3.5 BIOLOGICAL RESOURCES

This section describes the existing biological resources that occur on the project site and vicinity. This assessment of the existing conditions of biological resources is based upon biological field surveys, which were conducted to document existing habitat types and to assess the potential for occurrence of federally and/or state listed species within the project site. The general and site-specific discussion of biological resources contained herein provides the environmental baseline concerning environmental impacts that were identified and measured. Environmental impacts are discussed in Section 4.0.

3.5.1 RECENT BIOLOGICAL STUDIES

Several studies have been conducted for the project site. These include:

- The Final Environmental Impact Statement/Environmental Impact Report for the Disposal and Reuse of Fleet and Industrial Supply Center, Naval Fuel Depot (NFD) Point Molate Richmond, California February, 2002 (NFD EIR/EIS), (Appendix U);
- A Special-Status Plant Survey and Habitat Assessment for NFD Point Molate (Tetra Tech, 1998);
- A Final Habitat Assessment for the California Red-Legged Frog at NFD Point Molate (Uribe and Associates, 1998);
- The Delineation of Potential Jurisdictional Waters of the United States for the Point Molate Project Contra Costa County California (WWR, 2007a) (Appendix L); and
- The Natural Resources Impacts and Mitigation Measures Report Point Molate (WWR, 2007b).
- Biological Assessment: Point Molate Mixed Use Tribal Destination Resort and Casino (AES, 2009) (Appendix J). Concurrence on the Bureau of Indian Affairs’ (BIA) finding of not likely to adversely affect candidate, threatened, or endangered species was provided by the U.S. Fish and Wildlife Service (USFWS ) in February, 2009 (Appendix J).

3.5.2 REGULATORY SETTING

This section summarizes the applicable federal and state regulations regarding biological resources within the project site. The regulatory context of the project is derived from federal and state laws that govern the protection of biological resources. Such laws include the Federal Endangered Species Act (FESA), the National Environmental Policy Act (NEPA), the California Endangered Species Act (CESA), the California Fish and Game Code (including the Natural Communities Conservation Planning Act), and the California Environmental Quality Act (CEQA). Relevant goals and policies within the Richmond General Plan (City of Richmond, 1994) are also discussed below.
FEDERAL

Federal Endangered Species Act

The USFWS and the National Marine Fisheries Service (NMFS) implement the Federal Endangered Species Act (FESA) of 1973 (16 USC Section 1531 et seq.). Under the FESA, federally listed threatened and endangered species (50 CFR Section 17) are protected from take (defined as direct or indirect harm) unless a Section 10 incidental take permit is granted or a Section 7 consultation and a Biological Opinion (BO) with incidental take provisions is provided. Pursuant to the requirements of the FESA, agencies reviewing proposed projects within their jurisdictions must determine whether any federally listed species have potential to occur within a proposed project site and if the proposed project would have any potentially significant impacts upon such species. Under the FESA, habitat loss is considered an impact to a listed species. In addition, these agencies are required to determine whether the project is likely to jeopardize the continued existence of any species proposed for listing under FESA or result in the destruction or adverse modification of critical habitat proposed to be designated for such species (16 USC Section 1536 et seq.). Therefore, project-related impacts to these species, or their habitats, would be considered significant and require mitigation. The USFWS also maintains a list of candidate species, which are considered during environmental review, though they are not formally protected under the FESA. Candidate species may become proposed for official listing.

Wetlands and Other Waters of the U.S.

Any project that involves the discharge of dredged or fill material in navigable and other waters of the U.S., including wetlands, must first obtain authorization from the U.S. Army Corps of Engineers (USACE), under Section 404 of the Clean Water Act (CWA). The USACE also regulates activities in navigable waters of the U.S. under the Rivers and Harbors Act (Sections 9 and 10). Activities such as construction of any structures in or over navigable waters of the U.S., or other work that may affect the course, location, condition, or physical capacity of navigable waters may require a USACE permit (see below for more detail). The United States Environmental Protection Agency (USEPA), USFWS, NMFS, and several other agencies provide comment on USACE permit applications. Other CWA requirements are described in Section 3.3.1.

Coastal Zone Management Act-Wetlands

The Coastal Zone Management Act (CZMA) is a federal act that encourages coastal states to develop comprehensive programs to manage and balance competing uses of and impacts to coastal resources. The CZMA emphasizes the primacy of state decision-making regarding the coastal zone, yet provides incentives for states to join the national coastal management program. States use the program as a tool to manage coastal uses and resources and to facilitate cooperation and coordination with federal agencies. The CZMA requires federal consistency with the enforceable policies of a coastal state’s federally approved coastal management program when federal agency activities have the potential to affect any land or water use or natural resource of the coastal zone. Federal license or permit activities and federal
financial assistance activities that have potential coastal effects must also be consistent with the enforceable policies of state coastal management programs. The CZMA also provides strong enforceable policies for the protection of wetlands within the coastal zone. The California Coastal Commission (CCC) has formulated these policies in a document titled *Procedural Guidance for the Review of Wetland Projects in California’s Coastal Zone* (CCC/NOAA, 1994). This Commission has a coastal development permit review process and distinct wetland delineation procedures and requirements that are independent of the CWA process. The Office of Ocean and Coastal Resource management (OCRM), within National Oceanic and Atmospheric Administration’s National Ocean Service (NOS), interprets the CZMA and oversees the federal compliance. Among its other duties and services, the OCRM mediates CZMA related disputes and provides management and legal assistance to coastal states, federal agencies, tribes, and others. *Within the San Francisco Bay region, the San Francisco Bay Conservation and Development Commission (BCDC) makes consistency determinations for federal actions, permits and grants pursuant to the authority granted under the CZMA.*

**Rivers and Harbors Act**

The Rivers and Harbors Act of 1899 (RHA) governs specified activities in navigable waters of the U.S. Like the CWA, the mandates of this Act are also administered by the USACE. Specifically, Section 9 requires authorization from the Secretary of the Army, as delegated by the Chief of Engineers, for the construction of any structure in or over a navigable water of the U.S. This includes bridges, dams, dikes, or causeways over or in any ports, roadsteads, havens, harbors, canals, and navigable rivers. Construction of any structure in or over a navigable water of the U.S. without proper authorization is considered unlawful. Within the context of Section 9, the U.S. Coast Guard is largely concerned with safe navigation in navigable waters. As such, the U.S. Coast Guard also reviews projects subject to Section 9 of the RHA with respect to navigation safety. Section 10 of the RHA applies to any other activities that have the potential to affect the course, location, condition, or physical capacity of navigable waters of the U.S. This includes the building or commencement of any wharf, pier, dolphin, boom, weir, breakwater, bulkhead, jetty, or any other structure in any port, roadstead, haven, harbor, canal, navigable river, or other water of the U.S. outside established harbor lines, or where no harbor lines have been established. Section 10 prohibits the excavation, fill, or any other alteration or modification to the course, location, condition, or capacity of, any port, roadstead, haven, harbor, canal, lake, harbor of refuge, or enclosure within the limits of any breakwater, or the channel of any navigable waters. Activities of this nature, without USACE authorization are unlawful. As with Section 9 of the RHA, Section 10 also requires approval from the Chief of Engineers and authorization by the Secretary of the Army. The portions of the Bay within the project site are considered navigable waters of the U.S. A discussion of the navigable waters on-site is included in *Section 3.5.5.*

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

The Magnuson-Stevens Fishery Conservation and Management Act (MSFA) conserves and manages the fishery resources found off the coasts of the United States, the anadromous species, and the Continental
Shelf fishery resources of the United States, including the conservation and management of highly migratory species through the implementation and enforcement of international fishery agreements. The NMFS enforces the MSFA and regulates commercial and recreational fishing and the management of fisheries resources. The Sustainable Fisheries Act of 1996 amended the MSFA to include new fisheries conservation provisions by emphasizing the importance of fish habitat in regards to the overall productivity and sustainability of U.S. marine fisheries (Public Law 104-267). The revised MSFA mandates the identification and protection of Essential Fish Habitat (EFH) for managed species during the review of projects conducted under federal permits that have the potential to affect such habitat. Federal agencies are required to consult with NMFS on all actions or proposed actions authorized, funded, or undertaken by the agency, which may adversely affect EFH (MSFA 305.b.2).

**Essential Fish Habitat**

Under the MSFA, NMFS identifies, conserves, and enhances EFH for those species regulated under a federal fisheries management plan (FMP). EFH is defined as “those waters and substrates necessary to fish for spawning, breeding, feeding, or growth to maturity.” The EFH Regulatory Guidelines (50 CFR 600.110) further interpret this definition as:

- Waters include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate.
- Substrate includes sediment, hard bottom, structures underlying the waters, and associated biological communities.
- Necessary means the habitat required to support a sustainable fishery and the managed species’ contribution to a healthy ecosystem.
- “Spawning, breeding, feeding, or growth to maturity” covers a species’ full life cycle.

Projects that have the potential to adversely affect EFH must initiate consultation with NMFS. Adverse affects are any impacts that reduce the quality and/or quantity of EFH. Adverse affects can include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey or reduction in species fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810). There are four FMPs in California, Oregon, and Washington that identify EFH for groundfish, coastal pelagic species, Pacific salmon, and Pacific highly migratory fisheries. The Pacific Coast groundfish FMP manages over 82 species (e.g., rockfish, sablefish, flatfish, and Pacific whiting). Species considered pursuant under this FMP often, though not exclusively, occur on or near the ocean floor or other structures. The coastal pelagic species FMP manages finfish such as sardine, mackerel, anchovy, and the market squid. Species addressed in this FMP tend to occur nearer to the surface and EFH for these species is based on temperature range, life history cycles, and geographic distributions of these species. The Pacific salmon FMP includes both marine and freshwater EFH because of the unique biology of these species. As such, lakes, rivers, streams, ponds, wetlands, and other bodies of water that were historically accessible to salmon are considered EFH, including certain areas.
above artificial barriers. The FMP for highly migratory species manages mobile fishes such as tuna,
swordfish, and sharks. EFH identified in this FMP is highly variable. It typically is defined in terms of
area, depth, temperature, salinity, oxygen levels, currents, and topography. The FMP included in the
scope of this document is the Pacific salmon FMP.

**Migratory Bird Treaty Act**

Most bird species are protected under both federal and state regulations, especially those that are
breeding, migratory, or of limited distribution. Under the Migratory Bird Treaty Act of 1918 (16 USC
Sections 703-712) federally listed (50 CFR Section 10), migratory bird species, their nests, and their eggs
are protected from injury or death. Any potential project-related disturbances must be reduced or
eliminated during the nesting cycle.

**Bald Eagle Protection Act**

The Bald Eagle Protection Act was originally enacted in 1940 to protect bald eagles and was later
amended to include golden eagles (16 USC Subsection 668-668). It prohibits the taking or possession of
and commerce in bald and golden eagles, parts, feathers, nests, or eggs with limited exceptions. The
definition of take includes pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or
disturb. Bald eagles may not be taken for any purpose unless a permit is issued prior to the taking.
Activities which can be authorized by permit are: Scientific collecting/research, exhibition, tribal
religious, depredation, falconry, and the taking of inactive golden eagle nests, which interfere with
resource development or recovery operations. The statute imposes criminal and civil sanctions as well as
an enhanced penalty provision for subsequent offenses.

**STATE**

**California Endangered Species Act**

California has procedures similar to the FESA for non-federal projects under the California Endangered
Species Act (CESA). The CESA is a provision of the California Fish and Game Code Sections 2050-
2115. The California Department of Fish & Game (CDFG) may adopt a federal BO (in accordance with
Section 7 of FESA) as a State BO via a consistency determination process.

Under the CESA, the CDFG is responsible for maintaining a list of rare, threatened, and endangered
species designated under State law (California Fish and Game Code 2070-2079). The CDFG also
maintains lists of candidate species, species of special concern, and fully protected species. Candidate
species are those taxa, which have been formally recognized by the CDFG and are under review for
addition to the State threatened and endangered list. Species of special concern are those taxa, which are
considered sensitive and this list serves as a “watch list.” Pursuant to the requirements of the CESA,
agencies reviewing proposed projects within their jurisdictions must determine whether any State-listed
species have potential to occur within a proposed project site and if the proposed project would have any
significant impacts upon such species. Project-related impacts to species on the CESA rare, threatened, and endangered list would be considered significant and require mitigation. Impacts to species of concern would be considered significant under certain circumstances discussed in subsequent sections.

The stipulations of the California Fish and Game Code Sections 3500-3516 are similar to the federal Migratory Bird Treaty Act. Under this Section of the Code, State-listed birds of prey and migratory bird species, their nests, and their eggs are protected from injury or death, possession, incidental-take, and needless destruction of birds, nests, and eggs is prohibited. California Fish and Game Code Section 3511 maintains a list of birds that are “fully protected” and these species may not be harmed, taken, or possessed unless a specific permit is granted.

**CEQA Guidelines Section 15380**

Several federal and state statutes protect rare, threatened, and endangered species. The CEQA Guidelines Article 20, Section 15380 provides that a species not listed on the federal or state list of protected species may be considered rare, threatened, or endangered if the species can be shown to meet certain specified criteria. These criteria have been modeled after the definitions of endangered, rare, or threatened provided in the FESA and the CESA. This Section of the Guidelines provides public agencies with the ability to protect a species from any potential impacts of proposed projects until the respective government agency has the opportunity to designate (list) that species as protected, if warranted.

The CNPS maintains an extensive list of plant species that it considers to be rare, threatened, or endangered, but have no designated status or protection under federal or state endangered species legislation. Impacts to CNPS listed species (e.g., CNPS list 1B and 2) are considered pursuant during CEQA environmental review.

**CDFG California Fish and Game Code Sections 1600-1616**

Under Sections 1600-1616, the CDFG regulates activities that would alter the flow, bed, channel, or bank of streams and lakes. It derives this jurisdiction under the CESA because the CDFG is responsible for the protection of fish or wildlife resources and their habitats (including wetlands). The CDFG provides comments on USACE Section 404 and 401 permits under the Fish and Wildlife Coordination Act, last amended in 1995. The CDFG is authorized under the California Fish and Game Code Sections 1600-1616 to develop mitigation measures and enter into Streambed Alteration Agreements with applicants whose proposed projects would obstruct the flow of, or alter the bed, channel, or bank of a river or stream in which there is a fish or wildlife resource, including intermittent and ephemeral streams and wetlands. Biological components of rivers, streams, or lakes may include aquatic and riparian vegetation, aquatic animals and fish, amphibians, reptiles, invertebrates, and terrestrial species that derive benefits from the stream system.
San Francisco Bay Conservation and Development Commission

Commission Policies
A project must meet the standards of state law, comply with any applicable court decisions, and conform to the Commission's plans and policies before being approved. The following are brief summaries of the principal provisions that the Commission uses in considering applications for Bay fill, shoreline development, and work in the Suisun Marsh (BCDC, 2007):

Fill Projects
If no on-land site is available for the project. If the fill is the minimum amount necessary to carry out the project, and if the public benefits of the fill clearly exceed the public detriment from the loss of water area, the Commission can approve some fill in San Francisco Bay for:

- Port facilities that are consistent with the San Francisco Bay Area Seaport Plan.
- Industries that require access to the Bay to import or export raw material or products.
- Water-related recreational uses, such as shoreline parks, marinas, fishing piers, beaches, and trails.
- Airport terminals and runways if the growth in air traffic cannot be accommodated in any other way.
- Bridges, if there is no other feasible way of handling the traffic congestion.
- Improving the appearance of the shoreline or increasing public access to the Bay through minor amounts of fill.
- Bay-related commercial recreational and public assembly facilities on privately owned parts of the Bay.
- The replacement of deteriorated piers with Bay-related commercial recreational and public assembly facilities on publicly owned parts of the Bay where consistent with a Commission-adopted special area plan.

In general, the Commission does not authorize activities involving fill for a project that does not need a waterfront location. Mitigation programs are often required to reduce the adverse environmental impacts of the fill project, including the replacement of the natural resources that are destroyed by the fill.

Shoreline Projects
The Commission considers only two factors in determining whether to issue a permit for work within its 100-foot shoreline jurisdiction:

- Within priority use areas (those parts of the shoreline, including the project site, that the Commission has reserved for ports, water-related industries, airports, wildlife refuges and water-related recreation), the Commission can authorize only either the use for which the area has been
reserved or an interim use that will not preclude the site from being converted to the priority use. Maximum feasible public access to the shoreline must be provided as part of the project.

