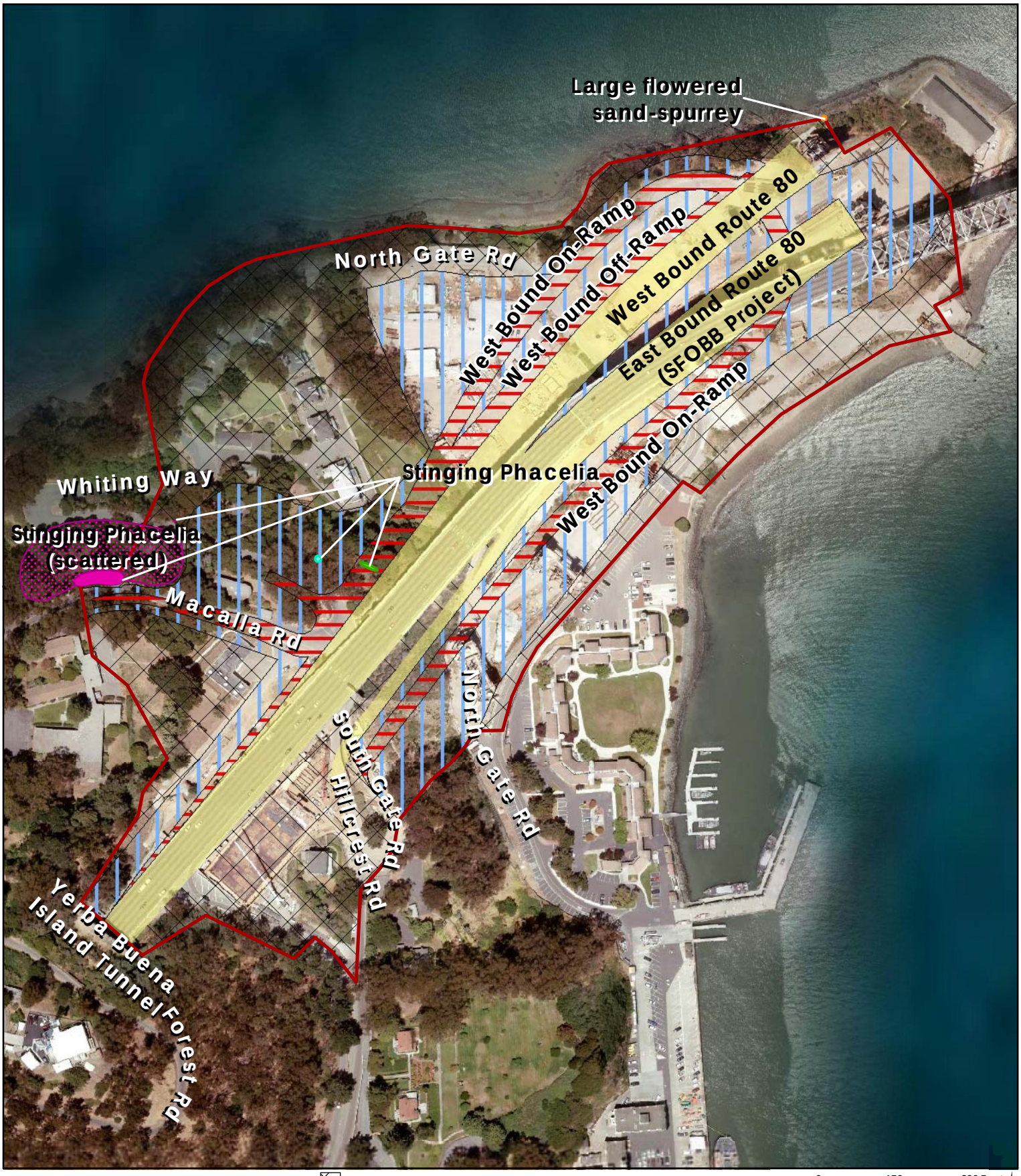
Study Area

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

Stinging Phacelia	215 sq ft

Temporarily Impacted

Stinging Phacelia	113 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

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 california*) 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:

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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
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	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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	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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Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
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

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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)

1 of 8 6/24/2010 2:44 PM

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.

APPENDIX O

PHASE I ISA

AECOM
150 Chestnut Street
San Francisco, CA 94111
www.aecom.com

415 955 2800 tel
415 788 4875 fax

Memorandum

To	Valerie Shearer	Page	1
CC			
Subject	Yerba Buena Island Ramps Improvement Project EIR/EIS Phase I ISA Report Addendum Memorandum		
From	Susan Yogi		
Date	July 26, 2011		

The YBI Ramps Improvement PDT, which is comprised of the lead (Caltrans and SFCTA), cooperating, and responsible agencies, held a meeting on April 12, 2011 to consider and identify the preferred alternative. The unanimous decision was that Alternative 2b would best meet the purpose and need of the YBI Ramps Improvement Project. The relocation site for Quarters 10/Building 267 was determined following the identification of the preferred alternative.

The purpose of this memorandum is to confirm that preparation of the relocation of Quarters 10/Building 267 site and relocation of the buildings would not result in new issues. After the buildings are relocated, any future use of the site will be evaluated through a separate environmental process initiated by the City and County of San Francisco and/or TIDA.

The U.S. Navy occupied a significant portion of YBI. The U.S. Navy, as part of an Installation Restoration Program (IRP) for NSTI/YBI, established a Federal Facility Site Remediation Agreement among the U.S. Navy, the California Department of Toxic Substances Control (DTSC) and RWQCB. Under this agreement, the U.S. Navy agreed to undertake and report on specified tasks associated with environmental assessment and response actions at 25 Installation Restoration (IR) sites under the IRP in accordance with CERCLA. Those actions have been ongoing since the early 1990s and are reported on in the 1998 HWA and the 2008 Final Site Management Plan (SMP), as well as summarized in the 2010 Phase I ISA for the YBI project. This section briefly summarizes relevant details of those investigations and their resolution or ongoing investigation.

The relocation site for Quarters 10/Building 267 is identified as Site 16 in the 2008 SMP. Petroleum-related investigations were performed within Site 16 boundaries. Site 16 was identified as the former Clipper Cove Tank Farm, which was an area used to store aviation gasoline and automotive diesel for more than 20 years (2008 SMP, Figure 1) from at least 1943 until they were dismantled in the 1960s. The sludge was removed from the aboveground storage tanks (ASTs) during their dismantling, with unknown quantities of sludge reportedly deposited on bare ground east of the former AST locations. No documentation has been found of removal and disposal of the sludge during the 1960s. Based on the investigation at the site, it appears that at least some portion of the sludge was left on the surface to degrade and leach into the underlying soils. In 2001, contaminated surface soil was excavated by

the Navy and disposed of offsite (2008 SMP, page A-41). The U.S. Navy received a no further action (NFA) concurrence letter from the RWQCB dated June 17, 2004.

Based on the regulatory database search of the YBI Ramps Improvement project, the results identified and plotted one National Priorities List (NPL) site and two LUST sites within the search criteria. The NPL site and one LUST site (Map ID site 2527) are not in the vicinity of the relocation site. LUST site (Map ID site 4693) is located on USCG property. The database did not provide sufficient information as to the exact name or location for this site. Information provided by the RWQCB indicates that this site is listed as Building 40 of the USCG station. The two different case numbers (Case No. 10647 and 38-0794) provided in the ERIIS database report both reference the same site.

To date, lead-based paint (LBP) at all pre-1978 residential housing on TI and YBI has been assessed. LBP at all pre-1960 YBI residential housing has been abated, and hazard reduction measures were put in place to protect the residents. To ensure all hazard reduction measures remain protective, a reevaluation survey is conducted every 2 years per the recommended U.S. Department of Housing and Urban Development (HUD) schedule. LBP in residential housing on YBI was reevaluated between April and May 2004 and again between May and July 2006. The next LBP reevaluation of the residential housing on YBI is scheduled for within 1 year of transfer of the NSTI property to TIDA.

Soil samples were collected to evaluate the status of drip line and midyard areas at representative YBI residential buildings. Based on the analytical results, soil abatement of the planter boxes and drip line areas was conducted in accordance with Title X, HUD, and U.S. Navy Policy at Quarters 10 on YBI. HUD guidelines state only bare soils may pose a hazard, and soils covered by grass, concrete, or asphalt are protective. Any future disturbance of the grass, concrete, or asphalt at these buildings would require further soil evaluation for lead. The U.S. Navy would either abate or require the transferee to abate any LBP hazards found in existing residential facilities within 1 year of being transferred. If an existing residential facility is scheduled for demolition or nonresidential use, it would not be inspected or abated of LBP.

All known damaged, friable, or accessible asbestos-containing material (ACM) has been removed within most areas of YBI, including the area of Quarters 10/Building 267. It is not anticipated that remaining ACM would pose a threat to human health, however the measures listed in Section 3.13.8 of the Final EIR/EIS would be applied to ensure safety when the buildings are moved to the relocation site. Beginning in 1995, several surveys to identify the presence of ACM have been completed at NSTI. Remedies for ACM were implemented.

Friable, accessible ACM identified during surveys was remediated beginning in 1998 All known damaged, friable, or accessible ACM has been abated within most areas of YBI, including the area of Quarters 10/Building 267. It is not anticipated that remaining ACM would pose a threat to human health, however the measures listed in Section 3.13.8 of the Final EIR/EIS would be applied to ensure safety when the buildings are moved to the relocation site.

Notices and restrictions related to asbestos were identified in the U.S. Navy's Finding of Suitability to Transfer (FOST) for YBI dated March 23, 2006. A biennial monitoring and sampling program is performed by the U.S. Navy.

Impacts related to the use and transport of hazardous materials or the disturbance of hazardous waste sites would be limited to the construction period for the building relocations. Although a release of hazardous materials during the construction period may potentially have long-lasting effects, construction phase BMPs and avoidance/minimization measures would be implemented to address this potential issue. As with the proposed ramps, compliance with required laws and regulations through the project design and construction specifications would ensure that potential hazardous waste and materials impacts are minimized or avoided if possible for the building relocations. As stated in Section 3.13.8.2 of the Final EIR/EIS, additional measures for the building relocations would be applicable for Alternative 2b. Implementation of these measures would ensure safety from any ACM that may be discovered during the building relocations and would include: contract specifications for relocation of Quarters 10/Building 267 to include procedures for abatement, handling, and disposal of LBP and ACT (if this proves necessary); and performing ACM and LBP surveys prior to building relocation.

Therefore, no permanent impacts are anticipated for the relocation of Quarters 10/Building 267 to the relocation site. By implementing the applicable avoidance and minimization measure, hazardous waste/materials impacts would not be adverse.

PRELIMINARY PHASE I ISA REPORT
Yerba Buena Island Ramps Improvement Project
Yerba Buena Island
San Francisco County, California

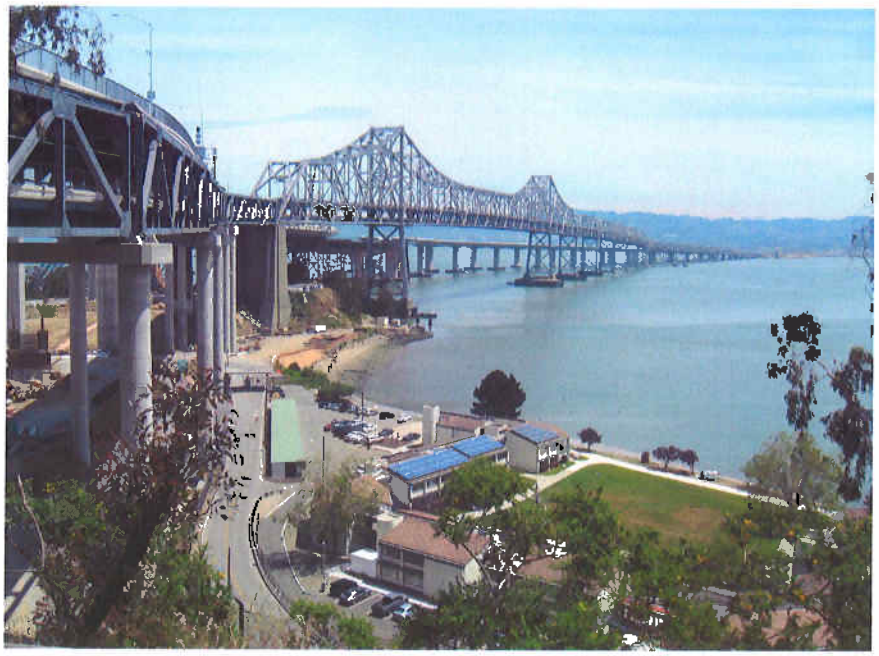
AECOM Project Number: 60046943.3060

Prepared for:

Mr. Eric Cordoba, Project Manager
And Mr. Bob Zandipour, Project Engineer
State of California Department of Transportation
And
San Francisco County Transportation Authority
100 Van Ness Avenue
San Francisco, California 92630

Prepared by:

AECOM Technology Corporation
999 Town & Country Road, Fourth Floor
Orange, California 92868
(714) 835-4447
fax (714) 953-6989



June 8, 2010

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Preliminary Phase I ISA Report

SUMMARY OF CONCLUSIONS

Name of Project:	Yerba Buena Island Ramps Improvement Project
Location:	Yerba Buena Island, San Francisco County, California
Consultant Name:	AECOM Technology Corporation
Consultant Project Number:	60046943.3060
Environmental Professional:	Robert Olsen, P.G., R.E.A.II

I. Property Use

Current Use – The project site consists of right-of-way currently occupied by Interstate 80 (I-80) and westbound on-ramps/offramps that provide access to Yerba Buena Island, and via connecting roads to Treasure Island. Included within the disturbance limits of the two project alternatives is land currently occupied by the U.S. Coast Guard and U.S. Navy, as well as Caltrans right-of-way and buildings leased to Caltrans.

Previous Usage Chronology

On 6 November 1850, Yerba Buena Island (then called Goat Island) was set aside for public purposes. An Executive Order, dated 1 July 1864, set the property aside for military purposes. In 1896, 99.09 acres of hard land were acquired by the Department of the Navy to establish a naval training station. In 1887, 172.20 acres of tide and submerged land were also acquired by the Navy. Between the years of 1938 and 1966, 89.37 additional acres were acquired by the Navy. In 1966, 2.71 acres were transferred from the Navy to the Coast Guard for use as a Coast Guard station. In 1974, an additional 8.207 acres were transferred to the Coast Guard, for a total of 10.917 acres of land disposed.

The San Francisco – Oakland Bay Bridge (SFOBB) was completed in 1936. Yerba Buena Island is located at the approximate midpoint of the bridge and is a key component in bridge structure and maintenance; Caltrans maintenance operations are run from buildings on the island that are leased from the Navy. Currently, a seismic upgrade project on the SFOBB is ongoing, and a new East Span that will connect YBI to the Oakland side of San Francisco Bay is under construction. When the new East Span is completed, the old East Span will be demolished.

II. Investigations

Scope of Work: This assessment was prepared to conform to the Caltrans Guidance for the preparation of the Initial Site Assessment checklist (Project Development Procedures Manual, 07/01/1999, pp. DD-3 to DD-6).

III. Findings

- Historical Recognized Environmental Conditions: A Leaking Underground Storage Tank (LUST) case was formerly associated with the removed UST No. 270 (Installation Restoration Site 270) at Building 270 at the Coast Guard facility in the southeast part of the project site. This site received regulatory closure from the Regional Water Quality Control Board in 2004.

- Recognized Environmental Conditions: There are three Installation Restoration (IR) sites underlying parts of the Proposed Project site. IR Site 8, north of Interstate 80, is a former sludge spreading area where soil has been found to be impacted by heavy metals, semivolatile organic compounds, petroleum hydrocarbons and pesticides. IR Site 11, south of Interstate 80, is a former landfill where petroleum hydrocarbons, heavy metals, volatile and semivolatile organic compounds and other substances have been found in soil and groundwater. IR Site 29 includes contaminated soil associated with pilings installed for the Bay Bridge. A Site Management Plan is in effect for all three of these sites, and the Navy is preparing a Remedial Investigation report.

IV. Opinions and Recommendations

Both Project Alternatives cross areas of known contamination that are in the IR Program. Once a preferred alternative is selected, additional characterization of the extent of contamination will enable plans for waste minimization, worker safety and project-specific handling measures to be developed.

1.0 INTRODUCTION

This Phase I Initial Site Assessment (ISA) was performed in support of the Draft Environmental Impact Report (DEIR) for the Yerba Buena Island Ramps Improvement project on Yerba Buena Island, San Francisco County, California. The project vicinity map and project drawings are presented in Appendix B.

The purpose of this investigation was to identify and evaluate potential hazardous waste sites and update the evaluation of environmental factors that may have impacted the soil and groundwater in the project vicinity due to past and present industrial or commercial activities. This report was prepared by AECOM Transportation, a division of AECOM Technology Corporation, Inc.

Activities associated with the preparation of the ISA included the following:

- Site reconnaissance
- Review of project documents (DEIR)
- Review of historical aerial photographs, city directories, Sanborn maps and historical topographic maps
- Review of regulatory database records for listed sites of potential concern
- Preparation of this summary report, including the ISA Checklist (see Appendix A)

The following sections present the information developed and the findings of the Phase I Initial Site Assessment:

- Section 2.0 Project Description and Historical Information
- Section 3.0 Site Reconnaissance
- Section 4.0 Regulatory Database Search
- Section 5.0 Conclusions and Recommendations
- Section 6.0 Limitations

2.0 PROJECT DESCRIPTION AND HISTORICAL INFORMATION

2.1 Project Description

Yerba Buena Island (YBI) is located in San Francisco Bay, approximately halfway between Oakland and San Francisco, and is accessible by vehicles only via the San Francisco-Oakland Bay Bridge (SFOBB), which is part of Interstate 80 (I-80). The SFOBB is a critical link in the interstate network, providing access between San Francisco and the East Bay. YBI and the SFOBB also provide access to Treasure Island (TI), which lies to the north of YBI. YBI and TI are accessed by on-and off-ramps located on the upper and lower decks of the SFOBB. The SFOBB and the associated on- and off-ramps provide the only land access to the active US Coast Guard facilities located on the southern side of YBI.

The proposed project would replace the existing westbound on-ramp and westbound off-ramp located on the eastern side of YBI with a new westbound on-ramp and a new westbound off-ramp in order to improve the functional roles of the current ramps. Build alternatives have been proposed to address the geometric and operational deficiencies of the existing on- and off-ramps and their effects on the SFOBB (I-80) mainline without degrading the mainline operation as compared to the No Action Alternative. This YBI Ramps Improvement Project is separate from and independent of the SFOBB East Span Seismic Safety Project (ESSSP), which is currently under construction. The proposed new ramps would improve operations of the ramps and provide connections between YBI and the transition structure of the new SFOBB. The proposed project is located between Post Mile (PM) 7.6 and PM 8.1, starting at the east portal of the YBI tunnel and ending before the SFOBB Transition Structure.

The purpose of the project is to address the deficiencies of the existing 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 the westbound off-ramps and increasing merging distance for westbound on-ramps on the east side of YBI. The YBI ramps currently do not meet Caltrans geometric standards. They have not been significantly updated since the 1960s and have an above average accident rate. These conditions, combined with their nonstandard entrances and exits, create traffic operational constraints. In addition, the deceleration length of the off-ramps and the merging distance for the on-ramps are insufficient and not up to current standards. The limited merging and deceleration distances make it challenging for vehicles to enter and exit traffic flows on the SFOBB. The ramps have been designed to accommodate future traffic operations for the 20-year design horizon as required by Caltrans standards.

2.2 Geological Information

The Site Vicinity Map (Appendix B) depicts the geographic location and topographic characteristics of the subject site. Plans of the proposed project alternatives and the locations of the areas of environmental concern (Installation Restoration sites) are also included in Appendix B. Historical aerial photographs, as available, are included in Appendix D.

Information on the surface topography and soil classification of the Property was obtained from the Geology section of the DEIR and from the U. S. Geological Survey 7.5-minute topographic map (San Francisco, CA), and from the USDA Natural Resources Conservation Service (formerly Soil Conservation Service) STATSGO and/or SSURGO databases.

The project site is located along a low ridgeline that projects eastward from the higher, central portions of Yerba Buena Island. The elevation varies from sea level to approximately 50 feet. Soils underlying this part of Yerba Buena Island are classified as Urban land (soils that have been so disturbed by human activities that no classification is possible; classified as having very slow infiltration rates in this area as shown in the EDR Geocheck report in Appendix C); orthents (soils with no soil horizon development due to steep slopes and rapid erosion) and Candlestick fine sandy loam (slow infiltration rates). The soils are developed on shallow bedrock of the Franciscan group, which consists largely of shaly sandstone. Although serpentinite bodies are common in the Franciscan in other areas, none were noted to occur on Yerba Buena Island in the DEIR or on a geologic map of the Island (Graymer, *Geologic Map and Map Database of the Oakland Metropolitan Area, Alameda, Contra Costa, and San Francisco Counties, California,* U.S. Geological Survey Miscellaneous Field Studies MF 2342, 2000). Serpentinite, where exposed, is a significant source of naturally-occurring asbestos.

The depth to ground water in this area, based on previous subsurface investigations conducted under the Installation Restoration (IR) program, varies from 2.1 to 18.5 meters (6 to 55 feet). Based on surface topography, ground water flow in the area would tend to the northeast and southeast, toward San Francisco Bay.

2.3 Historical Aerial Photograph Review

AECOM reviewed aerial photographs provided by EDR. The photographs are reproduced in Appendix D. The following table summarizes the information obtained from the aerial photographs.

Date	Scale	Subject Site	Off-Site
1946	1" = 655'	Military installation; barracks and offices north of Bay Bridge, isolated buildings and dock south of bridge	Roads and military installations in west part of island generally as presently existing; water tank visible in west-central part of island
1956	1" = 655'	As above	As above
1965	1" = 333'	Barracks buildings removed from north part of site; pier removed from south part of site	As above
1975	1" = 550'	Poor quality photo, no evident changes	Same
1982	1" = 690'	Fair quality photo; increase in structures south of I-80	Same
1993	1" = 666'	Area north of I-80 in project area is generally vacant, possibly a few small structures remaining; area to south of I-80 contains several buildings as presently existing	Generally as presently existing
1998	1" = 666'	As above	As above
2005	1" = 604'	Several new small buildings in area northwest of curve in I-80; area south of I-80 as presently existing	As presently existing

2.4 Other Historical Information Sources

AECOM found historical sources from 1896 to the present, as follows. The regulatory database search and historical information searches were centered on the intersection of Gate Road and 4th Street since the project site does not have a specific street address and hence complete information from the various historical information sources would not have been returned.

Business and Street Directories: A City Directory Abstract covering the period from 1910 to the present was prepared by EDR. The only listings that were returned were for 301 Macalla Court, which is a base housing facility that is west of the study area. Listings for individuals (presumably military personnel) were returned for 1985, 1990 and 2006.

Fire Insurance Maps: EDR-Sanborn, which has the largest collection of historical Sanborn maps in the nation, had no coverage of the area of the Property. Sanborn maps are not compiled for military bases.

Historical Topographic Maps: Historical topographic maps as shown below were provided by EDR. The maps are presented in Appendix D.

Date	Name	Scale	Description (Site)
1895	San Francisco	15'	YBI labeled "Goat Island", "Light" at southeast point: several structures, probably military, in northeast part of island: Oakland Mole runs from Gibson Point west-northwest approximately two-thirds of the distance to the island. Treasure Island not present.
1915	San Francisco	15'	"Yerba Buena Island" now indicated: more structures visible; San Francisco-Oakland Terminal Key Route Pier indicated north of Oakland Mole
1948	San Francisco	15'	San Francisco-Oakland Bay Bridge visible crossing YBI and with tunnel; Treasure Island now present: Oakland Mole area to east has been filled in and extended toward YBI
1949	Oakland West	7.5'	YBI indicated as "Naval"; larger naval buildings indicated in east part of YBI: Treasure Island indicated as Naval Reservation
1959	Oakland West	7.5'	Coast Guard Reservation indicated in southeast part of YBI: Bay Bridge now indicated as double deck
1968	Oakland West	7.5'	Generally as above: several buildings in project area no longer present: Rapid Transit Trans-Bay Tube under construction south of YBI
1973	Oakland West	7.5'	As above, Rapid Transit Trans-Bay Tube now operational
1980	Oakland West	7.5'	As above

3.0 PHYSICAL SITE INSPECTION

On June 2, 2010, Robert Olsen of AECOM conducted an environmental reconnaissance of the subject site to find if current usage or activities on the subject site have created, or have the potential to create, an environmental impairment to the site. The results of this assessment are presented below. The site reconnaissance was limited in nature since the project site includes restricted military facilities, public right-of-way (Interstate 80) and areas adjacent to I-80 currently under construction for the seismic retrofit project on the Bay Bridge.

3.1 Site Visit

Usage of the land areas adjoining the project site includes U.S. Navy and U.S. Coast Guard facilities, and individual buildings leased to Caltrans. Development in this area of Yerba Buena Island consists generally of relatively isolated facilities such as barracks, shops, offices, and support facilities, connected by asphalt-paved roads and separated by areas of brush and forest.

The project site (i.e. the area of the two Proposed Project alternatives) extends along Interstate 80 from the Yerba Buena Island Tunnel on the west through the SFOBB East Span construction zone on the east. At the time of the site reconnaissance this area was

under construction as part of a seismic retrofit of the SFOBB; the new SFOBB East Span had advanced to approximately 200 feet from the construction zone as well.

The area of the Proposed Project, i.e. the east end of Yerba Buena Island, has been extensively studied under the U.S. Navy's Installation Restoration program, and several areas of known environmental impact are known. Four of these areas are within the footprint of the Proposed Project. These areas are as follows:

IR Site 8: Former U.S. Army Point Sludge Disposal Area (pesticides, heavy metals including beryllium and lead)

IR Site 11: Former U.S. Army and U.S. Navy Landfill (acetone, benzene, polynuclear aromatic hydrocarbons, phenols, pesticides, diesel)

IR Site 29: East Side Contaminated Bridge Soils (lead, petroleum hydrocarbons)

IR Site 270: Former U.S. Navy Underground Storage Tank #270 (diesel fuel)

Based on information Hazardous Waste/Materials section (3.13) of the DEIR, which is based primarily on the Hazardous Waste Assessment conducted for the SFOBB East Span Seismic Safety Project (ESSSP) in 1998, delineation of the extent of contamination of each of the IR sites has been completed. IR Site 270 has received a No Further Action (closure) letter from the Regional Water Quality Control Board and the tank has been removed. IR sites 8, 11 and 29 have been conveyed to Caltrans, but the Navy is preparing a Remedial Investigation for them while also entering into discussions with Caltrans regarding site closout.

3.2 Aerial Lead Deposition

Interstate 80 is a component of the interstate highway system and has existed in its present form in this area since construction of the Bay Bridge in 1936. Due to this vehicular activity the soils along Interstate 80 are likely contaminated with aerially-deposited lead (ADL) from exhaust from vehicles burning leaded gasoline. The lead levels in surface soils along highways can reach concentrations in excess of the hazardous waste threshold, requiring disposal at either a Class I landfill or on-site stabilization. According to the DEIR, the elevated levels of lead in the soil in IR Area 27 (East Side Contaminated Bridge Soils) have been ascribed to aerially-deposited lead as well as bridge-related maintenance activities. Special health and safety procedures will be needed for workers near potentially lead-contaminated areas. A work plan for investigation of the ADL should be prepared and implemented during the design phase of the project.

3.3 Asbestos-Containing Materials (ACMs) and Lead-Based Paint

According to information provided in the DEIR (Sections 3.13.5.4 and 3.13.5.5), asbestos and lead-based paint sampling and abatement has been performed on the existing buildings in the project area. All known lead-based paint has been removed from buildings constructed before 1960, and all buildings constructed in 1978 or before have been assessed for the presence of lead-based paint. A biennial monitoring and sampling program performed by the U.S. Navy is in effect.

The report also states: "All known damaged, friable, or accessible ACM has been abated within most areas of TI and YBI, including the area of Quarters 10/Building 267 (these two buildings would be relocated during implementation of Alternative 2b). Remaining ACM does not pose a threat to human health."

4.0 REGULATORY RECORDS REVIEW

AECOM reviewed a search of environmental records conducted by Environmental Data Resources, Inc. (EDR). The search was centered on the intersection of Gate Road and 4th Street, within the project area but not specific to it, since a defined street address is needed for information to be returned for some of the historical sources. Search radii were those required for ASTM Standard Practice E1527-05, for Phase I Environmental Site Assessments. A copy of EDR's report is located in Appendix C, along with EDR Site Reports for two ERNS (spill) listings. The following environmental regulatory databases were reviewed as specified for the project site and adjacent and nearby properties:

Database Reviewed	Responsible Agency	Search Radius (miles)
Federal ASTM Standard Databases		
Federal National Priorities List (NPL), Proposed NPL, Delisted NPL, NPL Areas of Concern, NPL Recovery	U.S. Environmental Protection Agency (EPA)	1.0
Federal Comprehensive Environmental Response, Compensation & Liability Information System (CERCLIS)	U.S. EPA	0.5
CERCLIS - NFRAP (No Further Remedial Action Planned)	U.S. EPA	0.25
Federal Corrective Action Report (CORRACTS)	U.S. EPA	1.0
Federal Resource Conservation and Recovery Act (RCRA) Treatment, Storage and Disposal (TSD) Facilities List	U.S. EPA	0.5
Federal RCRA Generators List (RCRA – SQG, RCRA – LQG)	U.S. EPA	0.25
Emergency Response Notification System (ERNS)	U.S. EPA	Subject Property

Database Reviewed	Responsible Agency	Search Radius (miles)
State of California ASTM Standard Databases		
Annual Work Plan (AWP) Sites	California Environmental Protection Agency (CalEPA)	1.0
Abandoned Sites Program (Cal-Sites)	CalEPA Department of Toxic Substances Control (DTSC)	0.5
Hazardous Material Incident Report System (CHMIRS)	Office of Emergency Services	Subject Property
Cortese List (Combined Report List for Leaking USTs, Solid Waste Landfills [SWLs] and CalSites; inactive)	CalEPA and Office of Emergency Services	0.5
State Proposition 65 (LUST only)	SWRCB	1.0
Toxic Pits Cleanup Act Sites	SWRCB	1.0
State Solid Waste Information System (Landfills/SWIS)	State Integrated Waste Management Board (IWMB)	0.5
State Waste Management Unit Database (WMUDS), Solid Waste Assessment Test (SWAT)	SWRCB	0.5 (SWLs and SWAT)
State Leaking Underground Storage Tanks (LUST)	State Water Resources Control Board (SWRCB) and Regional Water Quality Control Board (RWQCB)	0.5
State Bond Expenditure Plan (BEP)	California Department of Health Services (DHS)	1.0
Underground Storage Tanks (USTs), Historical USTs, Facility Index Database (FID) USTs, Sweeps USTs	SWRCB	0.25
Voluntary Cleanup Program (VCP) Properties	CalEPA DTSC	0.5
Indian Lands UST, Indian Lands LUST, Indian Reservations	U.S. EPA Region IX	0.25, 0.5, 1.0
State Waste Recycling Facilities (SWRCY)	Dept. of Conservation	0.5
Federal ASTM Supplemental Databases		
Federal Superfund Consent Decrees (CONSENT)	U.S. EPA	1.0
Federal Records of Decision (ROD)	NTIS	1.0
Federal Facility Index System (FINDS)	U.S. EPA/NTIS	Subject Property
Federal Hazardous Materials Spill Incidents (HMIRS)	U.S. Department of Transportation (DOT)	Subject Property
Federal Material Licensing Tracking System (MLTS) for Radioactive Materials	Nuclear Regulatory Commission	Subject Property
Federal Mines Master Index File (MINES)	U.S. Department of Labor, Mine Safety and Health Administration	0.25
Federal Superfund Liens	U.S. EPA	Subject Property
Federal PCB Activity Database (PADS)	U.S. EPA	Subject Property
Uranium Mill Tailings (UMTRA)	E.S. EPA	0.5

Database Reviewed	Responsible Agency	Search Radius (miles)
Federal Engineering Controls	U.S. EPA	0.5
ODI (Open Dump Inventory	U.S. EPA	0.5
FUDS (Formerly Used Defense Sites	U.S. Army Corps of Engineers	1.0
Federal Department of Defense Sites (DOD)	U.S. Geological Survey	1.0
Federal RCRA Administrative Action Tracking System (RAATS)	U.S. EPA	Subject Property
Federal Toxic Release Inventory System (TRIS)	U.S. EPA/NTIS	Subject Property
Federal Toxic Substances Control Act (TSCA) Chemical Substance Inventory Control List	U.S. EPA/NTIS	Subject Property
Federal Section 7 Tracking Systems (SSTS) for Registered Pesticide-Producing Establishments	Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)	Subject Site
FIFRA/TSCA Tracking System (FTTS) for Administrative Cases and Pesticide Enforcement Actions and Compliance Activities Related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act)	U.S. EPA Office of Prevention, Pesticides and Toxic Substances	Subject Property
State and Local ASTM Supplemental Databases		
State Aboveground Petroleum Storage Tanks (ASTs)	SWRCB	Subject Property
State Drycleaner Facilities with Waste Generator Identification Numbers (Cleaners)	CalEPA DTSC	0.25
State Waste Discharge System (WDS)	SWRCB	Subject Property
State List of Deed Restrictions (DEED)	CalEPA DTSC	Subject Property
State Properties Needing Further Evaluation (NFE)	CalEPA DTSC	Adjacent Properties
State School Property Evaluation Program (SCH)	CalEPA DTSC	Adjacent Properties
Well Investigation Program (WIP)	RWQCB	0.25
Air Emissions Permits (EMI)	AQMD	Subject Property
State Unconfirmed Properties Referred to Another Agency (REF)	CalEPA DTSC	Adjacent Properties
State No Further Action Properties (NFA)	CalEPA DTSC	Adjacent Properties
State Toxic Leak Site Investigations (SLIC)	RWQCB	0.5
State Hazardous Waste Information System (HazNet) for Waste Generators	CalEPA	Adjacent Properties
County Hazardous Materials Sites (HMS)	County Agency	Subject Property
County Site Mitigation	County Agency	Subject Property
Tribal Records		
Indian Reservations	U.S. Geological Survey	1.0

Database Reviewed	Responsible Agency	Search Radius (miles)
Indian Leaking Underground Storage Tanks	U.S. EPA	0.5
Indian Underground Storage Tanks	U.S. EPA	0.25
Brownfields Databases		
U.S. Brownfields	U.S. EPA	0.5
U.S. Institutional Controls	U.S. EPA	0.5
EDR Proprietary Historical Databases		
Gas Stations and Dry Cleaners	EDR	0.25
Coal Gas Manufacturing Plants	EDR	1.0

Yerba Buena Island appears on the FUDS, ERNS, ENVIROSTOR and Historical UST databases. These listings are for the Island as a whole and are not necessarily specific to the project site, although the plotted location (EDR Map Codes A1 through A5) is within the project area, approximately at the east end of the Yerba Buena Island tunnel. The listings are as follows:

- FUDS: The 10.917-acre Coast Guard facility on the east end of YBI, which includes part of the project site, is eligible for funding under the FUDS (Formerly Used Defense Sites) program; the remainder of YBI, which remains under the possession of the Navy, is not.

- ERNS (Yerba Buena Island Group San Francisco): This listing was for a spill or release on the Coast Guard cutter *Buttonwood* in 1996. A spill occurred from a hose during fueling operations; a sheen that was observed (presumably on the water in San Francisco Bay) dissipated, and absorbents were used on deck. This incident does not appear to indicate a current environmental concern.

- ERNS (Yerba Buena Island Floating Docks): This listing was for a spill or release from an oil/water separator line in 1996. The spill (presumably on the water in San Francisco Bay) was contained and cleaned up. This incident does not appear to indicate a current environmental concern.

- ENVIROSTOR: This listing is for a site subject to evaluation under the FUDS program (see above). It is listed as inactive. Review of information on the Department of Toxic Substances Control Envirostor website did not reveal any additional information.

- Historical UST: The listing indicates a former 1,000-gallon UST for diesel fuel at a location listed as Yerba Buena West. The tank was installed in 1982. Review of underground storage tank location data on the Water Quality Control Board's Geotracker database showed a permitted UST in the southwest part of YBI, approximately at the west portal of the YBI Tunnel. This tank would be beyond

the footprint of the Proposed Project and not hydraulically upgradient from any part of it.

The former Naval Station Treasure Island appears on numerous databases, including the DOD, CERCLIS, RCRA – Large Quantity Generator, ROD, NPDES, Manifest and HAZNET databases; the Department of Defense area of concern encompasses most of Yerba Buena Island, including most of the project site. These listings reflect the former status of Naval Station Treasure Island as a military base. Due to the conformation of the Yerba Buena Island-Treasure Island landmass and the surrounding San Francisco Bay, impacts to the project site from Naval Station Treasure Island specifically are highly unlikely to occur.

No other sites were listed. Review of the Orphan Summary of unmappable sites showed six ERNS listings at 1 Yerba Buena Island Road, which is on the north side of YBI approximately 500 feet west of the project site.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The Initial Site Assessment Checklist form is presented in Appendix A. Based upon our review of the information obtained during the course of our environmental assessment of this subject site and herein presented, we have formed the following opinions:

- The project site is located on the east side of Yerba Buena Island, in an area formerly occupied by U.S. Navy and U.S. Coast Guard installations. Parts of three Installation Restoration (IR) sites, including a sludge spreading area, a landfill, and an area of known soil impacts possibly associated with former military operations, are within the project site. A fourth IR site, a closed Leaking Underground Storage Tank case, is also within the project area. Soil and groundwater contamination by petroleum hydrocarbons, heavy metals, volatile and semivolatile organic compounds and pesticides have been found on the IR sites. The extent of contamination has been delineated but Remedial Investigations for the three open IR sites are pending.

- Several other military sites are located on the western side of Yerba Buena Island, or on the nearby Treasure Island. The potential for impact to the project site from these other sites appears to be low.

- The presence of documented soil and groundwater contamination at three installation Restoration sites within the project area constitutes a Recognized Environmental Condition pertaining to the project site. Although the extent of contamination has been delineated at each of the IR sites, once a preferred alternative for the Proposed Project is selected, additional delineation of the contamination should be performed to finalized details of construction, to develop procedures for handling of contaminated media, and to ensure worker safety during construction.

- The Leaking Underground Storage Tank site (IR Site 270), which received a no Further Action letter in 2004, constitutes a Historical Recognized Environmental Condition. No immediate environmental concerns are evident in regards to this former leaking tank.

6.0 LIMITATIONS

The conclusions and recommendations presented in this report are based upon visual reconnaissance of the project site and research of available materials within the scope and budget of the contract. The information presented is relevant to the dates of our site visit and should not be relied upon to represent conditions at later dates.

The opinions expressed herein are based on information obtained during our effort and on our experience. If additional information becomes available, we request the opportunity to review the information and modify our opinions, if necessary.

Our services have been provided using that degree of care and skill ordinarily exercised, under similar circumstances, by environmental consultants practicing in this or similar localities. No other warranty, expressed or implied, is made as to the professional opinions presented in this report. AECOM is not responsible for the conclusions, opinions, or recommendations made by others based on this information.

APPENDIX A

INITIAL SITE ASSESSMENT CHECKLIST

Initial Site Assessment (ISA) Checklist

Project Information

District: 4 **County**: San Francisco **Route**: Interstate 80 **Post Mile**: 7.6 to 8.1 **EA**: 04-3A640K

Description:

Yerba Buena Island (YBI) is located in San Francisco Bay, approximately halfway between Oakland and San Francisco, and is accessible by vehicles only via the San Francisco-Oakland Bay Bridge (SFOBB), which is part of Interstate 80 (I-80). The SFOBB is a critical link in the interstate network, providing access between San Francisco and the East Bay. YBI and the SFOBB also provide access to Treasure Island (TI), which lies to the north of YBI. YBI and TI are accessed by on-and off-ramps located on the upper and lower decks of the SFOBB. The SFOBB and the associated on- and off-ramps provide the only land access to the active US Coast Guard facilities located on the southern side of YBI.

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 would improve the functional roles of the current ramps. Build alternatives have been proposed to address the geometric and operational deficiencies of the existing on- and off-ramps and their effects on the SFOBB (I-80) mainline without degrading the mainline operation as compared to no action. This YBI Ramps Improvement Project is separate from and independent of the SFOBB East Span Seismic Safety Project (ESSSP), which is currently under construction. The proposed new ramps would improve operations of the ramps and provide connections between YBI and the transition structure of the new SFOBB. The proposed project is located between Post Mile (PM) 7.6 and PM 8.1, starting at the east portal of the YBI tunnel and ending before the SFOBB Transition Structure.

The purpose of the 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 to improve traffic safety by increasing deceleration length for the westbound off-ramps and increasing merging distance for westbound on-ramps on the east side of YBI. The YBI ramps currently do not meet Caltrans geometric standards. They have not been significantly updated since the 1960s and have an above average accident rate. These conditions, combined with their nonstandard entrances and exits, create traffic operational constraints. In addition, the deceleration length of the off-ramps and the merging distance for the on-ramps are insufficient and not up to current standards. The limited merging and deceleration distances make it challenging for vehicles to enter and exit traffic flows on the SFOBB. The ramps have been designed to accommodate future traffic operations for the 20-year design horizon as required by Caltrans standards.

Is the project on the HW Study Minimal-Risk Projects List (HW1)? No

Project Manager: Eric Corboda **Phone #**: 415-955-2904

Project Engineer: Bob Zandipour **Phone #**: 510-286-5709

Project Screening

Attach the project location map to this checklist to show location of all known and/or potential HW sites identified. *See Appendix B.*

1. **Project Features**: New R/W? No **Excavation?** Yes (footing) **Railroad Involvement?** No

Structure demolition/modification? Yes **Subsurface utility relocation?** Yes

2. Project Setting

Rural or Urban: Rural

Current land uses: Military (Coast Guard, U.S. Navy), Caltrans

Adjacent land uses (industrial, light industry, commercial, agricultural, residential, etc.): *Military support areas with barracks, buoy repair shop, offices, storage: Caltrans substation/compressor station and tow truck housing, and public roadways.*

3. Check federal, State, and local environmental and health regulatory agency records as necessary, to see if any known hazardous waste site is in or near the project area. If a known site is identified, show its location on the attached map and attach additional sheets, as needed, to provide pertinent information for the proposed project.

See Section 4.0 of attached report: Yerba Buena Island is listed in the FUDS, ERNS, Envirostor and Historical UST databases. Of these only the FUDS listing refers to the area of the Proposed Project.

4. Conduct Field Inspection. Date: June 2, 2010.

Use the attached map to locate potential or known HW sites.

STORAGE STRUCTURES / PIPELINES:

Underground tanks:	Former	**Surface tanks:**	No
Sumps:	No	**Ponds:**	No
Drums:	No	**Basins:**	No
Transformers:	No	**Landfill:**	Yes (former)

Other: *Four Installation Restoration (IR) sites present in parts of the project site (see below and Appendix B)*

CONTAMINATION: (spills, leaks, illegal dumping, etc.)

Surface staining:	None observed	**Oil sheen:**	None observed
Odors:	None observed	**Vegetation damage:**	None observed

Other: *Evidence of contamination was not observed in the field, but the existence of soil and groundwater contamination has been documented at four U.S. Navy sites within the boundaries of the proposed project. Assessment and cleanup of the sites is the responsibility of the Federal government under the Installation Restoration (IR) program. Based on information in the DEIR, the sites are as follows:*

IR Site 8: Former U.S. Army Point Sludge Disposal Area (pesticides, heavy metals including beryllium and lead)
IR Site 11: Former U.S. Army and U.S. Navy Landfill (acetone, benzene, polynuclear aromatic hydrocarbons, phenols, pesticides, diesel)
IR Site 29: East Side Contaminated Bridge Soils (lead, petroleum hydrocarbons)
IR Site 270: Former U.S. Navy Underground Storage Tank #270 (diesel)

Based on information in the DEIR, the extent of contamination at all four of these sites has been fully characterized. The Navy is preparing Remedial Investigation reports for sites 8, 11 and 29, and is discussing closeout of these three sites with Caltrans. Site 270 has received a No Further Action letter from the Regional Water Quality Control Board.

