8.2 Biological Resources

8.2.1 Introduction

The Eastshore Energy Center (Eastshore) will be a nominal 115.5-megawatt (MW) intermediate/peaking load facility operating up to 4,000 hours per year using natural gas-fired reciprocating engine technology. The Eastshore facility will be located at 25101 Clawiter Road in the City of Hayward, Alameda County, California, on a 6.22 acre parcel owned by Eastshore Energy, LLC, the project owner. Major features of the Eastshore project include the following:

- Demolition of the existing site building, foundations and paved surface,
- Grading of site and installation of new foundations, piping and utility connections,
- Fourteen (14) nominal 8.4 MW (gross) Wartsila model 20V34SG natural gas-fired reciprocating engine – generator sets,
- Fourteen (14) state-of-the-art air pollution control systems representing Best Available Control Technology (BACT), one system per each of the 14 engines, consisting of a selective catalytic reduction (SCR) unit for oxides of nitrogen (NOx) control and an oxidation catalyst unit for carbon monoxide (CO) and precursor organic compounds (POC) control,
- Fourteen (14) approximately 70-foot tall stacks, each with a separate continuous emissions monitoring system (CEMS),
- Acoustically-engineered main building enclosing all 14 engines,
- Closed loop cooling system consisting of multiple fan-cooled radiator assemblies outside of the main engine building,
- Two 10,000 gallon (each) aqueous (19% by weight) ammonia storage tanks and handling system serving the SCR units,
- One raw water storage tank, approximately 35,000 gallons,
- One nominal 225–kW diesel-fired emergency black start generator,
- One (1) either electric or 7.15 MMBtu/hr natural gas-fired heater (BAAQMD exempt), used for heating of the natural gas fuel to the reciprocating engines,
- Miscellaneous ancillary equipment,
- Pre-existing onsite water and wastewater service interconnections,
- Onsite 115 kV switchyard including switchgear and step-up voltage transformers,
- Approximately 1.1-mile 115 kV single-circuit transmission line interconnecting to PG&E's Eastshore Substation,
- Approximately 200-foot offsite natural gas line connection to PG&E Line 153,

- Chain-link security fencing enclosing the facility with a secured entrance on Clawiter Road, and
- 4.65-acre temporary construction laydown and parking area located immediately across Clawiter Road from the Eastshore site.

This subsection describes the laws, ordinances, regulations, and standards (LORS) that apply to biological resource protection, the environmental setting and conditions of the affected site, the methods that were used to evaluate the potential presence of Special Status Species, and the potential adverse impacts on biological resources that could occur as a result of project construction and operation. This subsection also presents protection and mitigation measures that would avoid, minimize, or compensate for adverse impacts when required.

8.2.2 Applicable Laws, Ordinances, Regulations, and Standards

The following subsections and Tables 8.2-1 and 8.2-2 describe the primary LORS that apply to potential impacts on biological resources in the project area and list the agencies responsible for enforcing the regulations.

8.2.2.1 Federal

8.2.2.1.1 Federal Endangered Species Act (16 USC 153 et seq.). Applicants for projects that could result in adverse impacts on any federally listed species are required to consult with and mitigate potential impacts in consultation with the U.S. Fish and Wildlife Service (USFWS). Adverse impacts are defined as "take," which is prohibited except through authorization of a Section 7 or Section 10 consultation and Incidental Take Authorization. "Take" under federal definition includes "such act as may include significant habitat modification or degradation" (50 CFR §17.3). Species that are candidates for listing are not protected by the federal Endangered Species Act (ESA); however, USFWS advises that a candidate species (as well as species of concern) could be elevated to listed status at any time; therefore, applicants should regard these species with special consideration.

8.2.2.1.2 The Migratory Bird Treaty Act (16 USC 703 to 711). This act protects all migratory birds, including nests and eggs.