- Outside of the priority use areas the Commission can authorize any use if the project provides the maximum feasible public access to the Bay consistent with the project. Applications for projects anywhere along the Bay shoreline can be denied if the required public access is not provided as part of the project [Government Code Section 66632.4].

San Francisco Bay Plan
Plan Map No. 4 of the BCDC Bay Plan addresses the Point Molate project site (Figure 3.9-1). The Bay Plan is discussed further in Section 3.9.

Policy No. 7 - Former Naval Fuel Depot Point Molate – Develop for park use. Landward of Western Drive should be developed consistent with recreation policy 4-b (presented below). Provide trail system linking shoreline park areas and vista points in the hillside open space areas. Provide public access to historical district with interpretation of this resource. The Point Molate Pier should be re-used for water-oriented recreation and incidental commercial recreation. Encourage water-oriented recreation, including mooring facilities for transient recreational boats, excursion craft and small watercraft. Protect existing eelgrass beds.

Policy No. 4-b - In waterfront parks and wildlife refuges with historic buildings. Historic Buildings in waterfront parks and wildlife refuges should be developed and managed for recreation uses to the maximum practicable extent consistent with the Bay Plan Map policies and all of the following:

- Physical and visual access corridors between and in land public areas, vista points, and the shoreline should be created, preserved or enhanced. Corridors for Bay-related wildlife should also be created, preserved and enhanced where needed and feasible.

State Lands Commission
The California State Lands Commission (SLC) holds authority over California’s sovereign lands (i.e., public trust lands), which include all state lands under navigable waters, submerged lands, tidelands, immediately adjacent uplands, filled lands formerly under water, and school lands (Article 1, Public Resources Code Section 6102 et seq.). In general, uses of public trust lands are limited to those that are water dependant or related. These typically include, but are not limited to commerce, fisheries, navigation, environmental preservations, and recreation. Specifically such uses tend to include ports, marinas, docks, wharves, buoys, hunting, commercial and sport fishing, bathing, swimming, and boating. Public trust lands may also be retained in their natural state for the purposes of wildlife habitats and refuges, scientific pursuits, and open space. Public and private entities may apply to the SLC for leases.
and/or permits on public trust lands for several purposes including marinas, industrial wharves, dredging, sand mining, tanker anchorages, grazing, right-of-ways, bank protection, recreational uses, etc (Article 9, Public Resources Code Section 6005, 6701, and 6702). Incidental uses that directly promote the use of public trust lands are also permitted (e.g., hotels, restaurants, shops, parking lots, restrooms, commercial facilities, warehouses, access pathways, etc.). SLC leases and permitting are mandated through the Land Management Division of the Commission. Both the Land Management and Marine Facilities Divisions of the Commission conduct environmental review and analysis, which includes CEQA. A lease and/or permit(s) will be required for the re-use of the existing pier within the project site and associated activities.

**LOCAL**

**City of Richmond General Plan**

Several of the goals and policies within the General Plan regarding biological resources apply directly to the biological resources associated with the project site projects within the City of Richmond. These include:

**Open Space and Conservation Element**

**Policies**

OSC-A.1: Preserve habitats shown to be necessary for the preservation of rare and endangered plants and animals.

OSC-A.2: Preserve unique plant communities and wildlife habitats. These include:

1) Particularly good examples of typical area habitats, which can be used for classroom study purposes. For example, the mixed evergreen woodland in Wildcat Canyon, buffer zone transitional upland areas adjacent to tidelands at Pt. Pinole, and the marsh areas at the mouths of San Pablo and Wildcat Creeks.

2) Habitats, which are unique or rare in the Planning Area, such as the native grassland community on Brooks Island.

OSC-A.3: Minimize removal of vegetation in all new developments. In particular, the cutting of mature native woodland trees, especially on unstable slopes and in creek beds, should be controlled.

OSC-B.1: Discourage filling, dredging and/or development that would have a significant adverse impact on the biological productivity or aesthetic character of the physical features of the area.

OSC-B.2: Require mitigation measures to avoid any detrimental impacts of development on the biological productivity or aesthetic character of open water, marsh, mudflat or tideland.

OSC-C.1: Require mitigation measures, to avoid any significant detrimental impacts of development on the biological productivity of existing open water, marsh, mudflat and tideland areas to the maximum extent feasible. Such measures shall include, but shall not be limited to, preservation of transitional upland areas adjacent to tidelands to serve as a buffer zone.
OSC-C.2: Require all new waterfront development, and encourage existing waterfront development, to provide a reasonable degree of buffering between such development and adjacent marsh and mudflat areas. (Buffering size should be determined in consultation with the CDFG and other relevant agencies).

OSC-F.1: Protect the predominantly natural character of the hills and ridges listed in Goal OSC-F by regulating height, color, material and siting of structures, amounts of cut and fill, placement of utility crossings, and removal of vegetation.

OSC-I.2: Preserve streambeds, watercourses and channels in their natural state except where needed for flood and erosion control.

OSC-I.4: Prevent creek bank erosion, preserve wildlife habitat, protect the scenic quality of the creeks, and secure public access to the natural waterways.

OSC-Q.1: Conserve those natural wildlife habitats, which support native species of plants and animals.

OSC-T.3: Assist public resources and park agencies in acquiring or preserving unique natural areas as determined through the environmental review process, subsequent environmental study, and/or as identified through independent assessment by a qualified biologist on a case-by-case basis. High priority should be given to acquiring sites near or adjacent to schools.

### 3.5.3 ENVIRONMENTAL SETTING

The project site is located on the San Pablo Peninsula, which is the landmass between the San Pablo Bay and the San Francisco Bay (Bay), approximately 1.5 miles north of the Richmond-San Rafael Bridge in the City of Richmond (City), Contra Costa County (County), California. The project site is located within the “San Quentin, California” 7.5-minute quadrangle (U.S. Department of the Interior, Geological Survey, 1995) and the San Pablo Bay Watershed (Hydrologic Unit Code #18050002, U.S. Department of the Interior, Geological Survey, 1978).

The project site covers approximately 413-acres within the Potrero Hills along the northeastern shore of San Francisco Bay (Bay) (approximately 140-acres are submerged in the Bay). It occupies approximately 1.6 miles of shoreline and extends into the adjacent hillsides up to the top of the San Pablo ridge. The project site is generally situated in a northwest/southeast direction, below a low, coastal ridgeline. Topography within this region ranges from flat, filled areas (reclaimed tidal areas) near the Bay to steep, dissected slopes of nearly 500 feet in elevation. Actual elevations on-site range from approximately 0 to 128 meters (0 to 420 feet) above mean sea level (msl). The ridgeline is considered to be an escarpment that resulted from uplifting of the San Pablo Fault, which is a branch of the Hayward Fault. The Portero Hills are composed of shales, sandstones, and cherts. According to the Natural Resources Conservation Service (NRCS) soil survey of Contra Costa County, two soil units occur within the project site; (Ub) Urban Land and (MeG) Millsholm loam, 50-75 percent slopes (NRCS, 2007) (**Section 3.2**). The project
site is bordered by the Chevron-Richmond Refinery to the north, south, and east and by the Bay to the west.

The project site lies within the western-most region of the County and is subject to direct maritime influence, due to its location on the eastern shore of the Bay. The climate is considered mild and relatively cool because of the coastal influence. It is located within the range of climate Zones 15-17, “Coastal Climates of Northern and Central California.” Climate regimes on-site are typical of Zone 17, the North Coast marine belt, which are characterized by cool, wet winters (frost rare) and cool summers with frequent fog and wind (Hickman 1993). The immediate shoreline is salty and windy. Coastal breezes typify the climate in this region during the spring and summer months and fog occurs frequently due to relatively high humidity and low evaporation. The mean annual temperature near the project site is approximately 50° to 67° Fahrenheit (F). The average annual precipitation near the site is approximately 23 inches, with the majority of rainfall occurring during the wet season, typically November through March. This climate data was collected from 1950 to 2007 (WRCC, 2007). The site occurs within the Central Coast (CCo) geographic subdivision, which is a sub-region within the Central Western California (CW) subdivision that is contained within the larger California floristic province (CA-FP). The CCo geographic subdivision is variable in width and typically supports only truly coastal communities including Coastal-sage scrub, salt marshes, and coastal prairie (Hickman, 1993).

### 3.5.4 Habitat Types

As previously mentioned, several preceding studies have been conducted within the project site and were reviewed prior to this analysis. Characterization of the habitat types within the project site was achieved by review of these past studies, examination of pertinent scientific literature, interpretation of aerial photography of the project site, and field surveys. Biologists from Analytical Environmental Services (AES) verified past studies conducted within the project site and comprehensively updated the vegetation classification to reflect the current conditions on-site. AES biologists conducted preliminary biological assessments and wetland surveys in March and April of 2005. AES staff conducted thorough biological surveys, wetland reconnaissance, and focused floristic surveys of the project site on August 13, 14, and 30, 2007, January 18, April 14 and 15, and June 19 and 23, 2008. All of the field assessments were performed by pedestrian survey. AES staff conducted an additional biological survey of the required off-site road improvement areas on September 3, 2008. This survey effort was primarily pedestrian, though a portion of the study area along Interstate 580 was surveyed by car because it was unsafe to survey on foot. All visible plant and wildlife species were noted and identified to the lowest possible taxonomic level. The habitat types within the project site were characterized and then further evaluated for their potential to support regionally occurring special-status species.

The project site contains a variety of terrestrial and aquatic habitat types. Terrestrial habitat types identified within the site include: annual grassland, coastal scrub, mixed riparian, eucalyptus woodland, invasive scrub, landscape plantings, ruderal/developed, and beach strand. Aquatic habitats within the
project site include: seasonal wetland, ephemeral drainage, eel-grass bed, tidal marsh, and navigable waters. Excluding seasonal wetland, ephemeral drainage, and navigable waters (which are discussed in Section 3.5.46), the habitat types are discussed below. A habitat map of the project site is presented as Figure 3.5-1. A summary of the habitat types within the project site is presented in Table 3.5-1, which provides the approximate acreages and percent cover of each habitat type.

A comprehensive list of plant species observed on-site during the floristic surveys is provided in Appendix K. Plant species identification, nomenclature, and taxonomy followed The Jepson Manual: Higher Plants of California (Hickman, 1993) and Plants of the San Francisco Bay Region: Mendocino to Monterey (Kozloff and Keidleman, 1994). As previously mentioned, plant species observed on-site were identified to the lowest taxonomic level permitted given the timing of the surveys and phenological state of the plants. Habitat classification was based on the classification systems presented in A Manual of California Vegetation (Sawyer and Keeler-Wolf, 1995), Preliminary Descriptions of the Terrestrial Communities of California (Holland, 1986), and A Guide to Wildlife Habitats of California (Mayer and Laudenslayer, Jr. 1988), but have been modified to reflect the existing conditions on-site.

### TABLE 3.5-1
SUMMARY OF HABITAT TYPES WITHIN THE PROJECT SITE

<table>
<thead>
<tr>
<th>Habitat Type</th>
<th>Acres</th>
<th>Percent Area</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Terrestrial Habitat Types</strong></td>
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</tr>
<tr>
<td>Ruderal/Developed</td>
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<tr>
<td>Coastal Scrub</td>
<td>62.566</td>
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</tr>
<tr>
<td>Eucalyptus Woodland</td>
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<td>Annual Grassland</td>
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<tr>
<td>Invasive Scrub</td>
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<tr>
<td>Landscape Plantings</td>
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<td>1.24</td>
</tr>
<tr>
<td>Mixed Riparian</td>
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</tr>
<tr>
<td>Beach Strand</td>
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<td><strong>Aquatic Habitat Types</strong></td>
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<td>Navigable Waters</td>
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<td>Eel-grass Bed*</td>
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<tr>
<td>Seasonal Wetland</td>
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<tr>
<td>Ephemeral Drainage</td>
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<td>0.30</td>
</tr>
<tr>
<td>Tidal Marsh</td>
<td>0.108</td>
<td>0.03</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>413.578</td>
<td>100%</td>
</tr>
</tbody>
</table>

3.5 Biological Resources

Annual Grassland

Annual grassland habitat is scattered throughout the project site and encompasses approximately 39.461 acres or 9.54 percent of the site. Trees and shrubs are largely absent within this community and non-native annual grasses and forbs dominate. Plant species frequently observed within the annual grassland habitat on-site include: slender wild oat (Avena barbata), big quaking grass (Briza maxima), ripgut brome (Bromus diandrus), soft brome (Bromus hordeaceus), red brome (Bromus madritensis ssp. rubens), nit grass (Gastridium ventricosum), ryegrass (Lolium multflorum), Harding grass (Phalaris aquatica), brome fescue (Vulpia bromoides), Italian thistle (Carduus pycnocephalus), field mustard (Brassica rapa), smooth cat’s-ear (Hypochaeris glabra), morning glory (Convolvulus arvensis), rose clover (Trifolium hirtum), filaree (Erodium botrys), sheep sorrel (Rumex acetosella), Fitch’s spikeweed (Hemizonia fitchii), sticky tarweed (Holocarpha virgata), blue dicks (Dichelostemma capitatum), Ithuriel’s spear (Triteleia laxa), cheeseweed (Malva parviflora), and bristly ox-tongue (Picris echioideae).

Coastal Scrub

Coastal scrub habitat is scattered throughout the project site, though it is most concentrated within the northeastern portion of the site. This habitat type encompasses approximately 62.566 acres or 15.13 percent of the project site. Trees are largely absent within this community, though a few isolated coast live oak (Quercus agrifolia) and Sargent cypress (Cupressus sargentii) were observed at higher elevations. Shrub species are the dominant strata within this habitat type. Shrub species observed within the coastal scrub habitat on-site include: coffeeberry (Rhamnus californica var. californica), toyon (Heteromeles arbutifolia), coyote bush (Baccharis pilularis), snowberry (Symphoricarpos albus var. laevigatus), gooseberry (Ribes californicum), oso berry (Oemleria cerasiformis), California sagebrush (Artemisia californica), and bush monkey flower (Mimulus aurantiacus). Other herbaceous species observed in this community include pipevine (Aristolochia californica), goldenback fern (Pentogramma triangularis), pearly everlasting (Anaphalis margaritacea), yerba buena (Satureja douglasii), soap plant (Chlorogalum pomeridianum), and California figwort (Scrophularia californica).

Mixed Riparian

Mixed riparian habitat surrounds the majority of ephemeral drainages that occur within the project site. This vegetation community is a dense, prolific corridor with a highly variable species composition. This habitat type accounts for approximately 3.832 acres or 0.93 percent of the project site. Tree, shrub, and/or vine species observed in this community include: red willow (Salix laevigata), arroyo willow (Salix lasiolepis), coyote bush, Douglas false-willow (Baccharis douglasii), blue elderberry (Sambucus mexicana), California bay (Umbellularia californica), poison oak (Toxicodendron diversilobum), Himalayan blackberry (Rubus armeniacus), California blackberry (Rubus ursinus), California wild rose (Rosa californica), and California buckeye (Aesculus californica). Herbaceous species observed within the mixed riparian community on-site include: poison-hemlock (Conium maculatum), yampah (Perideridia kelloggii), Monterey centaury (Zeltmera muehlenbergii), hedge-nettle (Stachys aajugoides var.
rigida), willow-herb (*Epilobium* sp.), orchard grass (*Dactylis glomerata*), blue wild-rye (*Elymus glaucus*), California goldenrod (*Solidago californica*) and several species of ferns.

**Eucalyptus Woodland**

Eucalyptus woodland habitat has become naturalized in California since eucalyptus trees were first brought to the State in the mid 1880’s. The eucalyptus woodland within the project site is a virtual monoculture and eucalyptus is the dominant tree species in this habitat type. Eucalyptus woodland constitutes approximately 45.338 acres or 10.96 percent of the project site. The majority of the eucalyptus woodland habitat on-site is located in the northern and eastern regions of the project site, behind the ruderal/developed areas associated with the Naval Fuel Depot. A few smaller and less predominant stands of this habitat occur in the eastern and southern regions of the project site. Blue gum (*Eucalyptus globulus*) is the dominant species within this community because few other plant species can occur underneath the dense canopies of the stands and because eucalyptus trees secrete allelopathic chemicals that inhibit the growth of other plant species. However, poison oak, toyon, Himalayan blackberry, Pacific sanicle (*Sanicula crassicaulis*), and honeysuckle (*Lonicera* species) are sparsely distributed in the peripheries of the thick eucalyptus stands.