HAZARDOUS MATERIALS: (asbestos, lead, etc.)

Asbestos: *All known friable and damaged nonfriable asbestos-containing materials have been abated.*

Lead-based paint: *All buildings constructed before 1960 have been abated. All buildings constructed from 1960 to 1978 have been assessed and are subject to biennial inspection and sampling.*

Serpentinite: *Not mapped on Yerba Buena Island (see U.S. Geological Survey Miscellaneous Field Studies MF 2342, Geologic Map and Map Database of the Oakland Metropolitan Area, Alameda, Contra Costa, and San Francisco Counties, California,* by R.W. Graymer, 2000).

5. Additional record search, as necessary, of subsequent land uses that could have resulted in a hazardous waste site. Use the attached map to show the location of potential hazardous waste sites. *See Section 4.0 and Appendix C of the attached report (EDR Site Reports for two spill incidents are in the EDR Site Reports at the end of the regulatory records search.*

ISA Determination

Does the project have potential hazardous waste involvement? Yes

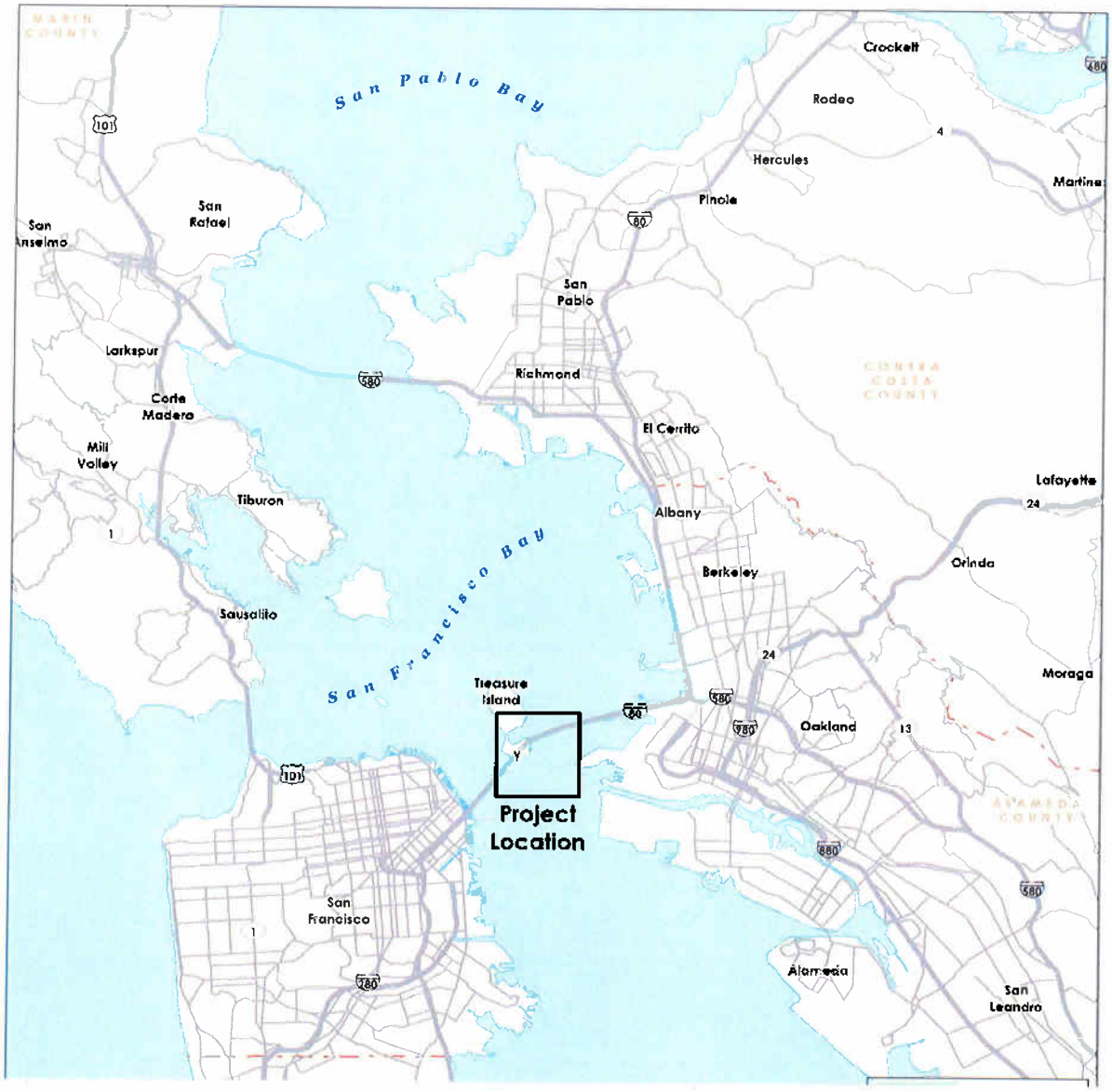
If there is known or potential hazardous waste involvement, is additional ISA work needed before task orders can be prepared for the Investigation? No

A brief memo should be prepared to transmit the ISA conclusions to the Project Manager and Project Engineer.

ISA Conducted by Violet Olson **Date** June 8, 2010

APPENDIX B

SITE VICINITY MAP AND PROJECT PLANS


San Pablo Bay
San Francisco Bay
Crockett
Rodeo
Hercules
Pinole
Martinez
San Rafael
San Anselmo
San Pablo
Richmond
Larkspur
Corte Madera
Mill Valley
Tiburon
El Cerrito
Albany
Lafayette
Orinda
Berkeley
Sausalito
Moraga
Treasure Island
Oakland
Project Location
San Francisco
Alameda
San Leandro
101
80
580
24
980
880
13
4
1

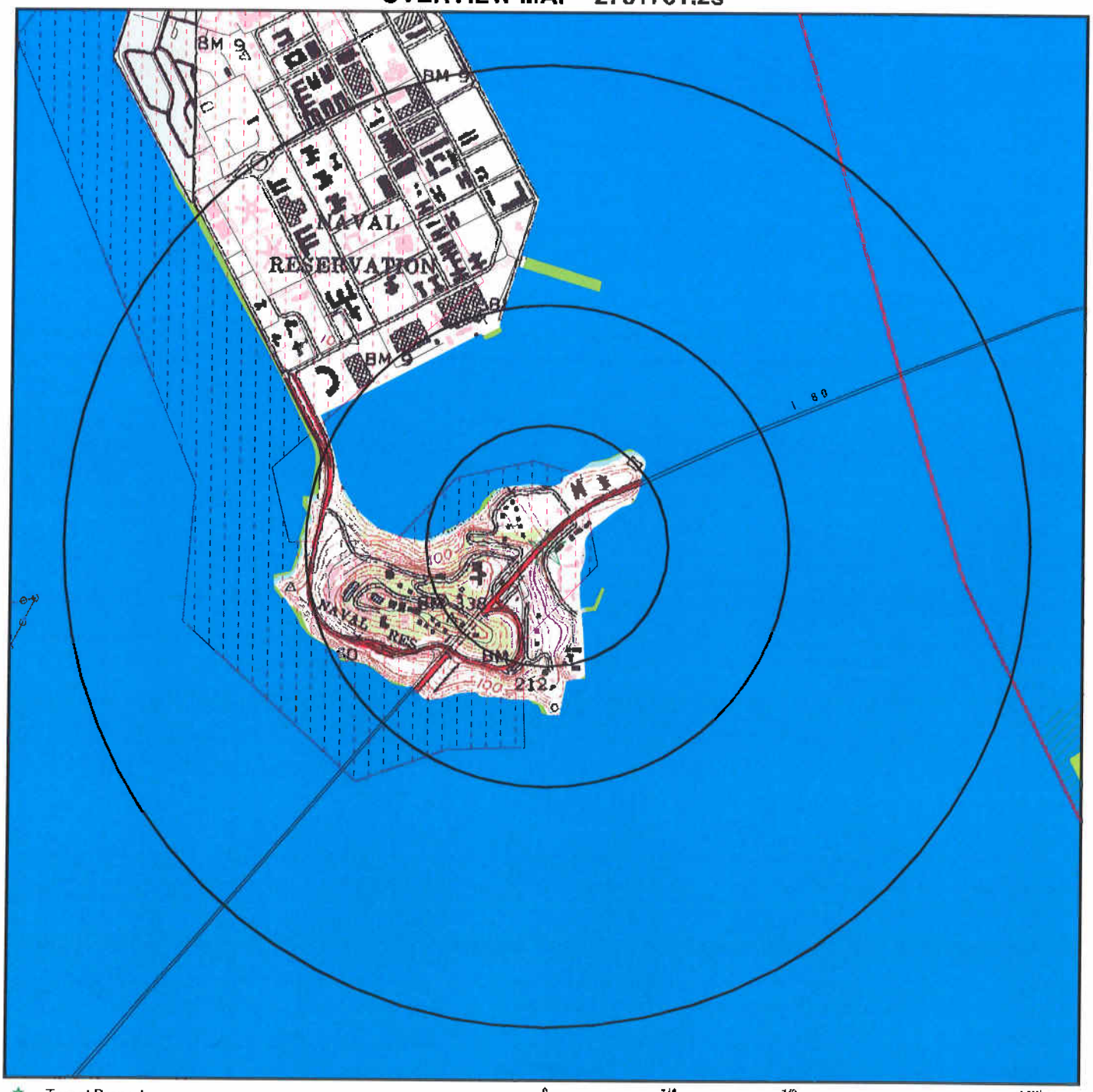
Project Area

Source: Google, EDAW/AECOM 2009

0 0.125 0.25 0.5 Miles

Figure 1-2
Vicinity Map

OVERVIEW MAP - 2781761.2s



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- County Boundary
- Power transmission lines
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Yerba Buena Island Offramps ADDRESS: Gate Road/4th Street San Francisco CA 94130 LAT/LONG: 37.8121 / 122.3625	CLIENT: AECOM CONTACT: Robert Olsen INQUIRY #: 2781761.2s DATE: June 01, 2010 12:52 pm

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Alternative 4 Proposed Ramps

- Proposed Westbound Off-Ramp
- Proposed Westbound On-Ramp
- Proposed Macalla Road Improvements

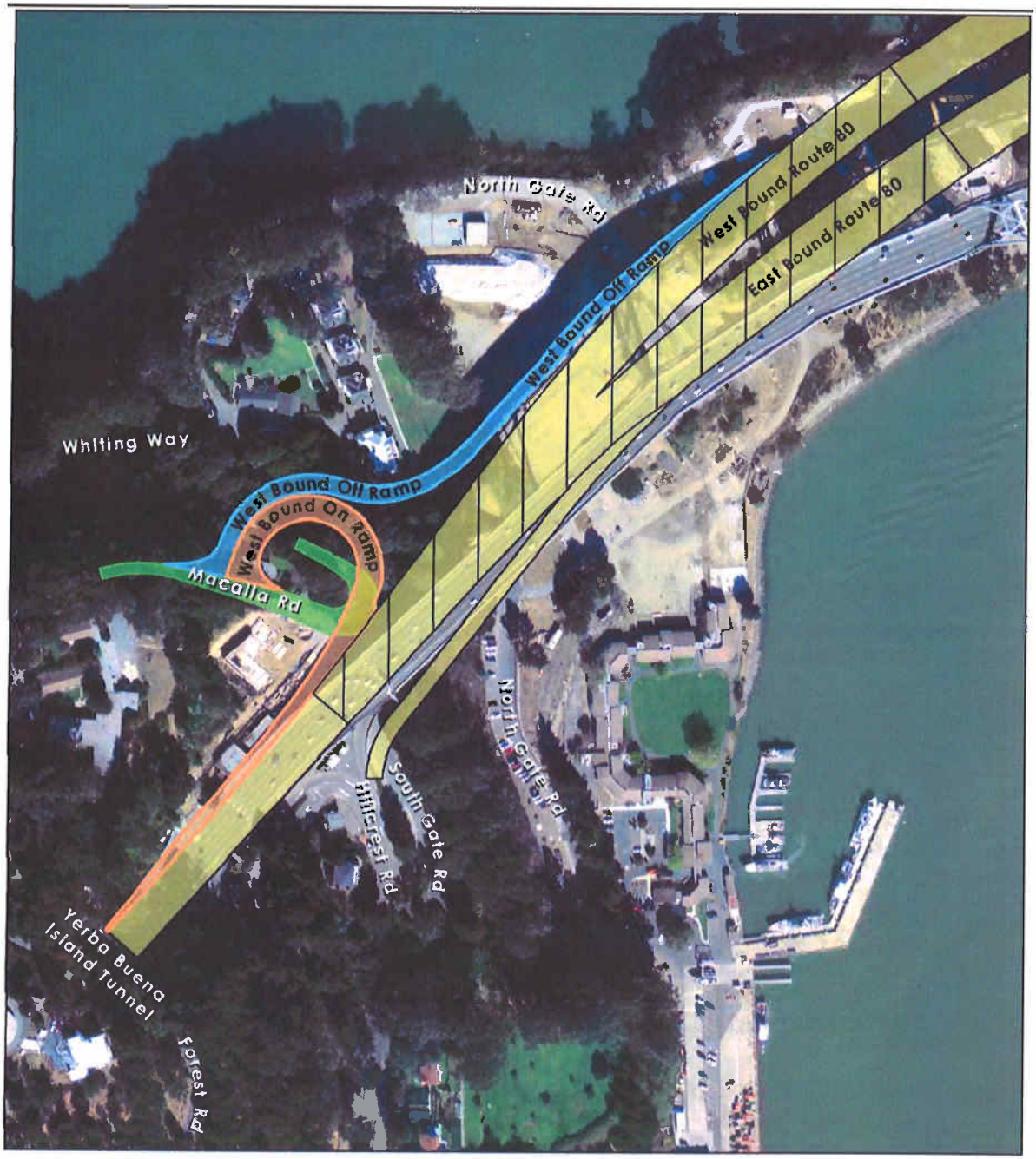
Separate Project Currently Under Construction

- San Francisco-Oakland Bay Bridge East Span Seismic Safety Project
- Transition Structure Portion of SFOBB

Source: Nima/USGS 2004; DMJM Harris, EDAW 5/09

Not To Scale

Figure 2-2
Alternative 4



Alternative 2b Proposed Ramps

- Proposed Westbound Off-Ramp
- Proposed Westbound On-Ramp
- Proposed Macalla Road Improvements

Separate Project Currently Under Construction

- San Francisco-Oakland Bay Bridge East Span Seismic Safety Project
- Transition Structure Portion of SFOBB

Source: Nima/USGS 2004; DMJM Harris, EDAW 5/09

Not To Scale

Figure 2-1
Alternative 2b

Source: TerraServer 2004; EDAW, County of San Francisco

0 250 500 1000 Feet

Figure 3.13-1
Potential Contamination Sources

APPENDIX C

REGULATORY DATABASE SEARCH

Yerba Buena Island Offramps
Gate Road/4th Street
San Francisco, CA 94130

Inquiry Number: 2781761.2s
June 01, 2010

The EDR Radius Map™ Report with GeoCheck®

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
Toll Free: 800.352.0050
www.edrnet.com

FORM-STD-KEN

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Physical Setting SSURGO Soil Map	A-5
Physical Setting Source Map	A-9
Physical Setting Source Map Findings	A-11
Physical Setting Source Records Searched	A-12

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

GATE ROAD/4TH STREET
SAN FRANCISCO, CA 94130

COORDINATES

Latitude (North):	37.812100 - 37' 48' 43.6"
Longitude (West):	122.362500 - 122' 21' 45.0"
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	556115.0
UTM Y (Meters):	4184953.8
Elevation:	34 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	37122-G3 OAKLAND WEST, CA
Most Recent Revision:	1980
West Map:	37122-G4 SAN FRANCISCO NORTH, CA
Most Recent Revision:	1999

AERIAL PHOTOGRAPHY IN THIS REPORT

Photo Year:	2005
Source:	USDA

TARGET PROPERTY SEARCH RESULTS

The target property was identified in the following records. For more information on this property see page 7 of the attached EDR Radius Map report:

Site	Database(s)	EPA ID
YERBA BUENA ISLAND SAN FRANCISCO, CA	FUDS	N/A
YERBA BUENA ISLAND GROUP SAN FRAN YERBA BUENA ISLAND GROUP SAN FRANCISCO SAN FRANCISCO, CA	ERNS	N/A
YERBA BUENA ISLAND STATION FLOATI YERBA BUENA ISLAND STATION FLOATING DOCKS SAN FRANCISCO, CA 94130	ERNS	N/A
YERBA BUENA ISLAND PROPERTY (J09C SAN FRANCISCO, CA	ENVIROSTOR Status: Inactive - Needs Evaluation	N/A

EXECUTIVE SUMMARY

YERBA BUENA WEST 150 4TH ST SAN FRANCISCO, CA 94103	HIST UST	N/A

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL..... National Priority List
Proposed NPL..... Proposed National Priority List Sites
NPL LIENS..... Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL..... National Priority List Deletions

Federal CERCLIS list

CERCLIS..... Comprehensive Environmental Response, Compensation, and Liability Information System
FEDERAL FACILITY..... Federal Facility Site Information listing

Federal CERCLIS NFRAP site List

CERC-NFRAP..... CERCLIS No Further Remedial Action Planned

Federal RCRA CORRACTS facilities list

CORRACTS..... Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF..... RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG..... RCRA - Large Quantity Generators
RCRA-SQG..... RCRA - Small Quantity Generators
RCRA-CESQG..... RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

US ENG CONTROLS..... Engineering Controls Sites List
US INST CONTROL..... Sites with Institutional Controls

EXECUTIVE SUMMARY

State- and tribal - equivalent NPL

RESPONSE..... State Response Sites

State and tribal landfill and/or solid waste disposal site lists

SWF/LF..... Solid Waste Information System

State and tribal leaking storage tank lists

LUST..... Geotracker's Leaking Underground Fuel Tank Report
SLIC..... Statewide SLIC Cases
INDIAN LUST..... Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

UST..... Active UST Facilities
AST..... Aboveground Petroleum Storage Tank Facilities
INDIAN UST..... Underground Storage Tanks on Indian Land
FEMA UST..... Underground Storage Tank Listing

State and tribal voluntary cleanup sites

INDIAN VCP..... Voluntary Cleanup Priority Listing
VCP..... Voluntary Cleanup Program Properties

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

DEBRIS REGION 9..... Torres Martinez Reservation Illegal Dump Site Locations
ODI..... Open Dump Inventory
WMUDS/SWAT..... Waste Management Unit Database
SWRCY..... Recycler Database
HAULERS..... Registered Waste Tire Haulers Listing
INDIAN ODI..... Report on the Status of Open Dumps on Indian Lands

Local Lists of Hazardous waste / Contaminated Sites

US CDL..... Clandestine Drug Labs
HIST Cal-Sites..... Historical Calsites Database
SCH..... School Property Evaluation Program
Toxic Pits..... Toxic Pits Cleanup Act Sites
CDL..... Clandestine Drug Labs
US HIST CDL..... National Clandestine Laboratory Register

Local Lists of Registered Storage Tanks

CA FID UST..... Facility Inventory Database

EXECUTIVE SUMMARY

SWEEPS UST..... SWEEPS UST Listing

Local Land Records

LIENS 2..... CERCLA Lien Information
LUCIS..... Land Use Control Information System
LIENS..... Environmental Liens Listing
DEED..... Deed Restriction Listing

Records of Emergency Release Reports

HMIRS..... Hazardous Materials Information Reporting System
CHMIRS..... California Hazardous Material Incident Report System
LDS..... Land Disposal Sites Listing
MCS..... Military Cleanup Sites Listing

Other Ascertainable Records

RCRA-NonGen..... RCRA - Non Generators
DOT OPS..... Incident and Accident Data
CONSENT..... Superfund (CERCLA) Consent Decrees
UMTRA..... Uranium Mill Tailings Sites
MINES..... Mines Master Index File
TRIS..... Toxic Chemical Release Inventory System
TSCA..... Toxic Substances Control Act
FTTS..... FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
HIST FTTS..... FIFRA/TSCA Tracking System Administrative Case Listing
SSTS..... Section 7 Tracking Systems
ICIS..... Integrated Compliance Information System
PADS..... PCB Activity Database System
MLTS..... Material Licensing Tracking System
RADINFO..... Radiation Information Database
FINDS..... Facility Index System/Facility Registry System
RAATS..... RCRA Administrative Action Tracking System
CA BOND EXP. PLAN..... Bond Expenditure Plan
CA WDS..... Waste Discharge System
NPDES..... NPDES Permits Listing
Cortese..... "Cortese" Hazardous Waste & Substances Sites List
HIST CORTESE..... Hazardous Waste & Substance Site List
Notify 65..... Proposition 65 Records
DRYCLEANERS..... Cleaner Facilities
WIP..... Well Investigation Program Case List
HAZNET..... Facility and Manifest Data
EMI..... Emissions Inventory Data
INDIAN RESERV..... Indian Reservations
SCRD DRYCLEANERS..... State Coalition for Remediation of Drycleaners Listing
FINANCIAL ASSURANCE..... Financial Assurance Information Listing
HWP..... EnviroStor Permitted Facilities Listing
HWT..... Registered Hazardous Waste Transporter Database
COAL ASH EPA..... Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER..... PCB Transformer Registration Database
COAL ASH DOE..... Sleam-Electric Plan Operation Data
MWMP..... Medical Waste Management Program Listing
PROC..... Certified Processors Database

EXECUTIVE SUMMARY

EDR PROPRIETARY RECORDS

EDR Proprietary Records

Manufactured Gas Plants..... EDR Proprietary Manufactured Gas Plants
EDR Historical Auto Stations.. EDR Proprietary Historic Gas Stations
EDR Historical Cleaners..... EDR Proprietary Historic Dry Cleaners

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

ADDITIONAL ENVIRONMENTAL RECORDS

Other Ascertainable Records

DOD: Consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

A review of the DOD list, as provided by EDR, and dated 12/31/2005 has revealed that there is 1 DOD site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
TREASURE ISLAND NAVAL BASE (CL		0 - 1/8 (0.000 mi.)	0	9

ROD: Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid the cleanup.

A review of the ROD list, as provided by EDR, and dated 04/29/2010 has revealed that there is 1 ROD site within approximately 1 mile of the target property.

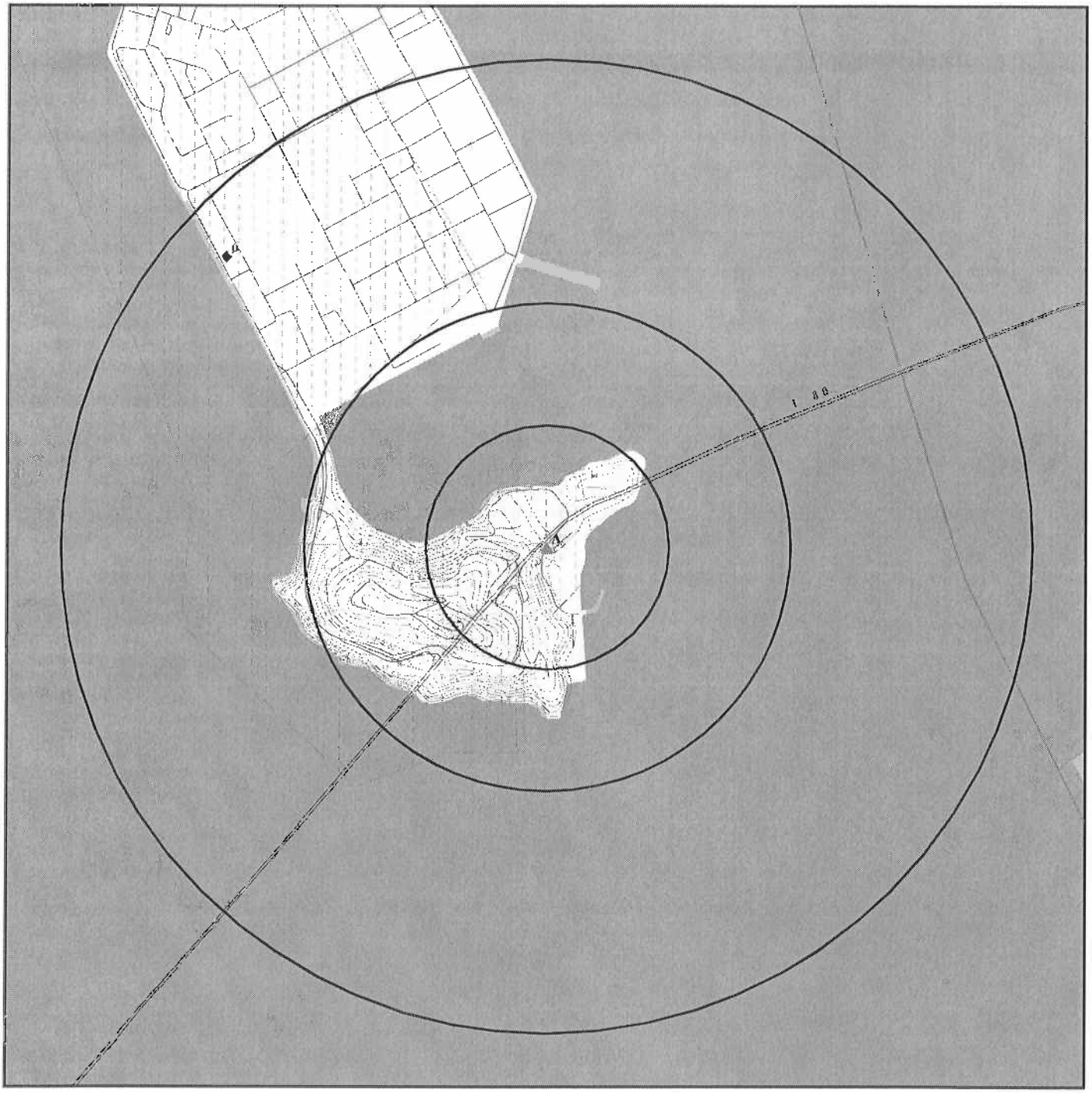
Lower Elevation	Address	Direction / Distance	Map ID	Page
FORMER NAVAL STATION, TREASURE	***TREASURE ISL***	***NW 1/2 - 1 (0.890 mi.)***	***6***	***10***

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped:

Site Name	Database(s)
GROVER MANAGEMENT & CONSTRUCTION	HAZNET,HIST CORTESE
US NAVY-NAVAL STATION TREASURE ISL	FTTS,HIST FTTS INSP
TREASURE ISLAND NAVAL STATION	HIST FTTS INSP
NAVAL STATION TREASURE ISLAND/SITE	AWP,ENVIROSTOR
NAVAL STATION TREASURE ISLAND/SITE	AWP,ENVIROSTOR
NAVAL STATION TREASURE ISLAND/SITE	AWP,ENVIROSTOR
NAVAL STATION TREASURE ISLAND/SITE	AWP,ENVIROSTOR
NAVAL STATION TRESURE ISLAND/SITE	AWP,ENVIROSTOR
NAVAL STATION TREASURE ISLAND/SITE	AWP,ENVIROSTOR
NAVAL STATION TREASURE ISLAND/SITE	AWP,ENVIROSTOR
NAVAL STATION TREASURE ISLAND/SITE	AWP,ENVIROSTOR
NAVAL STATION TRESURE ISLAND/SITE	AWP,ENVIROSTOR
NAVAL STATION TREASURE ISLAND/SITE	AWP,ENVIROSTOR
NAVAL STATION TREASURE ISLAND/SITE	AWP,ENVIROSTOR
NAVAL STATION TREASURE ISLAND/SITE	AWP,ENVIROSTOR
NAVAL STATION TRESURE ISLAND/SITE	CORTESE
NAVAL STATION TRESURE ISLAND/SITE	CORTESE
NAVAL STATION TREASURE ISLAND/SITE	CORTESE
NAVAL STATION TREASURE ISLAND/SITE	CORTESE
NAVAL STATION TREASURE ISLAND/SITE	CORTESE
NAVAL STATION TREASURE ISLAND/SITE	CORTESE
NAVAL STATION TREASURE ISLAND/SITE	CORTESE
NAVAL STATION TREASURE ISLAND/SITE	CORTESE
NAVAL STATION TREASURE ISLAND/SITE	CORTESE
NAVAL STATION TREASURE ISLAND/SITE	CORTESE
NAVAL STATION TREASURE ISLAND/SITE	CORTESE
NAVAL STATION TREASURE ISLAND/SITE	CORTESE
TIYBI/ISLAND CREATIVE MANAGEMENT	UST ALAMEDA
3 TREASURE ISLAND 94130	AST
CCSF PUC TREASURE ISLAND WPCP	HAZNET
TREASURE ISLAND JOB CORP	HAZNET
CALTRANS DIST 4	RCRA-SQG,FINDS
ALCATRAZ ISLAND	ERNS
1YERBA BUENA ISLAND	ERNS
1 YERBA BUENA ISLAND	ERNS
1 YERBA BUENA ISLAND	ERNS
1 YERBA BUENA ISLAND	ERNS
1 YERBA BUENA ISLAND	ERNS
1 YERBA BUENA ISLAND	ERNS
TREASURE ISLAND ELEMENTARY	FINDS

OVERVIEW MAP - 2781761.2s



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites

0 1/4 1/2 1 Miles

- Indian Reservations BIA
- County Boundary
- Power transmission lines
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Yerba Buena Island Offramps ADDRESS: Gate Road/4th Street San Francisco CA 94130 LAT/LONG: 37.8121 / 122.3625	CLIENT: AECOM CONTACT: Robert Olsen INQUIRY #: 2781761.2s DATE: June 01, 2010 12:52 pm

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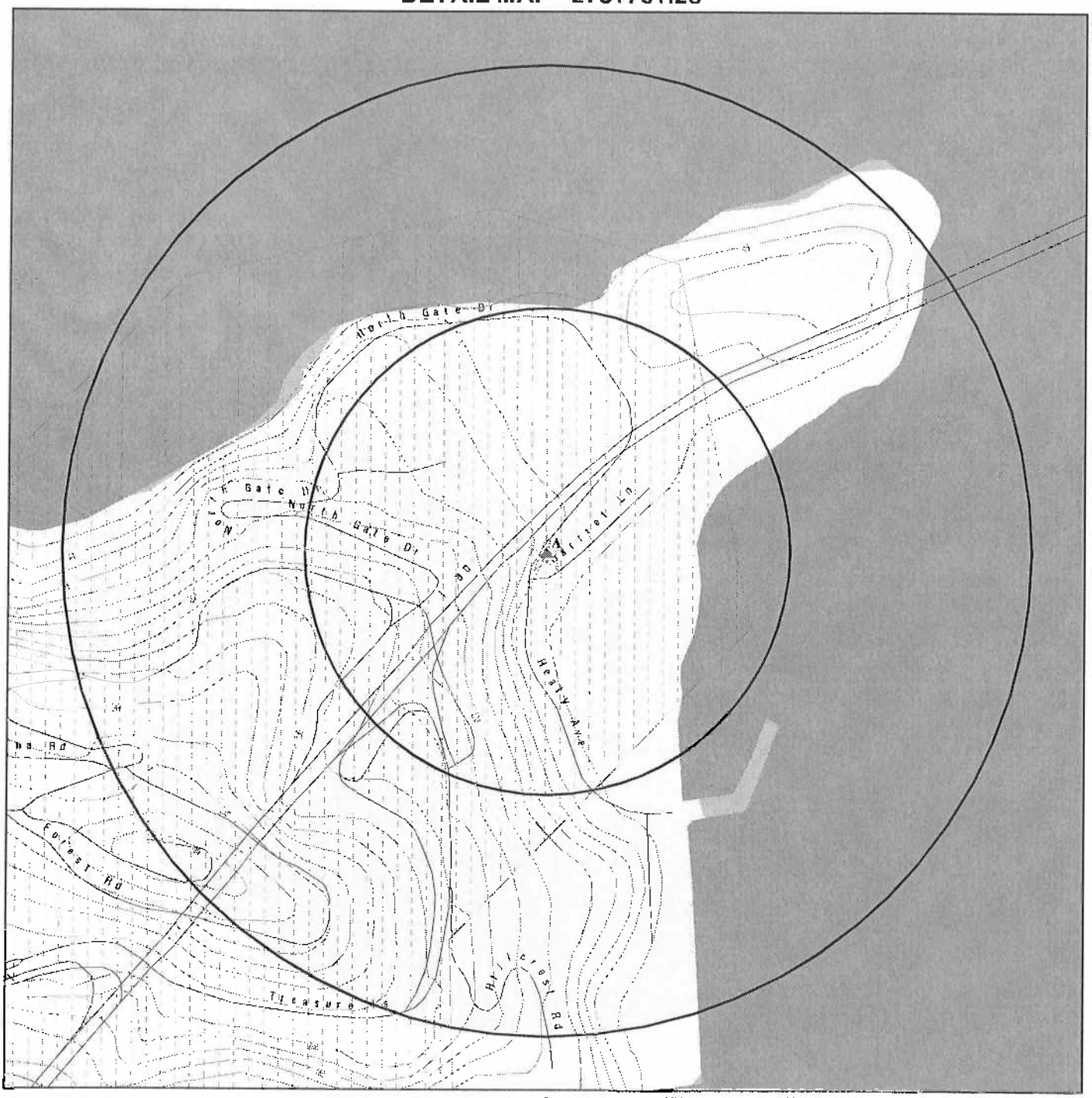
DETAIL MAP - 2781761.2s



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites

0 1/16 1/8 1/4 Miles

- Indian Reservations BIA
- Oil & Gas pipelines
- National Wetland Inventory
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Yerba Buena Island Offramps ADDRESS: Gate Road/4th Street San Francisco CA 94130 LAT/LONG: 37.8121 / 122.3625	CLIENT: AECOM CONTACT: Robert Olsen INQUIRY #: 2781761.2s DATE: June 01, 2010 12:54 pm

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MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL		1.000	0	0	0	0	NR	0
Proposed NPL		1.000	0	0	0	0	NR	0
NPL LIENS		TP	NR	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL		1.000	0	0	0	0	NR	0
Federal CERCLIS list								
CERCLIS		0.500	0	0	0	NR	NR	0
FEDERAL FACILITY		1.000	0	0	0	0	NR	0
Federal CERCLIS NFRAP site List								
CERC-NFRAP		0.500	0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS		1.000	0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF		0.500	0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG		0.250	0	0	NR	NR	NR	0
RCRA-SQG		0.250	0	0	NR	NR	NR	0
RCRA-CESQG		0.250	0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
US ENG CONTROLS		0.500	0	0	0	NR	NR	0
US INST CONTROL		0.500	0	0	0	NR	NR	0
Federal ERNS list								
ERNS	X	TP	NR	NR	NR	NR	NR	0
State- and tribal - equivalent NPL								
RESPONSE		1.000	0	0	0	0	NR	0
State- and tribal - equivalent CERCLIS								
ENVIROSTOR	X	1.000	0	0	0	0	NR	0
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF		0.500	0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
LUST		0.500	0	0	0	NR	NR	0
SLIC		0.500	0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN LUST		0.500	0	0	0	NR	NR	0
State and tribal registered storage tank lists								
UST		0.250	0	0	NR	NR	NR	0
AST		0.250	0	0	NR	NR	NR	0
INDIAN UST		0.250	0	0	NR	NR	NR	0
FEMA UST		0.250	0	0	NR	NR	NR	0
State and tribal voluntary cleanup sites								
INDIAN VCP		0.500	0	0	0	NR	NR	0
VCP		0.500	0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS		0.500	0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
DEBRIS REGION 9		0.500	0	0	0	NR	NR	0
ODI		0.500	0	0	0	NR	NR	0
WMUDS/SWAT		0.500	0	0	0	NR	NR	0
SWRCY		0.500	0	0	0	NR	NR	0
HAULERS		TP	NR	NR	NR	NR	NR	0
INDIAN ODI		0.500	0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US CDL		TP	NR	NR	NR	NR	NR	0
HIST Cal-Sites		1.000	0	0	0	0	NR	0
SCH		0.250	0	0	NR	NR	NR	0
Toxic Pits		1.000	0	0	0	0	NR	0
CDL		TP	NR	NR	NR	NR	NR	0
US HIST CDL		TP	NR	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
CA FID UST		0.250	0	0	NR	NR	NR	0
HIST UST	X	0.250	0	0	NR	NR	NR	0
SWEEPS UST		0.250	0	0	NR	NR	NR	0
Local Land Records								
LIENS 2		TP	NR	NR	NR	NR	NR	0
LUCIS		0.500	0	0	0	NR	NR	0
LIENS		TP	NR	NR	NR	NR	NR	0
DEED		0.500	0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS		TP	NR	NR	NR	NR	NR	0
CHMIRS		TP	NR	NR	NR	NR	NR	0
LDS		TP	NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
MCS		TP	NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA-NonGen		0.250	0	0	NR	NR	NR	0
DOT OPS		TP	NR	NR	NR	NR	NR	0
DOD		1.000	1	0	0	0	NR	1
FUDS	X	1.000	0	0	0	0	NR	0
CONSENT		1.000	0	0	0	0	NR	0
ROD		1.000	0	0	0	1	NR	1
UMTRA		0.500	0	0	0	NR	NR	0
MINES		0.250	0	0	NR	NR	NR	0
TRIS		TP	NR	NR	NR	NR	NR	0
TSCA		TP	NR	NR	NR	NR	NR	0
FTTS		TP	NR	NR	NR	NR	NR	0
HIST FTTS		TP	NR	NR	NR	NR	NR	0
SSTS		TP	NR	NR	NR	NR	NR	0
ICIS		TP	NR	NR	NR	NR	NR	0
PADS		TP	NR	NR	NR	NR	NR	0
MLTS		TP	NR	NR	NR	NR	NR	0
RADINFO		TP	NR	NR	NR	NR	NR	0
FINDS		TP	NR	NR	NR	NR	NR	0
RAATS		TP	NR	NR	NR	NR	NR	0
CA BOND EXP. PLAN		1.000	0	0	0	0	NR	0
CA WDS		TP	NR	NR	NR	NR	NR	0
NPDES		TP	NR	NR	NR	NR	NR	0
Cortese		0.500	0	0	0	NR	NR	0
HIST CORTESE		0.500	0	0	0	NR	NR	0
Notify 65		1.000	0	0	0	0	NR	0
DRYCLEANERS		0.250	0	0	NR	NR	NR	0
WIP		0.250	0	0	NR	NR	NR	0
HAZNET		TP	NR	NR	NR	NR	NR	0
EMI		TP	NR	NR	NR	NR	NR	0
INDIAN RESERV		1.000	0	0	0	0	NR	0
SCRD DRYCLEANERS		0.500	0	0	0	NR	NR	0
FINANCIAL ASSURANCE		TP	NR	NR	NR	NR	NR	0
HWP		1.000	0	0	0	0	NR	0
HWT		0.250	0	0	NR	NR	NR	0
COAL ASH EPA		0.500	0	0	0	NR	NR	0
PCB TRANSFORMER		TP	NR	NR	NR	NR	NR	0
COAL ASH DOE		TP	NR	NR	NR	NR	NR	0
MWMP		0.250	0	0	NR	NR	NR	0
PROC		0.500	0	0	0	NR	NR	0
EDR PROPRIETARY RECORDS								
EDR Proprietary Records								
Manufactured Gas Plants		1.000	0	0	0	0	NR	0
EDR Historical Auto Stations		0.250	0	0	NR	NR	NR	0
EDR Historical Cleaners		0.250	0	0	NR	NR	NR	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1 Target Property **YERBA BUENA ISLAND** **FUDS** **1007211910**
N/A

SAN FRANCISCO, CA

Site 1 of 5 in cluster A

Actual: 34 ft.

FUDS:

Federal Facility ID:	CA9799F5906
FUDS #:	J09CA1005
INST ID:	61316
Facility Name:	Yerba Buena Island
City:	SAN FRANCISCO
State:	CA
EPA Region:	9
County:	SAN FRANCISCO
Congressional District:	08
US Army District:	Sacramento District (SPK)
Fiscal Year:	2008
Telephone:	916-557-7461
NPL Status:	Not Listed
RAB:	Not reported
CTC:	317.9
Current Owner:	FEDERAL

FUDS Description Details:

The 361.16-acre site is an island located in the San Francisco Bay at the middle of the San Francisco-Oakland Bay Bridge, in San Francisco County, California. Currently, the Coast Guard uses 10.917 acres of land and the Department of the Navy control
Is the remaining 350.243 acres. The site consists of housing areas, administrative buildings, a gas station, paint shops, small-arms magazines, a transformer house, and various other structures.

FUDS History Details:

On 6 November 1850, the site was set aside for public purposes. An Executive Order, dated 1 July 1864, set the property aside for military purposes. In 1896, 99.09 acres of hard land were acquired by the Department of the Navy to establish a naval tr
raining station. In 1887, 172.20 acres of tide and submerged land were also acquired by the Navy. Between the years of 1938 and 1966, 89.37 additional acres were acquired by the Navy. In 1966, 2.71 acres were transferred from the Navy to the Coast Gu
uard for use as a Coast Guard station. In 1974, an additional 8.207 acres were transferred to the Coast Guard, for a total of 10.917 acres of land disposed. Three underground storage tanks (USTs) and associated piping are currently located on site. T
The 10.917 acres formerly used by the Department of the Navy are eligible for funding under the FUDS program, but the 350.243 acres currently in possession by the Navy are not.

FUDS Current Program Details:

FUDS Future Program Details:

Map ID Direction Distance Elevation	Site	Database(s)	EDR ID Number EPA ID Number
A2 Target Property	**YERBA BUENA ISLAND GROUP SAN FRANCISCO** **YERBA BUENA ISLAND GROUP SAN FRANCISCO** **SAN FRANCISCO, CA**	**ERNS**	**96508190** **N/A**

Site 2 of 5 in cluster A

Actual: 34 ft.

Click this hyperlink while viewing on your computer to access additional ERNS detail in the EDR Site Report.

A3 Target Property	**YERBA BUENA ISLAND STATION FLOATING DOCKS** **YERBA BUENA ISLAND STATION FLOATING DOCKS** **SAN FRANCISCO, CA 94130**	**ERNS**	**96492266** **N/A**

Site 3 of 5 in cluster A

Actual: 34 ft.

Click this hyperlink while viewing on your computer to access additional ERNS detail in the EDR Site Report.

A4 Target Property	**YERBA BUENA ISLAND PROPERTY (J09CA1005)** **SAN FRANCISCO, CA**	**ENVIROSTOR**	**S107737649** **N/A**

Site 4 of 5 in cluster A

Actual: 34 ft.

ENVIROSTOR:

Site Type:	Military Evaluation
Site Type Detailed:	FUDS
Acres:	10.917
NPL:	NO
Regulatory Agencies:	SMBRP
Lead Agency:	NONE SPECIFIED
Program Manager:	Not reported
Supervisor:	Donn Diebert
Division Branch:	Sacramento
Facility ID:	80000780
Site Code:	201799
Assembly:	13
Senate:	03
Special Program:	Not reported
Status:	Inactive - Needs Evaluation
Status Date:	2005-07-01 00:00:00
Restricted Use:	NO
Site Mgmt. Req.:	NONE SPECIFIED
Funding:	DERA
Latitude:	37.8113888888889
Longitude:	-122.361944444444
APN:	NONE SPECIFIED
Past Use:	NONE SPECIFIED
Potential COC:	NONE SPECIFIED
Confirmed COC:	NONE SPECIFIED
Potential Description:	NONE SPECIFIED
Alias Name:	J09CA1005
Alias Type:	Federal Facility ID
Alias Name:	201799
Alias Type:	Project Code (Site Code)
Alias Name:	CA99799F590600
Alias Type:	Federal Facility ID
Alias Name:	80000780
Alias Type:	Envirostor ID Number

YERBA BUENA ISLAND PROPERTY (J09CA1005) (Continued) **S107737649**

Completed Info:

Completed Area Name:	Not reported
Completed Sub Area Name:	Not reported
Completed Document Type:	Not reported
Completed Date:	Not reported
Comments:	Not reported
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

A5
Target Property
Actual: 34 ft.