8.2.2.1.3 The Bald and Golden Eagle Protection Act (16 USC 668). This act specifically protects bald and golden eagles from harm or trade in parts of these species.

8.2.2.1.4 Clean Water Act (33 U.S.C. 1251 et seq.). The objective of this act is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters [Section 10(a)]. Section 404 of the Clean Water Act (CWA) establishes a program to regulate and permit the discharge of dredged or fill material into waters of the United States, including wetlands.

Section 401 of the CWA requires that federal agencies issuing licenses or permits for construction or other activities get a written certification that the activity will not cause or contribute to a violation of the state's or tribe's water quality standards. After receiving the certification, the federal agency issuing the permit must include conditions in the permit to prevent the project from degrading water quality of a downstream state or tribe.

TABLE 8.2-1
Laws, Ordinances, Regulations, and Standards Applicable to Eastshore Biological Resources

LORS	Purpose	Regulating Agency	Permit or Approval	Applicability (AFC Section Explaining Conformance)
Federal				
Endangered Species Act of 1973 and implementing regulations, Title 16 United States Code (U.S.C.) §1531 et seq. (16 U.S.C. 1531 et seq.), Title 50 Code of Federal Regulations (CFR) §17.1 et seq. (50 CFR 17.1 et seq.)	Designates and protects federally threatened and endangered plants and animals and their critical habitat.	USFWS	Issues Biological Opinion or Authorization with Conditions after review of project impacts	Applicant has sited facility to avoid habitat for endangered species: however, habitat is present within a one-mile radius. No critical habitat has been designated or identified in the project disturbance area. Potential habitat for Special Status Species does not exist on the project site or linear facility. , Since impacts to sensitive species are extremely unlikely, the requirement for a BO is not expected. This will be confirmed through informal consultation (Subsections 8.2.1.2, 8.2.1.4, 8.2.2.2, and 8.2.5.2).
Section 404 of Clean Water Act of 1977	Requires permit to fill jurisdictional wetlands.	U.S. Army Corps of Engineers (USACE)	Section 404 Permit	No wetlands were identified at the proposed facility and the transmission corridor will follow existing surface streets. No wetlands are anticipated to be encountered during project construction. Therefore, a Section 404 permit will not be required. (Subsection 8.2.2.1, 8.2.2.2, 8.2.3.1, 8.2.5.2).
Section 401 of Clean Water Act of 1977	Requires the Applicant to conduct water quality impact analysis for the project when using 404 permits and for discharges to water bodies.	Regional Water Quality Control Board (RWQCB)	Water Quality Certification	There are no waterways at or in proximity to the proposed facility. Eastshore will not discharge into a water body. Activities within project site would not require either a 401certification or a 404 permit. (Subsection 8.2.3.1, 8.2.5.2).

TABLE 8.2-1
Laws, Ordinances, Regulations, and Standards Applicable to Eastshore Biological Resources

LORS	Purpose	Regulating Agency	Permit or Approval	Applicability (AFC Section Explaining Conformance)
Migratory Bird Treaty Act 16 U.S.C. §§703-711	Prohibits the non-permitted take of migratory birds.	USFWS and California Department of Fish and Game (CDFG)	CEC conditions of certification	Habitat for migratory birds occurs at the very fringe of the one-mile radius of the project area. Migratory birds may occur at the proposed facility in passing. Applicant will avoid the take of migratory birds. (Subsections 8.2.1.2, 8.2.2.2, 8.2.2.3, 8.2.2.4, 8.2.3.3, 8.2.5.2).
State				
California Endangered Species Act of 1984, Fish and Game Code, §2050 through §2098	Protects California's endangered and threatened species.	CDFG	Comments as cooperating agency on Section 7 or Issues 2081 incidental take permit for state-listed species.	No state-listed species will be "taken" as a result of the project; however, habitat is present within a one-mile radius. No critical habitat has been designated or identified within the project disturbance area. Potential habitat for Special Status Species does not exist on the project site or linear facility. Implementation of protection measures will reduce impacts to less than significant. No Section 7 consultation or Section 2081 permit is expected to be required. This will be confirmed through informal consultation. (Subsections 8.2.1.2, 8.2.1.4, and 8.2.2.2, 8.2.5.2).
Title 14, California Code of Regulations (CCR) §§670.2 and 670.5	Lists plants and animals of California declared to be threatened or endangered.	CDFG	N/A	N/A