**Invasive Scrub**

Invasive scrub habitat is scattered throughout the project site and occurs in high concentrations along the roadways on-site. Invasive scrub habitat also occurs in and around many of the ruderal/developed areas on-site. This habitat type encompasses approximately 20.351 acres or 4.92 percent of the project site. Most of the plant species that compose this community are non-native invasive (i.e., exotic) species that thrive on disturbance. In most instances the invasive scrub habitat on-site is comprised of a single dominant species such as fennel (*Foeniculum vulgare*) or French broom (*Genista monspessulana*) because these species grow rapidly and out-compete other native plant species. Other invasive scrub areas on-site are composed of multiple non-native plant species including: Fuller’s teasel (*Dipsacus folliculon*), Himalayan blackberry, yellow star-thistle (*Centaurea solstitialis*), dove weed (*Eremocarpus setigerus*), bristly ox-tongue, prickly lettuce (*Lactuca serriola*), shortpod mustard (*Hirschfeldia incana*), broad-leaf pepper grass (*Lepidium latifolium*), purple sandspurry (*Spergularia rubra*), Tangier pea (*Lathyrus tingitanus*), cut-leaf plantain (*Plantago coronopus*), bur-clover (*Medicago polymorpha*), spotted spurge (*Chamaesyce maculata*), scarlet pimpernel (*Anagallis arvensis*), fluellin (*Kickxia elatine*), ripgut brome, soft brome, pampas grass (*Cortaderia jubata*), and mullein (*Verbascum thapsus*).

**Landscape Plantings**

A small section of the project site has been classified as landscape plantings. This community is located in the southern region of the site and accounts for approximately 5.120 acres or 1.24 percent of the project site. This region of the project site was historically a park setting that was planted with a variety of ornamental and horticultural trees, shrubs, and a lawn. This habitat type is currently maintained and mowed, though many of the trees and shrubs are overgrown. Other areas on-site, within the
ruderal/developed sections, also have landscape and ornamental tree and shrub species planted within them (particularly within the vicinity of the cottages). However, the landscape trees and shrubs in these other areas do not dominate the overall habitat type, as they do within the section classified as landscape plantings. Several of the horticultural species observed within this community and in other areas on-site that have landscape plantings include: bottlebrush (*Callistemon citrinus*), oleander (*Nerium oleander*), periwinkle (*Vinca major*), English ivy (*Hedera helix*), various pines (*Pinus* sp.), silver wattle (*Acacia dealbata*), black locust (*Robinia pseudo-acacia*), olive (*Olea europea*), pittosporum (*Pittosporum* sp.), Siberian elm (*Ulmus pumila*), sycamore (*Platanus* sp.), and Canary Island palm (*Phoenix canariensis*).

**Ruderal/Developed**

The areas classified as ruderal/developed habitat within the project site include all existing buildings and structures, pumps and stations, roads and parking areas, above ground pipes, cement-lined catch basins, and otherwise disturbed or disrupted regions. Other areas on-site where underground tanks have been buried are also classified as ruderal/disturbed habitat because these regions have been manipulated and flattened, have sparsely distributed non-native vegetation, and are frequently mowed. Approximately 88.982 acres or 22.15 percent of the project site constitutes ruderal/developed habitat. Plant species observed within the ruderal/disturbed communities on-site include: ryegrass, ripgut brome, soft brome, poison oak, Himalayan blackberry, fennel, yellow star-thistle, bristly ox-tongue, prickly sow thistle (*Sonchus asper*), shortpod mustard, Fuller’s teasel, French broom, Iberian knapweed (*Centaurea iberica*), skeleton weed (*Chondrilla juncea*), prickly lettuce, filaree, and panicled willow-herb (*Epilobium brachycarpum*).

**Beach Strand**

The beach strand habitat within the project site is the intergrade zone between the terrestrial communities on-site and the Bay. This habitat type is predominantly sand, though it includes areas of the coast within the project site that have been fortified and retained by large boulders (i.e., riprap). Beach strand encompasses approximately 6.487 acres or 1.57 percent of the project site. Clumps of coastal and non-native vegetation are scattered within the boulders and in a small number of areas on the sand. Plant species observed in the beach strand community include gumplant (*Grindelia hirsutula*), sea rocket (*Cakile maritima*), alkali Russian thistle (*Salsola soda*), red valerian (*Centranthus ruber*), New Zealand spinach (*Tetragonia tetragonioides*), sea fig (*Carpobrotus chilensis*), false ice plant (*Conicosia pugioniformis*), beach bur (*Ambrosia chamissonis*), spear oracle (*Atriplex patula*), seaside golden yarrow (*Eriophyllum staechadifolium*), fennel, coyote bush, French broom, and pampas grass.

**Eel-grass Bed**

Eel-grass (*Zostera marina* and *Z. pacifica*) is a submerged aquatic species that evolved from terrestrial plants and has become adapted and highly specialized to life in the marine environment. This species forms a complex and highly productive underwater landscape, of which it is the dominant vegetation. The plants’ long, narrow floating leaves sway in the water column while their tangled roots anchor them
3.5 Biological Resources

to the seafloor. Eel-grass reproduces by seed and rhizomatous growth. It grows rapidly during the spring
and summer months and begins to decay during the fall and winter. Dead eel-grass blades wash up onto
the shore frequently where their decay contributes essential nutrients to coastal environments.

This unique habitat type is highly dynamic and supports a large diversity of fin and shellfish species,
plankton, and invertebrates. Fishes such as Pacific herring, juvenile salmon, and ling cod in particular use
this habitat type as a fundamental food source and as a retreat from predators, for spawning and rearing of
young, especially during the months of November through August. Eel-grass is an important food source
for waterbirds including surf scoters, lesser and greater scaup, western and horned grebes, least tern,
double-crested cormorants, and other wintering birds. Algae and invertebrate species such as amphipods,
snails, crabs, and shrimp use eel-grass as substrate and food source. In addition, eel-grass beds protect
coastal areas from shoreline erosion and destruction.

Approximately 62.248 acres or 15.05 percent of the project site is composed of eel-grass bed, which is
included as a component of the navigable waters. This habitat type occurs just off the shore, in the
western region of the site.

Tidal Marsh

A small region of tidal marsh, approximately 0.108 acre or 0.03 percent of the project site is located in the
western region of the site near the shore. This habitat type is highly productive, hosts a diversity of
highly specialized plant and animal species, and is subject to regular tidal inundation by the Bay. The
lower inter-tidal zone of this community is dominated by California cordgrass (Spartina foliosa). Other
plant species observed within the middle and upper-tidal zones include: pickleweed (Salicornia
virginica), salt marsh dodder (Cuscuta salina var. major), alkali heath (Frankenia salina), saltgrass
(Distichlis spicata), jaumea (Jaumea carnosa), salt marsh bulrush (Scirpus tuberosus), and western rush
(Juncus occidentalis).

3.5.5 Wildlife

A variety of wildlife occupies the habitats that occur within the project site. The following animal species
were observed or identified (via call or scat) on-site during the biological surveys: mallard (Anas
platyrhynchos), Canada goose (Branta Canadensis), bufflehead (Bucephala albeola), turkey vulture
(Cathartes aura), rock dove (Columba livia), common crow (Corvus brachyrhynchos), western gull (Larus
occidentalis), double-crested cormorant (Phalacrocorax auritis), osprey (Pandion halieatus), great blue
heron (Ardea herodias), red-tailed hawk (Buteo jamaicensis), killdeer (Charadrius vociferus), barn
swallow (Hirundo rustica), western fence lizard (Sce Lopezus occidentalis), feral cat (Felis domesticus),
black-tailed hare (Lepus californicus), mule deer (Odocoileus hemionus), California ground squirrel
(Spermophilus beecheyi), and coyote (Canis latrans).
3.5.6 Waters of the U.S.

The term “waters of the United States” is defined in 33 CFR Part 328 as:

- 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 the tide;
- All interstate waters including interstate wetlands; or
- All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use or degradation of which could affect interstate or foreign commerce including any such waters;
- Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
- From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
- Which are used or could be used for industrial purposes by industries in interstate commerce.

“Wetlands” are defined in 33 CFR Part 328 as:

- Waters of the U.S. that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands that meet these criteria during only a portion of the growing season are classified as seasonal wetlands.

A wetland delineation report titled, Delineation of Potential Jurisdictional Waters of the United States: Point Molate Project Contra Costa County, California was conducted in July 2007 by Vollmar Consulting for Wetlands and Water Resources, Inc. (WWR, 2007). The delineation identified approximately 3.055 acres of potentially jurisdictional wetlands, 1.224 acres of potentially jurisdictional other waters, and 140.000-acres of navigable waters within the project site (WWR, 2007). This delineation is subject to USACE verification under Section 404 of the CWA. The WWR wetland delineation map is presented as Figure 3.5-2 and the wetland delineation report is included as Appendix L.

In addition to the WWR wetland delineation, AES biologists conducted a reconnaissance-level wetland survey within the project site during August 2007. The purpose of this survey was to confirm the WWR delineation and to assess the quality of the aquatic habitats on-site. AES observed the same wetland features within the project site as those reported by WWR in the July 2007 delineation (WWR, 2007). No additional wetlands or potentially jurisdictional waters of the U.S. were observed during the reconnaissance survey conducted by AES. A summary of the wetlands and other waters of the U.S. within the project site is presented in Table 3.5-1 and provides and the approximate acreages and percent
Figure 3.5-2

Delineation of Waters of the United States
cover of each aquatic feature type. The wetland features are also depicted on the habitat map of the project site, which is presented as Figure 3.5-2. The seasonal wetlands, ephemeral drainages, and navigable waters as interpreted during the AES reconnaissance wetland survey are discussed in greater detail below.

**Seasonal Wetland**

Seasonal wetlands are typically closed, depressional features that are ephemerally wet due to the accumulation of surface runoff and rainwater collection within low-lying areas. The length of inundation tends to be relatively short and non-native hydrophytic plant species typically dominate these features. The seasonal wetlands within the project site vary and several features are man-made, linear, or marsh-like, while others are naturally low-lying and depressional. Several of the plant species observed within the seasonal wetlands on-site include: sedges (Carex sp.), tall fritsedge (Cyperus eragrostis), creeping spikerush (Eleocharis macrostachya), soft rush (Juncus effusus), hyssop loosestrife (Lythrum hyssopifolia), English plantain (Plantago lanceolata), swamp grass (Crypsis schoenoides), annual hairgrass (Deschampsia danthonioides), Mediterranean barley (Hordeum marinum), Dallis grass (Paspalum dilatatum), annual rabbit-foot grass (Polypogon monspeliensis), curly dock (Rumex crispus), ryegrass, broad-leaf cattail (Typha latifolia), birdsfoot trefoil (Lotus corniculatus), and Himalayan blackberry. Approximately 2.923 acres of seasonal wetlands were mapped within the project site.

**Ephemeral Drainage**

Ephemeral drainages are linear features that exhibit an ordinary high water mark (OHWM). They are seasonal features that typically convey rainwater and surface runoff flows during the rainy season and for short time periods. Ephemeral drainages are not typically influenced by groundwater. Since ephemeral drainages are classified as other waters of the U.S., the three-parameter criteria (vegetation, soils, and hydrology) need not be satisfied during wetland delineation. The channels within ephemeral drainages tend to be largely unvegetated due to scouring effects of flowing water. If plants do occur within ephemeral drainages, they tend to occur within the upper limits of the drainage or in areas where sediment has deposited that can function as a plant substrate. Ephemeral drainages are typically less than 5 percent vegetated within the actual channel. The ephemeral drainages within the project site are linear features. Several of them are man-made and have been culverted. The ephemeral drainages on-site are largely unvegetated within the actual channels, though riparian vegetation is present in the adjacent upland areas. Plant species observed within and around the ephemeral drainages on-site include: Himalayan blackberry, willows, elderberry, poison oak, ryegrass, Mediterranean barley, ryegrass, curly dock, and hyssop loosestrife. Approximately 1.225 acres or 4,925.093 linear feet of ephemeral drainages (i.e., other waters) were mapped within the project site.

**Navigable Waters**

The west-central portion of the project site and the pier extend out into the Bay. The Bay has been delineated as navigable waters because it is hydrologically connected to and essentially part of the Pacific
Ocean. This region of the project site is subject to the periodic ebb and flow of the ocean tide and it is used during interstate and/or foreign commerce. Approximately 137.185 acres of navigable waters were mapped within the project site.

### 3.5.7 Special-status Species

For the purposes of this assessment, *special-status* is defined as species that are of management concern to state and/or federal resource agencies, and includes those species that are:

- Listed as endangered, threatened, or candidate for listing under the FESA;
- Listed as endangered, threatened, rare, or proposed for listing, under the CESA;
- Designated as endangered or rare, pursuant to California Fish and Game Code (Section 1901);
- Designated as fully protected, pursuant to California Fish and Game Code (Section 3511, Section 4700, or Section 5050);
- Designated as species of special concern by CDFG; and
- Plants or animals that meet the definitions of rare, threatened, or endangered under CEQA, including plants listed by CNPS to be “rare, threatened, or endangered in California” (Lists 1A, 1B, and 2). Local or regional agencies may consider plant species that CNPS believes require additional information (List 3) and plant species placed on a watch list (List 4) by CNPS.

A complete list of regionally occurring special-status plant and animal species was compiled for the project site (*Appendix K*). The list includes regionally occurring special-status species that are reported by the USFWS within the “San Quentin, California” topographic quadrangle and those that have been documented within a five-mile radius of the project site within the CNDDDB. Species that are tracked within the CNDDDB, but that do not have any formal status were not included on the list. This list was based on the results from the scientific database queries that were conducted for the project site including: the USFWS species lists for the “San Quentin, California,” 7.5-minute quadrangle and Contra Costa County, the CDFG-CNDDDB record search for the “San Quentin, California,” 7.5-minute quadrangle and the surrounding 9 quadrangles (Petaluma Point, Mare Island, San Rafael, Point Bonita, Novato, Richmond, San Francisco North, Oakland West, and Double Point), and the CNPS record inventory for the “San Quentin, California,” 7.5-minute quadrangle and the surrounding 9 quadrangles. These scientific database queries are included for reference purposes as *Appendix J*. An analysis to determine which of these regionally occurring special-status species have the potential to occur within the project site was conducted. Habitat requirements for each regionally occurring special-status species were assessed and compared to the type and quality of habitats observed on-site during the biological surveys. This analysis was also based on pertinent literature, aerial photographs, topographic maps, and the results of the biological surveys. Several regionally occurring species were eliminated due to lack of suitable habitat within the project site, elevational range, lack of suitable soils/substrates, and/or distribution. Regionally occurring special-status species determined to have no potential to occur within the project site.
site are not discussed further in this EIR. All resultant occurrences of special-status species and sensitive habitats within a five-mile radius of the project site were plotted on a map (Figure 3.5-3).

Based on the special-status species analysis described above, the habitat types within the project site were determined to have potential to support 18 special-status plant species and 23 special-status animal species (6 fish, 14 birds, and 3 mammals). The name, regulatory status, distribution, habitat requirements, and period of identification for these species are identified in Table 3.5-2 and are further discussed below. Other warranted discussions regarding special-status species are included in the discussion below.

A single special-status plant has been documented within the project site, Suisun Marsh aster (*Symphyotrichum lentum*). This record is CNDDB Occurrence No. 147. J. Powell documented the Suisun Marsh aster in a seasonally wet area on September 28, 1988 (CDFG, 2003). Little additional information is provided in the record. No other CNDDB occurrences of special-status plants, animals, or communities have been reported within the project site or within the immediate surrounding vicinity.