YERBA BUENA WEST
150 4TH ST
SAN FRANCISCO, CA 94103

HIST UST **U001595138**
N/A

Site 5 of 5 in cluster A

HIST UST:

Region:	STATE
Facility ID:	00000040335
Facility Type:	Other
Other Type:	OFFICE
Total Tanks:	0001
Contact Name:	MARLENE MCCOY
Telephone:	4154953433
Owner Name:	YERBA BUENA WEST
Owner Address:	150 FOURTH STREET, SUITE 222
Owner City,St,Zip:	SAN FRANCISCO, CA 94103
Tank Num:	001
Container Num:	181589
Year Installed:	1982
Tank Capacity:	00001000
Tank Used for:	PRODUCT
Type of Fuel:	DIESEL
Tank Construction:	10 gauge
Leak Detection:	Visual

DOD
Region
< 1/8
1 ft.

TREASURE ISLAND NAVAL BASE (CLOSED)

TREASURE ISLAND NAVAL BAS (County), CA

DOD **CUSA136079**
N/A

DOD:

Feature 1:	Navy DOD
Feature 2:	Not reported
Feature 3:	Not reported
URL:	Not reported
Name 1:	Treasure Island Naval Base (Closed)

TREASURE ISLAND NAVAL BASE (CLOSED) (Continued) **CUSA136079**

Name 2: Not reported
Name 3: Not reported
State: CA
DOD Site: Yes
Tile name: CASAN_FRANCISCO

6
NW
1/2-1
0.890 mi.
4698 ft.

Relative:
Lower

Actual:
7 ft.

FORMER NAVAL STATION, TREASURE ISLAND
TREASURE ISL
SAN FRANCISCO, CA 94130

CERCLIS **1000158378**
RCRA-LQG **CA7170023330**
ROD
NPDES
MANIFEST
HAZNET

CERCLIS:
Site ID: 0902776
Federal Facility: Federal Facility
NPL Status: Not on the NPL
Non NPL Status: Other Cleanup Activity: Federal Facility-Lead Cleanup

CERCLIS Site Contact Name(s):
Contact Name: Christine Katin
Contact Tel: (415) 972-3112
Contact Title: Remedial Project Manager (RPM)

Contact Name: Karen Jurist
Contact Tel: (415) 972-3219
Contact Title: Site Assessment Manager (SAM)

Contact Name: Jeff Inglis
Contact Tel: (415) 972-3095
Contact Title: Site Assessment Manager (SAM)

Contact Name: Carl Brickner
Contact Tel: (415) 972-3814
Contact Title: Site Assessment Manager (SAM)

CERCLIS Site Alias Name(s):
Alias Name: NAVAL STATION TREASURE ISL
Alias Address: Not reported
CA
Alias Name: TREASURE ISLAND NAVAL STATION
Alias Address: TREASURE ISLAND
SAN FRANCISCO, CA 92278

Site Description: Hunters Point was first developed for dry dock use in 1867. The Navy acquired title to the land in 1940 and began developing the area for various shipyard activities. In 1942, the Navy began using HPA for shipbuilding, repair, and maintenance. From 1945 to 1974, the shipyard was primarily used as a repair facility by the Navy. The Navy discontinued activities at HPA in 1974. From 1976 to 1986, the Navy leased 98 percent of HPA, including all of Parcel A, to the Triple A Machine Shop (Triple A), a private ship repair company. In 1986, the Navy reoccupied the property. Currently, portions of Parcel A are subleased for use as artists; studios. Throughout its history, both the Navy and Triple A used Parcel A primarily for residential purposes. In addition, the Navy used on building on Parcel A as a radiation laboratory. Most of the other structures were used as offices an warehouses. currently, approximately 61 buildings are located on the property, 45 of which are former residences. in addition, the foundations of 43 other structures are located on Parcel

FORMER NAVAL STATION, TREASURE ISLAND (Continued) **1000158378**

A. The Navy began environmental studies at HPA in 1984 under the U.S. Department of Defense?s Installation Restoration Program. Between 1984 and 1991, the Navy performed a series of installation-wide investigations to identify potential source areas of contamination and to investigate air quality (WESTEC Services, Inc. 1984; Aqua Terra Technologies [ATT] 1987; EMCON Associates 1987; Environmental Resources Management, West 1988; YEI Engineering, Inc. 1988a and 1988b; Harding Lawson Associates [HLA] 1922; Brown & Caldwell 1995). In addition, the Navy conducted investigations in discrete areas of Parcel A (HLA 1987 and 1988; ATT 1987). In 1989, EPA added HPA to the NPL. In 1990, the Navy, EPA Region IX, and the State of California entered into a Federal Facilities Agreement (FFA) to coordinated environmental activities at HPA. In 1991, the U.S. Department of Defense designated HPA for closure as an active military base under its BRAC program. As the first phase in the CERCLA process, the Navy conducted a preliminary assessment/site inspection (PA/SI) of seven potential source areas identified during the Navy?s previous investigations. Site-specific histories of each of these areas, referred to as SI sites, are provided. As SI was performed on each sites in 1993 (PRC and HLA 1993). The Navy concluded that no further action was required at the seven SI sites because the sites do not pose a risk to human health and the environment. The EPA and Cal/EPA concurred that no action is required at these sites. HPA is located on a promontory in southeast San Francisco. The promontory is bounded on the north and east by the San Francisco Bay and on the south and west by the Bayview-Hunters Point district of the city of San Francisco. The entire HPA covers 936 acres, 493 of which are on land and 443 of which are under water. To facilitate the environmental investigation and remediation, and ultimate transfer of the property, HPA was divided into several parcels (Parcels A through F). This ROD address the remedy for sites at Parcel A. Parcel A--------- Parcel is bounded by the portions of HPA and the Bayview-Hunters Point district. Parcel A covers approximately 88 acres. Land to the northwest of Parcel A is used for residential purposes. The other HPA parcels that bound Parcel A are currently undergoing investigation and remediation for future redevelopment. Under the local reuse authority?s current land-use plan, those parcels will ultimately be used primarily for commercial and industrial purposes, whereas Parcel A will be used for residential as well as for light commercial purposes. Parcel A consists of the upland area of HPA and a portion of the lowlands. Ground surface elevations at Parcel A range from 0 to 18 feet above mean sea level (msl) in the lowlands to 180 feet above msl at the ridge crest. The peninsula forming HPA is within a northwest-trending belt of Franciscan bedrock. Bedrock is present at the ground surface over most of Parcel A. In localized areas, the bedrock is overlain by fill material. There is evidence of past landslides on Parcel A. No wetlands or surface water are located at Parcel A. Limited quantities of groundwater are present in localized fractures of the bedrock. However, parcel A groundwater is not suitable as a potential source of drinking water because of low well yield. Groundwater from the bedrock discharges through springs and seeps along Parcel a slopes. No underground storage tanks (UST), aboveground tanks, drums, or hazardous materials storage areas remain on Parcel A. Sewer lines, storm drains, and steam lines located in Parcel A were included in the early investigations of the property, which found no further investigation was required. The site is making progress according to appropriate cleanup standards, according to the RPM, Christine Katin.

CERCLIS Assessment History:

Action:	DISCOVERY
Date Started:	Not reported
Date Completed:	07/01/80
Priority Level:	Not reported

FORMER NAVAL STATION, TREASURE ISLAND (Continued) **1000158378**

Action:	PRELIMINARY ASSESSMENT
Date Started:	Not reported
Date Completed:	12/27/91
Priority Level:	Higher priority for further assessment

Action:	SITE INSPECTION
Date Started:	Not reported
Date Completed:	12/27/91
Priority Level:	Higher priority for further assessment

Action:	SITE REASSESSMENT
Date Started:	05/13/08
Date Completed:	05/23/08
Priority Level:	Low priority for further assessment

Action:	FEDERAL FACILITY REMEDIAL INVESTIGATION/FEASIBILITY STUDY
Date Started:	07/12/91
Date Completed:	Not reported
Priority Level:	Not reported

Action:	Restoration Advisory Board
Date Started:	12/01/93
Date Completed:	Not reported
Priority Level:	Not reported

RCRA-LQG:

Date form received by agency:	02/24/2006
Facility name:	FORMER NAVAL STATION, TREASURE ISLAND
Facility address:	410 PALM AVENUE, BLDG. 1 SAN FRANCISCO, CA 94130
EPA ID:	CA7170023330
Mailing address:	ROICC SAN FRANCISCO BAY AREA 2450 SARATOGA ST., SUITE 200 ALAMEDA, CA 94501
Contact:	SHIRLEY S NG
Contact address:	Not reported Not reported
Contact country:	Not reported
Contact telephone:	(510) 749-5939
Contact email:	SHIRLEY.NG@NAVY.MIL
EPA Region:	09
Land type:	Federal
Classification:	Large Quantity Generator
Description:	Handler: generates 1,000 kg or more of hazardous waste during any calendar month; or generates more than 1 kg of acutely hazardous waste during any calendar month; or generates more than 100 kg of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month; or generates 1 kg or less of acutely hazardous waste during any calendar month, and accumulates more than 1 kg of acutely hazardous waste at any time; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates more than 100 kg of that material at any time

FORMER NAVAL STATION, TREASURE ISLAND (Continued) **1000158378**

Owner/Operator Summary:

Owner/operator name:	U.S. NAVY
Owner/operator address:	Not reported Not reported
Owner/operator country:	US
Owner/operator telephone:	Not reported
Legal status:	Federal
Owner/Operator Type:	Operator
Owner/Op start date:	01/01/1941
Owner/Op end date:	Not reported

Owner/operator name:	U.S. NAVY
Owner/operator address:	410 PALM AVE B-1, STE 161 SAN FRANCISCO, CA 94130
Owner/operator country:	US
Owner/operator telephone:	Not reported
Legal status:	Federal
Owner/Operator Type:	Owner
Owner/Op start date:	01/01/1940
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No
Off-site waste receiver:	Commercial status unknown

Universal Waste Summary:

Waste type:	Batteries
Accumulated waste on-site:	No
Generated waste on-site:	No

Waste type:	Lamps
Accumulated waste on-site:	No
Generated waste on-site:	No

Waste type:	Pesticides
Accumulated waste on-site:	No
Generated waste on-site:	No

Waste type:	Thermostats
Accumulated waste on-site:	No
Generated waste on-site:	No

FORMER NAVAL STATION, TREASURE ISLAND (Continued) **1000158378**

Historical Generators:

Date form received by agency: 02/23/2004
Facility name: FORMER NAVAL STATION, TREASURE ISLAND
Site name: FORMER NAVAL STATION TREASURE ISLAND
Classification: Large Quantity Generator

Date form received by agency: 02/12/2002
Facility name: FORMER NAVAL STATION, TREASURE ISLAND
Site name: USNAVY FORMER NAVAL STATION TREASURE ISL
Classification: Large Quantity Generator

Date form received by agency: 10/12/2000
Facility name: FORMER NAVAL STATION, TREASURE ISLAND
Site name: CARETAKER SITE OFFICE TREASURE ISLAND
Classification: Large Quantity Generator

Date form received by agency: 03/04/1999
Facility name: FORMER NAVAL STATION, TREASURE ISLAND
Site name: CARETAKER SITE OFFICE TREASURE ISLAND
Classification: Large Quantity Generator

Date form received by agency: 09/01/1996
Facility name: FORMER NAVAL STATION, TREASURE ISLAND
Site name: USNAVY TREASURE ISLAND NAVAL STATION
Classification: Large Quantity Generator

Date form received by agency: 04/23/1996
Facility name: FORMER NAVAL STATION, TREASURE ISLAND
Site name: NAVAL STATION TREASURE ISLAND
Classification: Large Quantity Generator

Date form received by agency: 06/27/1994
Facility name: FORMER NAVAL STATION, TREASURE ISLAND
Site name: NAVAL STATION TREASURE ISLAND
Classification: Large Quantity Generator

Date form received by agency: 03/24/1992
Facility name: FORMER NAVAL STATION, TREASURE ISLAND
Site name: NAVAL STATION - TREASURE ISLAN
Classification: Large Quantity Generator

Date form received by agency: 04/26/1990
Facility name: FORMER NAVAL STATION, TREASURE ISLAND
Site name: NAVAL STATION - TREASURE ISLAND
Classification: Large Quantity Generator

Date form received by agency: 07/16/1980
Facility name: FORMER NAVAL STATION, TREASURE ISLAND
Site name: USNAVY TREASURE ISLAND NAVAL STATION
Classification: Large Quantity Generator

Hazardous Waste Summary:

Waste code: 181
Waste name: 181

Waste code: 331

FORMER NAVAL STATION, TREASURE ISLAND (Continued) **1000158378**

Waste name: 331

Waste code: 611
Waste name: 611

Waste code: D001
Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

Waste code: D008
Waste name: LEAD

Waste code: F002
Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE, TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE, CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2-TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE LISTED IN F001, F004, OR F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Facility Has Received Notices of Violations:

Regulation violated: Not reported
Area of violation: Generators - General
Date violation determined: 03/08/1995
Date achieved compliance: 06/19/1995
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 03/09/1995
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - Pre-transport
Date violation determined: 03/08/1995
Date achieved compliance: 06/19/1995
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 03/09/1995
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

FORMER NAVAL STATION, TREASURE ISLAND (Continued) **1000158378**

Regulation violated:	Not reported
Area of violation:	Generators - Pre-transport
Date violation determined:	03/08/1993
Date achieved compliance:	03/08/1993
Violation lead agency:	EPA
Enforcement action:	WRITTEN INFORMAL
Enforcement action date:	03/08/1993
Enf. disposition status:	Not reported
Enf. disp. status date:	Not reported
Enforcement lead agency:	EPA
Proposed penalty amount:	Not reported
Final penalty amount:	Not reported
Paid penalty amount:	Not reported

Regulation violated:	Not reported
Area of violation:	Generators - General
Date violation determined:	03/08/1993
Date achieved compliance:	03/08/1993
Violation lead agency:	EPA
Enforcement action:	WRITTEN INFORMAL
Enforcement action date:	03/08/1993
Enf. disposition status:	Not reported
Enf. disp. status date:	Not reported
Enforcement lead agency:	EPA
Proposed penalty amount:	Not reported
Final penalty amount:	Not reported
Paid penalty amount:	Not reported

Regulation violated:	Not reported
Area of violation:	Generators - General
Date violation determined:	11/16/1987
Date achieved compliance:	08/28/1989
Violation lead agency:	State
Enforcement action:	WRITTEN INFORMAL
Enforcement action date:	04/15/1988
Enf. disposition status:	Not reported
Enf. disp. status date:	Not reported
Enforcement lead agency:	State
Proposed penalty amount:	Not reported
Final penalty amount:	Not reported
Paid penalty amount:	Not reported

Regulation violated:	Not reported
Area of violation:	LDR - General
Date violation determined:	11/16/1987
Date achieved compliance:	08/28/1989
Violation lead agency:	State
Enforcement action:	WRITTEN INFORMAL
Enforcement action date:	04/15/1988
Enf. disposition status:	Not reported
Enf. disp. status date:	Not reported
Enforcement lead agency:	State
Proposed penalty amount:	Not reported
Final penalty amount:	Not reported
Paid penalty amount:	Not reported

Regulation violated:	Not reported

FORMER NAVAL STATION, TREASURE ISLAND (Continued) **1000158378**

Area of violation:	Generators - Manifest
Date violation determined:	11/16/1987
Date achieved compliance:	08/28/1989
Violation lead agency:	State
Enforcement action:	WRITTEN INFORMAL
Enforcement action date:	04/15/1988
Enf. disposition status:	Not reported
Enf. disp. status date:	Not reported
Enforcement lead agency:	State
Proposed penalty amount:	Not reported
Final penalty amount:	Not reported
Paid penalty amount:	Not reported

Evaluation Action Summary:

Evaluation date:	03/07/1995
Evaluation:	COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation:	Generators - General
Date achieved compliance:	06/19/1995
Evaluation lead agency:	State
Evaluation date:	03/07/1995
Evaluation:	COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation:	Generators - Pre-transport
Date achieved compliance:	06/19/1995
Evaluation lead agency:	State
Evaluation date:	01/27/1993
Evaluation:	COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation:	Generators - Pre-transport
Date achieved compliance:	03/08/1993
Evaluation lead agency:	EPA
Evaluation date:	01/27/1993
Evaluation:	COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation:	Generators - General
Date achieved compliance:	03/08/1993
Evaluation lead agency:	EPA
Evaluation date:	11/16/1987
Evaluation:	COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation:	Generators - Manifest
Date achieved compliance:	08/28/1989
Evaluation lead agency:	State
Evaluation date:	11/16/1987
Evaluation:	FOCUSED COMPLIANCE INSPECTION
Area of violation:	LDR - General
Date achieved compliance:	08/28/1989
Evaluation lead agency:	State
Evaluation date:	11/16/1987
Evaluation:	COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation:	Generators - General
Date achieved compliance:	08/28/1989
Evaluation lead agency:	State

ROD:

FORMER NAVAL STATION, TREASURE ISLAND (Continued) **1000158378**

Full-text of USEPA Record of Decision(s) is available from EDR.

NPDES:

Npdes Number:	Not reported
Facility Status:	Active
Agency Id:	10323
Region:	2
Regulatory Measure Id:	182593
Order No:	97-03-DWQ
Regulatory Measure Type:	Storm water industrial
Place Id:	243992
WDID:	2 38I012140
Program Type:	INDSTW
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	2/7/1996
Expiration Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	Not reported
Discharge Name:	US Navy Caretaker Site Office
Discharge Address:	410 Palm Ave Bldg 1
Discharge City:	San Francisco
Discharge State:	CA
Discharge Zip:	94130

NY MANIFEST:

EPA ID:	CA7170023330
Country:	USA
Mailing Name:	UNITED STATES MILITARY
Mailing Contact:	EDDIE SARMIENTO
Mailing Address:	NAVAL STATION TREASURE ISLAND
Mailing Address 2:	Not reported
Mailing City:	SAN FRANCISCO
Mailing State:	CA
Mailing Zip:	94130
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	415-395-5452

Document ID:	NYB4414527
Manifest Status:	Completed copy
Trans1 State ID:	10222PNY
Trans2 State ID:	Not reported
Generator Ship Date:	930125
Trans1 Recv Date:	930125
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	930209
Part A Recv Date:	930210
Part B Recv Date:	930218
Generator EPA ID:	CA7170023330
Trans1 EPA ID:	NYD980769947
Trans2 EPA ID:	Not reported
TSDF ID:	NYD000632372
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00010
Units:	P - Pounds
Number of Containers:	001

FORMER NAVAL STATION, TREASURE ISLAND (Continued) **1000158378**

Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	Not reported
Year:	93
Manifest Tracking Num:	Not reported
Import Ind:	Not reported
Export Ind:	Not reported
Discr Quantity Ind:	Not reported
Discr Type Ind:	Not reported
Discr Residue Ind:	Not reported
Discr Partial Reject Ind:	Not reported
Discr Full Reject Ind:	Not reported
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	Not reported

HAZNET:

Gepaid:	CA7170023330
Contact:	MICHAEL MENTINK ENVIRONMENTAL
Telephone:	4157434729
Facility Addr2:	Not reported
Mailing Name:	Not reported
Mailing Address:	410 PALM AVE B-1 STE 161
Mailing City,St,Zip:	SAN FRANCISCO, CA 941301806
Gen County:	San Francisco
TSD EPA ID:	CAD059494310
TSD County:	Santa Clara
Waste Category:	Off-specification, aged, or surplus organics
Disposal Method:	Disposal, Other
Tons:	Not reported
Facility County:	Not reported

Gepaid:	CA7170023330
Contact:	MICHAEL MENTINK ENVIRONMENTAL
Telephone:	4157434729
Facility Addr2:	Not reported
Mailing Name:	Not reported
Mailing Address:	410 PALM AVE B-1 STE 161
Mailing City,St,Zip:	SAN FRANCISCO, CA 941301806
Gen County:	San Francisco
TSD EPA ID:	CAD097030993
TSD County:	Los Angeles
Waste Category:	Other organic solids
Disposal Method:	H141
Tons:	1.1
Facility County:	San Francisco

Gepaid:	CA7170023330
Contact:	MICHAEL MENTINK ENVIRONMENTAL
Telephone:	4157434729
Facility Addr2:	Not reported
Mailing Name:	Not reported
Mailing Address:	410 PALM AVE B-1 STE 161
Mailing City,St,Zip:	SAN FRANCISCO, CA 941301806
Gen County:	San Francisco
TSD EPA ID:	CAD097030993

FORMER NAVAL STATION, TREASURE ISLAND (Continued) **1000158378**

TSD County:	Los Angeles
Waste Category:	Not reported
Disposal Method:	Not reported
Tons:	Not reported
Facility County:	San Francisco

Gepaid:	CA7170023330
Contact:	MICHAEL MENTINK ENVIRONMENTAL
Telephone:	4157434729
Facility Addr2:	Not reported
Mailing Name:	Not reported
Mailing Address:	410 PALM AVE B-1 STE 161
Mailing City,St,Zip:	SAN FRANCISCO, CA 941301806
Gen County:	San Francisco
TSD EPA ID:	IDD073114654
TSD County:	99
Waste Category:	Contaminated soil from site clean-ups
Disposal Method:	H132
Tons:	15.95
Facility County:	San Francisco

Gepaid:	CA7170023330
Contact:	MICHAEL MENTINK ENVIRONMENTAL
Telephone:	4157434729
Facility Addr2:	Not reported
Mailing Name:	Not reported
Mailing Address:	410 PALM AVE B-1 STE 161
Mailing City,St,Zip:	SAN FRANCISCO, CA 941301806
Gen County:	San Francisco
TSD EPA ID:	CAD008302903
TSD County:	Los Angeles
Waste Category:	Aqueous solution with less than 10% total organic residues
Disposal Method:	H039
Tons:	0.1
Facility County:	San Francisco

Click this hyperlink while viewing on your computer to access
6 additional CA_HAZNET: record(s) in the EDR Site Report.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
SAN FRANCISCO	1001815485	CALTRANS DIST 4	YERBA BUENA ISLAND TUNNEL APPR	94130	RCRA-SQG,FINDS
SAN FRANCISCO	1007298123	US NAVY-NAVAL STATION TREASURE ISL	410 PALM AV CODE 84.1	94130	FTTS,HIST FTTS INSP
SAN FRANCISCO	1008191139	TREASURE ISLAND NAVAL STATION	TREASURE ISLAND NAVAL STATION	94130	HIST FTTS INSP
SAN FRANCISCO	1008255080	TREASURE ISLAND ELEMENTARY	13TH & E STS.	94130	FINDS
SAN FRANCISCO	2007320361	ALCATRAZ ISLAND	ALCATRAZ ISLAND		ERNS
SAN FRANSISCO	2007325998	1 YERBA BUENA ISLAND	1 YERBA BUENA ISLAND	94130	ERNS
SAN FRANCISCO	2007326665	1 YERBA BUENA ISLAND	1 YERBA BUENA ISLAND	94130	ERNS
SAN FRANCISCO	2007330650	1 YERBA BUENA ISLAND	1 YERBA BUENA ISLAND	94130	ERNS
VALLEJO	2007331591	1 YERBA BUENA ISLAND	1 YERBA BUENA ISLAND	94130	ERNS
SAN FRANCISCO	2008888373	1YERBA BUENA ISLAND	1YERBA BUENA ISLAND	94130	ERNS
SAN FRANCISCO	2008892503	1 YERBA BUENA ISLAND	1 YERBA BUENA ISLAND		ERNS
SAN FRANCISCO	A100323378		3 TREASURE ISLAND 94130		AST
SAN FRANCISCO	S103966802	GROVER MANAGEMENT & CONSTRUCTION	TREASURE ISLAND BLDG #1	00000	HAZNET,HIST CORTESE
TREASURE ISLAND	S104569808	TREASURE ISLAND JOB CORP	BUILDING 135	94130	HAZNET
SAN FRANCISCO	S104580548	CCSF PUC TREASURE ISLAND WPCP	100 M STREET / BLDG 681	94130	HAZNET
SAN FRANCISCO	S109548298	NAVAL STATION TREASURE ISLAND/SITE	TREASURE ISLAND, BETWEEN SAN F	94130	AWP,ENVIROSTOR
SAN FRANCISCO	S109548303	NAVAL STATION TREASURE ISLAND/SITE	TREASURE ISLAND, BETWEEN SAN F	94130	AWP,ENVIROSTOR
SAN FRANCISCO	S109548307	NAVAL STATION TREASURE ISLAND/SITE	TREASURE ISLAND, BETWEEN SAN F	94130	AWP,ENVIROSTOR
SAN FRANCISCO	S109548324	NAVAL STATION TRESURE ISLAND/SITE	TREASURE ISLAND, BETWEEN SAN F	94130	AWP,ENVIROSTOR
SAN FRANCISCO	S109548351	NAVAL STATION TREASURE ISLAND/SITE	TREASURE ISLAND, BETWEEN SAN F	94130	AWP,ENVIROSTOR
SAN FRANCISCO	S109548358	NAVAL STATION TREASURE ISLAND/SITE	TREASURE ISLAND, BETWEEN SAN F	94130	AWP,ENVIROSTOR
SAN FRANCISCO	S109548359	NAVAL STATION TREASURE ISLAND/SITE	TREASURE ISLAND, BETWEEN SAN F	94130	AWP,ENVIROSTOR
SAN FRANCISCO	S109548373	NAVAL STATION TRESURE ISLAND/SITE	TREASURE ISLAND, BETWEEN SAN F	94130	AWP,ENVIROSTOR
SAN FRANCISCO	S109548379	NAVAL STATION TREASURE ISLAND/SITE	TREASURE ISLAND, BETWEEN SAN F	94130	AWP,ENVIROSTOR
SAN FRANCISCO	S109611864	NAVAL STATION TREASURE ISLAND/SITE	TREASURE ISLAND, BETWEEN SAN F	94130	CORTESE
SAN FRANCISCO	S109611865	NAVAL STATION TREASURE ISLAND/SITE	TREASURE ISLAND, BETWEEN SAN F	94130	CORTESE
SAN FRANCISCO	S109611866	NAVAL STATION TREASURE ISLAND/SITE	TREASURE ISLAND, BETWEEN SAN F	94130	CORTESE
SAN FRANCISCO	S109611869	NAVAL STATION TREASURE ISLAND/SITE	TREASURE ISLAND, BETWEEN SAN F	94130	CORTESE
SAN FRANCISCO	S109611870	NAVAL STATION TREASURE ISLAND/SITE	TREASURE ISLAND, BETWEEN SAN F	94130	CORTESE
SAN FRANCISCO	S109611871	NAVAL STATION TREASURE ISLAND/SITE	TREASURE ISLAND, BETWEEN SAN F	94130	CORTESE
SAN FRANCISCO	S109611872	NAVAL STATION TREASURE ISLAND/SITE	TREASURE ISLAND, BETWEEN SAN F	94130	CORTESE
SAN FRANCISCO	S109611873	NAVAL STATION TRESURE ISLAND/SITE	TREASURE ISLAND, BETWEEN SAN F	94130	CORTESE
SAN FRANCISCO	S109611874	NAVAL STATION TRESURE ISLAND/SITE	TREASURE ISLAND, BETWEEN SAN F	94130	CORTESE
SAN FRANCISCO	S109851013	NAVAL STATION TREASURE ISLAND/SITE	TREASURE ISLAND, BETWEEN SAN F	94130	CORTESE
SAN FRANCISCO	S109851014	NAVAL STATION TREASURE ISLAND/SITE	TREASURE ISLAND, BETWEEN SAN F	94130	CORTESE
SAN FRANCISCO	S109851015	NAVAL STATION TREASURE ISLAND/SITE	TREASURE ISLAND, BETWEEN SAN F	94130	CORTESE
SAN FRANCISCO	S110042429	NAVAL STATION TREASURE ISLAND/SITE	TREASURE ISLAND, BETWEEN SAN F	94130	AWP,ENVIROSTOR
SAN FRANCISCO	S110042441	NAVAL STATION TREASURE ISLAND/SITE	TREASURE ISLAND, BETWEEN SAN F	94130	AWP,ENVIROSTOR
SAN FRANCISCO	S110042449	NAVAL STATION TREASURE ISLAND/SITE	TREASURE ISLAND, BETWEEN SAN F	94130	AWP,ENVIROSTOR
SAN FRANCISCO	U004151060	TIYBI/ISLAND CREATIVE MANAGEMENT	2 TREASURE ISLAND (440 CALIF A		UST ALAMEDA

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 03/31/2010
Date Data Arrived at EDR: 04/02/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 10

Source: EPA
Telephone: N/A
Last EDR Contact: 05/07/2010
Next Scheduled EDR Contact: 07/26/2010
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 3
Telephone 215-814-5418

EPA Region 4
Telephone 404-562-8033

EPA Region 5
Telephone 312-886-6686

EPA Region 10
Telephone 206-553-8665

EPA Region 6
Telephone: 214-655-6659

EPA Region 7
Telephone: 913-551-7247

EPA Region 8
Telephone: 303-312-6774

EPA Region 9
Telephone: 415-947-4246

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 03/31/2010
Date Data Arrived at EDR: 04/02/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 10

Source: EPA
Telephone: N/A
Last EDR Contact: 05/07/2010
Next Scheduled EDR Contact: 07/26/2010
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 05/17/2010
Next Scheduled EDR Contact: 08/30/2010
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal Delisted NPL site list

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 03/31/2010
Date Data Arrived at EDR: 04/02/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 10

Source: EPA
Telephone: N/A
Last EDR Contact: 05/07/2010
Next Scheduled EDR Contact: 07/26/2010
Data Release Frequency: Quarterly

Federal CERCLIS list

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 01/29/2010
Date Data Arrived at EDR: 02/09/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 62

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 05/07/2010
Next Scheduled EDR Contact: 07/12/2010
Data Release Frequency: Quarterly

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of NPL and Base Realighnment & Closure sites found in the CERCLIS database where FERRO is involved in cleanup projects.

Date of Government Version: 06/23/2009
Date Data Arrived at EDR: 01/15/2010
Date Made Active in Reports: 02/10/2010
Number of Days to Update: 26

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 04/30/2010
Next Scheduled EDR Contact: 07/26/2010
Data Release Frequency: Varies

Federal CERCLIS NFRAP site List

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 06/23/2009
Date Data Arrived at EDR: 09/02/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 19

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 05/07/2010
Next Scheduled EDR Contact: 06/14/2010
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 03/25/2010
Date Data Arrived at EDR: 03/31/2010
Date Made Active in Reports: 05/27/2010
Number of Days to Update: 57

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 05/17/2010
Next Scheduled EDR Contact: 08/30/2010
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 02/17/2010
Date Data Arrived at EDR: 02/19/2010
Date Made Active in Reports: 05/17/2010
Number of Days to Update: 87

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 04/29/2010
Next Scheduled EDR Contact: 07/19/2010
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 02/17/2010
Date Data Arrived at EDR: 02/19/2010
Date Made Active in Reports: 05/17/2010
Number of Days to Update: 87

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 04/29/2010
Next Scheduled EDR Contact: 07/19/2010
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 02/17/2010
Date Data Arrived at EDR: 02/19/2010
Date Made Active in Reports: 05/17/2010
Number of Days to Update: 87

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 04/29/2010
Next Scheduled EDR Contact: 07/19/2010
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 02/17/2010
Date Data Arrived at EDR: 02/19/2010
Date Made Active in Reports: 05/17/2010
Number of Days to Update: 87

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 04/29/2010
Next Scheduled EDR Contact: 07/19/2010
Data Release Frequency: Varies

Federal institutional controls / engineering controls registries

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 12/20/2009
Date Data Arrived at EDR: 01/20/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 82

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 03/15/2010
Next Scheduled EDR Contact: 06/28/2010
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 12/20/2009
Date Data Arrived at EDR: 01/20/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 82

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 03/15/2010
Next Scheduled EDR Contact: 06/28/2010
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 01/22/2010
Date Made Active in Reports: 02/11/2010
Number of Days to Update: 20

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 04/07/2010
Next Scheduled EDR Contact: 07/19/2010
Data Release Frequency: Annually

State- and tribal - equivalent NPL

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 05/11/2010
Date Data Arrived at EDR: 05/12/2010
Date Made Active in Reports: 05/18/2010
Number of Days to Update: 6

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 05/12/2010
Next Scheduled EDR Contact: 08/23/2010
Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 05/11/2010
Date Data Arrived at EDR: 05/12/2010
Date Made Active in Reports: 05/18/2010
Number of Days to Update: 6

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 05/12/2010
Next Scheduled EDR Contact: 08/23/2010
Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF (SWIS): Solid Waste Information System
Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 02/22/2010
Date Data Arrived at EDR: 02/24/2010
Date Made Active in Reports: 03/04/2010
Number of Days to Update: 8

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 05/25/2010
Next Scheduled EDR Contact: 09/06/2010
Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

LUST REG 9: Leaking Underground Storage Tank Report
Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 03/29/2010
Next Scheduled EDR Contact: 07/12/2010
Data Release Frequency: No Update Planned

LUST REG 7: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 05/03/2010
Next Scheduled EDR Contact: 08/16/2010
Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 03/15/2010
Next Scheduled EDR Contact: 06/28/2010
Data Release Frequency: No Update Planned

LUST REG 6L: Leaking Underground Storage Tank Case Listing
For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 05/17/2010
Next Scheduled EDR Contact: 08/30/2010
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 04/05/2010
Next Scheduled EDR Contact: 07/19/2010
Data Release Frequency: Quarterly

LUST REG 4: Underground Storage Tank Leak List

Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 03/08/2010
Next Scheduled EDR Contact: 06/21/2010
Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 04/19/2010
Next Scheduled EDR Contact: 08/02/2010
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List

Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 03/22/2010
Next Scheduled EDR Contact: 07/05/2010
Data Release Frequency: Quarterly

LUST REG 1: Active Toxic Site Investigation

Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 05/03/2010
Next Scheduled EDR Contact: 08/16/2010
Data Release Frequency: No Update Planned

LUST: Geotracker's Leaking Underground Fuel Tank Report

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state. For more information on a particular leaking underground storage tank sites, please contact the appropriate regulatory agency.

Date of Government Version: 05/05/2010
Date Data Arrived at EDR: 05/05/2010
Date Made Active in Reports: 05/18/2010
Number of Days to Update: 13

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 05/05/2010
Next Scheduled EDR Contact: 07/05/2010
Data Release Frequency: Quarterly

LUST REG 8: Leaking Underground Storage Tanks

California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 04/19/2010
Next Scheduled EDR Contact: 08/02/2010
Data Release Frequency: Varies

SLIC: Statewide SLIC Cases

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/05/2010
Date Data Arrived at EDR: 05/05/2010
Date Made Active in Reports: 05/18/2010
Number of Days to Update: 13

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 05/05/2010
Next Scheduled EDR Contact: 07/05/2010
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 05/03/2010
Next Scheduled EDR Contact: 08/16/2010
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 03/22/2010
Next Scheduled EDR Contact: 07/05/2010
Data Release Frequency: Quarterly

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 04/19/2010
Next Scheduled EDR Contact: 08/02/2010
Data Release Frequency: Semi-Annually

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 04/05/2010
Next Scheduled EDR Contact: 07/19/2010
Data Release Frequency: Varies

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 03/15/2010
Next Scheduled EDR Contact: 06/28/2010
Data Release Frequency: Semi-Annually

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 05/17/2010
Next Scheduled EDR Contact: 08/30/2010
Data Release Frequency: Semi-Annually

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 05/17/2010
Next Scheduled EDR Contact: 08/30/2010
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 05/03/2010
Next Scheduled EDR Contact: 08/16/2010
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 03/15/2010
Next Scheduled EDR Contact: 06/28/2010
Data Release Frequency: Semi-Annually

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 05/10/2010
Next Scheduled EDR Contact: 08/23/2010
Data Release Frequency: Annually

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 05/04/2010
Date Data Arrived at EDR: 05/05/2010
Date Made Active in Reports: 05/27/2010
Number of Days to Update: 22

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 05/03/2010
Next Scheduled EDR Contact: 08/16/2010
Data Release Frequency: Quarterly

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 02/19/2009
Date Data Arrived at EDR: 02/19/2009
Date Made Active in Reports: 03/16/2009
Number of Days to Update: 25

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 05/03/2010
Next Scheduled EDR Contact: 08/16/2010
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 02/25/2010
Date Data Arrived at EDR: 02/25/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 46

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 05/03/2010
Next Scheduled EDR Contact: 08/16/2010
Data Release Frequency: Quarterly

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 05/03/2010
Date Data Arrived at EDR: 05/05/2010
Date Made Active in Reports: 05/27/2010
Number of Days to Update: 22

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 05/03/2010
Next Scheduled EDR Contact: 08/16/2010
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 03/10/2010
Date Data Arrived at EDR: 03/16/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 27

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 05/03/2010
Next Scheduled EDR Contact: 08/16/2010
Data Release Frequency: Semi-Annually

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 02/01/2010
Date Data Arrived at EDR: 03/03/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 05/03/2010
Next Scheduled EDR Contact: 08/16/2010
Data Release Frequency: Quarterly

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 03/24/2009
Date Data Arrived at EDR: 05/20/2009
Date Made Active in Reports: 06/17/2009
Number of Days to Update: 28

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 05/04/2010
Next Scheduled EDR Contact: 08/16/2010
Data Release Frequency: Varies

State and tribal registered storage tank lists

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 05/05/2010
Date Data Arrived at EDR: 05/05/2010
Date Made Active in Reports: 05/18/2010
Number of Days to Update: 13

Source: SWRCB
Telephone: 916-480-1028
Last EDR Contact: 05/05/2010
Next Scheduled EDR Contact: 07/05/2010
Data Release Frequency: Semi-Annually

AST: Aboveground Petroleum Storage Tank Facilities
Registered Aboveground Storage Tanks.

Date of Government Version: 08/01/2009
Date Data Arrived at EDR: 09/10/2009
Date Made Active in Reports: 10/01/2009
Number of Days to Update: 21

Source: State Water Resources Control Board
Telephone: 916-341-5712
Last EDR Contact: 04/12/2010
Next Scheduled EDR Contact: 07/26/2010
Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 05/04/2010
Date Data Arrived at EDR: 05/05/2010
Date Made Active in Reports: 05/27/2010
Number of Days to Update: 22

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 05/03/2010
Next Scheduled EDR Contact: 08/16/2010
Data Release Frequency: Quarterly

INDIAN UST R9: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 02/01/2010
Date Data Arrived at EDR: 03/03/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 40

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 05/03/2010
Next Scheduled EDR Contact: 08/16/2010
Data Release Frequency: Quarterly

INDIAN UST R8: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 02/25/2010
Date Data Arrived at EDR: 02/25/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 46

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 05/03/2010
Next Scheduled EDR Contact: 08/16/2010
Data Release Frequency: Quarterly

INDIAN UST R7: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 04/01/2008
Date Data Arrived at EDR: 12/30/2008
Date Made Active in Reports: 03/16/2009
Number of Days to Update: 76

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 05/12/2010
Next Scheduled EDR Contact: 08/16/2010
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 05/03/2010
Date Data Arrived at EDR: 05/05/2010
Date Made Active in Reports: 05/27/2010
Number of Days to Update: 22

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 05/03/2010
Next Scheduled EDR Contact: 08/16/2010
Data Release Frequency: Semi-Annually

INDIAN UST R5: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 02/11/2010
Date Data Arrived at EDR: 02/11/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 60

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 05/03/2010
Next Scheduled EDR Contact: 08/16/2010
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 03/10/2010
Date Data Arrived at EDR: 03/16/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 27

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 05/03/2010
Next Scheduled EDR Contact: 08/16/2010
Data Release Frequency: Semi-Annually

INDIAN UST R1: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 02/19/2009
Date Data Arrived at EDR: 02/19/2009
Date Made Active in Reports: 03/16/2009
Number of Days to Update: 25

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 05/03/2010
Next Scheduled EDR Contact: 08/16/2010
Data Release Frequency: Varies

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010
Date Data Arrived at EDR: 02/16/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 55

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 04/19/2010
Next Scheduled EDR Contact: 08/02/2010
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng
A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

VCP: Voluntary Cleanup Program Properties
Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 05/11/2010
Date Data Arrived at EDR: 05/12/2010
Date Made Active in Reports: 05/18/2010
Number of Days to Update: 6

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 05/12/2010
Next Scheduled EDR Contact: 08/23/2010
Data Release Frequency: Quarterly

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 04/02/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 04/05/2010
Next Scheduled EDR Contact: 07/19/2010
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Included in the listing are brownfields properties addresses by Cooperative Agreement Recipients and brownfields properties addressed by Targeted Brownfields Assessments. Targeted Brownfields Assessments-EPA's Targeted Brownfields Assessments (TBA) program is designed to help states, tribes, and municipalities--especially those without EPA Brownfields Assessment Demonstration Pilots--minimize the uncertainties of contamination often associated with brownfields. Under the TBA program, EPA provides funding and/or technical assistance for environmental assessments at brownfields sites throughout the country. Targeted Brownfields Assessments supplement and work with other efforts under EPA's Brownfields Initiative to promote cleanup and redevelopment of brownfields. Cooperative Agreement Recipients-States, political subdivisions, territories, and Indian tribes become Brownfields Cleanup Revolving Loan Fund (BCRLF) cooperative agreement recipients when they enter into BCRLF cooperative agreements with the U.S. EPA. EPA selects BCRLF cooperative agreement recipients based on a proposal and application process. BCRLF cooperative agreement recipients must use EPA funds provided through BCRLF cooperative agreement for specified brownfields-related cleanup activities.

Date of Government Version: 03/02/2010
Date Data Arrived at EDR: 03/23/2010
Date Made Active in Reports: 05/17/2010
Number of Days to Update: 55

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 03/23/2010
Next Scheduled EDR Contact: 07/12/2010
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 06/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-972-3336
Last EDR Contact: 03/22/2010
Next Scheduled EDR Contact: 06/21/2010
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

WMUDS/SWAT: Waste Management Unit Database

Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 05/17/2010
Next Scheduled EDR Contact: 08/30/2010
Data Release Frequency: Quarterly

SWRCY: Recycler Database

A listing of recycling facilities in California.

Date of Government Version: 01/06/2010
Date Data Arrived at EDR: 03/24/2010
Date Made Active in Reports: 04/09/2010
Number of Days to Update: 16

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 03/24/2010
Next Scheduled EDR Contact: 07/05/2010
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing

A listing of registered waste tire haulers.

Date of Government Version: 03/09/2010
Date Data Arrived at EDR: 03/10/2010
Date Made Active in Reports: 04/09/2010
Number of Days to Update: 30

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 05/24/2010
Next Scheduled EDR Contact: 09/06/2010
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 05/24/2010
Next Scheduled EDR Contact: 08/23/2010
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 08/19/2009
Date Data Arrived at EDR: 12/29/2009
Date Made Active in Reports: 02/10/2010
Number of Days to Update: 43

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 12/14/2009
Next Scheduled EDR Contact: 03/22/2010
Data Release Frequency: Quarterly

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program
This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 05/11/2010
Date Data Arrived at EDR: 05/12/2010
Date Made Active in Reports: 05/18/2010
Number of Days to Update: 6

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 05/12/2010
Next Scheduled EDR Contact: 08/23/2010
Data Release Frequency: Quarterly

TOXIC PITS: Toxic Pits Cleanup Act Sites
Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

CDL: Clandestine Drug Labs
A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 02/25/2010
Date Made Active in Reports: 03/04/2010
Number of Days to Update: 7

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 04/05/2010
Next Scheduled EDR Contact: 07/19/2010
Data Release Frequency: Varies

US HIST CDL: National Clandestine Laboratory Register
A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 09/01/2007
Date Data Arrived at EDR: 11/19/2008
Date Made Active in Reports: 03/30/2009
Number of Days to Update: 131

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

Local Lists of Registered Storage Tanks

CA FID UST: Facility Inventory Database
The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UST MENDOCINO: Mendocino County UST Database
A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 09/23/2009
Date Data Arrived at EDR: 09/23/2009
Date Made Active in Reports: 10/01/2009
Number of Days to Update: 8

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 03/08/2010
Next Scheduled EDR Contact: 06/21/2010
Data Release Frequency: Annually

HIST UST: Hazardous Substance Storage Container Database
The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SWEEPS UST: SWEEPS UST Listing
Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Local Land Records

LIENS 2: CERCLA Lien Information
A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/05/2010
Date Data Arrived at EDR: 02/11/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 60

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 05/03/2010
Next Scheduled EDR Contact: 08/16/2010
Data Release Frequency: Varies

LUCIS: Land Use Control Information System
LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/09/2005
Date Data Arrived at EDR: 12/11/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 31

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 05/24/2010
Next Scheduled EDR Contact: 09/06/2010
Data Release Frequency: Varies

LIENS: Environmental Liens Listing
A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 05/05/2010
Date Data Arrived at EDR: 05/07/2010
Date Made Active in Reports: 05/18/2010
Number of Days to Update: 11

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 05/03/2010
Next Scheduled EDR Contact: 08/02/2010
Data Release Frequency: Varies

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 03/15/2010
Date Data Arrived at EDR: 03/16/2010
Date Made Active in Reports: 04/09/2010
Number of Days to Update: 24

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 03/16/2010
Next Scheduled EDR Contact: 12/28/2009
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 04/06/2010
Date Data Arrived at EDR: 04/07/2010
Date Made Active in Reports: 05/27/2010
Number of Days to Update: 50

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 04/07/2010
Next Scheduled EDR Contact: 07/19/2010
Data Release Frequency: Annually

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 12/31/2007
Date Data Arrived at EDR: 05/09/2008
Date Made Active in Reports: 06/20/2008
Number of Days to Update: 42

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 05/03/2010
Next Scheduled EDR Contact: 08/16/2010
Data Release Frequency: Varies

LDS: Land Disposal Sites Listing

The Land Disposal program regulates of waste discharge to land for treatment, storage and disposal in waste management units.