TABLE 8.2-1
Laws, Ordinances, Regulations, and Standards Applicable to Eastshore Biological Resources

LORS	Purpose	Regulating Agency	Permit or Approval	Applicability (AFC Section Explaining Conformance)
Fish and Game Code Fully Protected Species §3511: Fully Protected birds §4700: Fully Protected mammals §5050: Fully Protected reptiles and amphibians §5515: Fully Protected fishes	Prohibits the taking of listed plants and animals that are Fully Protected in California.	CDFG	Issues BO with Conditions after review of BA	Applicant will avoid take of state-listed plants and wildlife species. No Section 7 consultation or Section 2081 permit is expected to be required. This will be confirmed through informal consultation.(Subsections 8.2.1.2, 8.2.5.2, 8.2.2.2, 8.2.1.4)
Fish and Game Code §1930, Significant Natural Areas (SNA)	Designates certain areas, such as refuges, natural sloughs, riparian areas, and vernal pools as significant wildlife habitats. Listed in the California Natural Diversity Data Base (CNDDB).	CDFG	Issues BO with Conditions after review of BA	There are no SNAs at the project site. Salt marshes and swamps do occur at the fringe of the one mile radius from the project site. Eastshore is not expected to significantly impact these areas. No Section 7 consultation or Section 2081 permit is expected to be required. This will be confirmed through informal consultation. (Subsection 8.2.1, 8.2.1.1, 8.2.1.2, 8.2.1.4, 8.2.2.2, 8.2.2.3).
Fish and Game Code §1580, Designated Ecological Reserves (DERs)	The CDFG commission designates land and water areas as significant wildlife habitats to be preserved in natural condition for the general public to observe and study.	CDFG	N/A	There are no DERs at the project site. (Subsection 8.2.2.3).
Fish and Game Code §1600, Streambed Alteration Agreement (SAA)	Reviews projects for impacts on water bodies, including impacts on vegetation and wildlife from sediment, diversions, and other disturbances.	CDFG	Issues conditions of the SAA that reduces and minimizes effects on vegetation and wildlife downstream of construction areas.	There are no waterways at or in proximity to the proposed project site. (Subsection 8.2.2.3).

TABLE 8.2-1
Laws, Ordinances, Regulations, and Standards Applicable to Eastshore Biological Resources

LORS	Purpose	Regulating Agency	Permit or Approval	Applicability (AFC Section Explaining Conformance)
Native Plant Protection Act of 1977, Fish and Game Code, §1900 et seq.	Designates state rare and endangered plants and provides specific protection measures for identified populations.	CDFG	Reviews mitigation options if there will be significant project effects on threatened or endangered plant species	There are no rare or endangered plants on the project site or the transmission line route. There may be Threatened or Endangered plants in outlying areas within one mile of the project site. These areas are not expected to be disturbed by the project. (Subsection 8.2.3.3)
Public Resource Code §§25500 and 25527	Citing of facilities in certain areas of critical concern for biological resources, such as ecological preserves, wildlife refuges, estuaries, and unique or irreplaceable wildlife habitats of scientific or educational value, is prohibited, or when no alternative, strict criteria is applied.	USFWS and CDFG	Issues Biological Opinion or Authorization with Conditions after review of project impacts	At the proposed Eastshore site there are no areas of critical biological concern. The Hayward Regional Shoreline and salt evaporation ponds may be considered to be areas of critical biological concern in the project area. However, Eastshore is not expected to impact these areas in a significant way. No Section 7 consultation or Section 2081 permit is expected to be required. This will be confirmed through informal consultation. (Subsections 8.2.1.2, 8.2.2.3, 8.2.3.2).