AES staff observed approximately 25 Suisun Marsh aster plants within a seasonal wetland feature in the southeastern portion of the project site during the late season floristic surveys conducted in August 2007 (Figure 3.5-1). During this survey, the plants observed were heavily grazed and only a few individuals were flowering. The population was observed in bloom again during the early season floristic surveys conducted in April 2008 and were not heavily grazed at this time. During the June floristic surveys, the entire population was reassessed and flowering. Approximately 85 individuals were observed, identifiable, and flowering. This Suisun Marsh aster population did not occur at the same global positioning system (GPS) coordinates indicated within the CNDDB record (CNDDB, 2007). The corresponding GPS location provided in the CNDDB record is located within a revegetated area, which has been previously disturbed due to the capping of a landfill on-site. AES biologists observed a double-crested cormorant (*Phalacrocorax auritis*) and an osprey (*Pandion haliaetus*), both California species of special concern (CSC) within the project site during the preliminary site visits conducted in March and April 2005.

**SPECIES DESCRIPTIONS**

Most of the following special-status species were determined to have potential to occur within the project site. This section more thoroughly describes each of these special-status species and includes a discussion of their habitat requirements, ranges, periods of identification, distinguishing attributes and morphologies, nearest documented occurrence(s) in relation to the project site, and whether suitable habitats or documented residents occur or not within the project site. A few species that do not have potential to occur within the project site are also discussed below because they warrant additional explanation regarding why the determination that they would not occur on-site was made.
Figure 3.5-3
CNDDB 5-Mile Radius Map

SOURCE: "San Francisco, CA" USGS 100K Topographic Quadrangle, Mt. Diablo Baseline & Meridian; California Natural Diversity Database, 2007; AES 2008
### TABLE 3.5-2
SPECIAL-STATUS SPECIES WITH POTENTIAL TO OCCUR WITHIN THE PROJECT SITE

<table>
<thead>
<tr>
<th>Scientific Name Common name</th>
<th>Federal/ State/ CNPS or other Status</th>
<th>Distribution</th>
<th>Habitat Requirements</th>
<th>Period of Identification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plants</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amsinckia lunaris</td>
<td>--/--/1B</td>
<td>Known to occur in Alameda, Contra Costa, Colusa, Lake, Marin, Napa, San Benito, Santa Clara, Santa Cruz, San Mateo, and Yolo counties.</td>
<td>Coastal bluff scrub, cismontane woodland, and valley and foothill grassland. Elevations; 3-500 meters.</td>
<td>March-June</td>
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<tr>
<td>bent-flowered fiddleneck</td>
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<tr>
<td>Arctostaphylos pallida</td>
<td>FT/CE/1B</td>
<td>Known to occur in Alameda and Contra Costa counties.</td>
<td>Broadleaf upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, and coastal scrub/siliceous shale, sandy or gravelly. Elevations; 185-465 meters.</td>
<td>December-March</td>
</tr>
<tr>
<td>pallid Manzanita</td>
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<tr>
<td>alkali milk-vetch</td>
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<tr>
<td>Calystegia purpurata ssp.</td>
<td>--/--/1B</td>
<td>Known to occur in Contra Costa, Lake, Mendocino, Marin, and Sonoma counties.</td>
<td>Coastal dunes, coastal scrub, and north coast coniferous forest. Elevations; 10-105 meters.</td>
<td>May-September</td>
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<tr>
<td>saxicola coastal bluff</td>
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<tr>
<td>morning-glory</td>
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<td></td>
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<td></td>
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<tr>
<td>Cirsium andrewsii</td>
<td>--/--/1B</td>
<td>Known to occur in Contra Costa*, Marin, San Francisco, San Mateo, and Sonoma* counties. *Indicates species may be extirpated.</td>
<td>Broadleaf upland forest, coastal bluff scrub, coastal prairie, coastal scrub/mesic, sometimes serpentine. Elevations; 0-150 meters.</td>
<td>March-July</td>
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<tr>
<td>Franciscan thistle</td>
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<tr>
<td>Cordylanthus maritimus</td>
<td>--/--/1B</td>
<td>Known to occur in Alameda*, Humboldt, Marin, Santa Clara*, San Mateo*, and Sonoma counties. Also occurs in Oregon. *Indicates species may be extirpated.</td>
<td>Marshes and swamps (coastal salt). Elevations; 0-10 meters.</td>
<td>June-October</td>
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<tr>
<td>ssp. palustris Point Reyes</td>
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<td>bird’s-beak</td>
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<tr>
<td>Cordylanthus mollis ssp.</td>
<td>FE/CR/1B</td>
<td>Known to occur in Contra Costa, Marin*, Napa, Sacramento*, Solano, and Sonoma* counties. *Indicates species may be extirpated.</td>
<td>Marshes and swamps (coastal salt). Elevations; 0-3 meters.</td>
<td>July-November</td>
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<td>mollis soft bird’s-beak</td>
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<td>Dirca occidentalis western</td>
<td>--/--/1B</td>
<td>Known to occur in Alameda, Contra Costa, Marin, Santa Clara, San Mateo, and Sonoma counties.</td>
<td>Broadleaf upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, north coast coniferous forest, riparian forest, and riparian woodland/mesic. Elevations; 50-395 meters.</td>
<td>January-March (April)</td>
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<tr>
<td>leatherwood</td>
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</tr>
<tr>
<td>Scientific Name</td>
<td>Common name</td>
<td>Federal/ State/ CNPS or other Status</td>
<td>Distribution</td>
<td>Habitat Requirements</td>
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<td>----------------------------------------------------------------------------------------------------------</td>
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<tr>
<td><em>Fritillaria liliacea</em></td>
<td>fragrant fritillary</td>
<td>FT/CE/1B</td>
<td>Known to occur in Alameda, Contra Costa, Monterey, Marin, Santa Clara, Solano, and Sonoma counties.</td>
<td>Cismontane woodland, coastal prairie, coastal scrub, and valley and foothill grasslands/often serpentinite. Elevations; 3-410 meters.</td>
</tr>
<tr>
<td><em>elianthella castanea</em></td>
<td>Diablo helianthella</td>
<td>FT/CE/1B</td>
<td>Known to occur in Alameda, Contra Costa, Monterey, Marin*, San Diego, San Francisco*, and San Mateo counties. *Indicates species may be extirpated.</td>
<td>Broadleaf upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, and valley and foothill grassland. Elevations; 30-860 meters.</td>
</tr>
<tr>
<td><em>Hoita strobelina</em></td>
<td>Loma Prieta hoita</td>
<td>FT/CE/1B</td>
<td>Known to occur in Alameda*, Contra Costa, Monterey, Marin*, and Santa Cruz counties. *Indicates species may be extirpated.</td>
<td>Chaparral, cismontane woodland, and riparian woodland/usually serpentinite, mesic. Elevations; 30-860 meters.</td>
</tr>
<tr>
<td><em>Holocarpha macradenia</em></td>
<td>Santa Cruz tarplant</td>
<td>FT/CE/1B</td>
<td>Known to occur in Alameda*, Contra Costa*, Monterey, San Francisco, Santa Clara, Solano, Sonoma, Yolo, Santa Barbara counties.</td>
<td>Coastal prairie, coastal scrub, and valley and foothill grassland/often clay, sandy. Elevations; 10-220 meters.</td>
</tr>
<tr>
<td><em>Lessingia hololeuca</em></td>
<td>woolly-headed lessingia</td>
<td>FT/CE/1B</td>
<td>Known to occur in Alameda, Contra Costa, Monterey, Marin, Napa, Santa Clara, San Mateo, Solano, Sonoma, and Yolo counties.</td>
<td>Broadleaf upland forest, chaparral, cismontane woodland, and valley and foothill grassland/rocky. Elevations; 45-825 meters.</td>
</tr>
<tr>
<td><em>Micropus amphibolus</em></td>
<td>Mt. Diablo cottonweed</td>
<td>FT/CE/1B</td>
<td>Known to occur in Alameda, Contra Costa, Monterey, Marin, Napa, Santa Clara, Santa Cruz, San Joaquin, Santa Barbara, Santa Clara, Santa Cruz, San Luis Obispo, Solano, and Sonoma counties.</td>
<td>Broadleaf upland forest, chaparral, cismontane woodland, and valley and foothill grassland/Rocky. Elevations; 45-825 meters.</td>
</tr>
<tr>
<td><em>Monardella vilosa</em></td>
<td>ssp. globosa robust monardella</td>
<td>FT/CE/1B</td>
<td>Known to occur in Alameda, Contra Costa, Humboldt, Lake, Mendocino, Napa, Santa Clara, Santa Cruz, San Mateo, and Sonoma counties.</td>
<td>Broadleaf upland forest (openings), chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland. Elevations; 100-915 meters.</td>
</tr>
<tr>
<td><em>Suaeda californica</em></td>
<td>California seablite</td>
<td>FT/CE/1B</td>
<td>Known to occur in Alameda, Contra Costa, Monterey, Santa Barbara, Santa Clara, Solano, and Sonoma counties.</td>
<td>Marshes and swamps (brackish and freshwater). Elevations; 0-15 meters.</td>
</tr>
<tr>
<td><em>Symphyotrichum lentum</em></td>
<td>Suisun Marsh aster</td>
<td>FT/CE/1B</td>
<td>Known to occur in Contra Costa, Marin, Napa, Sacramento, San Joaquin, Solano, and Sonoma counties.</td>
<td>Marshes and swamps (brackish and freshwater). Elevations; 0-3 meters.</td>
</tr>
</tbody>
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### 3.5 Biological Resources

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<tr>
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<tr>
<td><strong>Animals</strong></td>
<td></td>
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<tr>
<td><strong>Fishes</strong></td>
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<tr>
<td><em>Acipenser medirostris</em></td>
<td>green sturgeon</td>
<td>Adults occur in coastal waters from Mexico to Alaska and have been observed along the west coast of North America. Spawning occurs within the Rogue and Illinois Rivers in Oregon, the Klamath River Basin, the Sacramento River, the Feather River, the Pit River, and the McCloud River. Spawning is suspected within the Trinity River, South Fork Trinity, and the Eel River. Counties include Butte, Colusa, Glenn, Humboldt, Mendocino, Nevada, Placer, Sacramento, Shasta, Sierra, Siskiyou, Solano, Sutter, Tehama, Trinity, Yolo, and Yuba.</td>
<td>Utilizes both freshwater and saltwater habitats. Spawning occurs in deep pools or holes in large, turbulent, freshwater river mainstems. Eggs are cast over large cobble, clean sand, or bedrock substrates. Cold, clean water is required for development. Adults live in oceanic waters, bays, and estuaries.</td>
<td>Consult Agency</td>
</tr>
<tr>
<td><em>Oncorhynchus kisutch</em></td>
<td>Coho salmon</td>
<td>Central California Coast ESU spawns in short coastal drainages and lower sections of larger drainages from Punta Gorda in northern California south to the San Lorenzo River in central California, and includes tributaries to the San Francisco Bay.</td>
<td>Occurs in streams with pool and riffle complexes. Breeding requires cold water and gravelly streambeds.</td>
<td>Consult Agency</td>
</tr>
<tr>
<td><em>Oncorhynchus mykiss</em></td>
<td>steelhead</td>
<td>Central California Coastal ESU spawns in drainages from the Russian River basin, Sonoma and Mendocino Counties, to Soquel Creek, Santa Cruz County (including the San Francisco Bay basin, but not the Sacramento and San Joaquin Rivers or their tributaries).</td>
<td>Found in cool, clear, fast-flowing permanent streams and rivers with riffles and ample cover from riparian vegetation or overhanging banks. Spawns in streams with pool and riffle complexes. Cold water and gravelly streambeds are required for successful breeding.</td>
<td>Consult Agency</td>
</tr>
<tr>
<td><em>Oncorhynchus mykiss</em></td>
<td>steelhead</td>
<td>Spawn in the Sacramento and San Joaquin rivers and tributaries before migrating to the Delta.</td>
<td>In the Bay, juveniles require shelter in dense marine vegetation (i.e., eelgrass). Spawns in streams with pool and riffle complexes. Cold water and gravelly streambeds are required for successful breeding.</td>
<td>Consult Agency</td>
</tr>
<tr>
<td><em>Oncorhynchus tshawytscha</em></td>
<td>Chinook salmon</td>
<td>Spawn in the Sacramento river and some of its tributaries. Juveniles migrate from spawning grounds to the Pacific Ocean.</td>
<td>Spawning occurs in large deep pools in tributaries with moderate velocities.</td>
<td>Consult Agency</td>
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### Scientific Name and Common Name

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Oncorhynchus tshawytscha</td>
<td>Chinook salmon winter-run, Sacramento River</td>
</tr>
<tr>
<td>Accipiter cooperii</td>
<td>Cooper’s hawk</td>
</tr>
<tr>
<td>Asio flammeus</td>
<td>short-eared owl</td>
</tr>
<tr>
<td>Charadrius alexandrinus nivosus</td>
<td>western snowy plover</td>
</tr>
</tbody>
</table>

### Distribution

- **Oncorhynchus tshawytscha**
  - Spawn in the upper Sacramento River. Juveniles migrate from spawning grounds to the Pacific Ocean.
- **Accipiter cooperii**
  - Known to occur from Siskiyou County south to San Diego County; also scattered nesting in interior valleys and woodlands of Coast Range from Humboldt County south, and in western foothills of the Sierra Nevada Known to occur from Siskiyou County south to San Diego County; also scattered nesting in interior valleys and woodlands of Coast Range from Humboldt County south, and in western foothills of the Sierra Nevada.
- **Asio flammeus**
  - Known to breed sparsely in northeast (Klamath Basin, Modoc Plateau, Great Basin) south to southern Lassen County; Uncommon and irregular breeder in southern Sacramento Valley, around San Francisco Bay, and south in interior and coastal valleys to Monterey County. Some concentration in Solano County, just north and east of San Francisco County Scarce, local, and possibly extirpated as breeder in southern California. Usually found in open areas with few trees, such as annual and perennial grasslands, prairies, dunes, meadows, irrigated lands, and saline and fresh emergent wetlands. Nests usually located on dry sites with enough vegetation to conceal incubating female.
- **Charadrius alexandrinus nivosus**
  - Occurs along the California coast and inland near the Salton Sea, Mono Lake, and alkali lakes. Most breeding occurs on dune-backed beaches, barrier beaches, and salt-evaporation ponds; Can inhabit inland salt ponds and lakes. Require sandy, gravelly, or friable soil substrates for nesting. Winter habitat is primarily coastal: beaches, tidal flats, lagoon margins, and salt-evaporation ponds. Inland some birds regularly winter at agricultural waste-water ponds in San Joaquin Valley, and at desert saline lakes (particularly Salton Sea) in southern California.

### Habitat Requirements

- **Oncorhynchus tshawytscha**
  - Returns to the Upper Sacramento River in the winter but delay spawning until spring and summer. Juveniles spend 5-9 months in the river and estuary before entering the ocean.
- **Accipiter cooperii**
  - Deciduous, mixed, and evergreen forests and deciduous stands of riparian habitat. Ranges from sea level to above 2700 meters.
- **Asio flammeus**
  - Usually found in open areas with few trees, such as annual and perennial grasslands, prairies, dunes, meadows, irrigated lands, and saline and fresh emergent wetlands. Nests usually located on dry sites with enough vegetation to conceal incubating female.
- **Charadrius alexandrinus nivosus**
  - Most breeding occurs on dune-backed beaches, barrier beaches, and salt-evaporation ponds; Can inhabit inland salt ponds and lakes. Require sandy, gravelly, or friable soil substrates for nesting. Winter habitat is primarily coastal: beaches, tidal flats, lagoon margins, and salt-evaporation ponds. Inland some birds regularly winter at agricultural waste-water ponds in San Joaquin Valley, and at desert saline lakes (particularly Salton Sea) in southern California.