Date of Government Version: 05/05/2010
Date Data Arrived at EDR: 05/05/2010
Date Made Active in Reports: 05/18/2010
Number of Days to Update: 13

Source: State Water Quality Control Board
Telephone: 866-480-1028
Last EDR Contact: 05/05/2010
Next Scheduled EDR Contact: 07/05/2010
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing

The State Water Resources Control Board and nine Regional Water Quality Control Boards partner with the Department of Defense (DoD) through the Defense and State Memorandum of Agreement (DSMOA) to oversee the investigation and remediation of water quality issues at military facilities.

Date of Government Version: 05/05/2010
Date Data Arrived at EDR: 05/05/2010
Date Made Active in Reports: 05/18/2010
Number of Days to Update: 13

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 05/05/2010
Next Scheduled EDR Contact: 07/05/2010
Data Release Frequency: Quarterly

Other Ascertainable Records

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

RCRA-NonGen: RCRA - Non Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 02/17/2010
Date Data Arrived at EDR: 02/19/2010
Date Made Active in Reports: 05/17/2010
Number of Days to Update: 87

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 04/29/2010
Next Scheduled EDR Contact: 07/19/2010
Data Release Frequency: Varies

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 01/12/2010
Date Data Arrived at EDR: 02/09/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 62

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 05/12/2010
Next Scheduled EDR Contact: 08/23/2010
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 703-692-8801
Last EDR Contact: 04/21/2010
Next Scheduled EDR Contact: 08/02/2010
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/2008
Date Data Arrived at EDR: 09/30/2009
Date Made Active in Reports: 12/01/2009
Number of Days to Update: 62

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 03/18/2010
Next Scheduled EDR Contact: 06/28/2010
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 04/11/2010
Date Data Arrived at EDR: 04/19/2010
Date Made Active in Reports: 05/17/2010
Number of Days to Update: 28

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 04/05/2010
Next Scheduled EDR Contact: 07/19/2010
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 04/29/2010
Date Data Arrived at EDR: 05/07/2010
Date Made Active in Reports: 05/27/2010
Number of Days to Update: 20

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 05/07/2010
Next Scheduled EDR Contact: 06/28/2010
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 01/05/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 05/08/2009
Number of Days to Update: 1

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 01/21/2010
Next Scheduled EDR Contact: 06/14/2010
Data Release Frequency: Varies

MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 02/12/2010
Date Data Arrived at EDR: 03/10/2010
Date Made Active in Reports: 05/17/2010
Number of Days to Update: 68

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 03/10/2010
Next Scheduled EDR Contact: 06/21/2010
Data Release Frequency: Semi-Annually

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2008
Date Data Arrived at EDR: 01/13/2010
Date Made Active in Reports: 02/18/2010
Number of Days to Update: 36

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 03/02/2010
Next Scheduled EDR Contact: 06/14/2010
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2002
Date Data Arrived at EDR: 04/14/2006
Date Made Active in Reports: 05/30/2006
Number of Days to Update: 46

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 04/21/2010
Next Scheduled EDR Contact: 07/12/2010
Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 06/01/2010
Next Scheduled EDR Contact: 09/13/2010
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 06/01/2010
Next Scheduled EDR Contact: 09/13/2010
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2008
Date Data Arrived at EDR: 01/06/2010
Date Made Active in Reports: 02/10/2010
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 05/03/2010
Next Scheduled EDR Contact: 08/16/2010
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 04/24/2010
Date Data Arrived at EDR: 04/29/2010
Date Made Active in Reports: 05/17/2010
Number of Days to Update: 18

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 03/29/2010
Next Scheduled EDR Contact: 07/12/2010
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 09/01/2009
Date Data Arrived at EDR: 10/21/2009
Date Made Active in Reports: 12/01/2009
Number of Days to Update: 41

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 04/22/2010
Next Scheduled EDR Contact: 08/02/2010
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 03/18/2010
Date Data Arrived at EDR: 04/06/2010
Date Made Active in Reports: 05/27/2010
Number of Days to Update: 51

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 03/15/2010
Next Scheduled EDR Contact: 06/28/2010
Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 04/13/2010
Date Data Arrived at EDR: 04/14/2010
Date Made Active in Reports: 05/17/2010
Number of Days to Update: 33

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 04/14/2010
Next Scheduled EDR Contact: 07/26/2010
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 04/14/2010
Date Data Arrived at EDR: 04/16/2010
Date Made Active in Reports: 05/27/2010
Number of Days to Update: 41

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 03/15/2010
Next Scheduled EDR Contact: 06/28/2010
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2007
Date Data Arrived at EDR: 02/25/2010
Date Made Active in Reports: 05/12/2010
Number of Days to Update: 76

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 05/25/2010
Next Scheduled EDR Contact: 09/06/2010
Data Release Frequency: Biennially

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6

Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CA WDS: Waste Discharge System

Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9

Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 06/01/2010
Next Scheduled EDR Contact: 09/13/2010
Data Release Frequency: Quarterly

NPDES: NPDES Permits Listing

A listing of NPDES permits, including stormwater.

Date of Government Version: 02/22/2010
Date Data Arrived at EDR: 02/24/2010
Date Made Active in Reports: 03/04/2010
Number of Days to Update: 8

Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 05/25/2010
Next Scheduled EDR Contact: 09/06/2010
Data Release Frequency: Quarterly

CORTESE: "Cortese" Hazardous Waste & Substances Sites List

The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites). This listing is no longer updated by the state agency.

Date of Government Version: 04/05/2010
Date Data Arrived at EDR: 04/07/2010
Date Made Active in Reports: 05/18/2010
Number of Days to Update: 41

Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 04/07/2010
Next Scheduled EDR Contact: 07/19/2010
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES].

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

NOTIFY 65: Proposition 65 Records

Proposition 65 Notification Records. NOTIFY 65 contains facility notifications about any release which could impact drinking water and thereby expose the public to a potential health risk.

Date of Government Version: 10/21/1993
Date Data Arrived at EDR: 11/01/1993
Date Made Active in Reports: 11/19/1993
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 03/29/2010
Next Scheduled EDR Contact: 07/12/2010
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

DRYCLEANERS: Cleaner Facilities

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 12/22/2009
Date Data Arrived at EDR: 01/25/2010
Date Made Active in Reports: 01/29/2010
Number of Days to Update: 4

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 03/15/2010
Next Scheduled EDR Contact: 06/28/2010
Data Release Frequency: Annually

WIP: Well Investigation Program Case List

Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13

Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 04/14/2010
Next Scheduled EDR Contact: 07/19/2010
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method.

Date of Government Version: 12/31/2008
Date Data Arrived at EDR: 10/21/2009
Date Made Active in Reports: 10/28/2009
Number of Days to Update: 7

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 04/26/2010
Next Scheduled EDR Contact: 08/02/2010
Data Release Frequency: Annually

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2007
Date Data Arrived at EDR: 07/14/2009
Date Made Active in Reports: 07/23/2009
Number of Days to Update: 9

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 04/09/2010
Next Scheduled EDR Contact: 07/12/2010
Data Release Frequency: Varies

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 04/21/2010
Next Scheduled EDR Contact: 08/02/2010
Data Release Frequency: Semi-Annually

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 02/10/2010
Date Data Arrived at EDR: 02/11/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 60

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 05/10/2010
Next Scheduled EDR Contact: 08/09/2010
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

PROC: Certified Processors Database
A listing of certified processors.

Date of Government Version: 01/06/2010
Date Data Arrived at EDR: 03/24/2010
Date Made Active in Reports: 04/09/2010
Number of Days to Update: 16

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 03/24/2010
Next Scheduled EDR Contact: 07/05/2010
Data Release Frequency: Quarterly

MWMP: Medical Waste Management Program Listing
The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 02/24/2010
Date Data Arrived at EDR: 03/17/2010
Date Made Active in Reports: 04/09/2010
Number of Days to Update: 23

Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 03/15/2010
Next Scheduled EDR Contact: 06/28/2010
Data Release Frequency: Varies

COAL ASH DOE: Sleam-Electric Plan Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 04/21/2010
Next Scheduled EDR Contact: 08/02/2010
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 11/09/2009
Date Data Arrived at EDR: 12/18/2009
Date Made Active in Reports: 02/10/2010
Number of Days to Update: 54

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 03/16/2010
Next Scheduled EDR Contact: 06/28/2010
Data Release Frequency: Varies

HWT: Registered Hazardous Waste Transporter Database
A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 04/21/2010
Date Data Arrived at EDR: 04/21/2010
Date Made Active in Reports: 05/18/2010
Number of Days to Update: 27

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 04/21/2010
Next Scheduled EDR Contact: 08/02/2010
Data Release Frequency: Quarterly

HWP: EnviroStor Permitted Facilities Listing
Detailed information on permitted hazardous waste facilities and corrective action (a??cleanupsa??) tracked in EnviroStor.

Date of Government Version: 05/11/2010
Date Data Arrived at EDR: 05/12/2010
Date Made Active in Reports: 05/18/2010
Number of Days to Update: 6

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 05/12/2010
Next Scheduled EDR Contact: 08/23/2010
Data Release Frequency: Quarterly

FINANCIAL ASSURANCE 2: Financial Assurance Information Listing
A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 03/09/2010
Date Data Arrived at EDR: 03/10/2010
Date Made Active in Reports: 04/09/2010
Number of Days to Update: 30

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 05/24/2010
Next Scheduled EDR Contact: 09/06/2010
Data Release Frequency: Varies

FINANCIAL ASSURANCE: Financial Assurance Information Listing
Financial Assurance information

Date of Government Version: 03/01/2007
Date Data Arrived at EDR: 06/01/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 28

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 05/05/2010
Next Scheduled EDR Contact: 08/16/2010
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands
Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 04/21/2010
Next Scheduled EDR Contact: 08/02/2010
Data Release Frequency: N/A

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 01/01/2008
Date Data Arrived at EDR: 02/18/2009
Date Made Active in Reports: 05/29/2009
Number of Days to Update: 100

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 05/14/2010
Next Scheduled EDR Contact: 08/16/2010
Data Release Frequency: Varies

EDR PROPRIETARY RECORDS

EDR Proprietary Records

Manufactured Gas Plants: EDR Proprietary Manufactured Gas Plants
The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

EDR Historical Auto Stations: EDR Proprietary Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Historical Cleaners: EDR Proprietary Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 04/12/2010
Date Data Arrived at EDR: 04/14/2010
Date Made Active in Reports: 05/18/2010
Number of Days to Update: 34

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 04/05/2010
Next Scheduled EDR Contact: 07/19/2010
Data Release Frequency: Semi-Annually

Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 04/12/2010
Date Data Arrived at EDR: 04/14/2010
Date Made Active in Reports: 05/18/2010
Number of Days to Update: 34

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 04/05/2010
Next Scheduled EDR Contact: 07/19/2010
Data Release Frequency: Semi-Annually

CONTRA COSTA COUNTY:

Site List

List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 02/10/2010
Date Data Arrived at EDR: 02/11/2010
Date Made Active in Reports: 02/18/2010
Number of Days to Update: 7

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 05/24/2010
Next Scheduled EDR Contact: 08/23/2010
Data Release Frequency: Semi-Annually

FRESNO COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA Resources List

Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 04/15/2010
Date Data Arrived at EDR: 04/16/2010
Date Made Active in Reports: 05/18/2010
Number of Days to Update: 32

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 04/16/2010
Next Scheduled EDR Contact: 08/02/2010
Data Release Frequency: Semi-Annually

KERN COUNTY:

Underground Storage Tank Sites & Tank Listing

Kern County Sites and Tanks Listing.

Date of Government Version: 03/16/2010
Date Data Arrived at EDR: 03/17/2010
Date Made Active in Reports: 04/14/2010
Number of Days to Update: 28

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 05/17/2010
Next Scheduled EDR Contact: 08/30/2010
Data Release Frequency: Quarterly

LOS ANGELES COUNTY:

San Gabriel Valley Areas of Concern

San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: EPA Region 9
Telephone: 415-972-3178
Last EDR Contact: 03/29/2010
Next Scheduled EDR Contact: 07/12/2010
Data Release Frequency: No Update Planned

HMS: Street Number List

Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 04/13/2010
Date Made Active in Reports: 05/18/2010
Number of Days to Update: 35

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 04/19/2010
Next Scheduled EDR Contact: 08/02/2010
Data Release Frequency: Semi-Annually

List of Solid Waste Facilities

Solid Waste Facilities in Los Angeles County.

Date of Government Version: 04/23/2010
Date Data Arrived at EDR: 04/26/2010
Date Made Active in Reports: 05/18/2010
Number of Days to Update: 22

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 04/23/2010
Next Scheduled EDR Contact: 08/09/2010
Data Release Frequency: Varies

City of Los Angeles Landfills

Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 03/05/2009
Date Data Arrived at EDR: 03/10/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 29

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 05/27/2010
Next Scheduled EDR Contact: 09/06/2010
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Site Mitigation List
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 02/09/2010
Date Data Arrived at EDR: 02/12/2010
Date Made Active in Reports: 03/04/2010
Number of Days to Update: 20

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 04/22/2010
Next Scheduled EDR Contact: 08/09/2010
Data Release Frequency: Annually

City of El Segundo Underground Storage Tank
Underground storage tank sites located in El Segundo city.

Date of Government Version: 04/28/2010
Date Data Arrived at EDR: 04/29/2010
Date Made Active in Reports: 05/18/2010
Number of Days to Update: 19

Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 04/23/2010
Next Scheduled EDR Contact: 08/09/2010
Data Release Frequency: Semi-Annually

City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 03/28/2003
Date Data Arrived at EDR: 10/23/2003
Date Made Active in Reports: 11/26/2003
Number of Days to Update: 34

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 05/03/2010
Next Scheduled EDR Contact: 08/16/2010
Data Release Frequency: Annually

City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 04/19/2010
Date Data Arrived at EDR: 04/21/2010
Date Made Active in Reports: 05/18/2010
Number of Days to Update: 27

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 04/19/2010
Next Scheduled EDR Contact: 08/02/2010
Data Release Frequency: Semi-Annually

MARIN COUNTY:

Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 04/19/2010
Date Data Arrived at EDR: 04/30/2010
Date Made Active in Reports: 05/18/2010
Number of Days to Update: 18

Source: Public Works Department Waste Management
Telephone: 415-499-6647
Last EDR Contact: 04/12/2010
Next Scheduled EDR Contact: 07/26/2010
Data Release Frequency: Semi-Annually

NAPA COUNTY:

Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 07/09/2008
Date Data Arrived at EDR: 07/09/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 22

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 03/08/2010
Next Scheduled EDR Contact: 06/21/2010
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 01/15/2008
Date Data Arrived at EDR: 01/16/2008
Date Made Active in Reports: 02/08/2008
Number of Days to Update: 23

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 03/08/2010
Next Scheduled EDR Contact: 06/21/2010
Data Release Frequency: No Update Planned

ORANGE COUNTY:

List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 12/02/2009
Date Data Arrived at EDR: 02/16/2010
Date Made Active in Reports: 03/04/2010
Number of Days to Update: 16

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 05/18/2010
Next Scheduled EDR Contact: 08/30/2010
Data Release Frequency: Annually

List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 02/03/2010
Date Data Arrived at EDR: 02/16/2010
Date Made Active in Reports: 03/04/2010
Number of Days to Update: 16

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 05/18/2010
Next Scheduled EDR Contact: 08/30/2010
Data Release Frequency: Quarterly

List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 02/03/2010
Date Data Arrived at EDR: 02/12/2010
Date Made Active in Reports: 02/23/2010
Number of Days to Update: 11

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 05/28/2010
Next Scheduled EDR Contact: 08/30/2010
Data Release Frequency: Quarterly

PLACER COUNTY:

Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 03/16/2010
Date Data Arrived at EDR: 03/17/2010
Date Made Active in Reports: 04/09/2010
Number of Days to Update: 23

Source: Placer County Health and Human Services
Telephone: 530-889-7312
Last EDR Contact: 03/15/2010
Next Scheduled EDR Contact: 06/28/2010
Data Release Frequency: Semi-Annually

RIVERSIDE COUNTY:

Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 04/19/2010
Date Data Arrived at EDR: 04/19/2010
Date Made Active in Reports: 05/18/2010
Number of Days to Update: 29

Source: Department of Public Health
Telephone: 951-358-5055
Last EDR Contact: 03/29/2010
Next Scheduled EDR Contact: 07/12/2010
Data Release Frequency: Quarterly

Underground Storage Tank Tank List

Underground storage tank sites located in Riverside county.

Date of Government Version: 04/19/2010
Date Data Arrived at EDR: 04/19/2010
Date Made Active in Reports: 05/18/2010
Number of Days to Update: 29

Source: Health Services Agency
Telephone: 951-358-5055
Last EDR Contact: 03/29/2010
Next Scheduled EDR Contact: 07/12/2010
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

Toxic Site Clean-Up List

List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 04/01/2010
Date Data Arrived at EDR: 04/15/2010
Date Made Active in Reports: 05/18/2010
Number of Days to Update: 33

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 04/12/2010
Next Scheduled EDR Contact: 07/26/2010
Data Release Frequency: Quarterly

Master Hazardous Materials Facility List

Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 03/03/2010
Date Data Arrived at EDR: 04/16/2010
Date Made Active in Reports: 05/18/2010
Number of Days to Update: 32

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 04/12/2010
Next Scheduled EDR Contact: 07/26/2010
Data Release Frequency: Quarterly

SAN BERNARDINO COUNTY:

Hazardous Material Permits

This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 03/16/2010
Date Data Arrived at EDR: 03/17/2010
Date Made Active in Reports: 04/09/2010
Number of Days to Update: 23

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 05/17/2010
Next Scheduled EDR Contact: 08/30/2010
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 07/16/2008
Date Data Arrived at EDR: 10/29/2008
Date Made Active in Reports: 11/26/2008
Number of Days to Update: 28

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 03/31/2010
Next Scheduled EDR Contact: 06/28/2010
Data Release Frequency: Quarterly

Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 10/01/2009
Date Data Arrived at EDR: 12/04/2009
Date Made Active in Reports: 01/18/2010
Number of Days to Update: 45

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 05/03/2010
Next Scheduled EDR Contact: 08/16/2010
Data Release Frequency: Varies

Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 09/23/2009
Date Data Arrived at EDR: 12/15/2009
Date Made Active in Reports: 01/18/2010
Number of Days to Update: 34

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 03/16/2010
Next Scheduled EDR Contact: 06/28/2010
Data Release Frequency: Varies

SAN FRANCISCO COUNTY:

Local Oversite Facilities

A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 05/17/2010
Next Scheduled EDR Contact: 08/30/2010
Data Release Frequency: Quarterly

Underground Storage Tank Information

Underground storage tank sites located in San Francisco county.

Date of Government Version: 03/26/2010
Date Data Arrived at EDR: 04/30/2010
Date Made Active in Reports: 05/10/2010
Number of Days to Update: 10

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 05/17/2010
Next Scheduled EDR Contact: 08/30/2010
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

San Joaquin Co. UST

A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 10/14/2009
Date Data Arrived at EDR: 10/15/2009
Date Made Active in Reports: 11/02/2009
Number of Days to Update: 18

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 03/29/2010
Next Scheduled EDR Contact: 07/12/2010
Data Release Frequency: Semi-Annually

SAN MATEO COUNTY:

Business Inventory

List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 04/20/2010
Date Data Arrived at EDR: 04/21/2010
Date Made Active in Reports: 05/18/2010
Number of Days to Update: 27

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 03/22/2010
Next Scheduled EDR Contact: 07/05/2010
Data Release Frequency: Annually

Fuel Leak List

A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 03/22/2010
Date Data Arrived at EDR: 03/23/2010
Date Made Active in Reports: 04/09/2010
Number of Days to Update: 17

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 03/22/2010
Next Scheduled EDR Contact: 07/05/2010
Data Release Frequency: Semi-Annually

SANTA CLARA COUNTY:

HIST LUST - Fuel Leak Site Activity Report

A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LOP Listing

A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 05/29/2009
Date Data Arrived at EDR: 06/01/2009
Date Made Active in Reports: 06/15/2009
Number of Days to Update: 14

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 03/08/2010
Next Scheduled EDR Contact: 06/21/2010
Data Release Frequency: Annually

Hazardous Material Facilities

Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 08/31/2009
Date Data Arrived at EDR: 08/31/2009
Date Made Active in Reports: 09/18/2009
Number of Days to Update: 18

Source: City of San Jose Fire Department
Telephone: 408-277-4659
Last EDR Contact: 06/01/2010
Next Scheduled EDR Contact: 08/30/2010
Data Release Frequency: Annually

SOLANO COUNTY:

Leaking Underground Storage Tanks

A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 03/11/2010
Date Data Arrived at EDR: 03/16/2010
Date Made Active in Reports: 04/09/2010
Number of Days to Update: 24

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 03/08/2010
Next Scheduled EDR Contact: 06/21/2010
Data Release Frequency: Quarterly

Underground Storage Tanks

Underground storage tank sites located in Solano county.

Date of Government Version: 03/11/2010
Date Data Arrived at EDR: 03/16/2010
Date Made Active in Reports: 04/14/2010
Number of Days to Update: 29

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 03/08/2010
Next Scheduled EDR Contact: 06/21/2010
Data Release Frequency: Quarterly

SONOMA COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 04/06/2010
Date Data Arrived at EDR: 04/07/2010
Date Made Active in Reports: 05/18/2010
Number of Days to Update: 41

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 04/05/2010
Next Scheduled EDR Contact: 07/19/2010
Data Release Frequency: Quarterly

SUTTER COUNTY:

Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 04/01/2009
Date Data Arrived at EDR: 04/02/2009
Date Made Active in Reports: 04/09/2009
Number of Days to Update: 7

Source: Sutter County Department of Agriculture
Telephone: 530-822-7500
Last EDR Contact: 04/13/2010
Next Scheduled EDR Contact: 06/28/2010
Data Release Frequency: Semi-Annually

VENTURA COUNTY:

Business Plan, Hazardous Waste Producers, and Operating Underground Tanks
The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 01/26/2010
Date Data Arrived at EDR: 02/25/2010
Date Made Active in Reports: 03/04/2010
Number of Days to Update: 7

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 02/23/2010
Next Scheduled EDR Contact: 09/06/2010
Data Release Frequency: Quarterly

Inventory of Illegal Abandoned and Inactive Sites
Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 08/01/2009
Date Data Arrived at EDR: 10/05/2009
Date Made Active in Reports: 10/13/2009
Number of Days to Update: 8

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 05/03/2010
Next Scheduled EDR Contact: 08/16/2010
Data Release Frequency: Annually

Listing of Underground Tank Cleanup Sites
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 05/24/2010
Next Scheduled EDR Contact: 09/06/2010
Data Release Frequency: Quarterly

Underground Tank Closed Sites List
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 03/05/2010
Date Data Arrived at EDR: 03/24/2010
Date Made Active in Reports: 04/14/2010
Number of Days to Update: 21

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 03/24/2010
Next Scheduled EDR Contact: 07/05/2010
Data Release Frequency: Quarterly

YOLO COUNTY:

Underground Storage Tank Comprehensive Facility Report
Underground storage tank sites located in Yolo county.

Date of Government Version: 04/07/2010
Date Data Arrived at EDR: 04/13/2010
Date Made Active in Reports: 05/18/2010
Number of Days to Update: 35

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 03/29/2010
Next Scheduled EDR Contact: 07/12/2010
Data Release Frequency: Annually

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 12/31/2007
Date Data Arrived at EDR: 08/26/2009
Date Made Active in Reports: 09/11/2009
Number of Days to Update: 16

Source: Department of Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 03/02/2010
Next Scheduled EDR Contact: 06/07/2010
Data Release Frequency: Annually

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 01/20/2010
Date Made Active in Reports: 02/05/2010
Number of Days to Update: 16

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 04/23/2010
Next Scheduled EDR Contact: 08/02/2010
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 01/04/2010
Date Data Arrived at EDR: 02/11/2010
Date Made Active in Reports: 03/17/2010
Number of Days to Update: 34

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 05/13/2010
Next Scheduled EDR Contact: 08/23/2010
Data Release Frequency: Annually

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2008
Date Data Arrived at EDR: 12/01/2009
Date Made Active in Reports: 12/14/2009
Number of Days to Update: 13

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 05/24/2010
Next Scheduled EDR Contact: 09/06/2010
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 11/03/2009
Date Data Arrived at EDR: 02/12/2010
Date Made Active in Reports: 02/22/2010
Number of Days to Update: 10

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 03/01/2010
Next Scheduled EDR Contact: 06/14/2010
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2008
Date Data Arrived at EDR: 07/17/2009
Date Made Active in Reports: 08/10/2009
Number of Days to Update: 24

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 03/22/2010
Next Scheduled EDR Contact: 07/05/2010
Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data
Source: PennWell Corporation
Telephone: (800) 823-6277
This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2009 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

YERBA BUENA ISLAND OFFRAMPS
GATE ROAD/4TH STREET
SAN FRANCISCO, CA 94130

TARGET PROPERTY COORDINATES

Latitude (North):	37.81210 - 37° 48' 43.6"
Longitude (West):	122.3625 - 122° 21' 45.0"
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	556115.0
UTM Y (Meters):	4184953.8
Elevation:	34 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	37122-G3 OAKLAND WEST, CA
Most Recent Revision:	1980
West Map:	37122-G4 SAN FRANCISCO NORTH, CA
Most Recent Revision:	1999

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

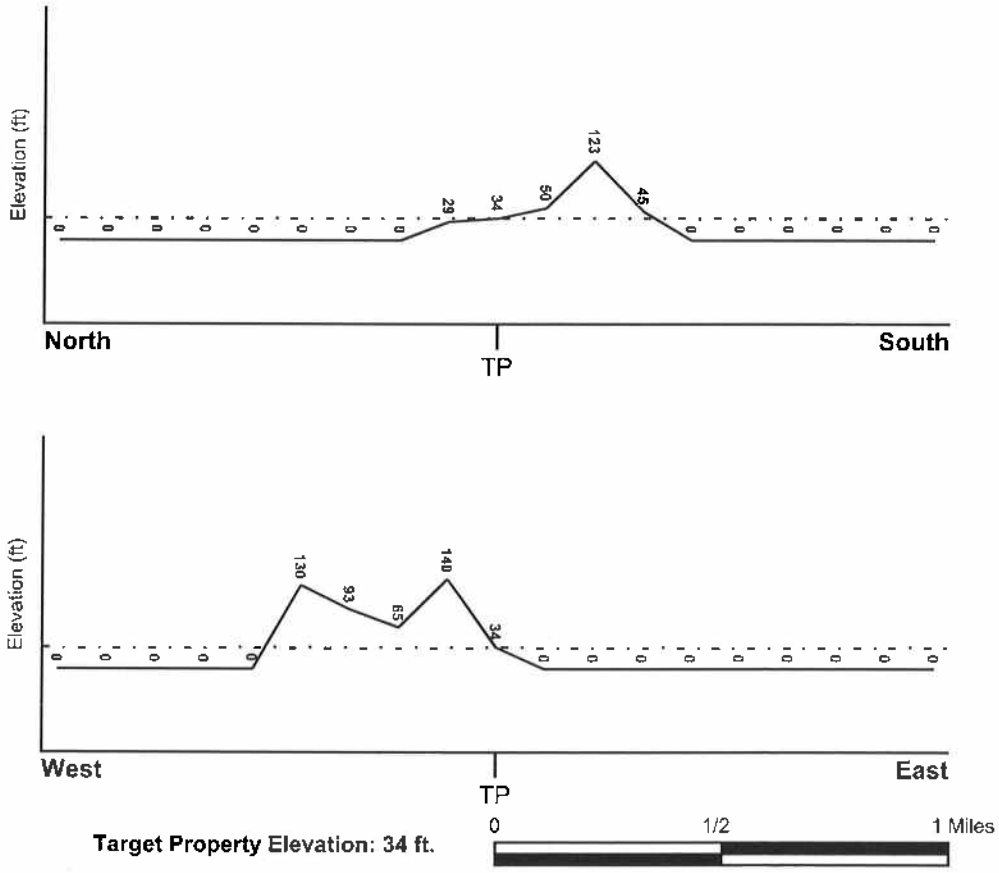
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General NNE

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Target Property Elevation: 34 ft.

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
SAN FRANCISCO, CA	Not Available

Flood Plain Panel at Target Property: Not Reported

Additional Panels in search area: 06001C - FEMA DFIRM Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
OAKLAND WEST	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Location Relative to TP:	1/2 - 1 Mile NW
Site Name:	Treasure Isl Naval Station
Site EPA ID Number:	CA7170023330
Groundwater Flow Direction:	INTO SAN FRANCISCO BAY.
Measured Depth to Water:	3 feet to 6 feet.
Hydraulic Connection:	Information is not available about the hydraulic connection between aquifer(s) underlying the site.
Sole Source Aquifer:	No information about a sole source aquifer is available
Data Quality:	Information based on site-specific subsurface investigations is documented in the CERCLIS investigation report(s)

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

* ©1996 Site-specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

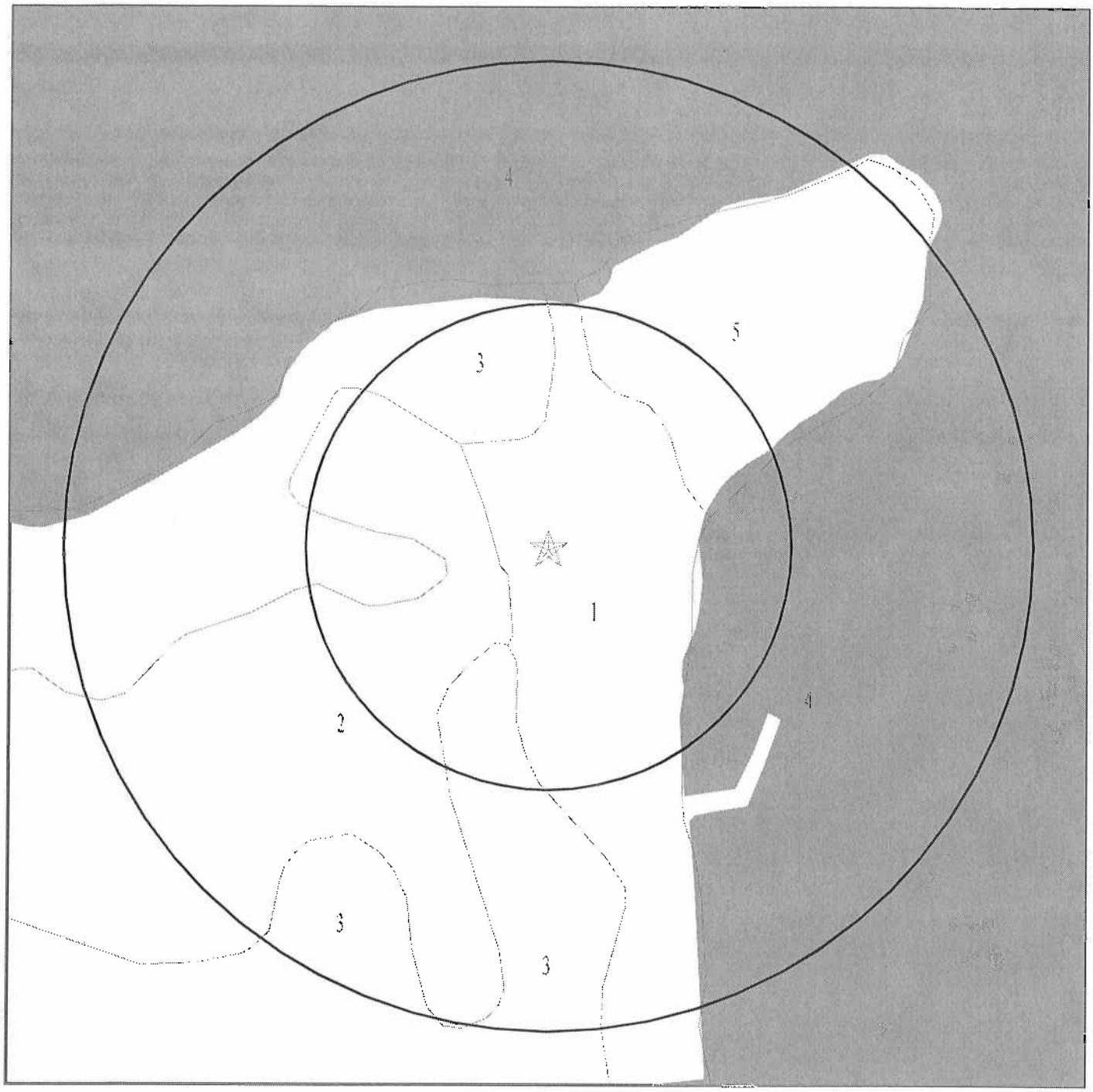
Era:	Mesozoic
System:	Cretaceous
Series:	Upper Mesozoic
Code:	uMze*(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Eugeosynclinal Deposits

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 2781761.2s



Target Property
SSURGO Soil
Water

SITE NAME: Yerba Buena Island Offramps ADDRESS: Gate Road/4th Street San Francisco CA 94130 LAT/LONG: 37.8121 / 122.3625	CLIENT: AECOM CONTACT: Robert Olsen INQUIRY #: 2781761.2s DATE: June 01, 2010 12:54 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: Urban land

Soil Surface Texture:
Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class:
Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	5 inches		Not reported	Not reported	Max: 0.01 Min: 0	Max: Min:

Soil Map ID: 2

Soil Component Name: Orthents

Soil Surface Texture:
Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	59 inches		Not reported	Not reported	Max: Min:	Max: Min:

Soil Map ID: 3

Soil Component Name: Candlestick

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 36 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	1 inches	fine sandy loam	Not reported	Not reported	Max: Min:	Max: Min:
2	1 inches	20 inches	loam	Not reported	Not reported	Max: Min:	Max: Min:
3	20 inches	24 inches	sandy clay loam	Not reported	Not reported	Max: Min:	Max: Min:
4	24 inches	27 inches		Not reported	Not reported	Max: Min:	Max: Min:

Soil Map ID: 4

Soil Component Name: Water

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class:

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

No Layer Information available.

Soil Map ID: 5

Soil Component Name: Urban land

Soil Surface Texture:
Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class:
Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	5 inches		Not reported	Not reported	Max: 0.01 Min: 0	Max: Min:

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

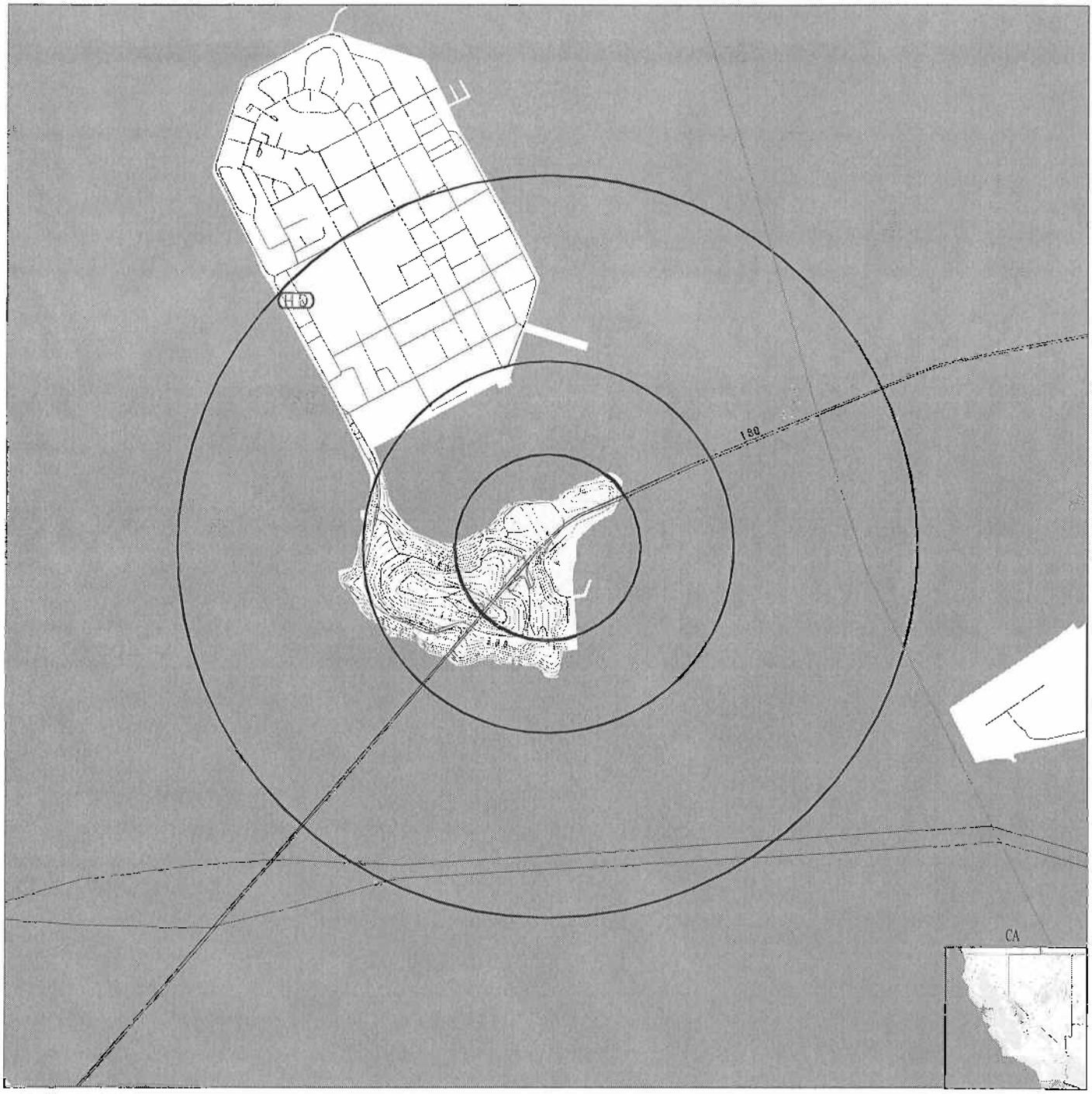
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

PHYSICAL SETTING SOURCE MAP - 2781761.2s



County Boundary
Major Roads
Contour Lines
Earthquake Fault Lines
Earthquake epicenter, Richter 5 or greater
Water Wells
Public Water Supply Wells
Cluster of Multiple Icons

0 1/4 1/2 1 Miles

Groundwater Flow Direction
Indeterminate Groundwater Flow at Location
Groundwater Flow Varies at Location
Closest Hydrogeological Data
Oil, gas or related wells

N

SITE NAME: Yerba Buena Island Offramps ADDRESS: Gate Road/4th Street San Francisco CA 94130 LAT/LONG: 37.8121 / 122.3625	CLIENT: AECOM CONTACT: Robert Olsen INQUIRY #: 2781761.2s DATE: June 01, 2010 12:54 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

Federal EPA Radon Zone for SAN FRANCISCO County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for SAN FRANCISCO COUNTY, CA

Number of sites tested: 14

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.636 pCi/L	100%	0%	0%
Living Area - 2nd Floor	0.500 pCi/L	100%	0%	0%
Basement	0.360 pCi/L	100%	0%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2009 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW[R] Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Health Services
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

OTHER STATE DATABASE INFORMATION

California Oil and Gas Well Locations
Source: Department of Conservation
Telephone: 916-323-1779
Oil and Gas well locations in the state.

RADON

State Database: CA Radon
Source: Department of Health Services
Telephone: 916-324-2208
Radon Database for California

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

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YERBA BUENA ISLAND STATION FLOAT
YERBA BUENA ISLAND STATION FLOATING DOCKS
SAN FRANCISCO, CA 94130

Inquiry Number:
June 4, 2010

EDR Site Report™

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
Toll Free: 800.352.0050
www.edrnet.com

TABLE OF CONTENTS

The EDR-Site Report™ is a comprehensive presentation of government filings on a facility identified in a search of federal, state and local environmental databases. The report is divided into three sections:

Section 1: Facility Summary . . . . . **Page 3**

Summary of facility filings including a review of the following areas: waste management, waste disposal, multi-media issues, and Superfund liability.

Section 2: Facility Detail Reports . . . . . **Page 4**

All available detailed information from databases where sites are identified.

Section 3: Databases and Update Information . . . . . **Page 5**

Name, source, update dates, contact phone number and description of each of the databases for this report.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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SECTION 1: FACILITY SUMMARY

FACILITY AREA	FACILITY 1 **YERBA BUENA ISLAND STATION FLOATING DOCKS** YERBA BUENA ISLAND STATION FLOATING DOCKS SAN FRANCISCO, CA 94130 EDR ID #96492266
WASTE MANAGEMENT Facility generates hazardous waste (RCRA)	NO
Facility treats, stores, or disposes of hazardous waste on-site (RCRA/TSDF)	NO
Facility has received Notices of Violations (RCRA/VIOL)	NO
Facility has been subject to RCRA administrative actions (RAATS)	NO
Facility has been subject to corrective actions (CORRACTS)	NO
Facility handles PCBs (PADS)	NO
Facility uses radioactive materials (MLTS)	NO
Facility manages registered aboveground storage tanks (AST)	NO
Facility manages registered underground storage tanks (UST)	NO
Facility has reported leaking underground storage tank incidents (LUST)	NO
Facility has reported emergency releases to the soil (ERNS)	**YES - p4**
Facility has reported hazardous material incidents to DOT (HMIRS)	NO
WASTE DISPOSAL Facility is a Superfund Site (NPL)	NO
Facility has a known or suspect abandoned, inactive or uncontrolled hazardous waste site (CERCLIS)	NO
Facility has a reported Superfund Lien on it (LIENS)	NO
Facility is listed as a state hazardous waste site (SHWS)	NO
Facility has disposed of solid waste on-site (SWF/LF)	NO
MULTIMEDIA Facility uses toxic chemicals and has notified EPA under SARA Title III, Section 313 (TRIS)	NO
Facility produces pesticides and has notified EPA under Section 7 of FIFRA (SSTS)	NO
Facility manufactures or imports toxic chemicals on the TSCA list (TSCA)	NO
Facility has inspections under FIFRA, TSCA or EPCRA (FTTS)	NO
Facility is listed in EPA's index system (FINDS)	NO
Facility is listed in a county/local unique database (LOCAL)	NO
POTENTIAL SUPERFUND LIABILITY Facility has a list of potentially responsible parties PRP	NO
TOTAL (YES)	1

SECTION 2: FACILITY DETAIL REPORTS

WASTE MANAGEMENT

Facility has reported emergency releases to the soil

DATABASE: Emergency Response Notification System (ERNS)

YERBA BUENA ISLAND STATION FLOATING DOCKS
YERBA BUENA ISLAND STATION FLOATING DOCKS
SAN FRANCISCO, CA 94130
EDR ID #96492266

ERNS:

Site ID:	96492266
Source:	Not reported
Site location:	YERBA BUENA ISLAND STATION FLOATING DOCKS SAN FRANCISCO, CA 94130
County:	SAN FRANCISCO
Report number:	343239
Report date:	05/22/1996
Report time:	13:29
Spill date:	05/22/1996
Spill time:	10:00
Spiller:	True
Confidential:	False
Medium affected:	Water
Dist. from city:	Not reported
Heading:	Not reported
Field ID:	Not reported
Block ID:	Not reported
Vehicle ID:	Not reported
Mile post:	Not reported
Transport mode:	FIXED
Damage:	False
Damage $ amount:	0.
Evacuation:	False
Number of injured:	Not reported
Number of fatalities:	Not reported
Notes:	SAN FRANCISCO BAY
Agency notified:	USCG
Notified by caller:	NONE
Other agency:	Not reported
EPA time:	:
Other time:	:
C.G. unit:	SFCMS
C.G. time:	13:37
Duty officer:	AMG
Jurisdiction:	Not reported
Reportable:	Not reported
Cause:	Not reported
Tank capacity:	Not reported
Facility capacity:	Not reported
Cont rel. type:	Not reported
Comments:	THE MATERIAL HAS BEEN CONTAINED AND IS BEING CLEANED UP / WILL REPAIR THE LINE
Comments:	2 INCH OILY-WATER SEPARATOR LINE / THE LINE LEAKED DUE TO UNKNOWN CAUSES (PROBABLY DUE TO CONSTRUCTION)
Comments:	YERBA BUENA ISLAND STATION FLOATING DOCKS
Comments:	SHEEN SIZE: 5FT X 2FT, BLACK IN COLOR / CALLER HAD NO OTHER INFORMATION

SECTION 3: DATABASES AND UPDATE DATES

To maintain currency of the following federal, state and local databases, EDR contacts the appropriate government agency on a monthly or quarterly basis as required.