TABLE 8.2-1
Laws, Ordinances, Regulations, and Standards Applicable to Eastshore Biological Resources

LORS	Purpose	Regulating Agency	Permit or Approval	Applicability (AFC Section Explaining Conformance)
Title 20 CCR §§1702 (q) and (v)	Protects "areas of critical concern" and "species of special concern" identified by local, state, or federal resource agencies in the project area, including the California Native Plant Society (CNPS).	USFWS and CDFG	Issues BO or Authorization with Conditions after review of project impacts.	At the proposed Eastshore site, there are no areas of critical biological concern. The Hayward Regional Shoreline and salt evaporation ponds may be considered to be areas of critical biological concern in the project area. However, Eastshore is not expected to impact these areas in a significant way. No Section 7 consultation or Section 2081 permit is expected to required. This will be confirmed through informal consultation. (Subsections 8.2.1.2, 8.2.3.1, 8.2.1.4 and 8.2.5).
Title 14 CCR Section 15000 et seq.	Describes the types and extent of information required to evaluate the effects of a proposed project on biological resources of a project site.	USFWS and CDFG	Issues BO or Authorization with Conditions after review of project impacts.	(Subsection 8.2.2.1, 8.2.2.3, 8.2.5.).

TABLE 8.2-2
Laws, Ordinances, Regulations, and Standards Applicable to Eastshore Biological Resources

Element	Goal/Policy	Conformance
Local		
Hayward General Plan		
Biological Resources Element	Ch. 7 Section 4.1: Avoid development that would encroach into important wildlife habitats, limit normal range areas, or create barriers that cut off access to food, water, or shelter.	The project site is in an existing developed area and will not encroach upon wildlife habitats.
Biological Resources Element	Ch. 7 Section 4.2: Support efforts to reestablish and maintain marsh habitats on the baylands.	There will not be impacts on marsh habitats.
Biological Resources Element	Ch. 7 Section 4.3: Preserve tidal flats and salt ponds of low salinity for the migratory waterfowl that depend on these areas.	There will not be impacts on tidal flats or salt ponds.
Biological Resources Element	Ch. 7 Section 4.4: Preserve saltwater evaporation ponds to provide important habitats and/or enhance in a manner commensurate with continued salt production.	There will not be impacts on saltwater evaporation ponds.
Biological Resources Element	Ch 7 Section 4.5: Maintain environmental corridors across the bay plain, such as creeks with native vegetation.	There will not be impacts on environmental corridors.
Biological Resources Element	Ch 7 Section 4.6: Use drought tolerant plant materials in city landscaping.	The project site is within city limits and the applicant will use drought tolerant plant materials for landscaping, should landscaping be required
Biological Resources Element	Ch 7 Section 4.7: Encourage the planting of native vegetation to preserve the visual character of the area and reduce the need for toxic sprays and groundwater supplements.	The applicant will consider the planting of native vegetation to preserve the visual character of the area, should landscaping be considered.
Biological Resources Element	Ch 7 Section 4.8: Preserve mature vegetation, where possible, to provide shade, break unwanted wind, and enhance the appearance of development.	Applicant will avoid impacts on mature vegetation. Magnolia trees are present on the project site's parking lot. If mature vegetation is to be altered or removed, applicant will conform to city and county tree ordinances and policies.

8.2.2.2 State

8.2.2.2.1 California Endangered Species Act (Fish and Game Code Section 2050 et seq.). Species listed under this act cannot be "taken" or harmed, except under specific permit. At present, "take" means to do or attempt to do the following: hunt, pursue, catch, capture, or kill.

8.2.2.2.2 Fish and Game Code Section 3511. Describes bird species, primarily raptors, that are "fully protected." Fully protected birds may not be taken or possessed, except under specific permit requirements.