### Period of Identification

- **Oncorhynchus tshawytscha**
  - Consult Agency
- **Accipiter cooperii**
  - March-August
- **Asio flammeus**
  - March-July
- **Charadrius alexandrinus nivosus**
  - April-August
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</thead>
<tbody>
<tr>
<td><em>Circus cyaneus</em></td>
<td>northern harrier</td>
<td>--/CSC/--</td>
<td>Permanent residents of the northeastern plateau and coastal areas; less common resident of the Central Valley.</td>
<td>Coastal scrub, Great Basin grassland, marsh and swamp (coastal and fresh water), riparian scrubs, valley and foothill grassland, and wetlands. Nests on the ground, usually in tall, dense clumps of vegetation, either alone or in loose colonies. Occurs from annual grassland up to lodgepole pine and alpine meadow habitats, as high as 3000 meters.</td>
<td>April-September</td>
</tr>
<tr>
<td><em>Geothlypis trichas sinuosa</em></td>
<td>salt marsh common yellowthroat</td>
<td>--/CSC/--</td>
<td>Breeding range bounded by Tomales Bay on the north, Carquinez Strait on the east, and Santa Cruz county to south, with occurrences in the during migration and winter.</td>
<td>Salt marshes. Nests just above ground or over water, in thick herbaceous vegetation, often at base of shrub or sapling, sometimes higher in weeds or shrubs up to about 1 meter.</td>
<td>March - July</td>
</tr>
<tr>
<td><em>Haliaeetus leucocephalus</em></td>
<td>bald eagle</td>
<td>FD/CE/--</td>
<td>Nests in Butte, Lake, Lassen, Modoc, Plumas, Shasta, Siskiyou, Humboldt, and Trinity counties. Winters throughout most of California.</td>
<td>Found near ocean shorelines, lakes, reservoirs, river systems, and coastal wetlands. Usually less than 2 km to water that offers foraging opportunities. Suitable foraging habitat consists of large bodies of water or rivers with abundant fish and adjacent perching sites such as snags or large trees.</td>
<td>March-June</td>
</tr>
<tr>
<td><em>Laterallus jamaicensis</em></td>
<td>coturniculus California black rail</td>
<td>--/CT/FP</td>
<td>In coastal California during breeding season, presently found at Bodega Bay, Tomales Bay, Bolinas Lagoon, San Francisco Bay estuary, and Morro Bay. Overwhelming majority of birds in northern San Francisco Bay (San Pablo Bay) at relatively few sites. Occurs irregularly south to northwestern Baja California. Inland in small numbers in Salton Trough and on lower Colorado River from Bill Williams River (historically) to Laguna Dam.</td>
<td>Nests in high portions of salt marshes, shallow freshwater marshes, wet meadows, and flooded grassy vegetation. Uses sites with shallower water than other North American rails. Most breeding areas vegetated by fine-stemmed emergent plants, rushes, grasses, or sedges. Sites used in coastal California characterized by taller vegetation.</td>
<td>February-June</td>
</tr>
<tr>
<td><em>Melospiza melodia pusillus</em></td>
<td>Alameda song sparrow</td>
<td>--/CSC/--</td>
<td>Known to occur in areas bordering southern and eastern fringes of San Francisco Bay.</td>
<td>Frequently found in salt marsh and brackish marsh habitats and other tidally influenced fringe areas such as dikes, landfills, and waste yards that abut salt or brackish waters, where marsh vegetation can occur.</td>
<td>February-June</td>
</tr>
<tr>
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<tr>
<td>Melospiza melodia samuelis San Pablo song sparrow</td>
<td>CSH</td>
<td>Distributed in marshes around San Pablo Bay continuously from Gallinas Creek in the west, along the northern San Pablo Bay shore, and throughout the extensive marshes along the Petaluma, Sonoma, and Napa rivers.</td>
<td>Frequently found in tidally influenced marshes, brackish wetlands, and fringe areas such as the edges of dikes, land-fills, and other areas of higher ground that border salt or brackish waters.</td>
<td>February-June</td>
<td></td>
</tr>
<tr>
<td>Pandion haliaetus Osprey</td>
<td>CSH</td>
<td>Breeds from Cascade Range south to Lake Tahoe, and along the north coast Ranges south to Marin County. Regular breeding sites include Shasta Lake, Eagle Lake, Lake Almanor, other inland lakes and reservoirs, and northwest river systems.</td>
<td>Associated strictly with large, fish-bearing waters, primarily in ponderosa pine through mixed conifer habitats. Uses large trees, snags, and dead-topped trees in open forest habitats for cover and nesting. Requires open, clear waters for foraging such as rivers, lakes, reservoirs, bays, estuaries, and surf zones.</td>
<td>March-September</td>
<td></td>
</tr>
<tr>
<td>Pelecanus occidentalis californicus California brown pelican</td>
<td>F/CE/FP</td>
<td>Estuarine, marine subtidal and marine pelagic waters along the California coast.</td>
<td>Nests on coastal islands of small to moderate size, which afford immunity from attack by ground dwelling predators. Usually rests on water or inaccessible rocks (either offshore or on mainland), but also uses mudflats, sandy beaches, wharfs, and jetties.</td>
<td>March-August</td>
<td></td>
</tr>
<tr>
<td>Phalacrocorax auritus double-crested cormorant</td>
<td>CSH</td>
<td>A yearlong resident along the entire coast of California and on inland lakes, in fresh, salt and estuarine waters.</td>
<td>Colonial nester on coastal cliffs, offshore islands and along lake margins in the interior of the state. Prefers water less than 9 meters deep with rocky or gravel bottom. Roosts beside water on offshore rocks, islands, steep cliffs, dead branches of trees, wharfs, jetties, or transmission lines. Perching sites must be barren of vegetation.</td>
<td>April-August</td>
<td></td>
</tr>
<tr>
<td>Rallus longirostris obsoletus California clapper rail</td>
<td>F/CE/FP</td>
<td>Locally common yearlong in coastal wetlands and brackish areas around San Francisco Bay.</td>
<td>In saline emergent wetlands, nests mostly in lower zones, where cordgrass (Spartina species) is abundant and tidal sloughs are nearby. Builds a platform concealed by a canopy of woven cordgrass stems or pickleweed (Salicornia species) and gumweed (Grindelia species). Also uses dead drift vegetation as platform. In fresh or brackish water, builds nest in dense cattail or bulrush. Forages in higher marsh vegetation, along vegetation and mudflat interface, and along tidal creeks.</td>
<td>February-August</td>
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</tbody>
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<tbody>
<tr>
<td><em>Sternula antillarum browni</em></td>
<td>California least tern</td>
<td>FE/CE/FP</td>
<td>Breeding colonies are located along the coast from southern California to San Francisco Bay.</td>
<td>Occur along marine and estuarine shores where small fish are abundant. Nest in loose colonies on the ground relatively free of human or predatory disturbance.</td>
<td>April - June</td>
</tr>
<tr>
<td><strong>Mammals</strong></td>
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<tr>
<td><em>Antrozous pallidus pallid bat</em></td>
<td></td>
<td>--/CSC/--</td>
<td>Locally common species at low elevations. It occurs throughout California except for the high Sierra Nevada from Shasta to Kern counties, and the northwestern corner of the state from Del Norte and western Siskiyou counties to northern Mendocino County.</td>
<td>Habitats occupied include grasslands, shrublands, woodlands, and forests from sea level up through mixed conifer forests, generally below 2,000 meters. The species is most common in open, dry habitats with rocky areas for roosting. Roosts also include cliffs, abandoned buildings, bird boxes, and under bridges.</td>
<td>All Year</td>
</tr>
<tr>
<td><em>Lasionycteris noctivagans</em></td>
<td>silver-haired bat</td>
<td>--/CSC/--</td>
<td>Known to occur from the Oregon border south along the coast to San Francisco Bay and along the Sierra Nevada and Great Basin region to Inyo County. It also occurs in southern California from Ventura and San Bernardino Counties south to Mexico and on some of the Channel Islands. This species also is recorded in Sacramento, Stanislaus, Monterey and Yolo Counties.</td>
<td>Primarily a coastal and montane forest dweller feeding over streams, ponds and open brushy areas. Roosts in hollow trees, beneath exfoliating bark, abandoned woodpecker holes and rarely under rocks. Needs drinking water.</td>
<td>All Year</td>
</tr>
<tr>
<td><em>Lasiurus cinereus</em></td>
<td>hoary bat</td>
<td>--/CSC/--</td>
<td>May be found at any location in California, although distribution patchy in southeastern deserts.</td>
<td>Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Preferred sites are hidden from above, with few branches below, and have ground cover of low reflectivity. Females and young tend to roost at higher sites in trees. Feeds primarily on moths. Requires water.</td>
<td>All Year</td>
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### 3.5 Biological Resources

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#### STATUS CODES

**FEDERAL:** United States Fish and Wildlife Service  
- FE Federally Endangered  
- FT Federally Threatened  
- FD Federally Delisted

**STATE:** California Department of Fish and Game  
- CE California Listed Endangered  
- CR California Listed Rare  
- CT California Listed Threatened  
- CSC California Species of Special Concern  
- FP California Fully Protected Species

**CNPS:** California Native Plant Society  
- List 1A Plants Presumed Extinct in California  
- List 1B Plants Rare, Threatened, or Endangered in California and Elsewhere  
- List 2 Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere  
- List 3 Plants About Which We Need More Information- A Review List

Source: CDFG, 2003; CNPS, 2007; and USFWS, 2007b.

Note: Months in parenthesis are uncommon.
Special-Status Plants

As stated previously in Section 3.5.3, AES botanists conducted determinant-level floristic surveys during August, 2007, January 2008, April 2008, and June 2008. The target species for the surveys were: bent-flowered fiddleneck, pallid manzanita, alkali milk-vetch, coastal bluff morning-glory, Franciscan thistle, Point Reyes bird’s-beak, soft bird’s-beak, western leatherwood, fragrant fritillary, Diablo helianthella, Loma Prieta hoita, Santa Cruz tarplant, woolly-headed lessingia, Mount Diablo cottonweed, robust monardella, uncommon jewel-flower, California seablite, and Suisun Marsh aster. As discussed previously, Suisun Marsh aster was the only target species observed within the project site during the surveys. Species descriptions for the species targeted during the floristic surveys are provided below.

Bent-flowered Fiddleneck (Amsinckia lunaris)
Borage Family (Boraginaceae)
Federal Status – None
State Status – None
Other – CNPS List 1B

Bent-flowered fiddleneck is an annual herb that occurs in coastal bluff scrub, cismontane woodland, and valley and foothill grassland habitats at elevations, which range from 3 to 500 meters (m) above msl. This species blooms from March through June. The known range of bent-flowered fiddleneck includes Alameda, Contra Costa, Colusa, Lake, Marin, Napa, San Benito, Santa Clara, Santa Cruz, San Mateo, and Yolo counties. This species is noted for having bilateral corollas, which have bent tubes and two distinct red marks on the limb. The nearest documented occurrence of this species is located approximately eight miles east of the project site. The coastal scrub and annual grassland on-site are suitable habitats for this species. This species was not observed on-site during the surveys.

Pallid Manzanita (Arctostaphylos pallida)
Heath Family (Ericaceae)
Federal Status – Threatened
State Status – Endangered
Other – CNPS List 1B

Pallid manzanita is a shrub that occurs in broadleaf upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, and coastal scrub habitats. It has an affinity for siliceous shale, sandy, or gravelly substrates at elevations that range from 185 to 465 m above msl. Pallid manzanita blooms from December through March. The known range of this species includes Alameda and Contra Costa counties. Pallid manzanita is noted for having generally ovate leaf blades that are glabrous, smooth, and glaucous. It also has bristly (not glandular) twigs, inflorescence axes, and petioles. USFWS critical habitat has not been designated for this species. The nearest documented occurrence of this species is
located approximately 8.5 miles east of the project site. The coastal scrub on-site is suitable habitat for Pallid manzanita. This species was not observed on-site during the surveys.

**Alkali Milk-vetch** (*Astragalus tener var. tener*)
Legume Family (Fabaceae)
Federal Status – None
State Status – None
Other – CNPS List 1B

Alkali milk-vetch is a delicate annual herb that occurs in playas, valley and foothill grasslands on adobe clay, and in alkaline vernal pool habitats at elevations that range from 1 to 60 m above msl. This species blooms from March through June. The known range of alkali milk-vetch includes Alameda, Contra Costa (though may be extirpated), Merced, Monterey (though may be extirpated), Napa, San Benito (though may be extirpated), Santa Clara*, San Francisco*, San Joaquin*, Solano, Sonoma*, Stanislaus*, and Yolo counties (*Indicates species may be extirpated from these counties). This species is noted for having smooth seeds and incurved fruits that are 1 to 2.5 centimeters (cm) long on spreading or reflexed peduncles. The fruit bases of this variety are not stalk-like and the bases are round. The nearest documented occurrence of alkali milk-vetch is located approximately 4 miles southeast of the project site. Mesic areas within the annual grassland and the wetlands are potentially suitable habitats for this species within the project site. This species was not observed on-site during the surveys.

**Coastal Bluff Morning-glory** (*Calystegia purpurata ssp. saxicola*)
Morning-glory Family (Convolvulaceae)
Federal Status – None
State Status – None
Other – CNPS List 1B

Coastal bluff morning-glory is a perennial vine that occurs in coastal dunes, coastal scrub, and North Coast coniferous forest habitats at elevations that range from 10 to 105 m above msl. This species blooms from May through September. The known range of coastal bluff morning glory includes Contra Costa, Lake, Mendocino, Marin, and Sonoma counties. This species is noted for having ovate-triangular to reniform shaped leaves with rounded lobes. The nearest documented occurrence of coastal bluff morning-glory is located approximately four miles southeast of the project site, though this occurrence is considered extirpated by CNPS. The coastal scrub within the project site is suitable habitat for this species. This species was not observed on-site during the surveys.

**Franciscan Thistle** (*Cirsium andrewsii*)
Sunflower Family (Asteraceae)
Federal Status – None
Franciscan thistle is a biennial or short-lived perennial that occurs in broadleaf upland forest, coastal bluff scrub, coastal prairie, and in mesic areas within coastal scrub (sometimes serpentine) habitats at elevations that range from 10 to 305 m above msl. This species blooms from March through July. The known range of Franciscan thistle includes Contra Costa, Marin, San Francisco, San Mateo, and Sonoma (though may be extirpated/uncertain) counties. This species is noted for having conspicuously cobwebby to tomentose phyllaries, of which the outer are spiny-margined. Its upper leaves are characteristically stiff and have stout spines that are typically 10 to 15 millimeters (mm) long. The nearest documented occurrence of this species is located approximately seven miles southwest of the project site, across the Bay. This species has also been documented on the eastern side of the Bay within Contra Costa County. The coastal scrub within the project site is suitable habitat for this species. This species was not observed on-site during the surveys.

**Point Reyes Bird’s-beak (Cordylanthus maritimus ssp. palustris)**

Point Reyes bird’s-beak is a parasitic annual that occurs in coastal salt marshes and swamps at elevations that range from 0 to 10 m above msl. This species blooms from June through October. The known range of Point Reyes bird’s-beak includes Alameda*, Humboldt, Marin, Santa Clara*, San Mateo*, and Sonoma counties (*Indicates species may be extirpated from these counties). It also occurs in Oregon. This species is noted for having seeds that are 2 to 3 mm long, 4 stamens, a notched inner bract, and stems that are not highly branched. There are two documented occurrences of this species within less than five miles of the project site; both are located across the Bay. One of these occurrences is located approximately four miles northwest of the project site and the other is located approximately 4.5 miles southwest of it. A third documented occurrence of Point Reyes bird’s-beak is located approximately nine miles southeast of the project site on the eastern side of the Bay. The tidal marsh and several of the wetlands within the project site are suitable habitat for this species. This species was not observed on-site during the surveys.

**Soft Bird’s-beak (Cordylanthus mollis ssp. mollis)**

Soft Bird’s-beak is a biennial or short-lived perennial that occurs in broadleaf upland forest, coastal bluff scrub, coastal prairie, and in mesic areas within coastal scrub (sometimes serpentine) habitats at elevations that range from 10 to 305 m above msl. This species blooms from March through July. The known range of Franciscan thistle includes Contra Costa, Marin, San Francisco, San Mateo, and Sonoma (though may be extirpated/uncertain) counties. This species is noted for having conspicuously cobwebby to tomentose phyllaries, of which the outer are spiny-margined. Its upper leaves are characteristically stiff and have stout spines that are typically 10 to 15 millimeters (mm) long. The nearest documented occurrence of this species is located approximately seven miles southwest of the project site, across the Bay. This species has also been documented on the eastern side of the Bay within Contra Costa County. The coastal scrub within the project site is suitable habitat for this species. This species was not observed on-site during the surveys.