Elapsed ASTM days: Provides confirmation that this report meets or exceeds the 90-day updating requirement of the ASTM standard.

DATABASES FOUND IN THIS REPORT

ERNS: Emergency Response Notification System
Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/2009
Database Release Frequency: Annually

Date of Last EDR Contact: 04/07/2010
Date of Next Scheduled Update: 07/19/2010

YERBA BUENA ISLAND GROUP SAN FRA
YERBA BUENA ISLAND GROUP SAN FRANCISCO
SAN FRANCISCO, CA

Inquiry Number:
June 4, 2010

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All available detailed information from databases where sites are identified.

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Name, source, update dates, contact phone number and description of each of the databases for this report.

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with any questions or comments.

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SECTION 1: FACILITY SUMMARY

FACILITY AREA	FACILITY 1 **YERBA BUENA ISLAND GROUP SAN FRANCISCO** YERBA BUENA ISLAND GROUP SAN FRANCISCO SAN FRANCISCO, CA EDR ID #96508190
WASTE MANAGEMENT Facility generates hazardous waste (RCRA)	NO
Facility treats, stores, or disposes of hazardous waste on-site (RCRA/TSDF)	NO
Facility has received Notices of Violations (RCRA/VIOL)	NO
Facility has been subject to RCRA administrative actions (RAATS)	NO
Facility has been subject to corrective actions (CORRACTS)	NO
Facility handles PCBs (PADS)	NO
Facility uses radioactive materials (MLTS)	NO
Facility manages registered aboveground storage tanks (AST)	NO
Facility manages registered underground storage tanks (UST)	NO
Facility has reported leaking underground storage tank incidents (LUST)	NO
Facility has reported emergency releases to the soil (ERNS)	**YES - p4**
Facility has reported hazardous material incidents to DOT (HMIRS)	NO
WASTE DISPOSAL Facility is a Superfund Site (NPL)	NO
Facility has a known or suspect abandoned, inactive or uncontrolled hazardous waste site (CERCLIS)	NO
Facility has a reported Superfund Lien on it (LIENS)	NO
Facility is listed as a state hazardous waste site (SHWS)	NO
Facility has disposed of solid waste on-site (SWF/LF)	NO
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Facility produces pesticides and has notified EPA under Section 7 of FIFRA (SSTS)	NO
Facility manufactures or imports toxic chemicals on the TSCA list (TSCA)	NO
Facility has inspections under FIFRA, TSCA or EPCRA (FTTS)	NO
Facility is listed in EPA's index system (FINDS)	NO
Facility is listed in a county/local unique database (LOCAL)	NO
POTENTIAL SUPERFUND LIABILITY Facility has a list of potentially responsible parties PRP	NO
TOTAL (YES)	1

SECTION 2: FACILITY DETAIL REPORTS

WASTE MANAGEMENT

Facility has reported emergency releases to the soil

DATABASE: Emergency Response Notification System (ERNS)

YERBA BUENA ISLAND GROUP SAN FRANCISCO
YERBA BUENA ISLAND GROUP SAN FRANCISCO
SAN FRANCISCO, CA
EDR ID #96508190

ERNS:

Site ID:	96508190
Source:	Not reported
Site location:	YERBA BUENA ISLAND GROUP SAN FRANCISCO SAN FRANCISCO, CA
County:	SAN FRANCISCO
Report number:	361642
Report date:	09/19/1996
Report time:	11:42
Spill date:	09/19/1996
Spill time:	:30
Spiller:	True
Confidential:	False
Medium affected:	Water
Dist. from city:	Not reported
Heading:	Not reported
Field ID:	Not reported
Block ID:	Not reported
Vehicle ID:	Not reported
Mile post:	Not reported
Transport mode:	MARINE
Damage:	False
Damage $ amount:	0.
Evacuation:	False
Number of injured:	Not reported
Number of fatalities:	Not reported
Notes:	SAN FRANCISCO BAY
Agency notified:	Not reported
Notified by caller:	NONE
Other agency:	Not reported
EPA time:	:
Other time:	:
C.G. unit:	SFCMS
C.G. time:	12:06
Duty officer:	SMM
Jurisdiction:	Not reported
Reportable:	Not reported
Cause:	Not reported
Tank capacity:	Not reported
Facility capacity:	Not reported
Cont rel. type:	Not reported
Comments:	SECURED / SHEEN DISSIPATED / ABSORBENTS BEING USED ON DECK
Comments:	USCGC BUTTONWOOD / 2IN FUEL HOSE RELEASE RESIDUE DURING DISCONNECT AFTER FUELING OPERATIONS
Comments:	YERBA BUENA ISLAND GROUP SAN FRANCISCO
Comments:	WILL NOTIFY: MSO SAN FRANCISCO

Site ID:	96508190
Source:	Not reported
Site location:	YERBA BUENA ISLAND GROUP SAN FRANCISCO SAN FRANCISCO, CA
County:	SAN FRANCISCO
Report number:	361642
Report date:	09/19/1996
Report time:	11:42
Spill date:	09/19/1996
Spill time:	:30
Spiller:	True
Confidential:	False
Medium affected:	Water
Dist. from city:	Not reported
Heading:	Not reported
Field ID:	Not reported
Block ID:	Not reported
Vehicle ID:	Not reported
Mile post:	Not reported
Transport mode:	MARINE
Damage:	False
Damage $ amount:	0.
Evacuation:	False

SECTION 2: FACILITY DETAIL REPORTS

...Continued...

Number of injured:	Not reported
Number of fatalities:	Not reported
Notes:	SAN FRANCISCO BAY
Agency notified:	Not reported
Notified by caller:	NONE
Other agency:	Not reported
EPA time:	:
Other time:	:
C.G. unit:	SFCMS
C.G. time:	12:06
Duty officer:	SMM
Jurisdiction:	Not reported
Reportable:	Not reported
Cause:	Not reported
Tank capacity:	Not reported
Facility capacity:	Not reported
Cont rel. type:	Not reported
Comments:	SECURED / SHEEN DISSIPATED / ABSORBENTS BEING USED ON DECK
Comments:	USCGC BUTTONWOOD / 2IN FUEL HOSE RELEASE RESIDUE DURING DISCONNECT AFTER FUELING OPERATIONS
Comments:	YERBA BUENA ISLAND GROUP SAN FRANCISCO
Comments:	WILL NOTIFY: MSO SAN FRANCISCO

APPENDIX D

HISTORICAL RESEARCH DOCUMENTATION

Historical Aerial Photographs

Yerba Buena Island Offramps
Gate Road/4th Street
San Francisco, CA 94130

Inquiry Number: 2781761.5
June 03, 2010

The EDR Aerial Photo Decade Package

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

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Date EDR Searched Historical Sources:
Aerial Photography June 03, 2010

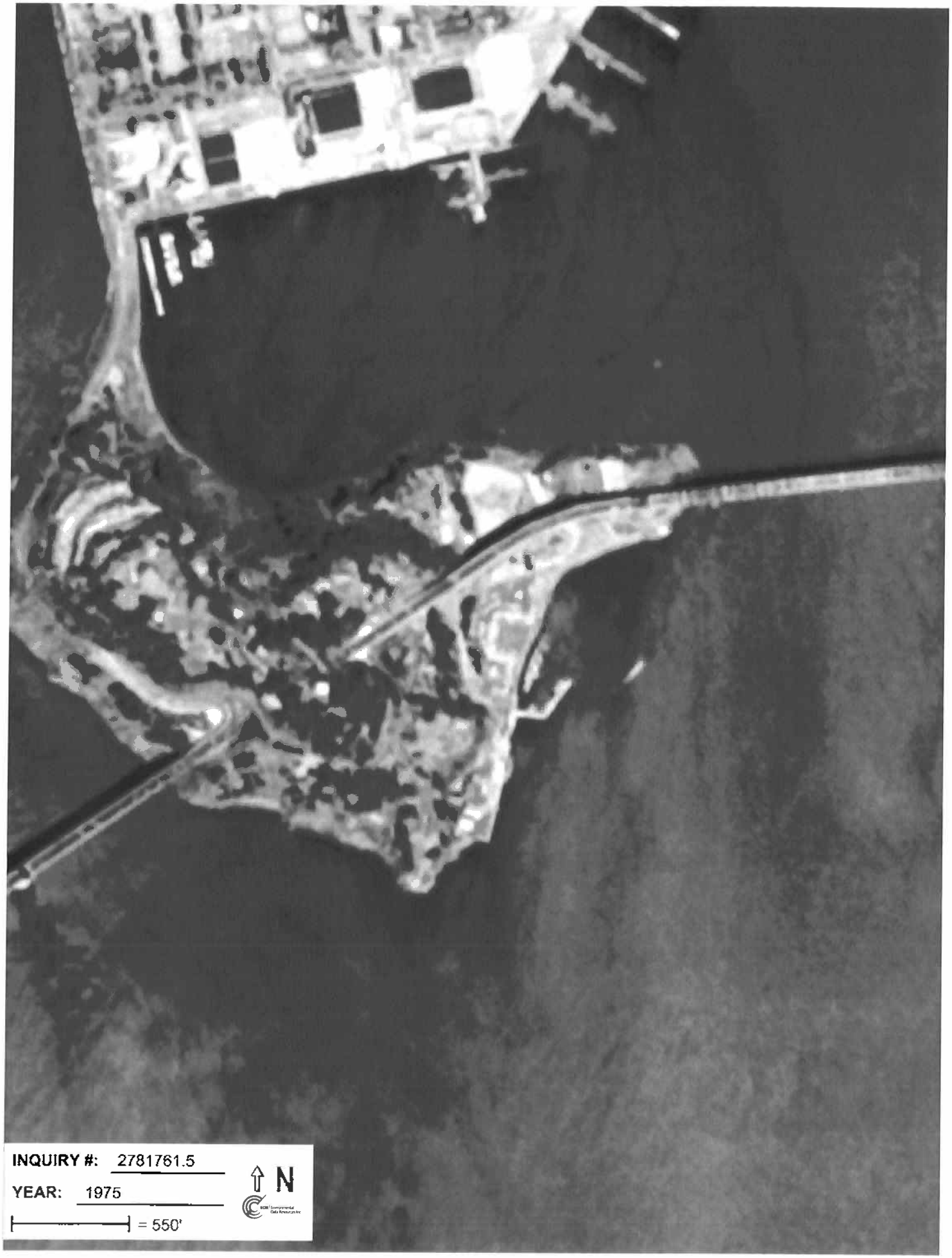
Target Property:
Gate Road/4th Street
San Francisco, CA 94130

Year	***Scale***	***Details***	***Source***
1946	Aerial Photograph. Scale: 1"=655'	Flight Year: 1946	Jack Ammann
1956	Aerial Photograph. Scale: 1"=655'	Flight Year: 1956	Clyde Sunderland
1965	Aerial Photograph. Scale: 1"=333'	Flight Year: 1965	Cartwright
1975	Aerial Photograph. Scale: 1"=550'	Flight Year: 1975	NASA
1982	Aerial Photograph. Scale: 1"=690'	Flight Year: 1982	USGS
1993	Aerial Photograph. Scale: 1"=666'	Flight Year: 1993	USGS
1998	Aerial Photograph. Scale: 1"=666'	Flight Year: 1998	USGS
2005	Aerial Photograph. Scale: 1" 604'	Flight Year: 2005	EDR

INQUIRY #: 2781761.5
YEAR: 1946
= 655'
N

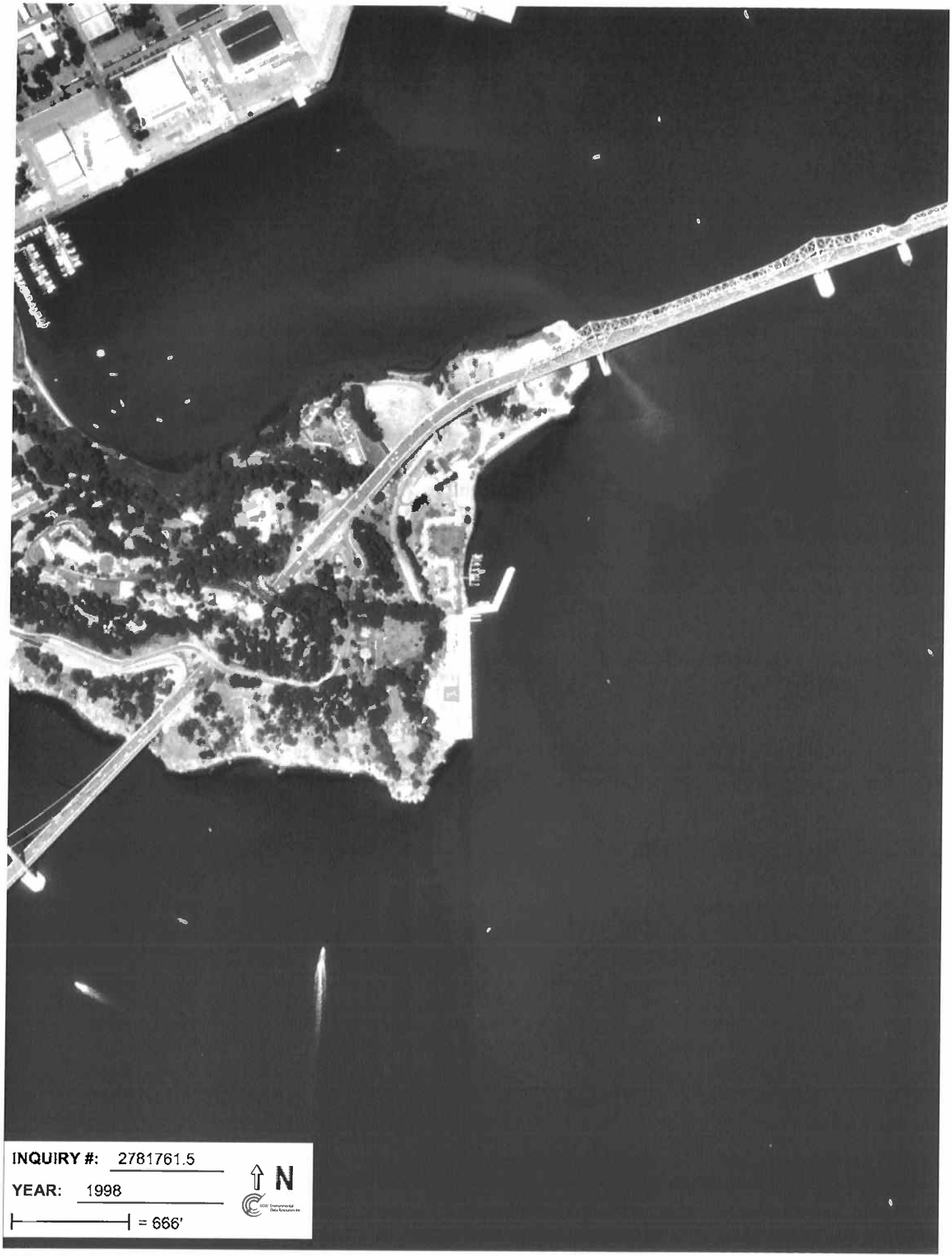
INQUIRY #: 2781761.5
YEAR: 1956
= 655'
N

INQUIRY #: 2781761.5
YEAR: 1965
= 333'
N


INQUIRY #: 2781761.5
YEAR: 1975
= 550'
N

INQUIRY #: 2781761.5
YEAR: 1982
= 690'
N

INQUIRY #: 2781761.5
YEAR: 1993
= 666'
N


INQUIRY #: 2781761.5
YEAR: 1998
= 666'
N

INQUIRY #: 2781761.5
YEAR: 2005
= 604'
N

Sanborn Fire Insurance Map Search

Yerba Buena Island Offramps
Gate Road/4th Street
San Francisco, CA 94130

Inquiry Number: 2781761.3
June 01, 2010

Certified Sanborn® Map Report

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

6/01/10

Site Name:
Yerba Buena Island Offramps
Gate Road/4th Street
San Francisco, CA 94130

Client Name:
AECOM
999 West Town & Country
Orange, CA 92868

EDR® Environmental Data Resources Inc

EDR Inquiry # 2781761.3

Contact: Robert Olsen

The complete Sanborn Library collection has been searched by EDR, and fire insurance maps covering the target property location provided by AECOM were identified for the years listed below. The certified Sanborn Library search results in this report can be authenticated by visiting www.edrnet.com/sanborn and entering the certification number. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by Sanborn Library LLC, the copyright holder for the collection.

Certified Sanborn Results:

Site Name:	Yerba Buena Island Offramps
Address:	Gate Road/4th Street
City, State, Zip:	San Francisco, CA 94130
Cross Street:	
P.O. #	NA
Project:	60046943.3060
Certification #	CC2D-4648-986B

Sanborn® Library search results
Certification # CC2D-4648-986B

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

The Sanborn Library includes more than 1.2 million Sanborn fire insurance maps, which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ✔ Library of Congress
- ✔ University Publications of America
- ✔ EDR Private Collection

The Sanborn Library LLC Since 1866™

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City Directory Abstract

Yerba Buena Island Offramps
Gate Road/4th Street
San Francisco, CA 94130

Inquiry Number: 2781761.6
June 01, 2010

The EDR-City Directory Abstract

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

TABLE OF CONTENTS

SECTION

Executive Summary

Findings

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2009 Enhancements to EDR City Directory Abstract

New for 2009, the EDR City Directory Abstract has been enhanced with additional information and features. These enhancements will make your city directory research process more efficient, flexible, and insightful than ever before. The enhancements will improve the options for selecting adjoining properties, and will speed up your review of the report.

City Directory Report. Three important enhancements have been made to the EDR City Directory Abstract:

1. *Executive Summary.* The report begins with an Executive Summary that lists the sources consulted in the preparation of the report. Where available, a parcel map is also provided within the report, showing the locations of properties researched.

2. *Page Images.* Where available, the actual page source images will be included in the Appendix, so that you can review them for information that may provide additional insight. EDR has copyright permission to include these images.

3. *Findings Listed by Location.* Another useful enhancement is that findings are now grouped by address. This will significantly reduce the time you need to review your abstracts. Findings are provided under each property address, listed in reverse chronological order and referencing the source for each entry.

Options for Selecting Adjoining Properties. Ensuring that the right adjoining property addresses are searched is one of the biggest challenges that environmental professionals face when conducting city directory historical research. EDR's new enhancements make it easier for you to meet this challenge. Now, when you place an order for the EDR City Directory Abstract, you have the following choices for determining which addresses should be researched.

1. *You Select Addresses and EDR Selects Addresses.* Use the "Add Another Address" feature to specify the addresses you want researched. Your selections will be supplemented by addresses selected by EDR researchers using our established research methods. Where available, a digital map will be shown, indicating property lines overlaid on a color aerial photo and their corresponding addresses. Simply use the address list below the map to check off which properties shown on the map you want to include. You may also select other addresses using the "Add Another Address" feature at the bottom of the list.

2. *EDR Selects Addresses.* Choose this method if you want EDR's researchers to select the addresses to be researched for you, using our established research methods.

3. *You Select Addresses.* Use this method for research based solely on the addresses you select or enter into the system.

4. *Hold City Directory Research Option.* If you choose to select your own adjoining addresses, you may pause production of your EDR City Directory Abstract report until you have had a chance to look at your other EDR reports and sources. Sources for property addresses include: your Certified Sanborn Map Report may show you the location of property addresses; the new EDR Property Tax Map Report may show the location of property addresses; and your field research can supplement these sources with additional address information. To use this capability, simply click "Hold City Directory research" box under "Other Options" at the bottom of the page. Once you have determined what addresses you want researched, go to your EDR Order Status page, select the EDR City Directory Abstract, and enter the addresses and submit for production.

Questions? Contact your EDR representative at 800-352-0050. For more information about all of EDR's 2009 report and service enhancements, visit www.edrnet.com/2009enhancements

EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Abstract is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Abstract includes a search and abstract of available city directory data. For each address, the directory lists the name of the corresponding occupant at five year intervals.

Business directories including city, cross reference and telephone directories were reviewed, if available, at approximately five year intervals for the years spanning 1910 through 2006. This report compiles information gathered in this review by geocoding the latitude and longitude of properties identified and gathering information about properties within 660 feet of the target property.

A summary of the information obtained is provided in the text of this report.

RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. An "X" indicates where information was identified in the source and provided in this report.

Year	Source	TP	Adjoining	Text Abstract	Source Image
2006	Haines Company, Inc.	-	X	X	-
2000	Haines & Company	-	-	-	-
1993	Pacific Bell	-	-	-	-
1990	Pacific Bell	-	X	X	-
1985	Pacific Bell	-	X	X	-
1982	R. L. Polk Co.	-	-	-	-
1977	Pacific Telephone	-	-	-	-
1971	Pacific Telephone	-	-	-	-
1966	R. L. Polk & Co.	-	-	-	-
1962	R. L. Polk & Co.	-	-	-	-
1958	R. L. Polk & Co.	-	-	-	-
1953	R. L. Polk & Co.	-	-	-	-
1949	R. L. Polk & Co.	-	-	-	-
1944	R. L. Polk & Co.	-	-	-	-
1940	R. L. Polk & Co.	-	-	-	-
1935	R. L. Polk & Co.	-	-	-	-
1930	R. L. Polk & Co.	-	-	-	-
1925	R. L. Polk & Co.	-	-	-	-
1920	Pacific Telephone	-	-	-	-
1915	H. S. Crocker Co.	-	-	-	-
1910	H. S. Crocker Co.	-	-	-	-

FINDINGS

TARGET PROPERTY INFORMATION

ADDRESS

Gate Road/4th Street
San Francisco, CA 94130

FINDINGS DETAIL

Target Property research detail.

No Addresses Found

FINDINGS

ADJOINING PROPERTY DETAIL

The following Adjoining Property addresses were researched for this report. Detailed findings are provided for each address.

MACALLA CT

301 MACALLA CT

Year	Uses	Source
2006	B KOULIKOVAJMvka	Haines Company, Inc.
	SHIMONEKMicheal	Haines Company, Inc.
1990	PIER CHARLES A	Pacific Bell
	DUNN DAVID J	Pacific Bell
	SUMPTER TERRY LT	Pacific Bell
1985	SHAY WILLIAM F	Pacific Bell
	CALKINS DENNIS	Pacific Bell
	PETERSON DEAN & DEBBIE	Pacific Bell
	CARLSON RANDY DR	Pacific Bell
	DUNN DAVID J	Pacific Bell

FINDINGS

TARGET PROPERTY: ADDRESS NOT LISTED IN RESEARCH SOURCE

The following Target Property addresses were researched for this report, and the addresses were not listed in the research source.

Address Researched	Address Not Listed in Research Source
Gate Road/4th Street	2006, 2000, 1993, 1990, 1985, 1982, 1977, 1971, 1966, 1962, 1958, 1953, 1949, 1944, 1940, 1935, 1930, 1925, 1920, 1915, 1910

ADJOINING PROPERTY: ADDRESSES NOT LISTED IN RESEARCH SOURCE

The following Adjoining Property addresses were researched for this report, and the addresses were not listed in research source.

Address Researched	Address Not Listed in Research Source
301 MACALLA CT	2000, 1993, 1982, 1977, 1971, 1966, 1962, 1958, 1953, 1949, 1944, 1940, 1935, 1930, 1925, 1920, 1915, 1910

Historical Topographic Maps

Yerba Buena Island Offramps
Gate Road/4th Street
San Francisco, CA 94130

Inquiry Number: 2781761.4
June 01, 2010

The EDR Historical Topographic Map Report

EDR® Environmental Data Resources Inc

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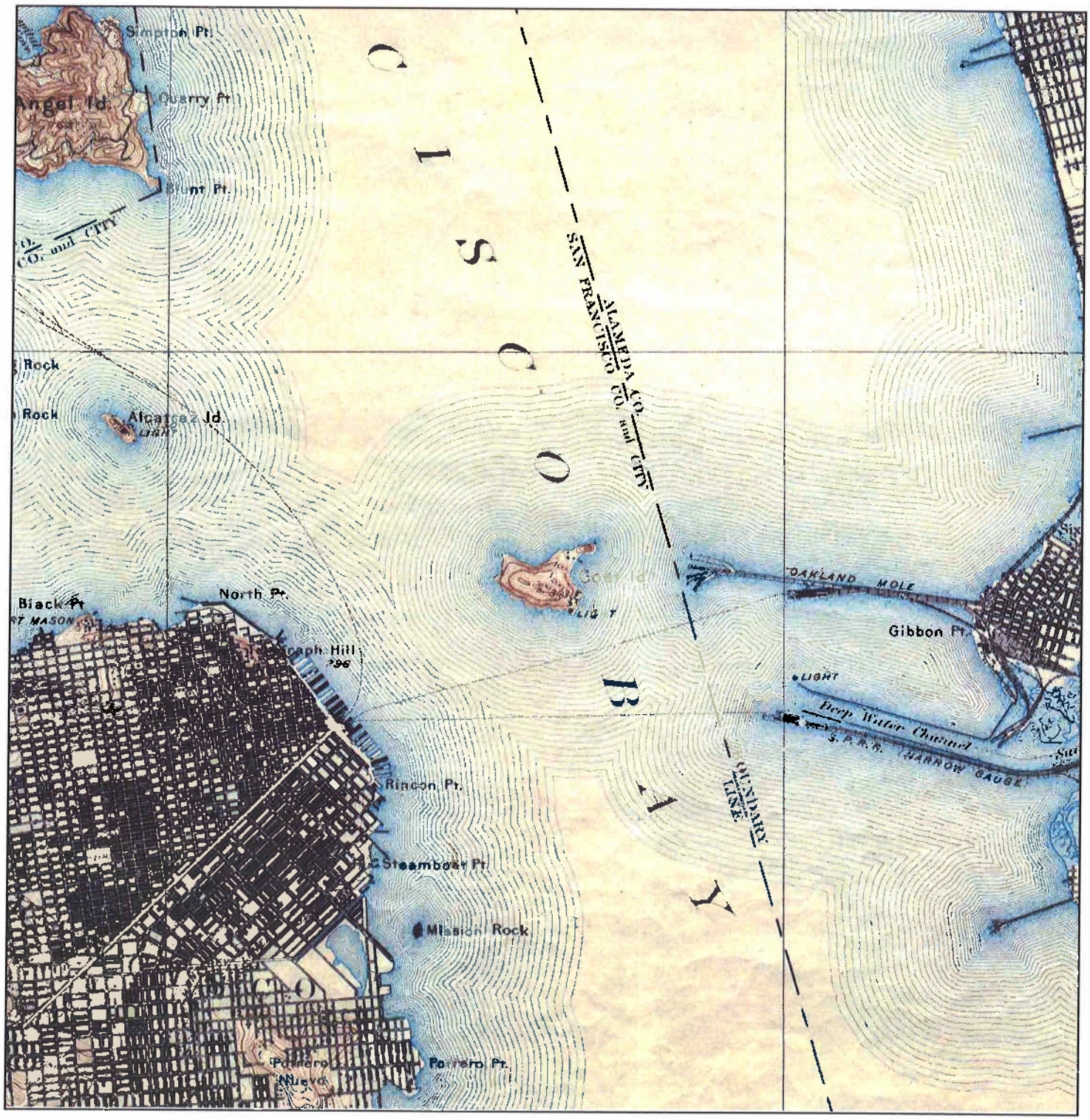
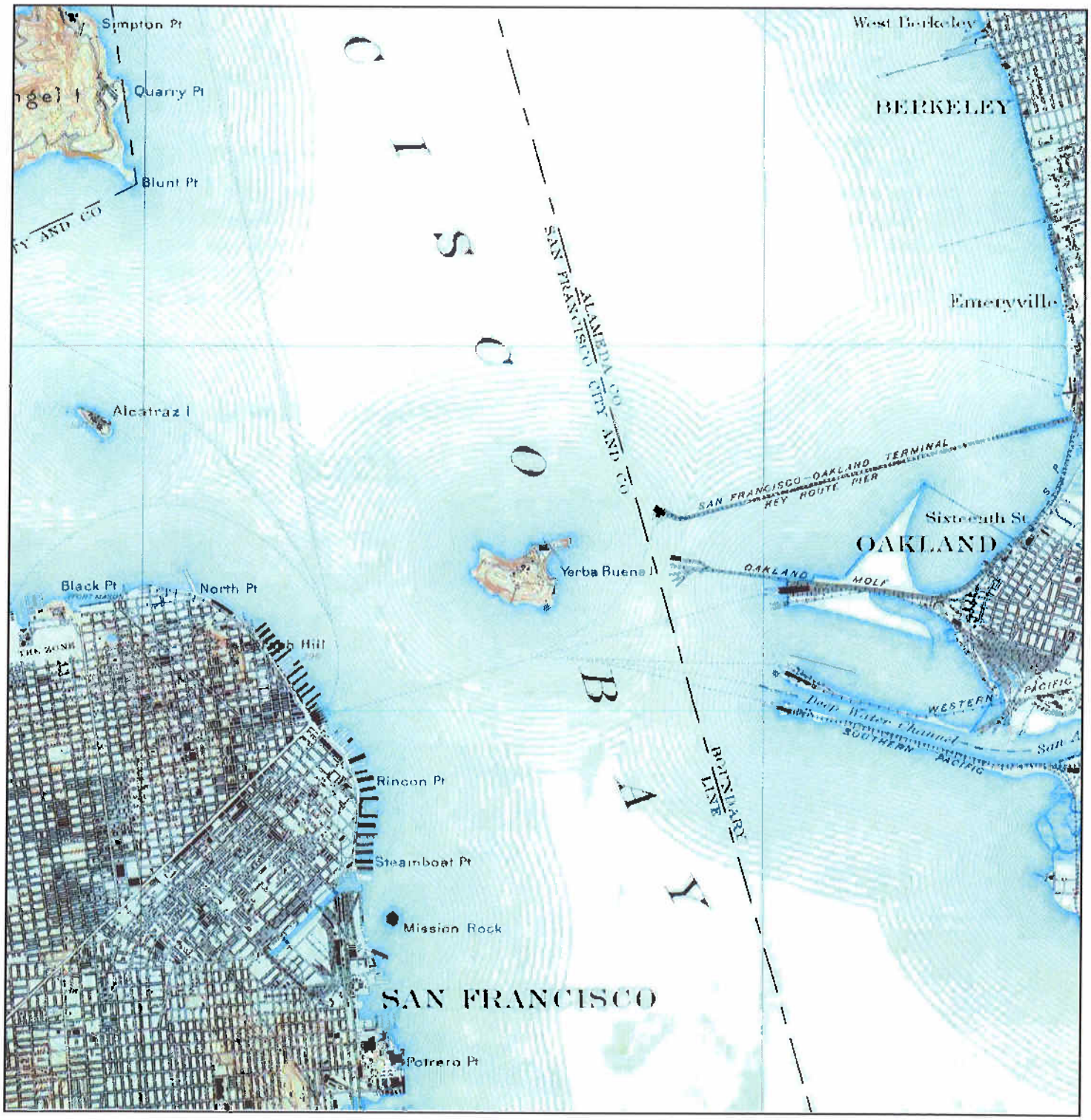
Historical Topographic Map



N	TARGET QUAD NAME: SAN FRANCISCO MAP YEAR: 1895 SERIES: 15 SCALE: 1:62500	SITE NAME: Yerba Buena Island Offramps ADDRESS: Gate Road/4th Street San Francisco, CA 94130 LAT/LONG: 37.8121 / 122.3625	CLIENT: AECOM CONTACT: Robert Olsen INQUIRY#: 2781761.4 RESEARCH DATE: 06/01/2010

Historical Topographic Map

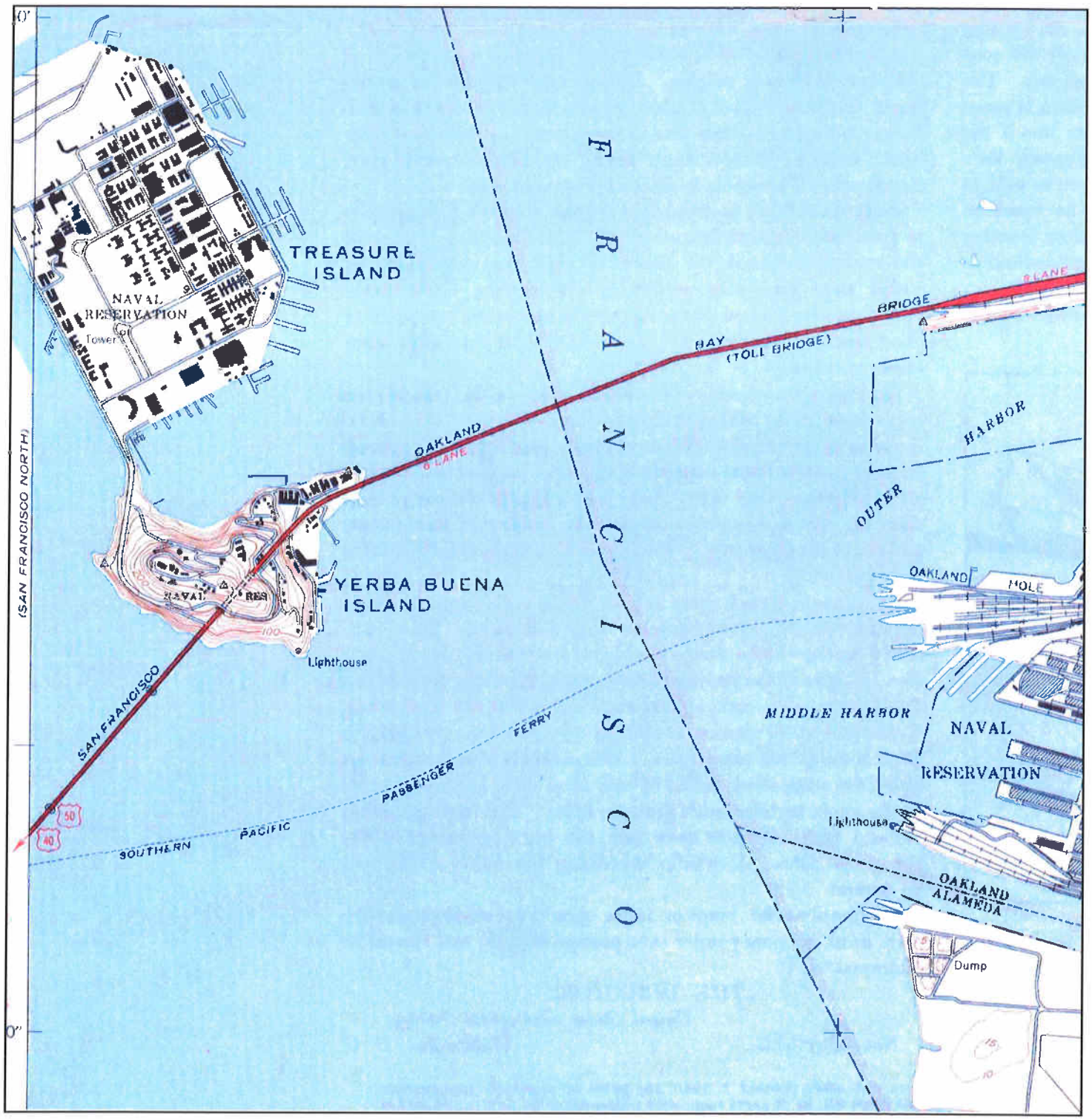


N	TARGET QUAD NAME: SAN FRANCISCO MAP YEAR: 1915 SERIES: 15 SCALE: 1:62500	SITE NAME: Yerba Buena Island Offramps ADDRESS: Gate Road/4th Street San Francisco, CA 94130 LAT/LONG: 37.8121 / 122.3625	CLIENT: AECOM CONTACT: Robert Olsen INQUIRY#: 2781761.4 RESEARCH DATE: 06/01/2010

Historical Topographic Map

N	TARGET QUAD NAME: SAN FRANCISCO MAP YEAR: 1948 SERIES: 15 SCALE: 1:50000	SITE NAME: Yerba Buena Island Offramps ADDRESS: Gate Road/4th Street San Francisco, CA 94130 LAT/LONG: 37.8121 / 122.3625	CLIENT: AECOM CONTACT: Robert Olsen INQUIRY#: 2781761.4 RESEARCH DATE: 06/01/2010

Historical Topographic Map

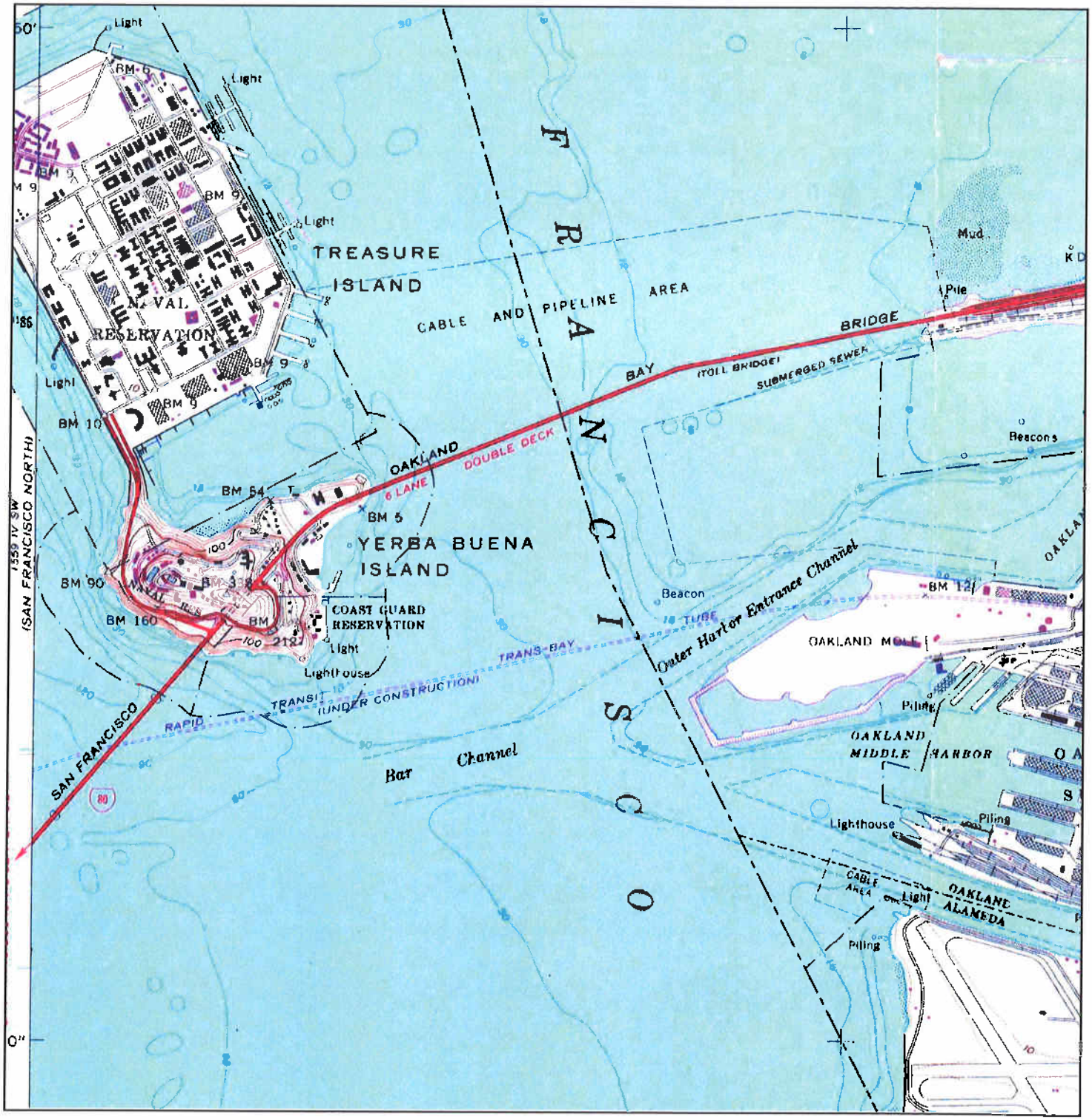


N	TARGET QUAD NAME: OAKLANDWEST MAP YEAR: 1949 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Yerba Buena Island Offramps ADDRESS: Gate Road/4th Street San Francisco, CA 94130 LAT/LONG: 37.8121 / 122.3625	CLIENT: AECOM CONTACT: Robert Olsen INQUIRY#: 2781761.4 RESEARCH DATE: 06/01/2010