8.2.2.2.3 Fish and Game Code Section 3503. States that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto.

8.2.2.2.4 Fish and Game Code Section 3503.5. Protects all birds of prey and their eggs and nests.

8.2.2.2.5 Fish and Game Code Section 3513. Makes it unlawful to take, possess, or destroy any birds of prey, or to take, possess, or destroy the nest or eggs of any such bird.

8.2.2.2.6 Fish and Game Code Sections 4700, 5050, and 5515. Lists mammal, amphibian, and reptile species that are fully protected in California.

8.2.2.2.7 Fish and Game Code Sections 1900 et seq., the Native Plant Protection Act. Lists threatened, endangered, and rare plants listed by the state.

8.2.2.2.8 Title 14, California Code of Regulations, Sections 670.2 and 670.5. Lists animals designated as threatened or endangered in California. California species of special concern (CSC) is a category conferred by the CDFG on those species that are indicators of regional habitat changes or are considered potential future protected species. CSCs do not have any special legal status, but are intended by CDFG for use as a management tool to take these species into special consideration when decisions are made concerning the future of any land parcel.

8.2.2.2.9 California Fish and Game Code (Section 1602). Prohibits alteration of any stream, including intermittent and seasonal channels and many artificial channels, without a permit from CDFG. The limit of CDFG jurisdiction is subject to the judgment of the department, up to the 100-year flood level. The code applies to any channel modifications that would be required to meet drainage, transportation, or flood control objectives of the project.

8.2.2.2.10 California Environmental Quality Act (Public Resources Code Section 15380). Defines "rare" in a broader sense than the definitions of threatened, endangered, or species of special concern. Under this definition, CDFG can request additional consideration of species not otherwise protected. The California Environmental Quality Act (CEQA) requires that the effects of a project on environmental resources be analyzed and assessed using criteria determined by the lead agency.

8.2.2.2.11 Warren-Alquist Act. This act is a CEQA-equivalent process implemented by the CEC. Preparation of this application will result in an assessment prepared by the CEC staff to fulfill the requirements of CEQA.

8.2.2.3 Local and Other Jurisdictions

8.2.2.3.1 Hayward General Plan. The City of Hayward General Plan was adopted in 1992. The biological resource element in this plan addresses the preservation and enhancement of vegetative and wildlife habitat in the City of Hayward. In a fully developed community, such as the City of Hayward, natural resources are limited to the shoreline, hills, air, and water. Open space resources include the shoreline, East Hills Annex, public parks, and private landscaped areas developed by businesses or residents. Should mature or ornamental trees need to be removed or altered along the electric transmission line route that follows city streets, Eastshore will request the necessary permits to comply with tree ordinances as stated in the General Plan. This project will cause no significant impacts on open space resources as defined in the General Plan.

8.2.2.3.2 Applicable Habitat Conservation Plans and Critical Habitat Designations. The project site and impact areas along the transmission line do not fall within existing habitat conservation plans or areas designated as critical habitat. The USFWS has designated critical habitat in an area called Pleasanton Ridge for the Alameda whipsnake (federally threatened) in Hayward, Alameda County (USFWS, www.fws.gov/sacramento). The Pleasanton Ridge comprises 27,551 acres in Alameda County. It is generally located immediately to the west of Interstate 680, to the south of Interstate 580, and southeast of the Eastshore site in the City of Dublin. Eastshore will therefore cause no significant impacts to critical habitat areas or habitat conservation planning.

8.2.3 Project Site and Laydown Descriptions

Eastshore will be a nominal 115.5-megawatt (MW) intermediate/peaking load facility using natural gas-fired reciprocating engine technology. Eastshore will be located at 25101 Clawiter Road in the City of Hayward, Alameda County, California, on a 6.22-acre parcel owned by Eastshore Energy, LLC, the project owner. Major features of Eastshore are described in Section 8.2.1.