**Soft Bird’s-beak (Cordylanthus mollis ssp. mollis)**

Soft Bird’s-beak is a parasitic annual that occurs in coastal salt marshes and swamps at elevations that range from 0 to 10 m above msl. This species blooms from June through October. The known range of Point Reyes bird’s-beak includes Alameda*, Humboldt, Marin, Santa Clara*, San Mateo*, and Sonoma counties (*Indicates species may be extirpated from these counties). It also occurs in Oregon. This species is noted for having seeds that are 2 to 3 mm long, 4 stamens, a notched inner bract, and stems that are not highly branched. There are two documented occurrences of this species within less than five miles of the project site; both are located across the Bay. One of these occurrences is located approximately four miles northwest of the project site and the other is located approximately 4.5 miles southwest of it. A third documented occurrence of Point Reyes bird’s-beak is located approximately nine miles southeast of the project site on the eastern side of the Bay. The tidal marsh and several of the wetlands within the project site are suitable habitat for this species. This species was not observed on-site during the surveys.

**Soft Bird’s-beak (Cordylanthus mollis ssp. mollis)**

Soft Bird’s-beak is a parasitic annual that occurs in coastal salt marshes and swamps at elevations that range from 0 to 10 m above msl. This species blooms from June through October. The known range of Point Reyes bird’s-beak includes Alameda*, Humboldt, Marin, Santa Clara*, San Mateo*, and Sonoma counties (*Indicates species may be extirpated from these counties). It also occurs in Oregon. This species is noted for having seeds that are 2 to 3 mm long, 4 stamens, a notched inner bract, and stems that are not highly branched. There are two documented occurrences of this species within less than five miles of the project site; both are located across the Bay. One of these occurrences is located approximately four miles northwest of the project site and the other is located approximately 4.5 miles southwest of it. A third documented occurrence of Point Reyes bird’s-beak is located approximately nine miles southeast of the project site on the eastern side of the Bay. The tidal marsh and several of the wetlands within the project site are suitable habitat for this species. This species was not observed on-site during the surveys.
Soft bird’s-beak is a parasitic annual that occurs in coastal salt marshes and swamps at elevations that range from zero to three m above msl. This species blooms from July through November. The known range of soft bird’s-beak includes Contra Costa, Marin*, Napa, Sacramento*, Solano, and Sonoma* counties (*Indicates species may be extirpated from these counties). This species is noted for being soft and hairy, with the longest hairs greater than 1 mm in length. Its stems are also characteristically few-branched from the middle, the inflorescences tend to be 5 to 15 cm long, and the corolla pouches and tubes are densely tomentose. The seeds of this sub-species are typically 2 to 3 mm long. USFWS critical habitat has been designated for this species (Federal Register, Volume 72, Number 70, April 12, 2007). The project site does not fall within the critical habitat designation. The nearest designated critical habitat unit for soft bird’s-beak is located approximately 3.0 miles northeast of the project site. This critical habitat unit is Unit 3 and it occurs along the Point Pinole Shoreline. There are two documented occurrences of soft bird’s-beak that occur approximately 5 miles northeast of the project site. The tidal marsh and several of the wetlands within the project site are suitable habitat for this species. This species was not observed on-site during the surveys.

**Western Leatherwood** (*Dirca occidentalis*)
Mezereum Family (Thymelaeaceae)
Federal Status – None
State Status – None
Other – CNPS List 1B

Western leatherwood is a deciduous shrub that occurs in broadleaf upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, North Coast coniferous forest, riparian forest, and in mesic areas within riparian woodland habitats at elevations that range from 50 to 395 m above msl. Western leatherwood blooms from January through March, though the bloom period can occasionally extend through April. The known range of this species includes Alameda, Contra Costa, Marin, Santa Clara, San Mateo, and Sonoma counties. Western leatherwood is a monotypic genus and the only species within the mezereum family that occurs in California. It is noted for its extremely pliable, smooth, leather-like bark. This species has prominent yellow pendant inflorescences with 8 well-exserted stamens that appear before the leaves. There are two documented occurrences of this species within approximately ten miles southeast of the project site. The mixed riparian within the project site is suitable habitat for this western leatherwood. This species was not observed on-site during the surveys.

**Fragrant Fritillary** (*Fritillaria liliacea*)
Lily Family (Liliaceae)
Federal Status – None
State Status – None
Other – CNPS List 1B
Fragrant fritillary is a bulbous perennial herb that occurs in cismontane woodland, coastal prairie, coastal scrub, and valley and foothill grassland (often serpentinite) habitats at elevations that range from 3 to 400 m above msl. This species blooms from February through April. The known range of fragrant fritillary includes Alameda, Contra Costa, Monterey, Marin, San Benito, Santa Clara, San Francisco, San Mateo, Solano, and Sonoma counties. This species is noted for having generally more than 4 alternate, linear to ovate (not sickle-shaped) leaves and obscure nectaries. The petals are characteristically white with faint green stripes. The nearest documented occurrence of fragrant fritillary is located approximately two miles southeast of the project site. The coastal scrub and annual grassland within the project site are suitable habitats for this species. This species was not observed on-site during the surveys.

**Diablo Helianthella (Helianthella castanea)**

Sunflower Family (Asteraceae)
Federal Status – None
State Status – None
Other – CNPS List 1B

Diablo helianthella is a perennial herb that occurs in broadleaf upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, and valley and foothill grassland habitats at elevations that range from 60 to 1300 m above msl. Diablo helianthella blooms from March through June. The known range of this species includes Alameda, Contra Costa, Marin (though may be extirpated), and San Mateo Counties. Diablo helianthella is noted for having a whirl of large, leaf-like, and incurved outer phyllaries, thick fruits, and an involucre that is typically 2.5 to 4 cm in diameter. There are seven documented occurrences of this species within less than ten miles from the project site. These occurrences are scattered around the Bay to the northeast, east, and southeast of the project site. The nearest documented occurrence of this species is located approximately eight miles east of the project site. The coastal scrub, annual grassland, and mixed riparian within the project site are suitable habitats for Diablo helianthella. This species was not observed on-site during the surveys.

**Loma Prieta Hoita (Hoita strobilina)**

Legume Family (Fabaceae)
Federal Status – None
State Status – None
Other – CNPS List 1B

Loma Prieta hoita is a gland-dotted perennial herb that occurs in chaparral, cismontane woodland, and riparian woodland (usually serpentinite and mesic regions) habitats at elevations that range from 30 to 860 m above msl. This species blooms from May through July, but the bloom season can extend into August, September, and October. The known range of Loma Prieta hoita includes Alameda (though may
be extirpated), Contra Costa, Santa Clara, and Santa Cruz counties. This species is noted for erect stems, lanceolate to round leaflets, and flowers that are typically 13 to 19 mm long. There are three documented occurrences of Loma Prieta hoita within approximately 6 miles east of the project site. The riparian woodland within the project site is potentially suitable habitat for this species. This species was not observed on-site during the surveys.

**Santa Cruz Tarplant** *(Holocarpha macradenia)*
Sunflower Family (Asteraceae)
Federal Status – Threatened
State Status – Endangered
Other – CNPS List 1B

Santa Cruz tarplant is an annual, strongly aromatic herb that occurs in coastal prairie, coastal scrub, and valley and foothill grassland (often clay, sandy) habitats at elevations that range from 10 to 220 m above msl. This species blooms from June through October. The known range of Santa Cruz tarplant includes Alameda*, Contra Costa*, Monterey, Marin*, and Santa Cruz counties (*Indicates species may be extirpated from these counties). This species is noted for having black anthers, dense inflorescence clusters, and large heads with approximately 40 to 90 disk and 8 to 16 ray flowers. USFWS critical habitat has been designated for this species. The project site does not fall within the critical habitat designation. The nearest designated critical habitat unit for Santa Cruz tarplant is located approximately 3.5 miles east of the project site. It is critical habitat unit A and it occurs within Wildcat Canyon Regional Park. There are 18 documented occurrences of Santa Cruz tarplant within 5 to 10 miles of the project site. The nearest documented occurrence of this species is located approximately 5 miles east of the project site. The coastal scrub and annual grassland within the project site are suitable habitats for this species. This species was not observed on-site during the surveys.

**Woolly-headed Lessingia** *(Lessingia hololeuca)*
Sunflower Family (Asteraceae)
Federal Status – None
State Status – None
Other – CNPS List 3

Woolly-headed lessingia is an annual herb that occurs in broadleaf upland forest, coastal scrub, lower montane coniferous forest, and valley and foothill grassland (clay or serpentine soils) habitats at elevations that range from 15 to 305 m above msl. This species blooms from June through October. The known range of woolly-headed lessingia includes Alameda, Monterey, Marin, Napa, Santa Clara, San Mateo, Solano, Sonoma, and Yolo counties. This species is noted for having a pappus that is greater in length than or equal to the fruits, tapered style appendages, and persistent basal leaves in flower. Woolly-headed lessingia is tomentose (thus its common name), however this species becomes glabrous with age.
Mount Diablo Cottonweed (*Micropus amphibolus*)
Sunflower Family (Asteraceae)
Federal Status – None
State Status – None
Other – CNPS List 3

Mount Diablo cottonweed is an annual herb that occurs in broadleaf upland forest, chaparral, cismontane woodland, and valley and foothill grassland (rocky) habitats at elevations that range from 45 to 825 m above msl. This species blooms from March through May. The range of Mount Diablo cottonweed includes Alameda, Contra Costa, Colusa, Lake, Monterey, Marin, Napa, Santa Barbara, Santa Clara, Santa Cruz, San Joaquin, San Luis Obispo, Solano, and Sonoma counties. This species is noted because the wings of the pistillate chaff scales are prominent and ovate, thick and hard only near the midvein, and because the tips of the pistillate chaff scales are flat to concave. Other distinguishing characteristics of this species are the four lobes on the disk flowers and the presence of disk chaff. CNPS list three species are not documented within the CNDDB, though the CNPS inventory shows a documented occurrence within the “San Quentin, California” 7.5-minute quadrangle. The annual grassland within the project site is suitable habitat for this species. This species was not observed on-site during the surveys.

Robust Mondardella (*Monardella villosa* ssp. *villosa*)
Mint Family (Lamiaceae)
Federal Status – None
State Status – None
Other – CNPS List 1B

Robust monardella is a perennial herb that occurs in broadleaf upland forest openings, chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland habitats at elevations that range from 100 to 915 m above msl. This species blooms from June through July. The bloom season occasionally extends through August. The range of robust monardella includes Alameda, Contra Costa, Humboldt, Lake, Mendocino, Napa, Santa Clara, Santa Cruz, San Mateo, and Sonoma counties. This species is noted for having narrowly to widely ovate leaves that are approximately 10 to 22 mm long, with soft-wavy, or woolly unbranched hairs. These plants tend to be less than 50 cm tall. The nearest documented occurrence of this species is located approximately eight miles east of the project site. The coastal scrub and annual grassland within the project site are suitable habitats for this species. This species was not observed on-site during the surveys.
Uncommon Jewel-flower (*Streptanthus albidus* ssp. *peramoenus*)
Mustard Family (Brassicaceae)
Federal Status – None
State Status – None
Other – CNPS List 1B

Uncommon jewel-flower is an annual herb that occurs in chaparral, cismontane woodland, and valley and foothill grassland (occasionally serpentine soils) at elevations that range from 94 to 100 m above msl. This species blooms from April through September, though the bloom period can extend from March through October. The range of uncommon jewel-flower includes Alameda, Contra Costa, Monterey, Santa Barbara, Santa Clara, San Luis Obispo, and Stanislaus counties. This species is noted because its inflorescence is not one-sided and its sepals are lilac to lavender in color. The nearest documented occurrence of uncommon jewel-flower is located approximately 4.5 miles northeast of the project site. The annual grassland within the project site is suitable habitat for this species. This species was not observed on-site during the surveys.

California Seablite (*Suaeda californica*)
Goosefoot Family (Chenopodiaceae)
Federal Status – Endangered
State Status – None
Other – CNPS List 1B

California seablite is a mound-like shrub that occurs in coastal salt marshes and swamps at elevations that range from 0 to 15 m above msl. This species blooms from July through October. The range of California seablite includes Alameda*, Contra Costa, Santa Clara*, Solano*, and Sonoma* counties (*Indicates species may be extirpated from these counties). This species is noted because its bracts are overlapping, generally the same length as the leaves, and cover the internodes at the stem tips. Another noteworthy characteristic of this species is that the ovaries are more or less conically shaped and lack an obvious neck. USFWS critical habitat has not been designated for this species. The nearest documented occurrence of California seablite is located approximately 5.5 miles southeast of the project site. The tidal marsh within the project site is suitable habitat for this species. This species was not observed on-site during the surveys.

Suisun Marsh Aster (*Symphyotrichum lentum*)
Former name: Aster lentus
Sunflower Family (Asteraceae)
Federal Status – None
State Status – None
Other – CNPS List 1B

Suisun Marsh aster is a perennial herb with long rhizomes that occurs in brackish and freshwater marshes and swamps at elevations that range from zero to three m above msl. This species blooms from May through November. The range of Suisun Marsh aster includes Contra Costa, Marin, Napa, Sacramento, San Joaquin, Solano, and Sonoma counties. This species is noted because the pale margins on the outer phyllaries extend to greater than half their length and the phyllaries are generally at least three times longer than wide. The stems of this species are glabrous, the leaves are linear to narrowly lanceolate, and the leaves near the inflorescences are small and bract-like. Suisun Marsh aster has been documented within the project site (CNDDB Occurrence No. 147) and this species was observed within a seasonal wetland feature in the southern portion of the project site during the surveys that AES botanists conducted. Approximately 85 individuals were detected and this population was scattered throughout an area of approximately 0.86 acre (Figure 3.5-1).

Special-Status Fishes

Species descriptions for the special-status fishes that were determined to have potential to occur on-site are provided below.

Green Sturgeon (*Acipenser medirostris*)
Federal Status – Threatened
State Status – None
Other – None

Green sturgeon is an anadromous species that is the most marine oriented of all the sturgeon. This species spends most of its life in nearshore oceanic waters, bays, and estuaries. Adult green sturgeon return to freshwater habitats for spawning at approximately 15 years of age. They spawn in deep pools or holes in large, turbulent, freshwater river mainstems and cast their eggs over large cobble, clean sand, or bedrock substrates. Green sturgeon spawn from March through July, with peak activity occurring from April through June. Juveniles spend one to four years in fresh and estuarine waters before dispersing into the ocean. Adult green sturgeon occur in coastal waters from Mexico to Alaska and have been observed along the length of the west coast of North America. Critical habitat has not yet been designated for this species, though it is included in the *Recovery Plan for Sacramento/San Joaquin Delta Native Fishes; November 29, 1996* (USFWS, 1996). This species is not recognized as a special-status species at the State level, thus is not tracked within the CNDDB. However, the project site is within the known range of green sturgeon (Calfish, 2007). The portions of the Bay within the project site are suitable habitat for this species. Suitable spawning habitat for green sturgeon does not occur within the project site.

Central California Coast Coho Salmon, ESU (*Oncorhynchus kisutch*)
Federal Status – Endangered
Like other species of salmon, coho salmon are anadromous. Coho salmon migrate out of the marine environment into the inland freshwater rivers and streams from which they were born to spawn. Coho spawn only once in their lifetime, at approximately three years of age, and then die. They spawn in small shallow streams with riffle complexes and stable, silt-free gravel substrates. The migrations occur from November through January. Spawning typically begins in late January and extends through February. Juveniles tend to immigrate out to the marine environment one year after birth. The Central California Coast Evolutionary Stable Unit (ESU) includes all naturally spawned populations of coho salmon from Punta Gordon in northern California south to and including the San Lorenza River in central California, as well as populations in tributaries to the Bay, excluding the Sacramento/San Joaquin River system and four other artificial propagation programs. The range of the Central California Coast coho ESU includes portions of Alameda, Contra Costa, Marin, Mendocino, Napa, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano, and Sonoma counties. Critical habitat has been designated for the Central California Coast coho ESU (May 5, 1999; Federal Register 64:24049). The project site is not located within designated critical habitat for this species, but it is directly across the Bay from two streams (that enter the Bay) that are designated critical habitat. The project site falls within EFH for coho. Any waters upstream from the San Pablo Dam (i.e., San Pablo Creek) are excluded. Corte Madera Creek and Arroyo Corte Madera Del Presidio are both designated critical habitat for the coho Central California Coast ESU. Corte Madera Creek enters the Bay on the southern side of the Richmond San Rafael Bridge, inland from San Quentin. Arroyo Corte Madera Del Presidio enters the Bay at the inland most point within Richardson Bay. A Recovery Outline was completed and signed by NMFS Regional Headquarters October 2005, although no recovery plan has been completed for this ESU. The nearest documented occurrence of this species within the CNDDB is located approximately nine miles southwest of the project site. The portions of the Bay within the projects site are suitable habitat for adult coho salmon. Spawning habitat does not occur within the project site.