Historical Topographic Map

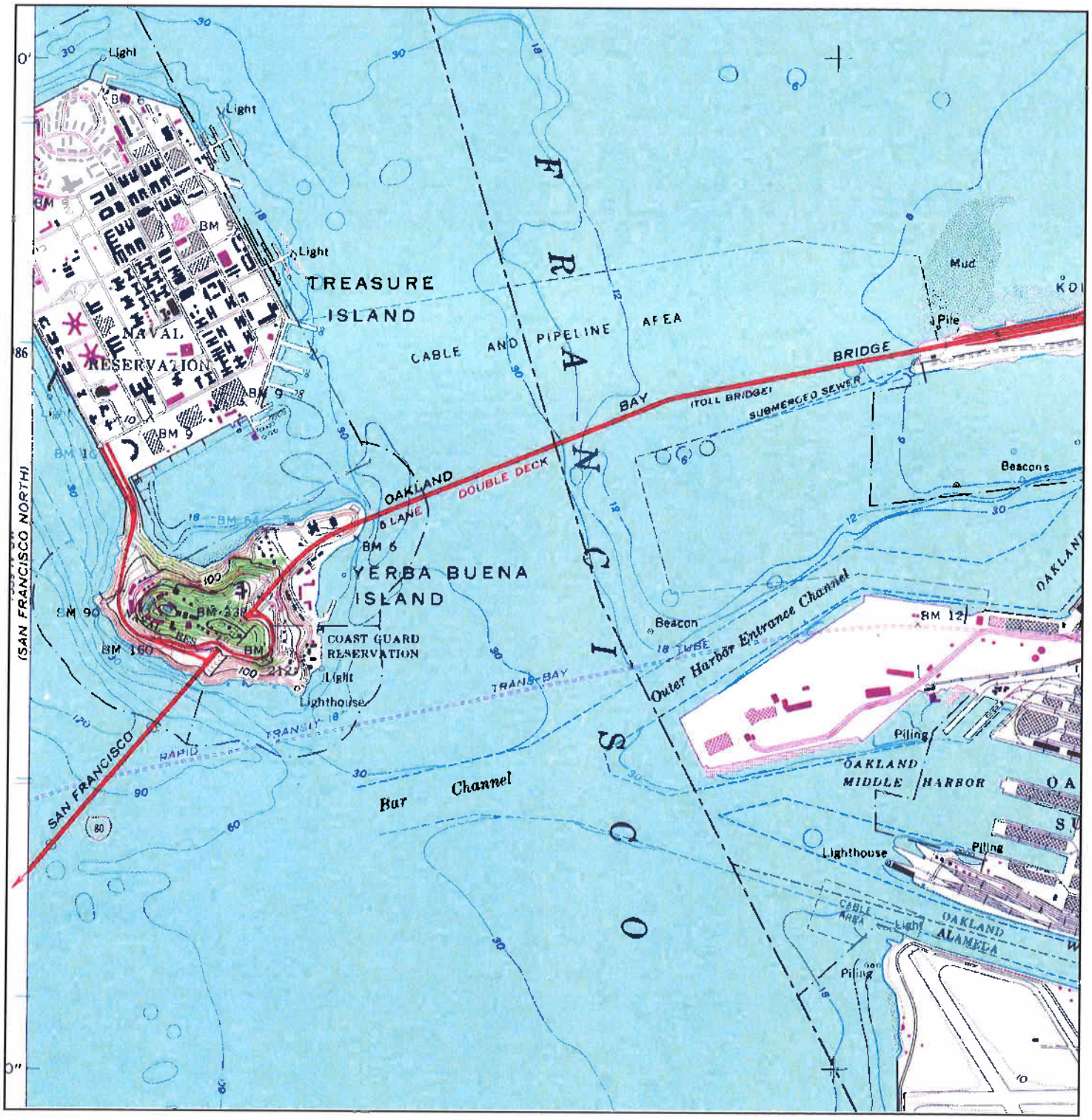
N	TARGET QUAD NAME: OAKLANDWEST MAP YEAR: 1959 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Yerba Buena Island Offramps ADDRESS: Gate Road/4th Street San Francisco, CA 94130 LAT/LONG: 37.8121 / 122.3625	CLIENT: AECOM CONTACT: Robert Olsen INQUIRY#: 2781761.4 RESEARCH DATE: 06/01/2010

Historical Topographic Map



N ▲ I	TARGET QUAD NAME: OAKLANDWEST MAP YEAR: 1968 PHOTOREVISED FROM:1959 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Yerba Buena Island Offramps ADDRESS: Gate Road/4th Street San Francisco, CA 94130 LAT/LONG: 37.8121 / 122.3625	CLIENT: AECOM CONTACT: Robert Olsen INQUIRY#: 2781761.4 RESEARCH DATE: 06/01/2010

Historical Topographic Map



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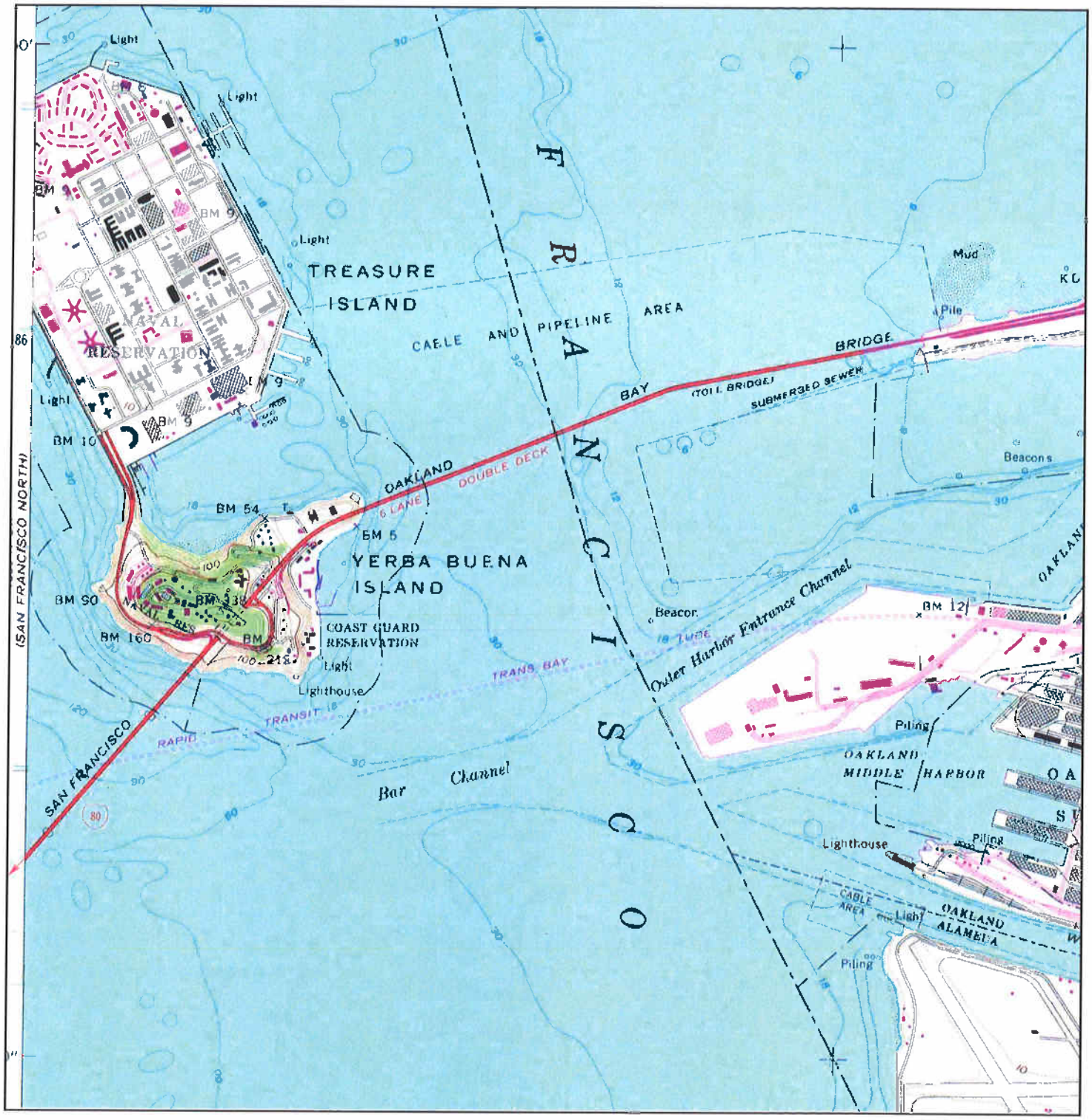
Historical Topographic Map



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APPENDIX E

Resume of Preparer

Robert Olsen, R.G., R.E.A.
Senior Geologist

Education

M.S., Geology, University of Oregon
B.S., Geology, University of California, Los Angeles

Registrations

Registered Geologist, CA, 1990
Registered Environmental Assessor, CA, 1992
Registered Environmental Assessor II, 2001
OSHA HAZWOPER, 40 Hours and Current 8-Hour Refresher

Professional Affiliations

National Groundwater Association
South Coast Geological Society

Years of Experience (updated 4/08)

With AECOM: 15
With other firms: 24

Experience

Mr. Olsen has over 30 years of experience as a geologist and hydrogeologist in the fields of environmental consulting, petroleum exploration and groundwater resource development. He has managed projects including geological and hydrogeological investigations, drilling and monitoring well installation, environmental site assessments, borehole geophysical logging, geotechnical sampling, aquifer tests, and subsurface mapping. In addition, Mr. Olsen has served as liaison with regulatory agencies to determine the applicable regulations that apply to property transfer site assessments, soil and groundwater characterization studies, and uncontrolled releases.

Selected Projects

U.S. Navy Landfill, San Clemente Island, CA. Senior Project Geologist for the preparation of a Solid Waste Assessment Test Workplan for a landfill that had previously not been evaluated for its potential for leachate generation; installed soil borings and lysimeters using hollow-stem auger and air-percussion drilling rigs; sampled lysimeters; prepared Solid Waste Assessment Test report for submittal to Los Angeles Regional Water Quality Control Board.

Contamination Site, Visalia, CA. Project Geologist for site investigation at a major TCE contamination site in Central California. Project included the organization and implementation of a domestic well sampling program, investigation and abandonment of a dry well system, plume characterization, site history research, pilot soil vapor extraction system installation, groundwater and soil sampling, and the drilling and installation of groundwater-monitoring and groundwater-extraction wells.

Naval Station San Diego, CA. Project Manager responsible for analyzing the results of past investigations at 10 underground storage tank facilities where unauthorized releases were suspected to have occurred. He determined the locations of planned groundwater monitoring wells, prepared the Work Plans and Health and Safety Plans for Phase II Environmental Site

Assessments in accordance with applicable state, local, and Navy regulations, and interpreted the results of geotechnical testing to determine the design of future monitoring wells and remediation by vapor extraction.

Private and Public Clients, California - Nevada – Arizona. Project Manager for numerous Phase II Environmental Site Assessments at commercial and industrial sites where soil and/or ground water contamination was known or suspected. Prepared Workplans and Health and Safety Plans as required; maintained liaison with regulatory agencies; supervised drilling, field observations of indications of contamination, and the collection of soil and ground water samples; interpreted the results of laboratory analyses; and prepared reports with recommendations for site closure, further investigation or remediation, as appropriate.

Service Station, Anaheim, CA. Project Geologist performing Phase II Environmental Site Assessment and Phase II remediation at a service station where a piping leak had resulted in soil and ground water contamination by gasoline; installed ground water monitoring wells, vapor extraction wells, and soil borings; evaluated remedial alternatives; monitored the operation of a vapor extraction system; supervised the remediation of contaminated soil by pattern drilling; coordinated activities with City agencies when the contaminated part of the site was condemned for street widening.

Proposed School Sites, Chula Vista and Rancho Cucamonga, CA. Performed Preliminary Endangerment Assessments at sites where former agricultural lands were to be redeveloped for elementary and magnet school use; prepared Workplans, Health and Safety Plans, and Quality Assurance Project Plans; coordinated with school districts and the California Department of Toxic Substances Control to ensure that the project were completed in a timely manner and approved for school development.

Former Aerospace Research and Testing Facility, San Diego, CA. Performed Phase II Environmental Site Assessments and Preliminary Endangerment Assessment at a former rocket testing and research facility that was to be redeveloped for residential housing; researched and tested for the potential impact of perchlorate releases to surface soils.

South Orange County Transportation Infrastructure Improvement Project, Orange County, California: Produced the Hazards and Hazardous Materials Technical Report, a CEQA/NEPA document describing potential hazardous-materials concerns associated with the proposed extension of State Route 273 from Irvine to San Clemente. Evaluated existing potentially contaminated sites and the impacts to the environmental from the construction and operation of the proposed toll road. Applied the information obtained from the Technical Report study to the review and evaluation of the Hazards and Hazardous Materials section of the Environmental Impact Report for the project.

Proposed Private High School Site, Yorba Linda, California: Performed file review, Phase I and Phase II Environmental Site Assessments and a soil vapor survey on the site of a proposed Christian high school located in an area of historical oil production and citrus orchards. Conferred with and advised client's legal representatives regarding appropriate inquiries to be the equivalent of a Preliminary Endangerment Assessment if the site were eligible for Department of Toxic Substances Control Supervision. Testified before City Planning Commission and City Council regarding findings and the suitability of the site for the intended use.

APPENDIX P

PALEONTOLOGICAL IDENTIFICATION REPORT

AECOM
150 Chestnut Street
San Francisco, CA 94111
www.aecom.com

415 955 2800 tel
415 788 4875 fax

Memorandum

To	Valerie Shearer	Page	1
CC			
Subject	Yerba Buena Island Ramps Improvement Project EIR/EIS Paleontological Identification Report Addendum Memorandum		
From	AECOM		
Date	August 1, 2011		

The YBI Ramps Improvement PDT, which is comprised of the lead (Caltrans and SFCTA), cooperating, and responsible agencies, held a meeting on April 12, 2011 to consider and identify the preferred alternative. The unanimous decision was that Alternative 2b would best meet the purpose and need of the YBI Ramps Improvement Project. The relocation site for Quarters 10/Building 267 was determined following the identification of the preferred alternative.

The purpose of this memorandum is to confirm that preparation of the relocation of Quarters 10/Building 267 site and relocation of the buildings would not result in new issues. After the buildings are relocated, any future use of the site will be evaluated through a separate environmental process initiated by the City and County of San Francisco and/or TIDA.

Based on available information (Paleontological Identification Report 2010), Yerba Buena Island is underlain by Franciscan Formation basement rock consisting of interbedded graywacke sandstone, siltstone and claystone of varying proportions. Bedrock on the island is covered by thin sandy deposits from the Pleistocene Colma formation or derived from the underlying sandstone.

The relocation site is located on the northern portion of YBI. Sand covers most of the bedrock on the island, except along the lower parts of the slopes where waves have cleaned the rocks, and on northeast point. Grading in the late 1930s at the northeast point removed up to 15.24 to 18.29 meters (50 to 60 feet) off the top of the hill exposing slightly weathered bedrock. Artificial fill at the northeastern tip of the island was created in 1943 by placing cut materials from Yerba Buena Island and dredged bay deposits.

The construction activities for the relocation site can impact paleontologically sensitive geologic units, when vehicles or other work equipment impact previously undisturbed sediements by excavating, grading, or crushing bedrock exposed in or underlying the site. This can result in significant impacts to fossils by destroying them or otherwise altering them in such a way that their scientific value is lost. The paleontologically sensitive Franciscan Complex/Alcatraz Terrane can be found directly underneath the paleontologically sensitive Colma Formation at the relocation site, and may be affected by construction activities.

In general, avoidance and minimization are not feasible with regard to addressing significant impacts on paleontological resources. Geologic formations are usually extensive, and project design cannot be adjusted sufficiently to effectively avoid or minimize paleontological impacts. As a result, mitigation is the approach generally taken to address paleontological impacts:

A Paleontological Mitigation Plan (PMP) would be prepared under the direction of a qualified Principal Paleontologist and including: general fieldwork and laboratory methods proposed, curation requirements, report format and content, distribution and proposed staff and their qualifications. The PMP would include mitigation measures adequate for the recovery of samples and would also serve as a basis for obtaining any necessary permits from other agencies.

Caltrans will retain a qualified principal paleontologist (MS or PhD in paleontology or geology familiar with paleontological procedures and techniques). The paleontologist will review the selected alternative alignment and design, once a preferred project alternative is identified; determine the potential for discovery of significant fossils; and identify specific mitigation measures as needed. Caltrans will implement the mitigation measures identified in Section 3.12.4.1 as applicable to the site.

GANDA

Garcia and Associates
1512 Franklin Street, Suite 100
Oakland, CA 94612
Phone: (510) 891-0024 Fax: (510) 891-0027

To: **Melanie Brent, Caltrans Environmental Planner**

From: **Ferdinand Oberle, Paleontologist**

Date: **October 20, 2010; revised December 2, 2010**

RE: **Paleontological Identification Report (PIR) for the Yerba Buena Interchange Ramps Improvement Project**

Introduction and Statement of Conformity

This Paleontological Identification Report (PIR) describes potential paleontological resources at the Yerba Buena Interchange Ramps Improvement Project, Yerba Buena Island, San Francisco County, California. It has been prepared in conformance with the California Department of Transportation (Caltrans) Standard Environmental Reference, Volume I: Guidance for Compliance, Chapter 8 – Paleontology (Caltrans 2007).

Methods

Paleontological Study Area (PSA)

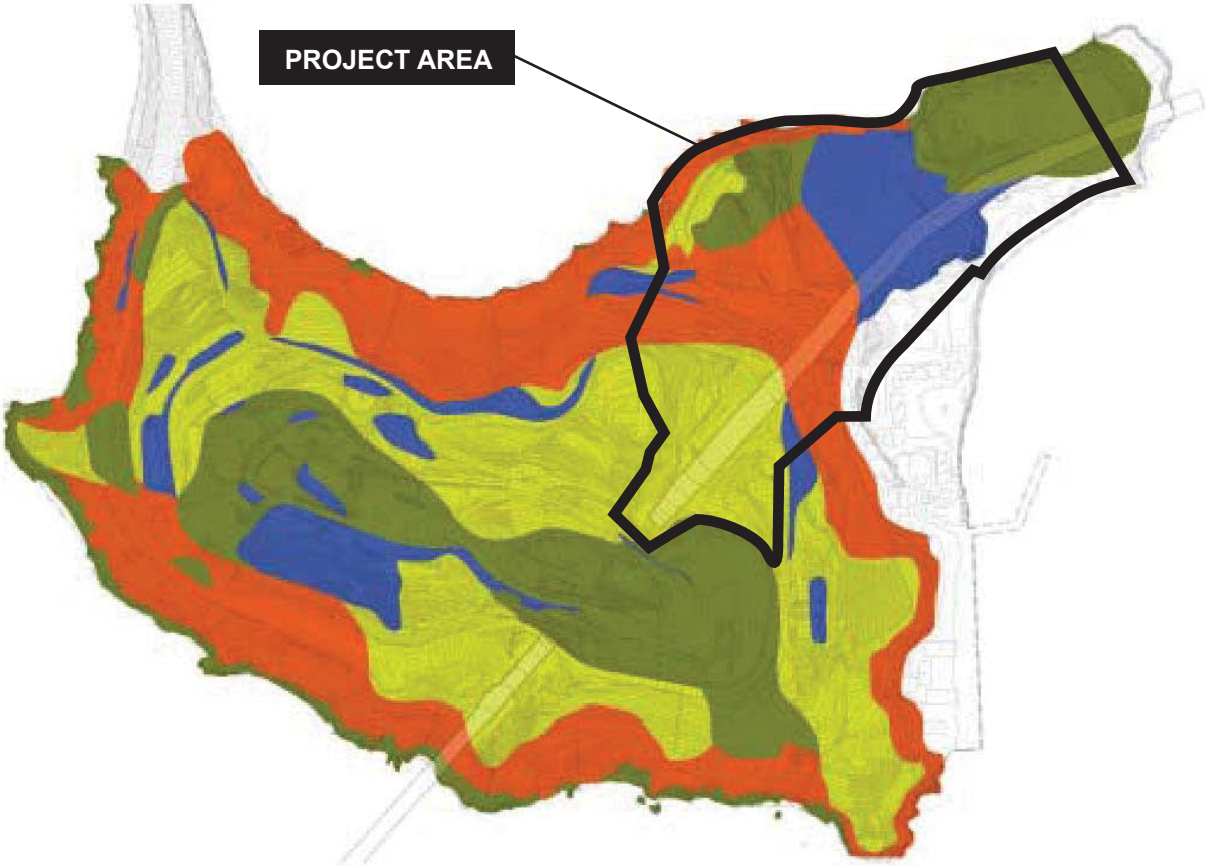
The paleontological study area (PSA) included the area connecting the San Francisco-Oakland Bay Bridge on Interstate 80 (I-80) to Macalla Road on Yerba Buena Island. The literature and map review and fossil locality search was performed for the entire PSA.

Data Sources Consulted

Background research conducted for this project consisted of a literature and map review and a fossil locality search. This research identified the geologic units, previous paleontological studies, fossil localities (i.e., locations at which paleontological resources have been documented), and types of fossils in geologic units that may be within or adjacent to the project area (Figures 1 and 2). An online fossil locality search was conducted on 10.16.2010, using the Berkeley Natural History Museum (BNHM) online database, which includes data from the University of California, Museum of Paleontology (UCMP) (http://bnhm.berkeley.edu/query/index.php).

Results of Field Survey

Background research identified that the geologic units within the project area have low to high paleontological sensitivity. Ferdinand Oberle conducted a field survey of the project site on Oct. 15, 2010 (Figure 1). Mr. Oberle earned a M.Sc. in Environmental and Marine Geology from the University of Bremen in 2005, and has been a staff paleontologist with Garcia and Associates since 2007. He observed all geologic units identified by Graymer *et al.* (2000), Radbruch (1957) and HMP (2009) at the surface within the PSA or adjacent to the project footprint. No paleontological resources were observed during the survey.



Geologic Materials

Franciscan Bedrock:
Sandstone, siltstone.

Dune Sand and Alluvium:
Dense fine sand. Locally cemented with gravel lenses. Covering rock up to 80 feet thick.

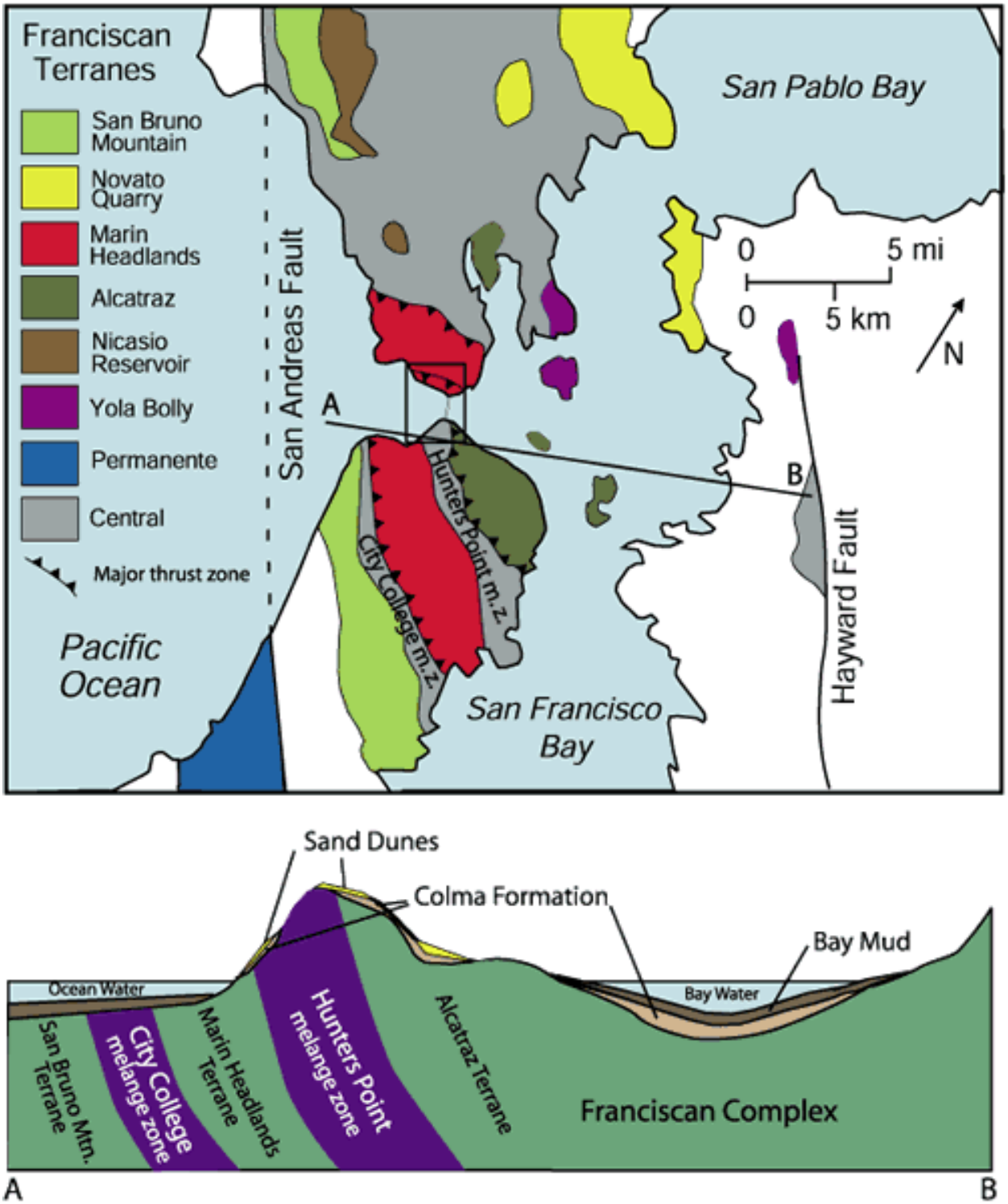
Colluvium and Landslide Debris:
Unstable loose sand and rock debris covering island.

Manmade Fills:
Thin deposits under most roads and building pads. Thick deposits under causeway and Coast Guard port facilities.

Source: Baise et al 2001

Not to Scale

Figure 1
Geologic Units in the Project Area



Source: Elder, W. 2001

Not to Scale

Figure 2
Franciscan Complex and Colma Formation

Geological Setting
The valley in which San Francisco Bay resides began to form around 2 to 3 million years ago, when the surrounding mountains and hills started to rise on either side. YBI lies within the San Francisco Bay and is thought to have been uplifted by faulting along a branch of the Hayward Fault approximately 1 million years ago (CMB *et al.* 2009). Yerba Buena Island is underlain by Franciscan Formation basement rock consisting of interbedded graywacke sandstone, siltstone and claystone of varying proportions. Bedrock on the island is covered by thin sandy deposits from the Pleistocene Colma formation or derived from the underlying sandstone.

Sand covers most of the bedrock on the island, except along the lower parts of the slopes where waves have cleaned the rocks, and on northeast point. Grading in the late 1930s at the northeast point removed up to 50-60 feet off the top of the hill exposing slightly weathered bedrock. Artificial fill at the northeastern tip of the island was created in 1943 by placing cut materials from Yerba Buena Island and dredged bay deposits.

Native soils on YBI range from ten to 40 inches in depth and have been highly altered throughout the island by grading, excavating, filling, and otherwise reshaping topography. (Earth Mechanics 2010, CMB *et al*. 2009).

Jurassic/Cretaceous—The Franciscan Complex
The Jurassic/Cretaceous-age Franciscan Formation forms the bedrock of YBI and consists of interbedded sandstone, siltstone and claystone. The Franciscan Complex is a melange of rock units that were variably deformed and metamorphosed in a subduction zone at the western edge of the North American Plate (Hamilton, 1969; Page, 1981; Wakabayashi, 1992). Franciscan lithologies are predominantly meta-sedimentary rocks with subordinate volcanic rocks that are believed to represent trench fill and volcanic islands, respectively. In the Project area this unit is predominantly thick-bedded to massive sandstone with only a few thin beds of claystone or siltstone thus identifying it as part of the Alcatraz terrane. The bedding orientation dipping to the northeast is consistent with outcrops and other borings on the island (Fugro-EMI, 2001). The rock is commonly soft in the upper 5 to 15 feet where it has been altered by weathering. These weathered rocks are generally brown.

Pleistocene - Colma Formation
The Colma Formation is late Pleistocene in age. The Colma Formation is dated to 0.07-0.13 mya (Clifton *et al.* 1988; Konigsmark 1998). Sediments of the Colma Formation were deposited in either marine or non-marine environment (Clifton *et al*. 1987, 1988; Hengesh and Wakabayashi 1994). The Colma Formation may simply represent a facies change of the geological units known as Old Bay Mud or Yerba Buena Formation, which can be found in the presently marine environment underneath the bay bridge. Yate *et al*. (1990) describes the texture of the Colma Formation as "poorly unconsolidated sands" and muds. On Yerba Buena Island, the Colma Formation underlies Bay Mud and dune sand layers at varying depths and overlies the Franciscan Complex in some areas where it has not eroded away (Figure 2) (Elder, 2001). Surface outcrops of the Colma Formation have not been identified on YBI. The exact depth of Colma Formation on YBI is unknown. The geographically closest data concerning the depth of

the Colma formation comes from cores taken east of YBI from underneath the Bay Bridge. Here, the Colma formation has been identified to exist as close as 3.05 meters (10 feet) below Bay Mud (McGann et al., 2002). Because erosion rates can be higher on land than in a marine setting, it can be expected that the Colma formation exists at a depth of less than 3.05 meters (10 feet). An archaeological excavation identified a stratum that coincides lithologically with the Colma formation on YBI in a nearby location at a depth of 2 meters (6.5 feet) (Morgan et al., 2007). Geotechnical drilling for this project resulted in the identification of a lithological unit that coincides with the Colma Formation at a depth of approximately 2 meters (6.5 feet) (Earth Mechanics Inc., 2010).

Pleistocene to Recent-Colluvium and Landslide Debris

A portion of the project area appears to have experienced shallow landslides. Similar but degraded slide scars can be seen on the slopes around the island indicating that these features have occurred in the past and are a recurring phenomenon. Landslides on YBI consist of two types: thin surficial soil slips and wedge failures involving Franciscan Formation bedrock. These landslides are generally small and occur where slopes have been over-steepened by erosion and excavations. The depth of these slides was on the order of about 2 to 5 feet.

Pleistocene to Recent -Dune Sand and Alluvium

Quaternary dune sands typically cover the Colma Formation. Some of these dune sands were carried by the Sacramento River system through the Golden Gate and were deposited in eolian environment (Konigsmark 1998). The sands, characterized by excessive drainage of water, extended throughout most of western San Francisco before its development (Sullivan and Galehouse 1991), and supported the native grassland and scrub vegetation that once were widely distributed throughout the San Francisco peninsula.

The alluvium is composed primarily of fine-grained sand and silty sand with a few scattered silt and clay lenses. The colors of the alluvium are shades of brown ranging from yellowish-brown, brown, brownish-yellow, and dark brown. The material is loose to very dense and generally moist except on the upper slopes where it is locally dry to moist. The deposits are thick-bedded to unbedded; where bedding occurs it is generally horizontal to dipping about 20 degrees.

The great thickness and fine-grained nature of the sands along with their poor grading and widespread distribution in pockets across the island suggests these materials originated as wind-blown sands similar to those occurring on much of the San Francisco Peninsula. An archaeological excavation identified a stratum that coincides lithologically with the San Dunes on YBI in a nearby location between 0 to 2 meters (0 to 6.5 feet) (Morgan et al., 2007).

Recent- Artificial Fill

Fill occurs locally across the island as road base, foundation support, and landscaping soil. Fill also occurs as uncompacted cast-over or disturbed surficial slough from the various historical development activities. Along the many roads around the island, cast-over grading material from the road building activities overlies, and is gradational with, native slope-wash sedimentary alluvium. Artificial fill occurs along the island shoreline east and south of the

Northeast Point at the Torpedo Building and Torpedo Road, and in the Coast Guard base in the southern Saddle Area. Most of the present U.S. Coast Guard Station is entirely on fill first placed around 1934.

The fill material within the Southern Saddle Area is up to about 9.1 meters (30 feet) thick. Exploratory excavation indicated the upper portion of the fill consists of brown to yellowish brown, moist, loose to medium dense, fine grained sands with some gravel. The lower portion consists of a coarser fraction composed of brown and gray sand and gravel material with large angular cobbles and boulders of the Franciscan Formation sandstone and siltstone.

Paleontological Sensitivity

Paleontological resources include fossil plants and animals and other evidence of past life such as preserved animal tracks and burrows. As identified by the Society of Vertebrate Paleontology (SVP), the paleontological sensitivity of a geologic unit is determined by its potential to contain paleontological resources (SVP 1995). The paleontological sensitivity of a geologic unit may be classified as:

- **High Potential.** Rock units are considered to have a high potential for containing significant non-renewable fossiliferous resources if vertebrate or significant invertebrate fossils or significant suites of plant fossils have been recovered. These units include, but are not limited to, sedimentary and volcanic formations that contain significant nonrenewable paleontological resources and sedimentary rock units temporally or lithologically suitable for the preservation of fossils. Sensitivity comprises both of the following: (a) the potential for yielding abundant or significant vertebrate fossils or for yielding a few significant fossils that are large or small, vertebrate, invertebrate, or botanical; and, (b) the importance of recovered evidence for new and significant taxononic, phylogenetic, ecologic, or stratigraphic data. Areas that contain potentially datable organic remains older than Recent and areas that may contain new vertebrate deposits, traces, or trackways are also classified as significant.
- **Undetermined Potential.** Specific areas underlain by sedimentary rock units for which little information is available are considered to have undetermined fossilferous potentials. Field surveys by a qualified vertebrate paleontologist to specifically determine the potentials of the rock units are required before programs of impact mitigation for such areas may be developed.
- **Low Potential.** Reports in the paleontological literature or field surveys by a qualified vertebrate paleontologist may allow determination that some areas or units have low potentials for yielding significant fossils. Such units will be poorly represented by specimens in institutional collections. These deposits generally will not require protection or salvage operations.

Caltrans uses a similar three-part scale for assessing the sensitivity or potential for a particular rock unit to contain paleontological resources (Caltrans 2007). These two classification systems are compatible. In most cases, decisions about how to manage paleontological resources must be based on this potential because the actual situation can not be known until construction

excavation for the project is underway:

- **High Potential.** Rock units which, based on previous studies, contain or are likely to contain significant vertebrate, significant invertebrate, or significant plant fossils. These units include, but are not limited to, sedimentary formations that contain significant nonrenewable paleontological resources anywhere within their geographical extent, and sedimentary rock units temporally or lithologically suitable for the preservation of fossils. These units may also include some volcanic and low-grade metamorphic rock units. Fossiliferous deposits with very limited geographic extent or an uncommon origin (e.g., tar pits and caves) are given special consideration and ranked as highly sensitive. High sensitivity includes the potential for containing: (1) abundant vertebrate fossils; (2) a few significant fossils (large or small vertebrate, invertebrate, or plant fossils) that may provide new and significant taxonomic, phylogenetic, ecologic, and/or stratigraphic data; (3) areas that may contain datable organic remains older than Recent, including *Neotoma* (sp.) middens; or (4) areas that may contain unique new vertebrate deposits, traces, and/or trackways. Areas with a high potential for containing significant paleontological resources require monitoring and mitigation.
- **Low Potential.** This category includes sedimentary rock units that: 1) are potentially fossiliferous, but have not yielded significant fossils in the past; 2) have not yet yielded fossils, but possess a potential for containing fossil remains; or 3) contain common and/or widespread invertebrate fossils if the taxonomy, phylogeny, and ecology of the species contained in the rock are well understood. Sedimentary rocks expected to contain vertebrate fossils are not placed in this category because vertebrates are generally rare and found in more localized stratum. Rock units designated as low potential generally do not require monitoring and mitigation. However, as excavation for construction gets underway it is possible that new and unanticipated paleontological resources might be encountered. If this occurs, a Construction Change Order (CCO) must be prepared in order to have a qualified Principal Paleontologist evaluate the resource. If the resource is determined to be significant, monitoring and mitigation is required.
- **No Potential.** Rock units of intrusive igneous origin, most extrusive igneous rocks, and moderately to highly metamorphosed rocks are classified as having no potential for containing significant paleontological resources. For projects encountering only these types of rock units, paleontological resources can generally be eliminated as a concern when the PEAR is prepared and no further action taken.

SVP identifies vertebrate fossils, their taphonomic and associated environmental data, and fossiliferous deposits as significant nonrenewable paleontological resources. Botanical and invertebrate fossils and assemblages may also be considered significant (SVP 1995). Due to the rarity of fossils and the scientific information they provide, a paleontological resource can be considered significant (Scott and Springer 2003) if the resource does any of the following:

- Provides data on the evolutionary relationships and developmental trends among organisms, both living and extinct;

- Provides data useful in determining the age(s) of the geologic unit or stratigraphy, as well as timing of associated geological events;
- Provides data on a community level;
- Demonstrates unusual or spectacular circumstances in the history of life; and / or
- Is not abundant or found in other geographic locations and may be in danger of being depleted or destroyed by the elements or vandalism.

Significant paleontological resources must be diagnostic to determine if any of the criteria above is applicable. Proper identification of paleontological resources is often difficult in the field; therefore, the recovery, preparation and analysis of paleontological resources is necessary to determine their significance (Scott and Springer 2003). This process must be done by, or under the supervision of, a qualified paleontologist (Conformable Impact Mitigation Guidelines Committee 1995). Microvertebrate fossils are generally not visible to the naked eye; although initial sifting may be conducted in the field, analysis for microinvertebrates requires laboratory processing of bulk samples from paleontologically sensitive geologic units (Conformable Impact Mitigation Guidelines Committee 1995; Scott and Springer 2003).

Paleontological Resources within the Project Area

The results of the literature review and the online fossil locality search using the Berkeley Natural History Museum (BNHM) online database, which includes data from the University of California, Museum of Paleontology (UCMP) found 122 fossil localities within San Francisco County. These include 1 specimen from the Jurassic, 4 from the Cretaceous, 3 from the Miocene, 6 from the Pliocene, 102 from the late Quaternary, 1 from the Holocene and 5 of unknown age.

The Franciscan Complex and the Alcatraz Terrane

The Franciscan formation is heavily deformed and metamorphosed in many locations, and whatever fossils existed in these strata have been destroyed. Fossils from the Franciscan formation are therefore generally rare and are all the more important, because they can provide information on the age of a particular sedimentary suite, fixing it in the comparatively vast 150 million years spanned by the formation. Fossils recorded from the Franciscan formation of coastal California include trace fossils (preserved tracks or other signs of the behaviors of animals), mollusks, and marine reptiles.

The Alcatraz Terrane, the portion of the Franciscan complex found within YBI, contains fossils. In fact, the first fossil ever found in what was then called the Franciscan Formation, came from the Alcatraz Terrane (Graymer *et al*. 2000). This fossil consisted of an *Inoceramus ellioti* of Cretaceous age. Subsequent fossil discoveries include several other mulloskan fossils of Cretaceous age. While all other terranes of the Franciscan Complex usually carry a moderate paleontological sensitivity, the fossil finds of the Alcatraz Terrane are highly important in contributing to the understanding of the depositional environment thus giving this unit on YBI a high paleontological sensitivity.

The Colma Formation

The Colma Formation has produced significant marine and terrestrial fossils in the past.

Rodda and Baghai (1993) reported bones and teeth of mammoth and extinct bison from sands and clays unconformably overlying the Franciscan Complex that they refer to as the Colma Formation. Marine facies of the Colma Formation have produced marine megafossils, marine and nonmarine diatoms, and sponge spicules (Schlocker, 1974). Savage (1951) listed other vertebrate fossil localities in the San Francisco Bay region to which he assigned an "undifferentiated Pleistocene" age. Some of these additional vertebrate fossils may also be referable to the Colma Formation. Schlocker (1974) reported fossil plant remains and a peat layer at the top of his Colma Formation possibly representing "an old soil that developed in or near local marshes or lakes." Within San Francisco this geological unit is the most abundant collection of Pleistocene vertebrates. On YBI, the Colma Formation has not been mapped and is not known to occur in surface deposits but is likely to overlie portions of the Alcatraz Terrane, beneath deposits of dune sand or Old Bay Mud. This geological unit has a high paleontological sensitivity.

Colluvium and Landslide Debris
These deposits are generally considered to be too young to contain significant fossils (10,000 years old to recent). They are less likely to contain well-preserved fossils than intact older parent deposits, and are thus considered to have a low paleontological resource potential.

Dune Sand and Alluvium
Dune sand and alluvium are intermixed in the project area and are thus considered together. They consist of Holocene to Pleistocene sediments, increasing in age with depth (Graymer, 2000). Due to their lack of good preservational abilities, Pleistocene dune sands rarely contain fossils. This geological unit has a low paleontological sensitivity.

Artificial Fill
Artificial fill could have fragmentary fossil material transported from other sites. Even if such were the case, this material would be out of stratigraphic context and, therefore, have no scientific value and minimal, if any, educational value due to its lack of context and fragmentary nature. Therefore, artificial fill has a low paleontological sensitivity.

Regulatory Context

Federal
Several federal laws protect paleontological resources on federal lands as well as projects undertaken by federal agencies.

<u>Antiquities Act of 1906</u>
The Antiquities Act of 1906 (16 United States Code [USC] 431-433) has been cited in past efforts to protect paleontological resources on federal lands, and is recognized for regulation of the collecting of vertebrate fossils on land managed by the BLM, National Park Service, Forest Service, Department of Energy and other federal agencies.

<u>National Environmental Policy Act of 1969</u>
The National Environmental Policy Act (NEPA, 42 United States Code [USC] 4321) directs

Federal agencies to "Preserve important historic, cultural, and natural aspects of our national heritage…" (Section 101(b) (4)). Regulations for implementing the procedural provisions of NEPA are found in 40 CFR 1500 1508. CEQ NEPA regulations identify mitigation in the NEPA process as measures to avoid, minimize, rectify, reduce, or compensate for environmental impacts (40 CFR 1508.20).

Federal Land Policy and Management Act of 1976

The Federal Land Policy and Management Act (FLPMA, 43 USC 1701-1782) authorizes inventories of paleontologic resources on federal land managed by the Bureau of Land Management (BLM), which now issues permits for collecting paleontological resources (fossils).

Paleontological Resources Preservation Act of 2009

The Paleontological Resources Preservation Act (PRPA), is part of the Omnibus Public Land Management Act of 2009 (Public Law 111-011 Subtitle D). This act directs the Secretary of the Interior or the Secretary of Agriculture to manage and protect paleontological resources on federal land, and develop plans for inventorying, monitoring, and deriving the scientific and educational use of such resources. It prohibits the removal of paleontological resources from federal land without a permit issued under this Act, establishes penalties for violation of this act and establishes a program to increase public awareness about such resources. The bill imposes criminal penalties for violating this Act, which includes serving up to 10 years in prison if convicted.

State and Local

The following State laws pertain to paleontological resources. No local regulations pertaining to paleontological resources were identified.

California Environmental Quality Act

The California Environmental Quality Act requires that a determination be made as to whether a project would directly or indirectly destroy a unique paleontological resource or site or a unique geological feature (CEQA Guidelines, Appendix G (V)c). If an impact is significant, the State CEQA Guidelines require "feasible measures which could minimize significant adverse impacts" (State CEQA Guidelines Section 15126.4). State CEQA Guidelines Section 15370 also defines mitigation as:

> (a) Avoiding the impact altogether by not taking a certain action or parts of an action.
>
> (b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
>
> (c) Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment.
>
> (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.

(e) Compensating for the impact by replacing or providing substitute resources or environments.

Public Resources Code § 5097.5
California Public Resources Code § 5097.5 prohibits excavation or removal of any "vertebrate paleontological site, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands." Public lands are defined to include lands owned by or under the jurisdiction of the state or any city, county, district, authority or public corporation, or any agency thereof. Section 5097.5 states that any unauthorized disturbance or removal of archaeological, historical, or paleontological materials or sites located on public lands is a misdemeanor.

Potential Impacts to Paleontological Resources
Construction activities can impact paleontologically sensitive geologic units when vehicles or other work equipment impact previously undisturbed sediments by excavating, grading, or crushing bedrock exposed in or underlying a project. This can result in significant impacts to fossils by destroying them or otherwise altering them in such a way that their scientific value is lost.

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 would improve the functional roles of the current ramps.

Alternative 2b includes removal of the existing westbound on- and off-ramps on the east side of YBI, construction of a westbound hook 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. Alternative 4 includes the removal of the existing westbound on- and off-ramps on the east side of YBI, construction of the westbound on-ramp from South Gate Road, and construction of the westbound off-ramp to Macalla Road on the east side of YBI.

Ground-disturbing activities within the PSA could potentially impact paleontological resources. The paleontologically sensitive Franciscan Complex/Alcatraz Terrane can be found directly underneath the paleontologically sensitive Colma Formation (see Figure 1), and both would be affected by construction activities.

Avoidance, Minimization, and Mitigation Measures

In general, avoidance and minimization are not feasible with regard to addressing significant impacts on paleontological resources. Geologic formations are usually extensive, and project design cannot be adjusted sufficiently to effectively avoid or minimize paleontological impacts. As a result, mitigation is the approach generally taken to address paleontological impacts.

Follow Caltrans' mitigation measures for paleontological resources per Standard Environmental Reference guidelines (Caltrans 2007). Caltrans will implement the following measures as

applicable to the selected alternative:

a. A qualified paleontologist will be present to consult with grading and excavation contractors at pre-grading meetings.
b. A paleontological monitor, under the direction of the qualified principal paleontologist, will be on site to inspect cuts for fossils at all times during original grading involving sensitive geologic formations.
c. When fossils are discovered, the paleontologist (or paleontological monitor) will recover them. Construction work in these areas will be halted or diverted to allow recovery of fossil remains in a timely manner.
d. Fossil remains collected during the monitoring and salvage portion of the mitigation program will be cleaned, repaired, sorted, and cataloged.
e. Prepared fossils, along with copies of all pertinent field notes, photos, and maps, will then be deposited in a scientific institution with paleontological collections.
f. A final report will be completed that outlines the results of the mitigation program.