The Eastshore parcel is currently covered by a large industrial building and asphalt paving. The site and building were previously used as a metal stamping facility for the manufacture of automobile parts until mid-2004. Currently, the site is being offered for lease by Eastshore Energy, LLC to third parties for general warehousing operations. Any such leases will be terminated in the fall of 2007, prior to the start of plant construction. The building, foundations and existing paved surfaces will be demolished as part of Eastshore construction.

Figure 2.2-3 shows an aerial photograph of the site delineating the settled area within one mile of the site and associated transmission line. To the immediate south of the site is a commercial office complex and parking lot. West and east of the site are existing light to medium industrial facilities. The Union Pacific railroad (UPRR) corridor forms the northeast corner of the parcel. The eastern edge of the Eastshore property is bordered by Clawiter Road. A chiropractic college and Berkeley Farms' central milk products processing and distribution facility are located to the east of the site on Clawiter Road.

- The proposed temporary construction laydown and parking area is a previously disturbed triangular 4.65-acre parcel located on the northernmost portion of the Berkeley Farms property. The temporary laydown area is bordered by the UPRR corridor on the

east, Clawiter Road on the west and a paved Berkeley Farms truck-trailer storage area on the south.

8.2.3.1 Linear Corridors

8.2.3.1.1 Electrical Transmission Line. Eastshore will connect to Pacific Gas & Electric Company's (PG&E) electric transmission system at the PG&E's Eastshore Substation, approximately 1.1 mile south of the project site. The proposed route runs south along the east side of Clawiter Road for approximately 3,400 feet before an approximate 200-foot overcrossing of State Route (SR) 92 then continuing south approximately another 1,900 feet along Eden Landing Road, Production Avenue and Investment Boulevard to the Eastshore Substation. An additional estimated 700 feet of transmission line will be installed within the Eastshore Substation to interconnect with the 115 kV bus. The total distance that the new 115 kV line will run contiguous with the existing 12 kV distribution line is about 3,600 feet, including the Highway 92 crossing itself. A new overhead transmission line will be installed in an existing PG&E electric distribution line corridor, which may require widening the existing right-of-way (ROW) and replacing 10 to 12 new transmission pole structures with new structures designed to accommodate both the existing 12 kV distribution lines and the new 115 kV transmission line (see Figure 2.1.1). Transmission lines will mostly cross industrial areas and roads, terminating at a PG&E substation that is surrounded by ruderal grasses (for example, *Avena barbata*).

8.2.3.1.2 Natural Gas. An approximately 200-foot-long, 4.5-inch gas pipeline will extend from the plant site underneath Clawiter Road and the UPRR tracks to a new connection to PG&E Line 153 in the parking lot of the Life Chiropractic College. Gas line construction will use the jack-and-bore construction method. The resulting construction activity will have no impacts on biological resources.

8.2.3.1.3 Water. Because reciprocating engines require minimal water, Eastshore will have almost no consumptive water use other than potable water and minimal circulating water makeup. Any plant discharge will flow through the Water Pollution Control Facility (WPCF) owned by the City of Hayward. Water will be supplied by an existing City water service connection located onsite and its construction and operation will not impact biological resources.

8.2.3.1.4 Sanitary Sewer. Sanitary sewer connections are available on the site and sewer connections will be used to discharge sanitary wastewater. Wastewater will discharge into the WPCF owned by the City of Hayward. Effluent (treated water flow) from the WPCF is pumped into the East Bay Dischargers Authority's sewer line for final disposal in the deeper water of the San Francisco Bay.

8.2.4 Habitat Areas within the Project Site

The following subsections describe the biological conditions of the proposed site, beginning with a regional overview, the vegetation types and habitat present in the project area, a description of wildlife typical to the area, and a discussion of specific Special Status Species known to occur in the southeast San Francisco Bay Area (figures are located at the end of this subsection). The term "project site" refers to the proposed Eastshore parcel, transmission line route, laydown and construction areas, and existing substation. The terms

"project area" or "project survey area" refer to the surrounding and adjacent open spaces and/or developed areas within a one- or five-mile radius of the proposed energy center parcel.