Central California Coast Steelhead, ESU (*Oncorhynchus mykiss*)

Federal Status – Threatened
State Status – None
Other – None

Steelhead are the anadromous form of rainbow trout. As such, this species hatches in freshwater, migrates to marine waters, and returns to freshwater habitats for spawning. Unlike other types of salmonoids, steelhead are capable of spawning more than once and not all of them die immediately after spawning.
The Central California Coast ESU is a winter-run species, meaning that it has reached sexual maturity within the marine environment prior to the onset of the freshwater migration. Winter-run steelhead begin migrating between November and April and spawn shortly after they arrive in spawning habitats. Juveniles remain in the freshwater environment for one to two years. This species has an average lifespan of six to seven years. The range of the Central California Coast steelhead ESU includes all naturally spawned populations of steelhead in coastal streams from the Russian River to Aptos Creek, and the drainages of San Francisco, San Pablo, and Suisun Bays eastward to Chipps Island at the confluence of the Sacramento and San Joaquin Rivers; and tributary streams to Suisun Marsh including Suisun Creek, Green Valley Creek, and an unnamed tributary to Cordelia Slough (often referred to as Red Top Creek), exclusive of the Sacramento-San Joaquin River Basin of the California Central Valley, and two additional artificial propagation programs. The range includes portions of Alameda, Contra Costa, Marin, Mendocino, Napa, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano, and Sonoma counties. Critical habitat has been designated for Central California Coast steelhead ESU (September 2, 2005; Federal Register 70:52488). Generalized steelhead routes referred to, as “Bay Waters” are designated critical habitat within the Bay and are in the immediate vicinity of the project site. Several streams that enter the San Pablo Bay are also designated critical habitat for this species and include: the Petaluma River to the northwest of the project site, Sonoma Creek north of the project site, and the Napa River to the northeast of the project site. A recovery plan has not been completed for the Central California Coast steelhead ESU, though a final plan is expected. NMFS has prepared a document titled 2007 Federal Recovery Outline for the Distinct Population Segment of Central California Coast Steelhead that has been finalized (NMFS, 2007a). The portions of the Bay within the projects site are suitable habitat for adult steelhead and are likely considered critical habitat. Spawning habitat for this species does not occur on-site.

**Central Valley Steelhead, ESU** (*Oncorhynchus mykiss*)

Federal Status – Threatened  
State Status – None  
Other – None

The Central Valley steelhead ESU is also a winter-run species, though it may be more appropriately named fall-run, because freshwater migrations begin in August and extend through October. The range of this ESU includes all naturally spawned populations of steelhead in the Sacramento and San Joaquin Rivers and their tributaries, excluding steelhead from San Francisco and San Pablo Bays and their tributaries, and two artificial propagation programs. The range includes portions of Amador, Alameda, Butte, Calaveras Contra Costa, Colusa, Glenn, Mariposa, Merced, Nevada, Placer, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tuolumne, Yolo, and Yuba, counties. Critical habitat has been designated for the Central Valley steelhead ESU (September 2, 2005; Federal Register 70:52488). The project site is not within the designated critical habitat; however, adults migrate through the Bay to access the Delta, Sacramento River, and San Joaquin River. A recovery plan has not been
completed for the Central Valley steelhead ESU, though a final plan is expected. NMFS has prepared a document titled *2007 Federal Recovery Outline for the Evolutionarily Significant Units of Sacramento River Winter-run Chinook Salmon and Central Valley Spring-run Chinook Salmon and the Distinct Population Segment of California Central Valley Steelhead* that has been finalized (NMFS, 2007b). The portions of the Bay within the projects site are suitable habitat for adult steelhead. Spawning habitat does not occur on-site.

**Central Valley Spring-run Chinook Salmon, ESU (*Oncorhynchus tshawytscha*)**

Federal Status – Threatened  
State Status – Threatened  
Other – None

Chinook salmon are the largest and least abundant salmonids that currently occur in California. Chinook are anadromous, but unlike steelhead, Chinook die after a single spawning event. The Central Valley spring-run Chinook ESU begins migration during the months of March through September, with peak migration occurring from May to June. Spawning typically occurs from August through October and juveniles tend to emerge from November through March. Central Valley spring-run juveniles reside in the freshwater environment for 3 to 15 months. The range of this ESU includes all naturally spawned populations of spring-run Chinook salmon in the Sacramento River and its tributaries, including the Feather River, and the Feather River Hatchery spring-run Chinook program. The range includes portions of Butte, Colusa, Contra Costa, Glenn, Napa, Nevada, Placer, Sacramento, Shasta, Solano, Sutter, Tehama, Yolo, and Yuba counties. Critical habitat has been designated for the Central Valley spring-run Chinook ESU (September 2, 2005; Federal Register 70:52553). The project site is not within the designated critical habitat; however, adults migrate through the Bay to access the Delta, Sacramento River, and San Joaquin River. The project site falls within EFH for Chinook. Any waters upstream from the San Pablo Dam (i.e., San Pablo Creek) are excluded. A recovery plan has not been completed for the Central Valley spring-run Chinook ESU, though a final plan is expected. NMFS has prepared a document titled *2007 Federal Recovery Outline for the Evolutionarily Significant Units of Sacramento River Winter-run Chinook Salmon and Central Valley Spring-run Chinook Salmon and the Distinct Population Segment of California Central Valley Steelhead* that has been finalized (NMFS, 2007b). The portions of the Bay within the projects site are suitable habitat for adult Chinook. Spawning habitat does not occur on-site.

**Sacramento River Winter-run Chinook Salmon, ESU (*Oncorhynchus tshawytscha*)**

Federal Status – Endangered  
State Status – Endangered  
Other – None
This Sacramento River winter-run ESU is composed of a single extant population, which occurs in the mainstem Sacramento River, below the Keswick Dam. Construction of the Shasta and Keswick Dams have completely displaced this ESU from its historical spawning range. The Sacramento River winter-run Chinook ESU currently includes all naturally spawned populations of winter-run Chinook in the Sacramento River and its tributaries, as well as two artificial propagation programs. The range includes portions of Butte, Colusa, Contra Costa, Glenn, Napa, Nevada, Placer, Sacramento, Shasta, Solano, Sutter, Tehama, Yolo, and Yuba counties (and is synonymous with the range of the Central Valley spring-run Chinook ESU). Critical habitat has been designated for this ESU (June 16, 1993; Federal Register 58:33213). The critical habitat includes “all waters of the San Pablo Bay westward of the Carquinez Bridge,” thus the project site is within designated critical habitat for this species. The project site falls within EFH for Chinook. Any waters upstream from the San Pablo Dam (i.e., San Pablo Creek) are excluded. A recovery plan for the Sacramento River winter-run ESU was drafted in August 1997 (NMFS, 1997). NMFS has prepared a document titled 2007 Federal Recovery Outline for the Evolutionarily Significant Units of Sacramento River Winter-run Chinook Salmon and Central Valley Spring-run Chinook Salmon and the Distinct Population Segment of California Central Valley Steelhead that has been finalized (NMFS, 2007b). The portions of the Bay within the project site are suitable habitat for adult Chinook. Spawning habitat does not occur on-site.

**Special-Status Birds**

Species descriptions for the special-status birds determined to have potential to occur on-site are provided below.

**Cooper’s Hawk (Accipiter cooperii)**

Federal Status – None

State Status – California Species of Special Concern

Other – None

Cooper’s hawk is a prevalent winter migrant and uncommon resident within California. Its range includes the entire state (except the Sierra Nevada) and this species frequents California’s southeastern deserts. Cooper’s hawks breed in riparian woodland habitats, oak woodlands, and other forested habitats within close proximity to water. This species breeds from March through August and peak activity typically occurs May through July. The breeding range extends from Siskiyou County south to San Diego County and includes patchy regions of the Coast Ranges, from Humboldt County south. Scattered areas of breeding habitat also occur in the western Sierra Nevada foothills, Owens Valley, Saline Valley, White Mountains, Inyo Mountains, and Morongo Valley. The nearest documented occurrence of Cooper’s hawk is located approximately 10.5 miles northeast of the project site, near the town of Hercules, in Contra Costa County. The mixed riparian and eucalyptus woodland within the project site may be suitable nesting habitat for this species and it may forage throughout the other habitats on-site.
Short-eared Owl (*Asio flammeus*)

Federal Status – None  
State Status – California Species of Special Concern  
Other – None

Short-eared owl is a fairly common winter visitor and/or resident within California. Its range includes the entire coast of California, the Bay, the Central Valley, the northeastern and eastern sides of the Sierra Nevada south to the northern tip of Inyo County, a small isolated area within the western portion of San Bernadino County, a region within western Imperial County, and a narrow band along the California/Arizona border. Short-eared owls breed in tall stands of grasses within prairies, dunes, meadows, irrigated lands, and saline or freshwater wetlands. Nesting frequently occurs in upland sites with adequate vegetation to conceal incubating females. Short-eared owls breed from March through July and females typically lay their eggs in April and May. This species hunts over salt and freshwater marshes, grasslands, meadows, river corridors, and agricultural lands. There are two documented occurrences of short-eared owl within less than five miles of the project site. The closer of these two occurrences is located approximately 1.5 miles northeast of the project site, on the outskirts of Richmond, within Contra Costa County. The coastal scrub and annual grassland within the project site may be suitable nesting habitat for this species and it may hunt throughout the other habitats on-site.

Western Snowy Plover (*Charadrius alexandrinus nivosus*)

Federal Status – Threatened  
State Status – California Species of Special Concern  
Other – None

The Pacific Coast breeding population of western snowy plovers occurs along the coast from Washington to Baja California, though most breeding individuals are located in California. The majority of this population winters in coastal California and Mexico. The Pacific Coast population of western snowy plovers is rarely found more than 25 miles inland of the shoreline, including areas that surround the entire Bay. USFWS critical habitat has been designated for western snowy plover (September 29, 2005; Volume 70: Number 188). A Recovery Plan has been completed and signed by the USFWS California/Nevada Operations Office in August 2007 (USFWS, 2007). The nearest documented occurrence of western snowy plover is located approximately 12 miles southwest of the project site. Western snowy plover forages for invertebrates such as insects and crabs in both wet and dry sandy or gravelly beaches. This species typically nests in loose colonies during March through September. Suitable nesting habitat consists of sand spits, dune-backed beaches, unvegetated beach strands, open areas that surround estuaries, and smaller beaches near the mouths of rivers. Other less frequently used nesting sites consist of wet and dry salt ponds, coastal dredged spoil disposal sites, salt pond levees, and alkali lakes. Nests may be located in flat open areas where vegetation, debris, vegetation, and driftwood are largely absent. Not only do western snowy plovers return to the same breeding sites in subsequent
years, but they are known to nest in the exact same locations as previous years if those nesting sites are intact, undisturbed, and still available. Clutch size is almost always three eggs and incubation lasts approximately 27 days. Western snowy plover chicks are precocial, meaning they leave the nest within hours of hatching to forage. Adults do not feed their young, but rather they lead them to suitable feeding sites. Actual fledging generally occurs within approximately 30 days. This species will re-nest if the clutch or the brood is lost. Females are known to double brood and some females will successfully hatch multiple broods from different mates within a single nesting season. Females usually desert the brood shortly after it is hatched and males attend the nest until the brood has fledged. Adults will frequently distract predators from the nest with imitation displays of injury. The Pacific Coast population is comprised of both resident and migratory birds. Some individuals over-winter in breeding zones while others migrate north or south to other wintering areas. The beach strand habitat within the project site is suitable nesting and foraging habitat for this species.

**Northern Harrier** (*Circus cyaneus*)
Federal Status – None
State Status – California Species of Special Concern
Other – None

Northern harrier is a common winter visitant and semi-permanent resident within California. Its range includes most of California, except for the following: the Sierra Nevada, inland portions of Del Norte and Humboldt counties, the northeastern region of Mendocino County, the western portion of Tehama County, Trinity County, and small portions of Siskiyou and Shasta counties. Northern harriers build their nests on the ground. Nests typically occur near marsh edges, in wet areas, in grasslands and grain fields, and in sagebrush flats. This species breeds April through September and peak activity typically occurs June through July. Northern harriers hunt in a variety of habitats including meadows, grasslands, open rangelands, desert sinks, fresh and saltwater wetlands, and other open areas. The nearest documented occurrence of this species is located approximately two miles northeast of the project site, on the outskirts of Richmond, within Contra Costa County. The coastal scrub, annual grassland, mixed riparian, and wetlands within the project site may be suitable nesting and/or foraging habitats for this species and the other habitats on-site may provide suitable foraging habitat.

**Salt Marsh Yellowthroat** (*Geothlypis trichas sinuosa*)
Federal Status – None
State Status – California Species of Special Concern
Other – None

The salt marsh yellowthroat is one of three subspecies of common yellowthroat that reside and breed in California. The salt marsh yellowthroat is the smallest in size of these subspecies. This subspecies is endemic to the Bay Area, though there is evidence that it migrates as far south as San Diego County. It
breeds as far north as the Tomales Bay, east as the Carquinez Strait, and into the coastal regions of Santa Cruz County. The nesting season for salt marsh yellowthroats extends from March through July. This subspecies forages in fresh and saltwater marshes, coastal swales, riparian thickets, and disturbed or weedy habitats that are adjacent to swamps or tidally influenced zones. The nearest documented occurrence of salt marsh yellowthroat is located approximately nine miles southwest of the project site, within Marin County. It has been documented within Contra Costa County. The tidal marsh, wetlands, mixed riparian, invasive scrub, and beach strand within the project site may be suitable nesting and/or foraging habitats for salt marsh yellowthroat.

**Bald Eagle (Haliaeetus leucocephalus)**
Federal Status – Federally Delisted
State Status – Endangered
Other – None

The bald eagle winters throughout most of California, with higher concentrations of individuals located around the Klamath Basin. Most bald eagle breeding occurs within the northern portion of the state including Butte, Lake, Lassen, Modoc, Plumas, Shasta, Siskiyou, Humboldt, and Trinity counties. This species begins breeding in February through March, with peak activity from March to June. Bald eagles nest in large, old-growth or conifer forests within the vicinity of large permanent bodies of water. Bald eagles hunt in larger lakes, rivers, reservoirs, and other large bodies of water with abundant fish, and require adjacent snags, rock outcrops, cliffs, or other perches. The nearest documented occurrence of bald eagle is located approximately nine miles east of the project site, just east of the San Pablo Reservoir, in Contra Costa County. Suitable nesting habitat for this species does not occur within the project site, though this species may hunt within the portions of the Bay on-site.

**California Black Rail (Laterallus jamaicensis coturniculus)**
Federal Status – None
State Status – Threatened
Other – Fully Protected

California black rails are rarely seen, though they are considered a yearlong resident throughout their limited range in California. This species resides in saline, brackish, and freshwater wetland habitats, though it is most often associated with tidal marshes, which are dominated by saltgrass and pickleweed. Its range includes the northern San Francisco Bay estuary, Bodega Bay, Tomales Bay, Bolinas Lagoon, the Sacramento-San Joaquin Delta, Morro Bay, and a few other isolated locations within the Salton Sea, and the lower Colorado River near the California/Arizona border. California black rails begin breeding in February and they nest in tall thickets of vegetation. The breeding season extends through June. This species is highly sensitive when nesting and is known to abandon its nests if disturbed. The nearest documented occurrence of California black rail is located approximately two miles northeast of the
project site, on the outskirts of Richmond, in Contra Costa County. There are three other documented occurrences of this species within less than five miles of the project site. The tidal marsh and wetlands within the project site may be suitable nesting and/or foraging habitats for this species.