.

Additional Recommendations for Mitigating Impacts to Paleontological Resources

Onsite Training

Onsite training should be conducted for all construction personnel who will work in excavated areas in the of the project area (Figure 1). Training will discuss the types of paleontological resources that could be encountered on the project and the procedures to be followed if they are discovered.

Monitoring of Construction Activities

Ground disturbing excavations include pile driving and column foundation construction. The minimum excavation depth for these construction activities is approximately 12.2 meters (40 feet). Ground disturbing activities are expected to penetrate paleontologically sensitive units throughout the PSA.

Monitoring of project-related, ground-disturbing activities within the Franciscan Complex and the overlying Colma formation should occur. The following includes the areas and depth parameters when monitoring should occur:

- In areas where the Franciscan Bedrock is mapped (as shown on Figure 1).
- If ground disturbances exceed 2 meters (6.5 feet) in depth in the areas mapped as Dune Sand and Alluvium (as shown on Figure 1).
- If ground disturbances exceed 2.6 meters (8.5 feet) where Colluvium and Landslide Debris are mapped (2 meters [6.5 feet] for Dune Sands and 0.6 meters [2 feet] for Landslides) (as shown on Figure 1).
- If ground disturbances exceed 9.1 meters (30 feet) in depth the <u>southern saddle area where Manmade Fill is mapped</u> (as shown on Figure 1).

Monitoring should continue until a paleontologist has determined that the paleontologically

sensitive units are not being impacted or do not contain paleontological materials. Periodic sampling of excavated material of the Franciscan Complex and Colma Formation will determine whether they contain sensitive paleontological resources. Monitoring, sampling, data recovery, reporting, and curation activities should take place in accordance with the professional standards determined by the Society of Vertebrate Paleontology (Conformable Impact Mitigation Guidelines Committee 1995).

Unanticipated Discovery

In the event fossils are discovered in an area where monitoring is not being performed, the following guidelines should be followed:

- Stop all construction work within a 15.24 meter (50 foot) radius of the find until a qualified paleontologist can assess the significance of the find. If the discovery is significant or potentially significant, then potential mitigation will include:
    - Data recovery and analysis,
    - Preparation of a data recovery report, and
    - Accessioning recovered fossil material to an accredited paleontological repository, such as the University of California's Museum of Paleontology.

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APPENDIX Q

PRELIMINARY FOUNDATION MEMORANDUM

AECOM
150 Chestnut Street
San Francisco, CA 94111
www.aecom.com

415 955 2800 tel
415 788 4875 fax

Memorandum

To	Valerie Shearer	Page	1
CC			
Subject	Yerba Buena Island Ramps Improvement Project EIR/EIS Preliminary Foundation Memorandum Addendum		
From	Susan Yogi		
Date	July 26, 2011		

The YBI Ramps Improvement PDT, which is comprised of the lead (Caltrans and SFCTA), cooperating, and responsible agencies, held a meeting on April 12, 2011 to consider and identify the preferred alternative. The unanimous decision was that Alternative 2b would best meet the purpose and need of the YBI Ramps Improvement Project. The relocation site for Quarters 10/Building 267 was determined following the identification of the preferred alternative.

The purpose of this memorandum is to confirm that preparation of the relocation of Quarters 10/Building 267 site and relocation of the buildings would not result in new issues. After the buildings are relocated, any future use of the site will be evaluated through a separate environmental process initiated by the City and County of San Francisco and/or TIDA.

Based on available information (Preliminary Foundation Memorandum – Yerba Buena Island Ramps Improvement Project On East Side of the Island, Oakland, California, 2010), YBI is underlain by Franciscan Formation basement rock consisting of interbedded graywacke sandstone, siltstone and claystone of varying proportions. Bedrock on the island is covered by thin sandy deposits from the Pleistocene Colma formation or derived from the underlying sandstone.

The relocation site is located in the northwest quadrant of YBI. The geologic formation in the Clipper Cove area consists of colluviums and landslide debris which is mainly loose sand and rock debris. Sand covers most of the bedrock on the island, except along the lower parts of the slopes where waves have cleaned the rocks, in the northwest quadrant. The relocation site is located on natural land. Treasure Island and the causeway between YBI and TI was constructed in the late 1930s and consists mainly of dredged sandy fill surrounded by a permiter of berm-like series of rock dikes (Final Report-Geotechnical Investigation-Treasure Island Causeway Seismic Stabilization Study, San Francisco, California, 2006)

Construction activities associated with the building relocations would include grading and excavation operations associated with preparing the site, foundation construction, and placement of the relocated buildings. No pile installation or CIDH drilling would be required at the relocation site. Earthwork would be performed in accordance with Caltrans Standard Specifications, Section 19.

As with the proposed ramps and as stated in Section 3.11.4.1 of the Final EIR/EIS, Caltrans would retain California-licensed geologists and geotechnical engineers to prepare a draft and final foundation report and to conduct a site-specific geotechnical study for the preferred alternative. The preferred alternative has been identified as Alternative 2b, and thus the site-specific geotechnical study would include the relocation site. Caltrans would document compliance with necessary avoidance and minimization measures prior to the final project design and foundation report.

As with the proposed ramps, compliance with required laws and regulations through the project design and construction specifications would ensure that potential geology/soils/seismic/topography impacts are minimized or avoided for the building relocations.

PRELIMINARY FOUNDATION MEMORANDUM

YERBA BUENA ISLAND RAMPS IMPROVEMENT
PROJECT ON EAST SIDE OF ISLAND

WESTBOUND ON-RAMP
WESTBOUND OFF-RAMP

Prepared By:

AECOM TRANSPORTATION
2101Webster Street, Suite 1900
Oakland, CA 94612

December 2010

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1.0 INTRODUCTION

1.1 PURPOSE AND SCOPE OF STUDY

The project is proposed to address present geometric and operational deficiencies of the existing westbound on and off-ramps and the effects on the San Francisco-Oakland Bay Bridge (I-80) mainline.

AECOM Transportation is the prime design consultant and EMI is a subconsultant of AECOM to provide geotechnical engineering for the design and construction of the interchange, which consist of new bridges, earth retaining structures, culverts, permanent cut and fill slopes, and pavement design for the project.

This Preliminary Foundation Memorandum presents draft findings from a geotechnical investigation conducted by Earth Mechanics, Inc. (EMI), preliminary foundation analysis and design, and construction recommendations for the proposed ramps improvement project on Yerba Buena Island, California.

1.2 PROJECT DESCRIPTION

1.2.1 Existing Facilities

The existing local Macalla Road is one through lane each way and has a downgrade of about 9% within the project limits. Macalla Road is a major local arterial roadway between Treasure Island and the westbound on-ramp to the I-80 viaduct.

The existing I-80 bridge structure was constructed in the 1930's and consists of a reinforced concrete tunnel approach viaduct, a massive concrete abutment structure, and a steel viaduct, all with two decks of five lanes each.

A former timber staircase and associated concrete walkways steps and slabs have now been removed.

1.2.2 Proposed Improvements

The proposed improvements will replace the westbound on-ramp and off-ramps. The new bridge structures will connect Macalla Road with the new San Francisco-Oakland Bay mainline which is currently under construction as part of the East Span Seismic Safety Project by the California Department of Transportation. The new ramps will consist of two new multi-span precast prestressed concrete girder bridges branching off the new I-80 upper bridge deck and merging into a common bridge abutment at Macalla Road. The bridges will be supported by variable-height bent columns and a high-seat cantilever abutment. At the abutment, the new ramps will terminate with right and left-turn lanes.

The proposed structure (Alternative 2B) is divided in seven segments/design elements and proposed foundation types:

- The “Viaduct Structure Widening” supported on large-diameter Cast-In-Drilled Hole (CIDH) foundations,
- The “Transition Structure Widening at On-Ramp” supported on driven pile foundations,
- The “WB On-Ramp Structure” supported by 4 bents and an abutment on driven piles foundations,
- The “WB Off-Ramp Structure” supported by 5 bents and one abutment on driven piles foundations,
- The “Transition Structure Widening at WB Off-Ramp” involving 1 bent on driven pile foundation,
- Two retaining walls adjacent to the ramp abutments on driven piles, and
- A Retaining wall along south side of Macalla Road on spread footing.

Other major foundations are yet to be built in the area for the future I-80 Transition Structure and Final E/B On-Ramp. These foundations consist of large driven pile groups and will require temporary shoring for excavations and access roads. Construction of Transition Bent W7 to Abut W11 foundations are in progress as part of the YBI Transition Structures Advance Construction Package No. 2R0 (2007) and the YBITS#1 contract. Utility conduits and drainage devices are being and will be built in the sloping grounds between I-80 Transition Bents W7 and W9. A Caltrans Retaining Wall No. 6 is proposed in the sloping ground between Transition Structure Bents W7(L) and W8(L).

2.0 FIELD INVESTIGATION AND LABORATORY TESTING

2.1 EXISTING DATA REVIEW

The existing boreholes at or near a number of the proposed support points can be used for geotechnical foundation design if the new foundations do not require deeper penetration depths and provide sufficient information.

A series of soil and rock borings and cone penetrometer tests with seismic logging shown as “95-X” and “96-X” were performed by Caltrans in 1995 and 1996 primarily near the tunnel portal and along the existing bridge alignment for the Seismic Retrofit Project No. 19 of the existing viaduct (Caltrans, 1997).

Boreholes and Cone Penetrometer Tests designated as 98-X and 99-X were drilled in 1998 and 1999 for the SFOBB bridge replacement project. Borehole logs, laboratory test data, site characterization, and engineering properties are contained in the Fugro-EMI Site Characterization Report (2001).

Drilling was performed by PC Exploration of Rocklin, California and Pitcher Drilling of Palo Alto, California using Mobile B-80, Mobile B-53 and Failing 1500 truck-mounted drill rigs using rotary-wash and wireline core retrieval systems. Drilling in rock was performed using a 124 mm (4.8 in) tricone bit in soil and a HQ core barrel with 3.8 in (96 mm) outside diameter (OD) or NX core barrel with 76 mm (3 in.) OD in rock. A “Minuteman” hollow-stem-auger, tripod-mounted rig was used for steep hillside exploration. Soil and rock logging generally conformed to Caltrans 1996 logging guidelines (1996). Standard Penetration Tests (SPT) were performed in accordance with ASTM D 1586 using either standard rope-and-cathead technique and automatic-trip hammers. Soil samples were taken using the standard split spoon sampler and a modified California drive sampler consisting of a thin-wall brass ring-lined barrel with an outside diameter of 76 mm and an inside diameter of 73 mm.

CPT soundings were performed using an electronic cone penetrometer in general accordance with current ASTM Standards (ASTM D5778 and ASTM D3441). The CPT equipment consisted of a cone penetrometer assembly mounted at the end of a series of hollow sounding rods. The cone penetrometer assembly consisted of a conical tip with a 60° apex angle and a projected cross sectional area of 1.55 in² (10 cm²) and a cylindrical friction sleeve with a surface area of 23.25 in² (150 cm²). The interior of the cone penetrometer is instrumented with strain gauges that allow simultaneous measurements of cone tip and friction sleeve resistance during penetration. The cone penetrometer assembly is continuously pushed into the soil by a set of hydraulic rams at a standard rate of 0.79 inch per second (20 mm per second) while the cone tip resistance and sleeve friction resistance are recorded every 1.967 inches (50 mm) and stored in digital form. A specially designed all-wheel drive 25-ton truck provides the required reaction weight for pushing the cone assembly and is also used to transport and house the testing equipment. The computer generated graphical logs include tip resistance, friction resistance, and friction ratio. Soil behavior type interpretations are based on guidelines by Robertson and Campanella (1989).

Additional borings designated as “07-X” and “08-X” were performed in the slope areas for additional foundations and are documented in Addenda to the Site Characterization Report (Fugro-EMI, 2008).

2.2 FIELD INVESTIGATION

2.2.1 Borehole Locations

Site reconnaissance visits were conducted in July and August 2009 to plan the investigation, stake borehole locations, and mark and clear underground utilities. Borehole survey was provided by AECOM/Towill. A geotechnical field investigation was then conducted by EMI in August 2009 that consisted of drilling a total of 13 exploratory borings in the project area. The purpose of these borings was to determine subsurface conditions and collect samples of subsurface soils for the proposed bridge and wall foundations and for pavement design. Work was performed under a U.S. Navy permit provided by AECOM and a Caltrans encroachment permit rider obtained by EMI under a permit pulled by AECOM. Work was coordinated with AECOM, Caltrans Construction and Environmental Engineering, General Contractor C.C. Meyers, the Public Utilities Commission on Treasure Island, and Towill land surveyors.

Based on the experience during past foundation construction on the SFOBB Bridge Replacement Project, Caltrans direction was to characterize soil and rock conditions at each proposed support by an exploratory borehole to avoid or minimize construction issues and potential significant contractor claims. Caltrans also directed not to encroach into the Historical District area upslope of the Nimitz House. Based on this direction and geotechnical foundation design considerations, borehole locations were placed at or near proposed bridge foundations based on a number of considerations including need (lack of existing data), site accessibility, presence of existing structures and buried and overhead utilities, personnel safety concerns, fire hazard, and minimal impact on traffic and on-going construction operations. Most of the boreholes were in sloping ground and difficult access. Most (10) of the boreholes were deep and placed in the On-Ramp/Off-Ramp loop area and three shallow borings were placed behind the proposed retaining wall along Macalla Road.

2.2.2 Drilling and Sampling

Drilling in soil was performed using the mud rotary-wash technique with 5-inch diameter auger. Soil sampling was performed to collect relatively undisturbed and disturbed samples for soil laboratory testing. California Drive sampler and a Standard Penetration Test (SPT) sampler were alternated at approximately 5 to 10 ft depth intervals. Soil samples were visually logged in the field following Caltrans Soil and Rock Classification Manual. Relatively undisturbed drive samples were obtained using a Modified California split-spoon sampler (3¼” outside diameter) lined with brass rings 1-inch long with 2.5-inch outside diameter and 2.4” inside diameter. Disturbed samples were obtained using a SPT sampler (1.4-inch inside diameter) without liners. Standard Penetration Tests (SPT) were performed in the borings generally at 5-foot depth intervals. Both samplers were driven into the ground using a 140-lb automatic-trip hammer free-falling 30 inches.

When rock was encountered, the drill equipment was converted to wireline core drilling using a triple-barrel coring system fitted with carbide bit or HQ-size diamond-impregnated bit tools and a

101-mm diameter geobarrel sampling. Rock cores were carefully handled, extruded on PVC shells for visual inspection and logging, then preserved using cellophane/shrink wrap to retain in-situ moisture and stored in sturdy wooden core boxes.

Hazardous materials (free product) or soil contamination was not observed or encountered during drilling. Aerially deposited lead sampling or testing is beyond the scope of this report.

2.3 LABORATORY TESTING

Laboratory tests were performed to determine relevant physical characteristics and engineering properties of soils that exist at the site. Selected representative soil samples were tested to determine soil classification and physical and engineering properties.

The laboratory tests were conducted in general accordance with California Test Methods or American Society for Testing and Materials (ASTM) Standards.

3.0 GEOLOGICAL SETTING

3.1 REGIONAL GEOLOGICAL STRUCTURE

The project is located in the Coast Ranges geologic/geomorphic province of northern California. The Coast Ranges extend from approximately 300 miles from the Transverse Ranges province in the south to the Klamath Mountains about 250 miles to the north of the project site. The Coast Ranges province is bordered on the west by the Pacific Ocean and to the east by the Great Valley province. The Coast Ranges have a general northwest orientation and are characterized by north-northwest trending ranges and valleys.

The San Francisco Bay region comprises a northwesterly-oriented geomorphic depression called the San Francisco Bay-Santa Clara Valley (SFB-SCV) depression (Page, 1992). The SFB-SCV is bounded by the Santa Cruz Mountains to the southwest, and the East Bay Hills and Diablo Range to the northeast. The SFB-SCV depression and its bounding mountains all have relatively recent tectonic origin within about the past 3 or 4 million years (Page, 1992).

Although tectonic deformation continues today, the bulk of large-scale crustal folding and down-warping was near completion about 1 million to 500,000 years ago. At about 100,000 years ago the hills and valleys reached their present configuration and the present form of the bay could have been recognized (Page, 1992; Goldman, 1992).

The project site is between two major fault systems, the San Andreas fault west of the site and the Hayward fault system to the east. The San Andreas Fault is the boundary between the Pacific and the North American tectonic plates and juxtaposes the Jurassic/Cretaceous-age Salinian Block plutonic rocks against the Jurassic/Cretaceous-age Franciscan Complex. The Franciscan rocks are juxtaposed against the Great Valley Sequence which lies east of the Hayward fault.

The Franciscan Complex forms the basement rocks under most of the San Francisco Bay area, including the site area, and consists of sedimentary, metamorphic, and igneous rocks. These rocks are believed to have been accreted onto the North American plate during plate subduction that largely ended in the Miocene (Page, 1992). Although parts of the accreted assemblage form coherent, solid rock, most of the complex are intensely sheared and disrupted into a mélange of exotic blocks of basalt, chert, limestone, gabbro, blueschist, eclogite, and amphibolite that are embedded in a tectonic paste of sheared shale, sandstone, and serpentinite (Wahrhaftig, 1989). Deposited onto these basement rocks are Tertiary-age marine and non-marine sedimentary rocks such as the Contra Costa Group and Santa Clara Formations.

3.2 LOCAL GEOLOGY OVERVIEW

Yerba Buena Island is located within the San Francisco Bay, approximately 11 miles east of the San Andreas Fault and 8 miles west of the Hayward fault. Yerba Buena Island can be divided into four distinct topographic zones. These zones are the Main Island, Northeast Point which forms the small knoll at the northeast tip of the island, and the Saddle Area that forms the lowest part of the natural island between the Main Island and Northeast Point, and Treasure Island, the low-elevation man-made island on the north. The project area is on the northeast flank of the Main Island.

The island is underlain by Franciscan Formation basement rock consisting of interbedded graywacke sandstone, siltstone and claystone of varying proportions. The majority of the Franciscan Formation is covered with unlithified sand and localized areas of artificial fill. The unlithified sand is partially eolian (windblown) in origin (Schlocker, 1974) and partially weathered and decomposed Franciscan sandstone. The sand covers most of the bedrock on the island, except along the lower parts of the slopes where waves have cleaned the rocks, and on Northeast Point. Grading in the late 1930's at the Northeast point removed up to 50-60 feet off the top of the hill exposing slightly weathered bedrock. Areas of artificial fill surrounding the island, such as Treasure Island and the Coast Guard Station, were created by placing cut materials from Yerba Buena Island and dredged bay deposits.

Review of regional seismotectonics of the San Francisco Bay Area indicates that there are no known active faults in proximity of Yerba Buena Island and no historical earthquakes have been associated with fault rupturing on the island. Faulting and seismicity on the island are discussed in more detail in the YBI Site Geotechnical Characterization Report (EMI-Fugro, 2001).

3.3 LOCAL STRATIGRAPHY

The majority of the island is covered with unlithified alluvial deposits, along with localized areas of artificial fill. The unlithified material is primarily wind-blown sand and weathered decomposed Franciscan Formation.

The project site is characterized by the following four basic units:

- Artificial Fill (af),
- Sedimentary Deposits and Alluvium (Qs, Qal, Qb, Qc, Dbr),

- Landslide Deposits (Qls and Qols),and
- Bedrock of the Franciscan Formation (JKf).

These units are essentially the same as those found throughout the island as described in the YBI Site Geotechnical Characterization Report (EMI-Fugro, 2001). Table 3-1 provides a summary of site stratigraphy of units which are described in more detail in subsequent sections.

TABLE 3-1. STRATIGRAPHIC INFORMATION

UNIT NAME	APPROXIMATE AGE	DESCRIPTION
Artificial Fill (af)	<100 yrs	sand
Alluvium (Qa, Qal):	Holocene (< 10,000 yrs)	sand, silt and gravel; non indurated to weakly indurated.
Sandy Clay , Silty Clay, Clay (Qs, Qb, Qc, Qc/Dbr)	Late-Middle Pleistocene (10,000-300,000 yrs)	light brown, light gray decomposed mudstone, claystone, shale;
Salinian block granitics, Franciscan and Franciscan metavolcanics (JKf)	Jurassic/Cretaceous (144-206 my)	***Salinian block granitics*** – granodiorite, quartz monzonite, quartz diorite, ***Franciscan –*** 25,000 ft thick bedded and massive graywacke, sandstone interbedded with thin-bedded to laminar claystone and siltstone, greenstone, blueschist, greenschist, serpentinized peridotite.

3.3.1 Artificial Fill

Fill occurs locally across the island as road base, foundation support, and landscaping soil. Fill also occurs as uncompacted cast-over or disturbed surficial slough from the various historical development activities. Along the many roads around the island, cast-over grading material from the road building activities overlies, and is gradational with, native slope-wash sedimentary alluvium. Artificial fill occurs along the island shoreline east and south of the Northeast Point at the Torpedo Building and Torpedo Road, and in the Coast Guard base in the southern Saddle Area. Most of the present U.S. Coast Guard Station is entirely on fill first placed around 1934.

The fill material within the Southern Saddle Area is up to about 30 feet thick. Exploratory excavation indicated the upper portion of the fill consists of brown to yellowish brown, moist, loose to medium dense, fine grained sands with some gravel. The lower portion consists of a coarser fraction composed of brown and gray sand and gravel material with large angular cobbles and boulders of the Franciscan Formation sandstone and siltstone.

3.3.2 Sedimentary Deposits

Sedimentary deposits are generally slopewash alluvium composed primarily of fine-grained sand and silty sand with a few scattered silt and clay lenses. The colors of the alluvium are shades of brown ranging from yellowish-brown, brown, brownish-yellow, and dark brown. The material is loose to very dense and generally moist except on the upper slopes where it is locally dry to moist. The deposits are thick-bedded to unbedded; where bedding occurs it is generally horizontal to dipping about 20 degrees.

The great thickness and fine-grained nature of the sands along with their poor grading and widespread distribution in pockets across the island suggests these materials originated as wind-blown sands similar to those occurring on much of the San Francisco Peninsula. Mixed in with the wind-blown deposits may be weathered-in-place siltstone and sandstone of the Franciscan Formation.

The bottom portion of the unlithified deposits generally consists of clay to sandy clay unit about 5 to 15 feet thick (denoted as Qc/Dbr). This clayey deposit is multicolored with shades of yellowish-brown and reddish-brown with gray, black, and white specks, streaks, and spots.

The clayey zone grades imperceptibly downward into sandstone but occasionally contains fragments of decomposed to weathered sandstone. The clays are typically stiff to hard. The gray areas are generally centered around tubular void spaces of l to 2 mm size which appear to be remnant root holes suggesting the material is a relict soil. These characteristics indicate that the unit is completely decomposed and altered Franciscan bedrock. In some cases, the material is intersected by white to black clay seams and planar features that appear to be relict bedding, joints, or veins, typical of those seen within the underlying bedrock. Occasionally, these features could be traced into the underlying rock.

The slope soils predominantly consist of medium dense to dense sedimentary alluvium of poorly-graded, fine-grained sands with varying amounts of silt. The alluvium is generally unbedded and massive. The alluvium is underlain by a layer of very dense clayey sand (at higher elevations) to hard sandy clay (at lower elevations) a few meters thick that represent the transition zone between soil and intensely to highly weathered Graywacke sandstone/siltstone/claystone of the Franciscan Formation. Two design soil profile cross sections are attached as identified in the site plan.

3.3.3 Landslide Deposits

A portion of the project area appears to have experienced shallow landslides. Similar but degraded slide scars can be seen on the slopes around the island indicating that these features have occurred in the past and are a recurring phenomenon. Landslides on YBI consist of two types: thin surficial soil slips and wedge failures involving Franciscan Formation bedrock. These landslides are generally small and occur where slopes have been over-steepened by erosion and excavations. The landslides within the site area appear to thin features similar to those observed throughout the island.

The poorly stratified nature of the unlithified sandy slope-wash and wind-blown deposits indicate that the predominant landsliding agent is reworking and remobilization by gravitational slope-wash processes. These processes comprise soil creep and landsliding. The landslides can be caused or

exacerbated during severe winter rains when the sands become saturated. For example, the intense rainfall during the winter of 1998-1999 resulted in several large shallow soil slips on the steep (about 40°) slopes above the Coast Guard base. Exposures in these slide scars revealed only massive deposits. These slides involved surficial sands of the Sedimentary Deposits. The depth of these slides was on the order of about 2 to 5 feet.

3.3.4 Bedrock

The Jurassic/Cretaceous-age Franciscan Formation (JKf) forms the bedrock of YBI and underlies the surficial unlithified sediments. The Franciscan Formation is about 140 million years old and has a long history beginning with deposition in a deep ocean basin to uplifting to its present surface exposure.

The Franciscan formation consists of interbedded sandstone, siltstone and claystone. However, the formation within the YBI ramps area is predominantly thick-bedded to massive sandstone with only a few thin beds of claystone or siltstone. The few beds indicate bedding orientation dipping to the northeast consistent with outcrops and other borings on the island (EMI-Fugro, 2001). The rock is commonly soft in the upper 5 to 15 feet where it has been altered by weathering. These weathered rocks are generally brown. With increasing depth, weathering decreases, and the rocks become gray and much harder.

The rocks have abundant intersecting calcite veins which represent healed fractures. There are a few minor fractured zones. Tiny hairline fractures with tiny offsets are ubiquitous throughout the formation. These small fractures are largely intra-formational and commonly intra-stratal features that formed when the rocks were still soft sediment or only slightly lithified. Displacements on such features are generally on the order of millimeters or centimeters. These features are completely healed and may be tens of millions of year old and of no significance to the modern tectonic regime.

3.4 LOCAL GEOLOGICAL STRUCTURE

The Franciscan Formation on Yerba Buena Island and the immediate surrounding area is unusually coherent compared to the formation in other parts of California which is composed of a highly deformed melange of ancient seafloor/trench deposits. The rocks are about 140 million years old and have undergone a long history of deformation beginning with uplift from the deep ocean basin to its present surface exposure. This history included subduction zone tectonics, perhaps several episodes of uplift, folding, and subsidence, and plate-boundary faulting.

There are abundant shear zones with minor displacements on the order of millimeters and centimeters within the Franciscan Formation bedrock. Several larger fracture zones and minor shear zones were encountered in boreholes and foundation excavations within the rocks of Northeast Point (EMI-Fugro, 2001). However, there are no known active faults in proximity of Yerba Buena Island (EMI-Fugro, 2001) and no historic earthquakes associated with fault rupturing on the island. Geophysical investigations north of the island revealed that offshore discontinuities are a result of dredging and filling activities and not faulting (EMI-Fugro, 2001). An onshore geophysical study suggested another zone of poor continuity within the Saddle Area, but detailed analysis of aerial photographs, geophysics, core samples, and down-hole video logs do not favor a fault origin.

Bedding within the bedrock of the island generally strikes about N50° to 60° W and dips about 20° to 70° to the northeast. In general, the dips are steepest in the central part of the island and decrease gradually toward Northeast Point where dips of 30° to 45° degrees are most common. Just offshore to the east of the point, bedding dips in the 20° to 45° range.

The rocks of the formation are highly fractured with fracture density generally in the 3 to 4 fractures per foot range, especially near the surface. The density of fracturing generally decreases with depth where most joints are healed with calcite cement. The rocks have abundant intersecting calcite and some quartz veins which represent healed fractures. There are abundant minor intensely fractured zones. Some of these fractures have slickensides and fresh appearing oxidation indicating slight reopening and water percolation at some later time. The orientation of the fractures is distributed throughout all quadrants of the compass without any dominant orientation (EMI–Fugro, 2001).

Tiny shears, generally hairline, and minor shear zones are ubiquitous throughout the rocks. These small shears are largely intra-formational and commonly intra-stratal features that formed when the rocks were still soft sediment or only slightly lithified. Displacements on such features are generally small fractions of an inch (on the order of millimeters or centimeters). These features are completely healed and may be tens of millions of year old and of no significance to the modern tectonic regime.

3.5 GROUNDWATER

No groundwater was encountered during the subsurface exploration as part of this study. Groundwater was not recorded during the present investigation due to the use of rotary-wash type of drilling. Groundwater was also not found in EMI's existing monitoring well monitoring well 08-1 at the time of investigation.

EMI-Fugro (2001) interpreted the natural groundwater table to be near sea level. However, significantly higher levels have been measured in the sediment cover in the central part of the island and these result from infiltration of surface run-off from seasonal rains on the higher elevations on YBI.

3.6 REGIONAL SEISMICITY

The geology of the San Francisco Bay is controlled by the northwest trending, right-lateral San Andreas fault system that is comprised of several major and minor fault strands with generally similar trends, deformation styles, and seismic histories. The fault system accommodates ~1.5 inches/year of relative dextral shear within the broad boundary (60-120 miles) between the Pacific and North American plates. In the vicinity of Yerba Buena Island, the San Francisco Bay-Santa Clara Valley block is bound by two major faults; the main trace of the San Andreas fault occurs approximately 10 miles to the west and the Hayward fault lies ~8 miles to the east. The sub-parallel San Andreas and Hayward faults strike ~N35°W to N37°W and cut through the crust at variably high angles. The San Andreas fault on the San Francisco Peninsula is relatively young strand that has undergone ~15 miles of right-lateral offset in the past 3.3-1.3 Ma (Parsons, et. al., 2002). The Hayward fault system, including the Hayward, Calaveras, Rodgers Creek, and Healdsburg faults, has undergone ~ 65 miles of cumulative offset in the past 12 Ma (Graymer, 2003).

In the southern San Francisco Bay block, the San Andreas fault is considered "locked" at the surface; strike-slip (lateral) motion along the fault occurs as (earthquake-generated) discrete seismic slip events. Slip rate estimates for the Bay area segments of the San Andreas fault are very uncertain, with credible values ranging from 15 to 25 mm/yr (Working Group on California Earthquake Probabilities, 2003).

The model for the Hayward fault suggests it is locked at variable depths from the surface to ~ 7.5 miles below the surface (Bürgmann et. al., 2000). Where the Hayward fault is locked at depth, movement occurs both as seismic and aseismic slip (distributed fault 'creep'). Aseismic slip is an important component of the Hayward fault; in some creeping sections, greater than 50% of the long-term fault displacement is accommodated by aseismic slip and recent studies suggest that aseismic slip releases up to 25% of the seismic moment accumulating on the fault (Furlong et. al., 2003).

There is also a considerable amount of vertical displacement along fault zones in the southern San Francisco Bay. In the west, much of the vertical displacement occurs along folds and discrete thrust faults (e.g., the Monte Vista and Berrocal faults) located within a restraining bend in the San Andreas fault near the foothills of the Santa Cruz Mountains southeast of Palo Alto (Hitchcock and Kelson, 1999). In the east, vertical displacement is especially notable in the Mission Hills region where there is left step-over between the Hayward and Calaveras faults. Vertical offset on the Hayward fault system appears to be partitioned rather than discrete, occurring as oblique right-lateral slip. Relative to other areas in the San Francisco Bay-Santa Clara Valley block, the active uplift rates in both these regions are considered rapid and capable of producing large earthquakes such as the 1989 Loma Prieta earthquake (M_w 6.9) (Bürgmann et. al., 2006) which had an epicenter in the southern Santa Cruz Mountains ~20 miles southeast of Yerba Buena Island.

Most historical seismicity in the San Francisco Bay region is associated with the major faults of the San Andreas fault system. A total of 15 earthquakes of moment magnitude (M) $\geq$ 6.0 have occurred in the San Francisco Bay region in historical times (1850 to present), including the 1868 M 6.9 Hayward, the 1906 M 7.9 San Francisco and the 1989 M 6.9 Loma Prieta earthquakes. Additionally, between 1808 and 1850, 4 large intensity earthquakes with moment magnitudes estimated between 6.0 and 6.8 occurred in the southern San Francisco Bay region.

3.7 GEOLOGIC HAZARDS

There are virtually no significant earthquakes on the island. Within the 40 or so years of high-resolution earthquake recording and roughly 1 million years for geology, the present San Francisco Bay domain has been essentially non seismic and appears to be responding to tectonic stress only by long-term regional tilting down to the south.

Faults are observable in the cut slopes and north shoreline of Northeast Point. These features were mapped and traced in core holes and foundation excavations, and were analyzed under the petrographic microscope. These studies indicated that the faulting in the YBI Northeast Point formed under conditions of relatively high confining pressure and elevated temperature, in the presence of silica and carbonate-bearing hydrothermal solutions. This faulting is believed to have occurred about 13 million years ago, and under conditions that no longer exist at YBI. Geophysical

surveys (EMI-Fugro, 2001) also show that none of the young sediment units in the area have been deformed, eliminating the possibility of Holocene fault activity.

It is therefore concluded that there is little hazard of tectonic faulting or other permanent local deformation to the project area. The long-term regional tilting down to the south of the San Francisco Bay domain is probably continuing, but at a rate that is so slow (approximately 0.1 mm/yr) that it is effectively imperceptible in the YBI area.

3.7.1 Landslides

In general, landslides are the downslope motions of earth materials including rock, soil, or both. Landslides can move by translational movement or rotational settlement or a combination of both. They are the result of the loss of ability of earth materials to maintain their integrity at a specific slope gradient. Subsequently landslides settle into a lesser gradient or state of greater equilibrium. The internal material strength is lost and the material then settles into a form where the mass is centralized on the downhill side of motion. Often landslides are associated with water because water increases the material unit weight and decreases the internal strength of the material. Landslides become increasingly more probable with increasing slope gradient, looseness of material, unfavorable bedding conditions (out of slope), clay content of bedrock, underground springs, unfavorable slope orientation with existing fault boundaries, human/artificial impacts and disturbances, increases in groundwater, earthquake forces, increases in water content and disturbances of the lateral confining forces and/or the portion of the slope.

The steep portions of the existing slopes south of existing I-80 have a history of surficial sloughing after wet periods up to about 3 m deep (detailed information including description, maps, photos, and references is provided in Section 6.3 of 2001 Fugro-EMI Site Characterization Report, and Section 4.3.1.1 and Plates 2 and 40-42 of the 2002 Fugro-EMI Foundation Report). Previous reports for the area discuss and document surficial sloughing and failures dating back to the 1930s, 1974, and during the wet season of 1997-1998. The last sloughing event occurred in the south portion of the slopes after ground saturation due to significant rainfall in early January 2006 and that portion has since been stabilized by extensive reinforced shotcrete facing. In addition, the sloping ground at Transition Bent W7 is being restored using geogrid-stabilized engineered backfill designed by Fugro-EMI.

Previously conducted slope repairs including the shotcrete slope facing seem to have worked well and prevented reoccurrence of failures, so far. The parts of the slope that have recently been involved with landsliding are probably now somewhat stable, but areas between old slides may still be unstable, and the steeper parts of the head scarps of the old slides should be expected to fail during the next period of prolonged heavy rainfall. Future excavations associated with the new SFOBB that create slopes steeper than the angle of repose (i.e. about 35°) may be subject to raveling, surficial sand flowage, and to shallow landsliding.

3.8 SEISMIC HAZARDS

3.8.1 Soil Liquefaction

Liquefaction is a phenomenon whereby saturated granular soils lose their inherent shear strength due to increased pore water pressures, which may be induced by cyclic loading such as that caused by an earthquake.

Liquefaction is more likely in clean, low-fines, poorly-graded, saturated, low-density sands. With increasing overburden, density and increasing clay-content, the likelihood of liquefaction decreases. In regards to clay content, recent studies over the past ten years has demonstrated that clays with certain properties can be prone to liquefaction. Other factors affecting the potential of liquefaction include but not limited to the following: magnitude and proximity of the earthquake; duration of shaking; soil types; grain size distribution; clay fraction content; density; angularity; effective overburden; cyclic loading; and soil stress history. Liquefaction is generally considered possible when the depth to groundwater is less than about 50 feet below the ground surface.

The subject site is underlain by competent medium dense to very dense silty sand and deep clay alluvium, particularly at depths where groundwater has been observed in few soil borings during wet seasons. Within the project area, the potential for soil liquefaction under these conditions is low and not considered a design issue.

3.8.2 Lateral Ground Spreading

Lateral spread is the finite, lateral displacement of sloping ground (< 6% percent) as a result of pore pressure buildup or liquefaction in a shallow, underlying soil deposit during an earthquake. Lateral spreading, as a result of liquefaction, occurs when a soil mass slides laterally on a liquefied layer and gravitational and inertial forces cause the layer and the overlying non-liquefied material to move in a downslope direction. The magnitude of lateral spreading movements depends on earthquake magnitude, distance between the site and the seismic event, thickness of the liquefied layer, ground slope or ratio of free-face height to distance between the free face and structure, fines content, average particle size of the materials comprising the liquefied layer, and the standard penetration rates of the materials. Due to a low site soil liquefaction potential, the potential for lateral spreading to impact the project corridor is low.

3.8.3 Fault-Related Ground Rupture

In general terms, an earthquake is caused when strain energy in rocks is suddenly released by movement along a plane of weakness. In some cases, fault movement propagates upward through the subsurface materials and causes displacement at the ground surface. Surface rupture usually occurs along traces of known or potentially active faults, although many historic events have occurred on faults not previously known to be active.

The California Geologic Survey (CGS) establishes criteria for faults as active, potentially active or inactive. Active faults are those that show evidence of surface displacement within the last 11,000 years (Holocene age). Potentially active faults are those that demonstrate displacement within the

past 1.6 million years (Quaternary age). Faults showing no evidence of displacement within the last 1.6 million years may be considered inactive for most structures, except for critical or certain life structures. In 1972 the Alquist-Priolo Special Studies Zone Act (now known as the Alquist-Priolo Earthquake Fault Zone Act, 1994, or APEHA) was passed into law which requires studies within 500 feet of active or potentially active faults. The APEHA designs "active" and "potentially active" faults utilizing the same age criteria as that used by the CGS. However, the established policy is to zone active faults and only those potentially active faults that have a relatively high potential for ground rupture.

The project site is not located within any active fault zones as delineated by the APEHA. Localized faults are observable in the cut slopes and north shoreline of Northeast Point. These features were mapped and traced in core holes and foundation excavations, and were analyzed under the petrographic microscope. These studies indicated that the faulting in the YBI Northeast Point formed under conditions of relatively high confining \pressure and elevated temperature, in the presence of silica and carbonate-bearing hydrothermal solutions. This faulting is believed to have occurred about 13 million years ago, and under conditions that no longer exist at YBI. Geophysical surveys (EMI-Fugro, 2001) also show that none of the young sediment units in the area have been deformed, eliminating the possibility of Holocene fault activity. Therefore, it is our professional opinion that the potential for surface ground rupture for the proposed project improvements is negligible.

3.8.4 Potential for Ground Shaking

The energy released during an earthquake propagates from its rupture surface in the form of seismic waves. The resulting strong ground motion from the seismic wave propagation can cause significant damage to structures. At any location, the intensity of the ground motion is a function of the distance to the fault rupture, the local soil/bedrock conditions beneath the structure, and the earthquake magnitude. Intensity is usually greater in areas underlain by unconsolidated material than in areas underlain by more competent rock. Earthquakes are characterized by a moment magnitude, which is quantitative measure of the strength of the earthquake based on strain energy released during the event. The magnitude is independent of the site, but is dependent on several factors including the type of fault, rock-type, and stored energy.

There are virtually no significant earthquakes on the island. Within the 40 or so years of high-resolution earthquake recording and roughly 1 million years for geology, the present San Francisco Bay domain has been essentially non seismic and appears to be responding to tectonic stress only by long-term regional tilting down to the south.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 IDEALIZED SOIL PROFILES AND ENGINEERING PROPERTIES

Based on the recent field exploration and the as-built LOTB sheets, idealized soil profiles were developed along the ramp and along Macalla Rd. station lines. Design soil and rock strength parameters for foundation design are presented in Table 4-1. The soil strength parameters are based on correlations with SPT blowcounts (Lam and Martin, 1986) and laboratory test results

TABLE 4-1. IDEALIZED SOIL PROFILES AND STRENGTH PARAMETERS

Predominant Soil Type	Range of SPT-equivalent Blowcount (blows/foot)	Total Unit Weight (pcf)	Friction Angle (degree)	Cohesion/ Undrained Shear Strength (psf)
Medium dense Silty Sand and Sand with Silt	9 to >70 Average = 35	123	33 to 35	0 to 150
Dense to very dense Silty Sand, Sand with Silt, and Gravel	29 to >70 Average = 40	125	35 to 37	50 to 250
Hard Sandy Lean Clay	30 to >70 Average = 40	127	0	4,000
Weathered Franciscan Bedrock (Graywacke Sandstone and Siltstone)	-	127	35	500

4.2 SEISMIC DESIGN CRITERIA

EMI's Seismic Ground Motion report for this project (EMI, 2001) provides site-specific design spectra and ground motions for the seismic design events adopted by Caltrans for the SFOBB East Span bridge replacement project.

According to the current Caltrans Seismic Hazard map, the most significant faults relative to the project area are listed in TABLE 4-2 along with their style of fault, maximum earthquake magnitude, distance to the bridge site and resulting peak bedrock acceleration (PBA). The dominant earthquake sources for the YBI Ramps Project are the Hayward fault at 7.6 miles east of the project site and the San Andreas faults at 10.4 miles west of the project site.

Based on the deaggregated hazard, the seismic hazard at the bridge is dominated by a magnitude 7.8 event at 18 to 21 km distance on the San Andreas fault and a magnitude 7.0 event at 9 to 12 km distance on the Hayward fault. The deaggregated hazard also showed that at the 1,500-year return period, the controlling earthquakes would be associated with forward rupturing events. Therefore, the time histories should represent large magnitude earthquakes at short distances with forward fault rupturing.

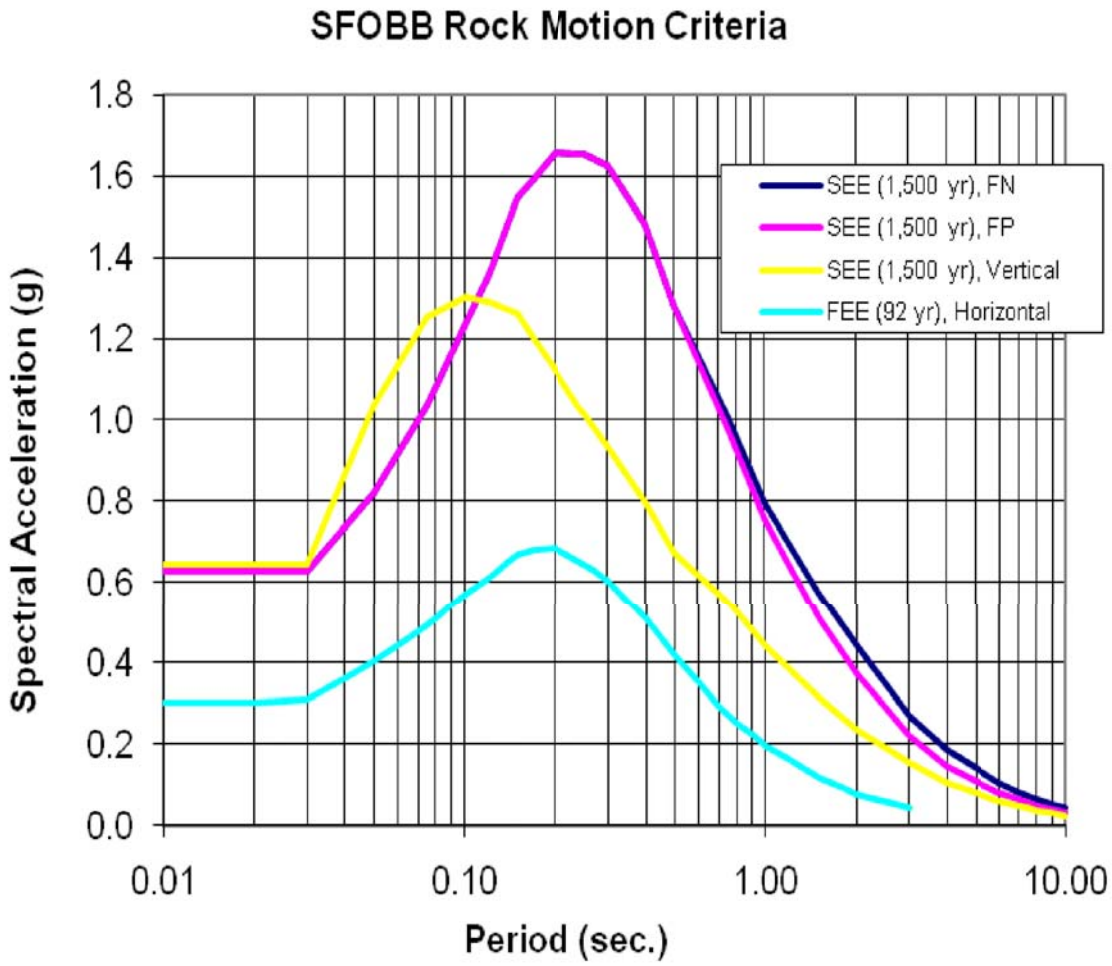
Seismic design criterion for the project site is referenced from comprehensive ground motion report conducted for Cal Trans as part of the Bay Bridge East Span Project (2001). The ground motion criterion is a probabilistic approach recommended by the Ad Hoc Committee on Ground Motions. The committee recommended a 1,500-year mean return period for the Safety Evaluation Earthquake (SEE), corresponding to a 10-percent probability of exceedance over the 150-year expected life span of the East Span structures. The overall strike angle for both the San Andreas and the Hayward faults is about N35°W. Therefore, the fault normal and fault parallel directions are N55°E and N35°W, respectively. The 1500-year hazard results were deaggregated (fault normal, fault parallel and vertical) and show that the hazard is dominated by the San Andreas and Hayward faults. The SEE motions for all three components (fault normal, fault parallel, and vertical) at YBI are shown in Figure 4-1.