**Alameda Song Sparrow (Melospiza melodia pusillula)**
Federal Status – None  
State Status – California Species of Special Concern  
Other – None

The Alameda song sparrow is one of seven subspecies known to occur in California and it is one of three subspecies that is endemic to the Bay. The Alameda song sparrow inhabits salt marsh and brackish marsh habitats and other tidally influenced fringe areas such as dikes, landfills, and waste yards that abut salt or brackish waters, where marsh vegetation can occur. The range of this subspecies is restricted to the southern and eastern edges of the San Francisco Bay. It has been documented within Alameda, Contra Costa, San Mateo, and Santa Clara counties. The Alameda song sparrow breeding season is thought to begin in March and April. It nests on the ground, in clumps of pickleweed, among stalks of cordgrass, or in the axes of gumplant. There are two documented occurrences of this species within less than five miles of the project site. The nearest of the two is located approximately two miles southeast of the project site, in Contra Costa County. The tidal marsh, invasive scrub, mixed riparian, and beach strand within the project site may be suitable nesting and/or foraging habitat for this species.

**San Pablo Song Sparrow (Melospiza melodia samuelis)**
Federal Status – None  
State Status – California Species of Special Concern  
Other – None

Like the Alameda song sparrow, the San Pablo song sparrow is one of three Bay Area endemics. The San Pablo song sparrow inhabits tidally influenced marshes, brackish wetlands, and fringe areas such as the edges of dikes, landfills, and other areas of higher ground that border salt or brackish waters. The range of this subspecies is limited to the edges of the San Pablo Bay and it has a stronghold in the Petaluma River. San Pablo song sparrow has been documented in Contra Costa, Marin, Napa, Solano, and Sonoma counties. The breeding season for this subspecies is thought to begin in February and March and to extend through June. Like the Alameda song sparrow, it nests on the ground, in clumps of pickleweed, among stalks of cordgrass, or in the axes of gumplant. There are seven documented occurrences of this subspecies within less than five miles of the project site. The closest occurrence is located approximately one mile northeast of the project site, on the outskirts of Richmond, in Contra Costa County. The tidal marsh, invasive scrub, mixed riparian, and the beach strand within the project site may be suitable nesting and/or foraging habitat for this species.
Osprey (*Pandion haliaetus*)
Federal Status – None
State Status – California Species of Special Concern
Other – None

Osprey are winter visitors, spring and fall transients, and residents throughout California. They are often associated with large fish-bearing waters within conifer forests and other woodland habitats. This species frequents large trees, snags, and dead-topped trees and it requires open, clear waters for hunting such as rivers, lakes, reservoirs, bays, estuaries, and surf zones. Osprey generally breed in Northern California from the Cascade Ranges south to Lake Tahoe, and along the coast south to Marin. Well established breeding grounds are located at Goose Lake in Modoc County, Eagle Lake, in Lassen County, Lake Almanor in Plumas County, along the Sacramento River in Tehama County, and along rivers within the Klamath and Coast Ranges from Siskiyou and Del Norte counties south through Humboldt, Mendocino, Shasta, Trinity and Glenn counties to Sonoma and Marin counties. Nests have also been observed at Tinnemaha Reservoir in Inyo County and Lake Casitas in Ventura County. Osprey breeding season is from March through September. The nearest documented occurrence of this species is located approximately 13 miles northeast of the project site. Suitable nesting habitat for this species does not occur within the project site, though this species may hunt within the portions of the Bay on-site. AES biologists observed osprey within the project site during the spring 2005 field visits.

California Brown Pelican (*Pelecanus occidentalis californicus*)
Federal Status – Endangered/ Proposed for Delisting
State Status – Endangered
Other – Fully Protected

The California brown pelican is a locally common breeder and visitor in California. This subspecies is one of six recognized subspecies. The California brown pelican occurs in estuarine, marine, subtidal, and marine pelagic waters. It frequents the open-ocean, offshore islands, coastal areas, harbors, piers, and breakwaters. The range of this subspecies includes the entire coast of California, including the Channel Islands. The California brown pelican also occurs in the Salton Sea and Colorado River reservoirs within Riverside, San Diego, and Imperial counties. California brown pelicans typically build their nests on the ground or on steep cliffs and the breeding season occurs March through August. After breeding, individuals leave their nesting colonies, and disperse along the coast. Critical habitat has not been designated for this subspecies. A document titled *The California Brown Pelican Recovery Plan* was released in February 1993 for this species, but is considered outdated (USFWS, 1983). A status review of the California brown pelican was initiated to determine if removal from the federal endangered species list is warranted (May 24, 2006; Federal Register 71:29908). This species is formally proposed for delisting, though a determination has not yet been finalized (February 20, 2008; Federal Register 73:9407). The nearest documented occurrence of this subspecies is located in Monterey County. It is not
likely that California brown pelican will nest within the project site, though the portions of the Bay, pier, and beach strand located within the project site are suitable foraging habitats for this subspecies.

Double-Crested Cormorant (*Phalacrocorax auritus*)
Federal Status – None
State Status – California Species of Special Concern
Other – None

Double-crested cormorants are fairly common residents in California. This species occurs in offshore islands, along the coast, in bays, on harbors, in estuaries, in salt ponds, on wharfs and piers, in jetties, and in large freshwater lakes, rivers, reservoirs, and marshes. The range of double-crested cormorants includes the entire coast of California, the Salton Sea, the Colorado River corridor along the California/Arizona border, the northeastern region of the state including Modoc, Lassen, Plumas, and Sierra counties, the northern Central Valley, and a few other isolated regions within Shasta, Alpine, Mono, Kern, and Kings counties. This species builds its nest beside water, on islands, and on inlands in rock ledges, on cliffs, in rugged slopes, or in tall trees or snags. The breeding season typically begins in April and can extend through August. Breeding may begin as early as January in the southern portions of its range. The nearest documented occurrence of double-crested cormorant is located approximately nine miles southeast of the project site. The portions of the Bay within the project site, the pier, and the beach strand appear to be suitable nesting and/or foraging habitats for this species. AES biologists observed double-crested cormorants on the pier within the project site during the spring 2005 surveys.

California Clapper Rail (*Rallus longirostris obsoletus*)
Federal Status – Endangered
State Status – Endangered
Other – Fully Protected

The California clapper rail is a fairly common localized resident within suitable habitat in California. It is one of two coastal subspecies, both of which are regional endemics. The California clapper rail forages in tidal marsh vegetation along brackish creeks, mudflats, and coastal areas. Suitable habitats typically are dominated by pickleweed and cordgrass. The range of the California clapper rail includes the south and central Bay, the San Pablo Bay, and the Petaluma Marsh, Suisun Marsh, and Napa-Sonoma marshes within the North Bay. The breeding season of this subspecies is February through August. Critical habitat has not been designated for the California clapper rail. A document titled *The Salt marsh Harvest Mouse and California Clapper Rail Recovery Plan* was released in November 1984, but is considered outdated (USFWS, 1984b). This subspecies will be included in the *Tidal Marsh Ecosystem Recovery Plan*, which is still under development by the USFWS. The nearest documented occurrence of the California clapper rail is located approximately 1.5 miles northeast of the project site and there are six other documented occurrences within less than five miles. The tidal marsh and beach strand within the
project site may be suitable nesting and/or foraging habitats for this species; however, none were observed during the field surveys.

**California Least Tern** (*Sternula antillarum browni*)

Federal Status – Endangered
State Status – Endangered
Other – Fully Protected

The California least tern is a fairly common localized visitor within suitable habitat in California. It is one of five geographic subspecies and the only one that occurs in California. This subspecies occurs in coastal areas, estuaries, lagoons, diked ponds, bays, harbors, and occasionally in brackish to freshwater lakes, ponds, and marshes that are within close proximity to the coast. The California range of this subspecies includes a narrow coastal band from the San Francisco Bay south to San Diego County. Migrants arrive in late April within the southern portion of its range and appear in May within the northern portion. Breeding colonies have been observed along the coast in San Diego, Orange, Los Angeles, Ventura, Santa Barbara, and the southwestern tip of San Luis Obispo counties. Breeding colonies have also been observed along the edges of the Bay. California least tern are absent from the state from October through early April. Critical habitat has not been designated for this subspecies. A document titled *The California Least Tern Recovery Plan* was released by the USFWS in April of 1980 (USFWS, 1984a) and was updated in September of 1985 (USFWS, 1985). The revised plan is considered outdated and this species is recommended for downlisting to threatened. The nearest documented occurrence of this subspecies is located approximately 12 miles southeast of the project site in Alameda County. The beach strand and portions of the Bay within the project site are considered suitable nesting and/or foraging habitats for this species; however, none were observed during the field surveys.

**Special-status Mammals**

Species descriptions for the pertinent special-status mammals that were evaluated for their potential to occur on-site are provided below.

**Pallid Bat** (*Antrozous pallidus*)

Federal Status – None
State Status – California Species of Special Concern
Other – None

The pallid bat is a nocturnal, locally migratory, and hibernating species that occurs in a wide range of habitats throughout lower elevations in California. This species occurs in grasslands, shrublands, woodlands, and mixed conifer forests. During the day it roosts in caves, rock crevices, in abandon mines, in hallow trees, and in buildings. At night the pallid bat roosts in more open sites such as trees, porches, or barns and it forages for insects and arachnids in open areas. Pallid bats typically mate from October
through February. The range of the pallid bat includes all of California except for the northwestern region of the state and the Sierra Nevada. The nearest documented occurrence of pallid bat is located approximately six miles southeast of the project site and there are three other documented occurrences within less than ten miles. The unoccupied buildings within the ruderal/disturbed habitat on-site are particularly suitable roosting habitat for pallid bat. This species has potential to occur in the annual grassland, coastal scrub, eucalyptus woodland, and mixed riparian habitats within the project site as well.

**Silver-haired Bat** (*Lasionycteris noctivagans*)

Federal Status – None  
State Status – California Species of Special Concern  
Other – None

The silver-haired bat is a nocturnal, hibernating, and migratory species in California. During the summer months this species frequents coastal and montane coniferous forests, valley and foothill woodlands, pinyon-juniper woodlands, and valley and foothill or montane riparian habitats. Over the winter and during the spring and fall migrations, silver-haired bats can occur throughout all of California. This species roosts in hollow trees, snags, buildings, rock crevices, caves, and under bark. It forages in open areas and within forests for moths and insects. Silver-haired bats typically mate from late August through October. The nearest documented occurrence of silver-haired bat is located approximately eight miles southeast of the project site. The unoccupied buildings within the ruderal/disturbed habitat on-site are particularly suitable roosting habitat for the silver-haired bat. This species has potential to occur in the annual grassland, coastal scrub, eucalyptus woodland, and mixed riparian habitats within the project site as well.

**Hoary Bat** (*Lasiurus cinereus*)

Federal Status – None  
State Status – California Species of Special Concern  
Other – None

The hoary bat is a nocturnal, migratory, and hibernating species in California. Hoary bat is the most widespread species of bat in North America and will use most habitat types throughout the California landscape. The southeastern deserts are the only area of California where hoary bats have patchy distribution. This species roosts in trees and prefers to be hidden from foliage above and below its roosts. It forages in open areas for moths and insects. The Hoary bats typically mate during the autumn months, from late August through October. The nearest documented occurrence of hoary bat is located approximately six miles southeast of the project site. The annual grassland, coastal scrub, eucalyptus woodland, and mixed riparian habitats within the project site are suitable for this species, though it may forage throughout the entire project site.
Southern Sea Otter (*Enhydra lutris nereis*)
Federal Status – Threatened
State Status – None
Other – Fully Protected

Southern sea otters are a non-migratory species in California. It occurs in nearshore marine environments from Half Moon Bay in San Mateo County south to Point Conception in Santa Barbara County. Southern sea otters have been known to occasionally occur outside of this known range occasionally, but such sightings are very rare. This species feeds almost exclusively on marine invertebrates and are frequently observed foraging in kelp and eel-grass beds close to the shore. The nearest documented occurrence of the southern sea otter was located approximately 6.5 miles southwest of the project site during 1997. Occurrence of this species within the Bay is considered rare and unusual. The portions of the Bay within the project site and tidal zones may be considered suitable habitat for this species. However, it is highly unlikely that this species will occur on-site. The project site is outside of the known range of this species. It is generally considered extremely rare for individual otters to wander into the Bay. The USFWS has confirmed that this species is unlikely to occur on-site (USFWS, 2007a).

San Pablo Vole (*Microtus californicus sanpabloensis*)
Federal Status – None
State Status – California Species of Special Concern
Other – None

The San Pablo vole is a year-round resident within suitable habitat in California. It is one of five subspecies in the state, all of which are listed as California species of special concern. The San Pablo vole occurs in grassy saline habitats and is strongly associated with salt marshes. Its range includes the salt marsh habitats surrounding San Pablo Creek and the shores of the San Pablo Bay. All known occurrences of the San Pablo vole are in Contra Costa County. The nearest documented occurrence of this species is located approximately 1.5 miles northeast of the project site. There are six other documented occurrences of this species within less than five miles of the project site. The tidal marsh within the project site may be considered suitable habitat for this species and it may wander beyond the salt marsh into the other surrounding habitats. However, it is highly unlikely that this species will occur on-site. The tidal marsh within the project site is relatively small (approximately 0.12 acres), it is disjunct from any other tidal marsh habitats known to support San Pablo vole, it is surrounded by high-density urban development, and it is not surrounded by grassland habitat. The San Pablo Ridge and dense urban development separate the project site from the general area where this species was previously documented within the CNDDB (Figure 3.5-3). The USFWS has confirmed that this species is unlikely to occur on-site (USFWS, 2007c).
Salt Marsh Harvest Mouse (*Reithrodontomys raviventris*)

Federal Status – Endangered  
State Status – Endangered  
Other – Fully Protected

The salt-marsh harvest mouse is a highly localized resident in California. It is one of two subspecies that occur in the San Francisco. Both subspecies occur in saline emergent wetland and tidal marsh habitats within the greater San Francisco. This species preferred habitat is pickleweed, though they can also be found within stands of cordgrass and alkali bulrush. During high tide, salt marsh harvest mice move up into adjoining grassland habitats. According to the USFWS, *R. r. halicoetes* is a regional endemic to the marshes of the San Pablo and Suisun Bays, while *R. r. raviventris* only occurs in the southern marshes of Corte Madera, Richmond, and the South San Francisco Bay. Critical habitat has not yet been designated for this species. A document titled *The Salt Marsh Harvest Mouse and California Clapper Rail Recovery Plan* was released by the USFWS in November 1984, but is considered outdated (USFWS, 1984b). This subspecies will be included in the *Tidal Marsh Ecosystem Recovery Plan*, which is still under development by the USFWS. Regardless of the subspecies taxonomy, the nearest documented occurrence of salt marsh harvest mouse is located approximately 1.5 miles east of the project site and there are eight other documented occurrences within less than five miles. The tidal marsh within the project site may be considered suitable habitat for this species and it may move out into the adjacent habitats during high tides. However, it is highly unlikely that this species will occur on-site. The tidal marsh within the project site is relatively small (approximately 0.12 acres), it is disjunct from any other tidal marsh habitats known to support San Pablo vole, and it is surrounded by high-density urban development. The San Pablo Ridge and dense urban development separate the project site from the general area where this species was previously documented within the CNDDB (*Figure 3.5-3*). Informal consultation with USFWS has supported the unlikelihood of this species occurring within the project site for the reasons mentioned above (USFWS, 2007c).

Salt Marsh Wandering Shrew (*Sorex vagrans halicoetes*)

Federal Status – None  
State Status – California Species of Special Concern  
Other – None

The salt marsh wandering shrew is a localized resident in California. The salt marsh wandering shrew occurs in salt marsh habitats that are dominated by pickleweed and it requires fairly continuous tidal influence. It nests in driftwood and other scattered debris piles within coastal marsh communities. The range of this species is limited to coasts of the Bay. The nearest documented occurrence of the salt marsh wandering shrew is located approximately four miles northeast of the project site. The tidal marsh within the project site may be considered suitable habitat for this species However, it is highly unlikely that this species will occur on-site. The tidal marsh within the project site is relatively small (approximately 0.12...
acres), it is disjunct from any other tidal marsh habitats known to support salt marsh wandering shrew, and it is surrounded by high-density urban development. The San Pablo Ridge and dense urban development separate the project site from the general area where this species was previously documented within the CNDDB (Figure 3.5-3). The salt marsh within the project site does not appear to be large enough to support this mammal. The USFWS has confirmed that this species is unlikely to occur on-site (USFWS, 2007c).