The appropriate ground motion criteria for design at a functional earthquake performance level (minimal damage; Functional Earthquake Event, FEE) were discussed between Caltrans and the Peer Review Panel. Due to the long design life of 150 years and the high activity rate for the San Andreas and the Hayward faults, Caltrans selected a 92-year return period earthquake for the functional event corresponding to a 50 percent probability of experiencing up to 2 earthquakes within the 150-year design life. Figure 4-1 presents the 92-year return period equal hazard spectrum for the fault normal component rock motion. The FEE was defined as a magnitude 6.5 event on the Hayward fault.

TABLE 4-2. LOCAL SEISMIC SOURCES

Fault or Fault Zone	Style of Faulting	Maximum Credible Earthquake (MCE) Magnitude	Distance to Site[1] (miles)	Peak Bedrock Acceleration [2] (g)
San Andreas Fault	Strike Slip (RLSS)	8.0	10.4	0.6
Hayward Fault	Strike Slip (RLSS)	7.3	7.6	0.3

FIGURE 4-1. 2001 FUGRO-EMI SEE ROCK SPECTRA FOR SFOBB EAST SPAN REPLACEMENT PROJECT AT YBI



Source: EMI, 2001

4.3 SOIL CORROSIVITY

A total of seven soil samples were tested for pH, minimum resistivity, soluble chloride content, and soluble sulfate content. The test results are summarized in Table 4-3.

TABLE 4-3. SOIL CORROSION TEST RESULTS

Boring No.	Sample No.	Depth (ft)	Soil Type	Minimum Resistivity (ohm-cm)	pH	Sulfate Content (ppm)	Chloride Content (ppm)
09-01	D-7	35.0	SILTY SAND (SM)	18,000	7.66	20	305
09-02	S-9	45.0	SILTY SAND (SM)	7,500	8.39	20	194
09-04	D-14	64.0	SANDY lean CLAY (CL)	2,900	7.57	100	282
09-06	S-13	64.0	Lean CLAY with SAND (CL)	1,000	7.59	400	336
09-07	D-12	59.0	SANDY lean CLAY (CL)	2,500	7.52	200	447
09-10	D-10	50.0	SILTY SAND (SM)	2,300	8.18	20	376
09-10	D-20	100.0	SILTY SAND (SM)	5,900	8.67	20	209

Caltrans Corrosion Guidelines (2003) classify soil as corrosive if the soluble chloride content is less than 500 ppm, the soluble sulfate content is less than 2,000 ppm, and the pH value is 5.5 or higher. Based on the combined test results and these Caltrans criteria, the on-site soils are not considered to be corrosive to bare metals and concrete in contact with the on-site soils at the proposed foundations locations.

The subject site is located within in a marine environment defined in the Caltrans Corrosion Guidelines as a site located within 1,000 ft of brackish water. For steel piles, sacrificial corrosion allowance is required per Caltrans' Corrosion Guidelines (2003), Section 10.1. Minimum concrete cover reinforcement should be in accordance with Table 8.22.1 of the Caltrans BDS (2005) for "Corrosive soil above MLLW level with chloride concentration between 500 and 5,000 ppm." For the above measure pH value and sulfate concentration, cement type should be in accordance with Table 8.22.1 of the Caltrans BDS for "Sulfate concentration from 0 to 1,499 ppm." Additional corrosion protection requirements for structural members are given in Section 8.22 of the Caltrans BDS.

4.4 EXISTING FOUNDATION DATA

The foundations of the two ramps will be adjacent to or near existing foundations or future foundations which are currently under construction as part of the YBITS#1 contract. The existing I-80 bridge has been demolished and its foundations were cut down to levels that do not interfere with new foundation construction. The new on-ramp will join the I-80 bridge along the north side of the

west viaduct. The new off-ramp will divert from the I-80 bridge at Bent W5L. The pile data for these adjacent foundations is summarized below:

TABLE 4-4. CLOSEST AS-BUILT FOUNDATION DATA

Support Location	Pilecap Bottom El. (m)	Foundation Type	Service Demand (tons)	Spec. Tip El. (m)
Bent W10AL (North Col.)	+42.6	HP14x132*	80	+32.0
Bent W10L (North Col.)	+43.0	HP14x132	80	+31.5
Bent W9L (North Col.)	+41.2	HP14x132	80	+30.0
Bent W8L (North Col.)	+34.1	HP14x132	80	+21.0
Bent W7L (North Col.)	+21.6	HP14x132	80	+8.0
Bent W6L	+6.6	HP14x132	75	-11.5
Bent W5L	+6.1	HP14x132	75	-10.5

Note: HP14x132* is HP 360x132 metric; 80 tons is 1,450 kN; 75 tons is 1,350 kN.

4.5 PILE FOUNDATION DESIGN

The proposed structure (Alternative 2B) is divided in six segments/design elements. The following summarizes the segments and proposed foundation types:

- The "Viaduct Structure Widening" supported on large-diameter Cast-In-Drilled Hole (CIDH) foundations,
- The "Transition Structure Widening at On-Ramp" supported on driven pile foundations foundations,
- The "WB On-Ramp Structure" supported by 4 bents and an abutment on driven piles foundations,
- The "WB Off-Ramp Structure" supported by 5 bents and one abutment on driven piles foundations,
- The "Transition Structure Widening at WB Off-Ramp" involving 1 bent on driven pile foundation,
- Two retaining walls adjacent to the ramp abutments on driven piles, and
- A Retaining wall along south side of Macalla Road on spread footing.

This section discusses feasible foundation types, presents pile foundation design, evaluate pile/slope stability, and develop recommendations for ramp abutment design.

4.5.1 Foundation Type

To meet structural demands and due to high peak bedrock accelerations at the project site, deep foundations are required. Selection of the foundation type at each location involves consideration of existing structures (buried or above-ground), ground condition, noise, vibration, constructibility (e.g., caving soils, dense soils, rock), site accessibility by and availability of construction equipment, and cost. Driven steel piles and Cast-in-Drilled-Hole (CIDH) piles are feasible foundation types at all support locations. Considerable construction experience exists in the area in regards to both foundation types. The project borders a designated Historical District which includes the General Nimitz building located near ramp Bents 7 and 8. CIDH may be a preferred type if vibration and noise is to be minimized, however, three large pile groups consisting of steel HP14x132 sections were successfully driven to date at the Transition Structure Bent W7 site. In general, there is sufficient fines in the alluvial soils to preclude the potential of caving within the granular soils during construction of the CIDH piles. A single occurrence of soil caving in the first large diameter CIDH pile was dealt with per project specifications. The use of CIDH piles precludes the use of battered piles to resist lateral loads and as a result requires larger diameters to meet lateral demands. Due to lack of soils susceptible to soil liquefaction, pile downdrag under seismic loading condition is not a design issue for either pile type. Pile interaction is a design issue for new piles adjacent to the new I-80 structure foundations.

Unless extraordinary high lateral loads demand the use of large diameter CIDH piles or space limitation precludes the construction of a pile cap, driven piles are recommended for the project.

Based on the above site evaluations, three special issues need to be considered for foundation design:

- Per Caltrans' Corrosion Guidelines (2003), Section 10.1, the corrosion rate of 0.004 inch per year for a 75-year design life needs to be used for estimating the sacrificial metal loss, or the use of protective coatings and/or cathodic protection. As H-pile can corrode from both sides, no commonly available sections can accommodate the required 0.6 inch of sacrificial thickness. Consequently, protective coating on standard H-piles can be considered.
- To avoid potential damage on the existing 12'x12' culvert located next to the proposed Bent 3 foundation during pile installation, pre-drilling to 2 feet below the culvert bottom (estimated at about El. + 464.5 feet) is recommended for Bent 3 piles. The skin fiction in the pre-drilling zone is ignored in estimating Bent 3 pile lengths.

4.5.2 Bridge Foundation Design

The viaduct widening will be on 72" CIDH Type-1 cantilever shafts. The ramp abutments will be seat-type supported by a retaining wall on driven HP piles. The bents will be on HP piles and 24" diameter CIDH piles. The selected foundation types are summarized in **TABLE** 4-6 for the On-Ramp, and **TABLE** 4-7 for the Off-Ramp.

Per Caltrans policy, the Load and Resistant Factor Design (LRFD) method is used for bent piles and the Working Stress Design (WSD) is used for abutment piles. The foundation design data and foundation loads provided by the structural designers are shown in Table 4-5 to Table 4-7.

4.5.3 Axial Capacity

The abutment foundations were designed using working stress design (WSD) per Caltrans policy (2008) using the maximum permanent axial load per pile for the service limit state. The required nominal resistance per pile is twice the maximum compression load. The analysis took into account group effects considering adjacent foundations.

The bent foundations were designed using load factor resistance design (LRFD) per Caltrans policy (2008) using the maximum factored loads per pile for the strength limit state or extreme limit state. The required nominal resistance per pile is the maximum demand divided by a resistance factor (0.7 for strength limit, 1.0 for extreme event limit). The piles were designed for a maximum pile-head settlement of 1/2 inch under service loading. The analysis takes into account group effects considering adjacent foundations.

The HP piles were designed using FHWA methods and American Petroleum Institute criteria (API, 1993) to estimate skin friction and end-bearing resistances. Pile group effects based on the layout provided by AECOM and the guidelines published in the AASHTO LRFD Bridge Design Specifications (2007) were included in these results. The ultimate axial capacity of the CIDH piles was determined using the Reese and O'Neill method (1989) addressed in the Caltrans BDS.

The design nominal resistances (ultimate geotechnical pile capacity), and resulting design and specified pile tip elevations are presented in the Pile Data Tables for the contract plans **TABLE** 4-6 for the On-Ramp and **TABLE** 4-7 for the Off-Ramp foundations. The capacities are based on soil resistance only and may be limited by the pile-head connection details and the strength of the pile material.

TABLE 4-5. FOUNDATION DESIGN DATA

Location	Method	Pile Type	Design Finish Grade El.*** (m)	Pile Cut-off El. (m)	Pile Cap Size (m)		Total Permissible Settlement (inch)	Number of Piles
Viaduct Structure Widening at On-Ramp								
Col. Bent 39*	LFD	1.8 m CIDH	+51.7	+51.1	NA	NA	1	1
Col. Bent 40*	LFD	1.8 m CIDH	+51.7	+51.1	NA	NA	1	1
Col. Bent 41*	LFD	1.8 m CIDH	+51.9	+50.1	NA	NA	1	1
Col. Bent 42*	LFD	1.8 m CIDH	+51.3	+50.1	NA	NA	1	1
Col. Bent 43*	LFD	1.8 m CIDH	+51.2	+50.0	NA	NA	1	1
Col. Bent 44*	LFD	1.8 m CIDH	+49.3	+48.8	NA	NA	1	1
Transition Structure Widening at WB On-Ramp								
Bent 10AL**	Conventional	HP360x132	+48.1	+45.0	7.42	8.25	1	42
Bent 10L**	Conventional	HP360x132	+46.5	+45.0	5.85	10.65	1	45
Bent 9L**	Conventional	HP360x132	+42.2	+40.625			1	54
WB On-Ramp Structure					***FROM CALTRANS' FILE**			
Bent 8**	Conventional	HP360x132	+28.9	+29.0			1	
Bent 7**	Conventional	600mm CIDH	+27.3	+25.0			1	
Bent 6*	LFD	HP360x132	+30.6	+26.0	10.65	9.45	1	68
Bent 5*	LFD	HP360x132	+38.3	+36.0	8.25	7.05	1	42
Abut 4*	WSD	HP360x132		+45.0			1	
Wing Walls *	WSD	HP360x132					1	
Transition Structure Widening at WB Off-Ramp								
Bent 5L**	Conventional	W360x196		+7.325	8.25	8.25	1	49
WB Off-Ramp Structure								
Bent 6**	Conventional	HP360x132	+11.5	+8.125	11.85	11.85	1	100
Bent 7**	Conventional	600mm CIDH	+20.6	+17.575	10.65	10.65	1	64
Bent 8**	Conventional	600mm CIDH	+23.9	+21.975	9.45	9.45	1	49
Bent 9*	LFD	HP360x132	+29.2	+22.4	10.65	9.45	1	68
Bent 10*	LFD	HP360x132	+37.8	+34.0	8.25	7.05	1	42
Abut 11*	WSD	HP360x132		+45.35	15.36	3.9	1	
Retaining Walls**	WSD	HP250x62					1	

Notes:
*Design by AECOM
**Design by Moffatt Nichol
***Measured at lowest point of CIDH or pilecap

TABLE 4-6. PILE DATA TABLE FOR ON-RAMP STRUCTURES

Location	Pile Type	Design Loading (kN)	Nominal Resistance (kN)		Pile Cut-Off El. (m)	Design Tip El. (m)	Specified Tip El. (m)
			Compression	Tension			
Viaduct Structure Widening at On-Ramp							
Col. Bent 39*	1.8 m CIDH	-	6,000	0	+51.1		
Col. Bent 40*	1.8 m CIDH	-	8,850	0	+51.1		
Col. Bent 41*	1.8 m CIDH	-	9,800	0	+50.1		
Col. Bent 42*	1.8 m CIDH	-	9,800	0	+50.1		
Col. Bent 43*	1.8 m CIDH	-	8,550	0	+50.0		
Col. Bent 44*	1.8 m CIDH	-	6,050	0	+49.8		
Transition Structure Widening at WB On-Ramp							
Bent 10AL**	HP360x132	-	1,450	725	+45.0	+32.0 (a) +34.5 (b) ___ (c) +39.0 (d)	+32.0
Bent 10L**	HP360x132	-	1,450	725	+45.0	+31.5 (a) +34.5 (b) ___ (c) +38.0 (d)	+31.5
Bent 9L**	HP360x132	-	1,450	725	+40.625	+31.5(a) +32.6(b)	+31.5
WB On-Ramp Structure							
Bent 8**	HP360x132	-	1,450	725	+29.0	+19.5(a) +20.5(b)	+19.5
Bent 7**	600 mm CIDH	-	1,800	900	+25.0	+12.5(a) +14.0(b)	+12.5
Bent 6*	HP360x132	-	1,450	725	+26.0	+16.0(a) +17.0(b)	+16.0
Bent 5*	HP360x132	-	1,450	725	+36.0	+26.0(a) +27.0(b)	+26.0
Abut 4*	HP360x132	600	1,200	0	+45.0	+35.0(a)	+35.0
Wing Walls*	HP360x132	200	400	0			

Notes:

*Design by AECOM

**Design by Moffatt Nichol

1. Design tip elevation is controlled by the following demands: (a) Compression, (b) Tension, (c) Settlement, and (d) Lateral Load.
2. The specified tip elevation shall not be raised above the design tip elevations for cases (c) and (d).

TABLE 4-7. PILE DATA TABLE FOR OFF-RAMP STRUCTURES

Location	Pile Type	Design Loading (kN)	Nominal Resistance (kN)		Pile Cut-Off El. (fm)	Design Tip El. (m)	Specified Tip El. (m)
			Compression	Tension			
Transition Structure Widening at WB Off-Ramp							
Bent 5L**	W360x196	-	1,450	725	+7.325	-3.6(a) -1.6(b)	-3.6
WB Off-Ramp Structure							
Bent 6**	HP360x132	-	1,450	725	+8.125	-1.9(a) -1.2(b)	-1.9
Bent 7**	600 mm CIDH	-	1,800	900	+17.575	+6.6(a) +7.8(b)	+6.6
Bent 8**	600 mm CIDH	-	1,800	900	+21.975	+11.0(a) +13.8(b)	+11.0
Bent 9*	HP360x132	-	1,450	725	+22.4	+11.4(a) +14.4(b)	+11.4
Bent 10*	HP360x132	-	1,450	725	+34.0	+23.0(a) +25.0(b)	+23.0
Abut 11*	HP360x132	600	1,200	-	+45.35	+35.9(a)	+35.9
Retaining Walls*	HP250x62	200	400	-			

Notes:
*Design by AECOM
**Design by Moffatt Nichol
1. Design tip elevation is controlled by the following demands: (a) Compression, (b) Tension, (c) Settlement, and (d) Lateral Load.
2. The specified tip elevation shall not be raised above the design tip elevations for cases (c) and (d).

4.5.4 Lateral Pile Resistance

Lateral pile analyses were performed using the computer program BMCOL76 (Matlock, et al., 1981). For the Abutments, analyses were performed for pinned connections at the pilecap and taking into account any group effects. The lateral soil springs (p-y curves) for this analysis were generated using American Petroleum Institute criteria (API, 1993). Results of lateral pile analysis in terms of pile-head shear and lateral deflection for a free-head condition are presented in Table 4-8. The maximum bending moment and the location of maximum moment are also presented. Design criteria for the service condition required a maximum allowable lateral displacement of 1/4” at the pile top and 1” for the seismic load case. The solutions presented in the tables are entirely based on soil resistance and linear pile material properties. Therefore, these values may be limited by the flexural strength (plastic moment) of the piles and other connection details. Linear interpolation can be used for solutions between pile-head deflections shown.

5.0 CONSTRUCTION RECOMMENDATIONS

5.1 EARTHWORK

5.1.1 Cuts

Excavations will be required for construction of the bent pilecaps and bridge abutments. On-site soils can be excavated and ripped with conventional earth moving equipment. The volume change of the on-site soils upon excavation and compaction will vary with the soil type and density encountered.

Earthwork should be performed in accordance with Caltrans Standard Specifications, Section 19 (Caltrans, 2006c). Appropriate measures should be taken to prevent damage to adjacent structures and utilities. The contractor shall conform to all applicable occupational and health standards, rules, regulations, and orders established by the State of California. In addition, other State, County, or Municipal regulations may supersede the recommendations presented in this section. If a trench shoring design and safety plan is required, the geotechnical consultant should review the plan to confirm that recommendations presented in this report have been applied to the design. If a trench shoring design and safety plan is required, qualified geotechnical personnel should review the plan to confirm that recommendations presented in this report were used in the design or provide additional recommendations.

Any design and construction of temporary sloping, sheeting, or shoring should be made the contractor's responsibility. Temporary excavations must be sloped or shored in accordance with all applicable codes and regulations including the most recent OSHA standards. Based on the data interpreted from the borings, design of temporary slopes and benches may assume a CAL/OSHA Soil Type C. Shoring may be required if space does not allow slope excavations. The design should meet Caltrans Trenching & Shoring Manual (1990) for temporary shoring. Open excavations should be designed such that they do not adversely impact adjacent structures and slopes. No excavations should be performed below an imaginary plane inclined at 45 degrees from the edge of any existing foundation without providing adequate support for the existing foundation.

For initial design and cost estimating purposes only, shoring retaining free-draining soil can be designed assuming a unit weight of 120 pcf, a friction angle of 30 degrees, and zero cohesion. For a cantilevered shoring that retaining level ground, a minimum lateral earth pressure of 36 pcf equivalent fluid pressure can be used. For braced shoring retaining level ground, an appropriate trapezoidal design lateral earth pressures with a 30H psf value (where H is the depth of cut) can be assumed. Lateral pressures due to surcharges and any hydrostatic pressures should be added to the above lateral earth pressures. The earth pressures given above must be confirmed during construction based on actual shoring location, site-specific subsurface conditions, and ground and wall configuration.

Groundwater was not encountered below existing grade at the proposed bridge support locations based on past investigations described in Section 2.0. Groundwater levels could be higher in the rainy season. Therefore, groundwater is not expected to be encountered during pilecap construction. However, groundwater level can fluctuate due to seasonal rainfall, local irrigation and groundwater

recharge program and other man-made conditions. If groundwater is encountered, it should be controlled in accordance with Section 19-3.04 of the Caltrans Standard Specifications (2006c).

Soil or other construction materials should not be stockpiled adjacent to excavations. Stockpiles should be set back a distance which is at least equal to the height of the excavation.

During construction, qualified geotechnical personnel should inspect temporary slopes for erosion and sloughing, and should inspect temporary shoring for signs of instability and deformations.

For spread footings (above-ground pump station structure) and slab-on-ground concrete pads (ancillary equipment), existing soil beneath the footings and pads should be overexcavated to a minimum depth of 2 feet (relative to the bottom of footings and pads) and replaced with fill compacted to at least 95 percent relative compaction. The overexcavations should extend laterally at least 2 ft outside the footings and concrete pads.

Vegetation on existing ground should be removed prior to fill placement. Loose, soft, dry, wet, or otherwise unsuitable materials should be removed from areas that will receive compacted fill. All areas to receive fill should be observed to be firm and unyielding prior to fill placement. If pumping or yielding of the subgrade is observed during construction, appropriate measures should be taken by the contractor to stabilize the subgrade prior to placing compacted fill.

5.1.2 Fills

Prior to placing any compacted fill, the exposed ground surface should be scarified to a minimum depth of 8 inches, moisture conditioned as necessary to near optimum moisture content, and compacted to at least 95 percent relative compaction. Fill should be placed in uniform horizontal loose lifts not exceeding 8 inches thick, moisture conditioned to near optimum moisture content, and compacted to at least 95 percent relative compaction. If hand-directed mechanical tampers are used for compaction, the loose lift thickness should not exceed 6 inches.

Areas that are excavated below finish grade or that are disturbed due to construction activities should be overexcavated to undisturbed material. Finish grades should be reestablished using fill properly compacted to a minimum of 95 percent relative compaction.

Compacted fill should be monitored, inspected, and tested by qualified geotechnical personnel during grading to verify degree of compaction. Field and laboratory tests should be conducted in accordance with ASTM or Caltrans methods, and any other applicable testing requirements.

5.1.3 Finished Slopes

According to design information, the finished slopes will have a steepest gradient of 2H:1V. Slopes constructed with a gradient of 2:1 or flatter should be surficially stable. The following remedial alternatives are presented for slope areas that have not suffered severe erosion to date, but that are susceptible to erosion and surficial instability over time. The following alternatives are intended to improve long-term surficial stability of the slope within the project area.

Unpaved slopes with 1.5H:1V gradient are susceptible to erosion and surficial instability over time. The following recommendations are provided to improve long-term surficial stability of the slope within the project area. The upper 3 ft of soils below the finished slope face should have a minimum internal friction angle of 32° and minimum cohesion of 250 psf. If the in-situ soils encountered do not meet these properties, they should be excavated to a minimum depth of 3 ft relative to the finished slope face and replaced with select material having an internal friction angle of at least 32° and cohesion of at least 250 psf. The select material should be properly keyed and benched into the exposed sloping ground.

Soils should be placed in uniform horizontal loose lifts not exceeding 8 inches in thickness, moisture-conditioned to near-optimum moisture content, and compacted to at least 90 percent relative compaction. Relative compaction should be based on maximum densities determined using Caltrans Test Method 216.

Drainage control and proper maintenance with erosion protection are recommended in accordance with Section 20 of Caltrans Standard Specifications (2006c).

5.2 PILE CONSTRUCTION

5.2.1 Driven Piles

Piles should be driven at least to the specified tip elevation and the bearing value should be checked with the pile-driving formula given in Section 49-1.08 of the Caltrans Standard Specifications (2006c) using the nominal driving resistance or with a pile driving analyzer (PDA). However, if the specified tip elevation is reached without achieving the design load, pile driving should continue until bearing is attained. In this case, it may be prudent to allow the pile to "set up" before continuing the driving.

The selected pile-driving hammer such as diesel-type hammers should be able to deliver sufficient energy to drive the piles at a penetration rate of not less than 1/8 inch per blow at the required bearing value. Vibratory hammers and undersized pre-drilling below the embankment fill are not allowed for pile installation.

Drivability of piles was considered for the bridge site. Based on the available soil boring data, hard driving may be encountered above the specified pile tip. However, driving steel H-Piles is not anticipated to be difficult with a proper choice of equipment.

5.2.2 Drilled Piles

The CIDH piles can be constructed in accordance with Section 49-4 of the Caltrans Standard Specifications (2006c) and using Type V cement. Based on conditions encountered during the geotechnical investigation, groundwater can be expected during drilling of the CIDH piles at all support locations and the Contractor should be prepared to deal with ground water during construction. For this case, "wet" construction using slurry displacement method is likely.

Due to the presence of water-bearing granular soils, caving may occur during construction of the CIDH piles. The Contractor may elect to use temporary casing to control any soil caving. The CIDH pile contractor should be experienced in installing closely spaced piles in confined space. Caltrans standard practice for "wet" construction includes PVC tubings installed within the reinforcement cage for gamma-ray (GGL) testing.

Adjacent piles should not be constructed concurrently. Pile boreholes should be inspected and approved by the qualified engineer prior to the installation of reinforcement. Extreme care in drilling, placement of steel, and the pouring of concrete is essential to avoid excessive disturbance of pile boring walls. Concrete placement by pumping or tremie tube to the bottom of the pile borings is recommended. Specifications should require that sufficient space be provided in the pile reinforcing cage during fabrication to allow the insertion of a tremie tube for concrete placement. The pile reinforcing cage should be installed and the concrete pumped immediately after drilling is completed.

5.3 ABUTMENT WALLS

5.3.1 Backfill

Per Caltrans requirements, expansive soils should not be placed as part of the embankment within the limits of a bridge abutment as shown in Figure 5-1. Materials placed behind abutment wall should be low-expansive soil with an Expansion Index (EI) less than 50 and Sand Equivalent (SE) of more than 20. The low-expansive material requirement should be supplemental to the abutment structure and pervious backfill requirement as described in Caltrans Standard Plans (2006d) and Caltrans Standard Specifications (2006c) under Sections 19-3.06 and 19-3.065, respectively.

Backfill should be compacted in accordance with Section 19-5 of the Caltrans Standard Specifications (2006c). Backfill should be placed in loose lifts not exceeding 8 inches in thickness, moisture-conditioned to near optimum moisture content, and compacted to at least 95 percent relative compaction. The relative compaction should be based on the maximum density determined by California Test 216. Jetting or flooding to compact backfill is not recommended. Heavy compaction equipment, such as vibratory rollers, dozers, or loaders, should not be used adjacent to the abutment walls in order to avoid damaging the walls due to large lateral earth pressures.

5.3.2 Backdrains

Backdrains should be installed behind abutment walls to relieve hydrostatic pressure. Backdrains should be constructed in accordance with Bridge Detail 3-1 on Sheet BO-3 per Caltrans Standard Plans (2006d) or the geocomposite drain alternative per Section 6 of the Caltrans Bridge Design Aids (1992b) or perforated plastic pipe surrounded by gravel and wrapped in filter fabric placed near the bottom of the wall with adequate outlets (weepholes).

APPENDIX R

MEMORANDUM OF AGREEMENT

MEMORANDUM OF AGREEMENT
Between the California Department of Transportation and
the California State Historic Preservation Officer
Regarding the Yerba Buena Island I-80 Ramps Improvement Project
San Francisco (04-SF-80, PM 7.6-8.1)

WHEREAS, the Federal Highway Administration (FHWA) has assigned and the California Department of Transportation (Caltrans) has assumed FHWA responsibility for environmental review, consultation, and coordination under the provisions of the *Memorandum of Understanding between the Federal Highway Administration and the California Department of Transportation Concerning the State of California's Participation in the Surface Transportation Project Delivery Pilot Program*, which became effective on July 1, 2007 and applies to this project; and

WHEREAS, Caltrans has determined that the Yerba Buena Island I-80 Ramps Improvement Project in San Francisco (Undertaking) will have an adverse effect on the Senior Officers' Quarters Historic District and Quarters 10 (which includes Building 267), properties listed on the National Register of Historic Places (National Register), and may have an effect on archaeological site CA-SFR-04/H, a property which has been determined eligible for listing on the National Register; and

WHEREAS, implementation and enforcement of the measures set forth in Stipulation II.F. of this Memorandum of Agreement (MOA) will satisfactorily avoid potential adverse effects to archaeological site CA-SFR-04/H; and

WHEREAS, Caltrans has consulted with the California State Historic Preservation Officer (SHPO) pursuant to Stipulations X.C and XI of the January 2004 *Programmatic Agreement among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act, as it pertains to the Administration of the Federal-Aid Highway Program in California* (PA), and where the PA so directs, in accordance with 36 CFR Part 800, the regulations implementing Section 106 of the National Historic Preservation Act (16 USC Section 470f) as amended, regarding the Undertaking's effects on historic properties, and has notified the Advisory Council on Historic Preservation (ACHP) of the adverse effect finding pursuant to 36 CFR § 800.6(a)(1); and

WHEREAS, Caltrans has thoroughly considered alternatives to the Undertaking, has determined that the statutory and regulatory constraints on the design of the Undertaking preclude the possibility of avoiding adverse effects to historic properties during the Undertaking's implementation, and has further determined that it will resolve adverse effects of the Undertaking on the subject historic properties through the execution and implementation of this MOA; and

WHEREAS, Caltrans District 4, the San Francisco County Transportation Authority (SFCTA), the United States Navy, the United States Coast Guard, and the Treasure Island Development Authority (TIDA) have participated in the consultation and have been invited to concur in this MOA;

WHEREAS, the United States Navy is the current owner of the subject historic properties and the Undertaking will be implemented in accordance with this MOA after the conveyance of the subject historic properties to the TIDA.

NOW, THEREFORE, Caltrans and the SHPO agree that, upon Caltrans' decision to proceed with the Undertaking, Caltrans shall ensure that the Undertaking is implemented in accordance with the following stipulations in order to take into account the effect of the Undertaking on historic properties, and further agrees that these stipulations shall govern the Undertaking and all of its parts until this MOA expires or is terminated.

Caltrans shall ensure that the following stipulations are implemented:

STIPULATIONS

I. Area of Potential Effect

The APE for this Undertaking is depicted in the Supplemental Historic Property Survey Report *for the Yerba Buena Island Ramps Improvement Project*, Map 3 (Map 3 is included as Attachment A of this MOA). The APE included the maximum existing and proposed right-of-way, project construction easements (temporary and permanent), and all properties subject to direct or indirect project effects. Attachment A set forth hereunder may be amended through consultation among the MOA parties without amending the MOA proper.

II. Treatment of Historic Properties

A. Prior to the start of any work that could adversely affect any characteristics that qualify Quarters 1 (the Nimitz House), Quarters 10, and Building 267 as historic properties, SFCTA will prepare Historic Structure Reports (HSRs) for Quarters 1 (the Nimitz House) within the Officers' Quarters Historic District, Quarters 10, and Building 267. The scope of the HSRs will be developed in consultation with Caltrans, the Navy, and TIDA, and will follow the general guidelines for such reports as described in the California Office of Historic Preservation publication, "Historic Structure Report Format." Caltrans shall ensure that the documentation is completed and accepted before the historic properties are altered and/or moved. Copies of the HSRs will be provided to all of the signatory and concurring parties to this MOA.

B. Historic Landscape Report and Landscaping Plan

1. Historic Landscape Report

SFCTA will prepare a Historic Landscape Report (HLR) for the Officers' Quarters Historic District, to aid in planning for future use and landscaping of the properties within the District. The scope of the HLR will be developed in consultation with Caltrans, the Navy, and TIDA, and will be informed by the general guidelines for the Historic American Landscape Survey, as described in the National Park Service

publication, "HALS Guidelines." Copies of the HLR will be provided to all of the signatory and concurring parties to this MOA.

2. SFCTA will prepare and implement a landscaping plan for the Officers' Quarters Historic District, to address areas where the existing landscaping will be disturbed by the Undertaking and for visual screening of the new ramp structures from properties within the District. SFCTA and Caltrans shall consult to ensure that this stipulation does not duplicate effort or conflict with Stipulation V.C of the *Memorandum of Agreement among the Federal Highway Administration, the United States Coast Guard, the California State Historic Preservation Officer, and the Advisory Council on Historic Preservation for the San Francisco Oakland Bay Bridge East Span Seismic Safety Project in San Francisco and Alameda Counties, California.* Prior to implementation, the landscaping plan will be transmitted for review and comment to all of the signatory and concurring parties to this MOA.

C. Relocation of Quarters 10 and Building 267

SFCTA will relocate Quarters 10 and Building 267 to a new location on Yerba Buena Island. SFCTA will ensure that the buildings are moved in accordance with the approaches recommended in the National Park Service's *Moving Historic Buildings* (John Obed Curtis, 1979), and by a professional building mover who has the experience and capability to move historic buildings properly. The SHPO will be afforded an opportunity to review and approve the proposed relocation site. The relocation will include the construction of new foundations, utility connections, and all other work necessary to prepare the buildings for future use.

Upon completion of the relocation work, Caltrans will re-evaluate the property and determine, in consultation with the SHPO, whether the property continues to meet National Register criteria or should be proposed for removal from the National Register.

D. Interpretive Signs

SFCTA will install interpretive signs, incorporating narrative and images relating to the historic Navy buildings on Yerba Buena Island, in consultation with Caltrans. Caltrans shall submit the content and location(s) of the interpretive signs to the SHPO for review and comment. The review period shall be 30 days upon receipt. If the SHPO has not commented by the end of the 30-day review period, SFCTA may proceed.

E. Protection of Historic Buildings and Repair of Inadvertent Damage

1. Protection

SFCTA, in consultation with Caltrans, the Navy, and TIDA, will develop and implement measures to protect the buildings of the Senior Officers' Quarters Historic District and Quarters 10 (including Building 267) from damage resulting from the Undertaking. Such measures may include, but are not limited to, vibration monitoring during pile driving in proximity to historic properties.

2. Repair of Inadvertent Damage

Caltrans will ensure that any damage to historic properties resulting from the Undertaking, and any damage resulting from the relocation of Quarters 10 and Building 267, will be repaired in accordance with the Secretary of the Interior's *Standards for Rehabilitation*. The HSRs and HLR described in Stipulations II.A and II.B will include photographic and other documentation of the properties prior to the start of construction and will establish the baseline condition for assessing damage. Prior to implementation of any repairs, Caltrans and SFCTA will provide plans for repairs to the SHPO for review and comment to ensure conformance with the Secretary of the Interior's *Standards for Rehabilitation*. The review period shall be 30 days upon receipt. If the SHPO has not commented by the end of the 30-day review period, SFCTA may proceed

F. Protection of Archaeological Site CA-SFR-04/H
Caltrans shall ensure that the potentially adverse effect of the Undertaking on archaeological site CA-SFR-04/H is avoided by establishing an Environmentally Sensitive Area (ESA) around the boundary of the site. The ESA will be established and maintained in accordance with the ESA Action Plan for this Undertaking. The ESA shall be thoroughly described on the final construction plans for the Undertaking. No construction activity or related ground disturbance will take place within the ESA. The ESA Action plan that details the implementation of this stipulation is appended to this MOA as Attachment B.

III. Administrative Provisions

A. Definitions.

The definitions provided at 36 CFR § 800.16 are applicable throughout this MOA.

B. Professional Qualifications and Standards.

Caltrans will ensure that only individuals meeting the Secretary of the Interior's Professional Qualification Standards (48 FR 44738-39) in the relevant field of study carry out or review the appropriateness and quality of the actions and products required by Stipulations II.A, II.B, and II.D of this MOA.

C. Discoveries and Unanticipated Effects.

If Caltrans determines after the construction of the Undertaking has commenced, that the Undertaking will affect a previously unidentified property that may be eligible for listing on the National Register, or affect a known historic property in an unanticipated manner, Caltrans will address the discovery or unanticipated effect in accordance with 36 CFR § 800.13(b)(3). Caltrans at its discretion may hereunder assume any discovered property to be eligible for listing on the National Register in accordance with 36 CFR § 800.13(c).

D. Resolving Objections.

1. Should any party to this MOA object at any time in writing to the manner in which the terms of this MOA are implemented, to any action carried out or proposed with

respect to implementation of this MOA, or to any document prepared in accordance with and subject to the terms of this MOA, Caltrans shall immediately notify the other parties of the objection, request their comments on the objection within 15 days following receipt of Caltrans' notification, and proceed to consult with the objecting party for no more than 30 days to resolve the objection. Caltrans will honor the request of the other parties to participate in the consultation and will take any comments provided by those parties into account.

2. If the objection is resolved during the 30-day consultation period, Caltrans may proceed with the disputed action in accordance with the terms of such resolution.

3. If at the end of the 30-day consultation period, Caltrans determines that the objection cannot be resolved through such consultation, then Caltrans shall forward all documentation relevant to the objection to the ACHP, including Caltrans' proposed response to the objection, with the expectation that the ACHP will, within 30 days after receipt of such documentation:

   a. Advise Caltrans that the ACHP concurs in Caltrans' proposed response to the objection, whereupon Caltrans will respond to the objection accordingly. The objection shall thereby be resolved; or

   b. Provide Caltrans with recommendations, which Caltrans will take into account in reaching a final decision regarding its response to the objection. The objection shall thereby be resolved; or

   c. Notify Caltrans that the objection will be referred for comment pursuant to 36 CFR § 800.7(c) and proceed to refer the objection for comment. Caltrans shall take the resulting comments into account in accordance with 36 CFR § 800.7(c)(4) and Section 110(1) of the National Historic Preservation Act. The objection shall thereby be resolved.

4. Should the ACHP not exercise one of the above options within 30 days after receipt of all pertinent documentation, Caltrans may assume the ACHP's concurrence in its proposed response to the objection and proceed to implement that response. The objection shall thereby be resolved.

5. Caltrans shall take into account any of the ACHP's recommendations or comments provided in accordance with this stipulation with reference only to the subject of the objection. Caltrans' responsibility to carry out all other actions under this MOA that are not the subject of the objection shall remain unchanged.

6. At any time during the implementation of the Stipulations in this MOA, should a member of the public raise an objection in writing pertaining to such implementation to any signatory party to this MOA, that signatory party shall immediately notify Caltrans. Caltrans shall immediately notify the other signatory parties in writing of the objection. Any signatory party may choose to comment in writing on the objection to Caltrans. Caltrans shall establish a reasonable time frame for this comment period. Caltrans shall consider the objection, and in reaching its decision, Caltrans will take all comments from the other signatory parties into account. Within 15 days following the closure of the comment period,

Caltrans will render a decision regarding the objection and respond to the objecting party. Caltrans will promptly notify the other signatory parties of its decision in writing, including a copy of the response to the objecting party. Caltrans' decision regarding resolution of the objection will be final. Following issuance of its final decision, Caltrans may authorize the action subject to dispute hereunder to proceed in accordance with the terms of that decision.

7. Caltrans shall provide all parties to this MOA, and the ACHP, if the ACHP has commented, and any parties that have objected pursuant to subsection D.6 of this Stipulation, with a copy of its final written decision regarding any objection addressed pursuant to this Stipulation.

8. Caltrans may authorize any action subject to objection under this Stipulation to proceed after the objection has been resolved in accordance with the terms of this Stipulation.

E. Amendments

Any signatory party to this MOA may propose that this MOA be amended, whereupon all signatory parties shall consult to consider such amendment. The amendment will be effective on the date that a copy signed by all of the original signatories is filed with the SHPO. If the signatories cannot agree to appropriate terms to amend this MOA, any signatory may terminate the MOA in accordance with Stipulation III.F, below.

F. Termination

1. If this MOA is not amended as provided for in section E of this Stipulation, or if any signatory party proposes termination of this MOA for other reasons, the signatory party proposing termination shall notify the other parties to this MOA in writing, explain the reasons for proposing termination, and consult with the other parties for at least 30 days to seek alternative to termination. Such consultation shall not be required if Caltrans proposes termination because the Undertaking no longer meets the definition set forth in 36 CFR § 800.16(y).

2. Should such consultation result in an agreement on an alternative to termination, the signatory parties shall proceed in accordance with that agreement.

3. Should such consultation fail to result in an agreement on an alternative to termination, the signatory party proposing termination may terminate this MOA by promptly notifying the other parties in writing. Termination hereunder shall render this MOA without further force or effect.

4. If this MOA is terminated hereunder, and if Caltrans determines that the Undertaking will nonetheless proceed, then Caltrans shall comply with the requirements of 36 CFR 800.3-800.6.

G. Duration

1. Unless terminated pursuant to section F of this stipulation, or unless it is superseded by an amended MOA, this MOA will be in effect following execution by the

signatory parties until Caltrans, in consultation with the other signatory parties, determines that all of its stipulations have been satisfactorily fulfilled.

2. The terms of this MOA shall be satisfactorily fulfilled within ten years following the date of execution by the signatory parties. If Caltrans determines that this requirement cannot be met, the parties to this MOA will consult to reconsider its terms. Reconsideration may include continuation of the MOA as originally executed, amendment of the MOA, or termination. In the event of termination, Caltrans will comply with subsection F.4 of this stipulation, if it determines that the Undertaking will proceed notwithstanding termination of this MOA.
3. If the Undertaking has not been implemented within ten years following the execution of this MOA, this MOA shall automatically terminate and have no further force or effect. In such event, Caltrans shall notify the other signatory parties in writing and, if it chooses to continue with the Undertaking, shall reinitiate review of the Undertaking in accordance with 36 CFR Part 800.

H. Effective Date

This MOA will take effect on the date that it is executed by Caltrans and the SHPO.

EXECUTION of this MOA by Caltrans and the SHPO, its filing with the ACHP in accordance with 36 CFR § 800.6(b)(1)(iv), and subsequent implementation of its terms, shall evidence, pursuant to 36 CFR § 800.6(c), that Caltrans has afforded the ACHP an opportunity to comment on the Undertaking and its effects on historic properties, and that Caltrans has taken into account the effects of the Undertaking on historic properties.

SIGNATORY PARTIES

California Department of Transportation

By: _____ Date: 4-11-2011
Jay Norvell, Chief
Division of Environmental Analysis

California State Historic Preservation Officer

By: _____ Date: 14 APR 2011
Milford Wayne Donaldson
State Historic Preservation Officer

CONCURRING PARTIES

California Department of Transportation, District 4

By: _____ Date: 4-20-11
Bijan Sartipi, District Director, District 4, Oakland

San Francisco County Transportation Authority

By: _____ Date: 4/27/11
Jose Luis Moscovich, Executive Director SFCTA

United States Navy

By: Laura Duchnak Date: 5/19/11
Laura Duchnak, Director Navy BRAC PMO West

United States Coast Guard

By: _____ Date: 5/12/11
P.M. McMillin, CAPT, USCG
Commanding Officer, CEUO

Treasure Island Development Authority

By: _____ Date: 4/22/11
Director of Redevelopment
Rich Hillis