8.2.4.1 Proposed Energy Center Parcel

Landscaped vegetation, such as 10- to 20-foot trees, borders the property on the south boundary. Four magnolia trees (*Magnolia* ssp.) are present in the parking lot. There is an office building and parking area to the south and paved, industrial areas to the west and north sides of the parcel.

The large building on the parcel could provide nesting substrate for a variety of songbirds, such as house sparrow (*Passer domesticus*), mourning dove (*Zenaida macroura*), and house finch (*Carpodacus mexicanus*). The gravel area within the parcel, and next to the parking lot, could provide habitat before and possibly during construction for ground nesting birds such as killdeer (*Chardarius vociferous*).

8.2.4.2 Transmission Line Route

The transmission line route is along a fully developed area characterized by mature ornamental landscaping trees and buildings that provide minor habitat value.

8.2.4.3 Existing Substation

The terminus location for transmission line route is the Eastshore substation, which is surrounded by an open field. The field looked recently tilled at the time of the site visit. The remaining vegetation indicated that the field had been dominated by the non-native *Avena barbata*. Ornamental pepper trees (*Schinus molle*) are planted throughout the parcel. The field is surrounded by dense industrial development for at least 1,000 feet. The survey was conducted from the perimeter of the parcel only. This field may be used for dens by mammals (such as skunks [*Mephitis mephitis*] and opossums [*Didelphis virginiana*]), burrowing owls (*Athene cunicularia*), as well as foraging areas by birds. Landscaped vegetation is the dominant habitat type on bordering parcels next to the substation. Although most trees are young, there are some mature ornamental trees north of Arden Way.

Approximately 1,000 feet to the south of the existing substation is a tidal channel. A band of ruderal, upland grasses, as well as a chain link fence border the channel on the north side. The area between the marsh and the proposed route is heavily industrialized. The salt marsh harvest mouse (*Reithrodontomys raviventris*) and California clapper rail (*Rallus longirostris*) are two species that are known to use the tidal channel as denning and foraging habitat (CNDDB, 2006). Shorebird and migratory bird species are also found here.

8.2.4.4 Proposed Construction Laydown Area

The laydown area is directly across from the Eastshore site on Clawiter Road and between the UPRR tracks. The unused portion of the lot is dominated by ruderal grasses, including *Avena barbata* and *Picris echioides.* A palm tree and olive tree are present on the parcel boundary with Clawiter Road. Asphaltic-concrete waste piles sit adjacent to the railroad on the north portion of the laydown area. Aside from the two trees, this highly disturbed area provides negligible habitat value.

8.2.4.5 Habitat Areas within the Project Study Area

The surveyed areas included the 6.22-acre parcel proposed for the plant site, the 4.65-scre laydown areas, a one-mile radius from the plant site, and areas within 1,000 feet of either side of the proposed natural gas pipeline (across Clawiter Road ~200ft), and the proposed transmission line route (Figure 2.2.7).

Industrial development is the primary land use of the project study area, with residential neighborhoods to the east, and much of the landscape is paved. Although landscaped vegetation and structures provide some habitat value, only areas with additional functions, such as open fields, waterways, and marshes are discussed in more detail here. The only areas with identified open fields, separate from the project site, were at the western end of the study area. This area is a mix of industrial uses, open lots with grassland, salt ponds, and adjacent marshlands. The area to the east of the project site is dense commercial and residential development.

- The City of Hayward WPCF is located at the west end of Enterprise Road. Adjacent to this area are open ruderal grasslands, and a tidal channel is visible farther to the west (Figure 8.2.2). The ruderal grassland and tidal channel are used by a variety of birds (shorebirds and migratory) including the salt marsh harvest mouse.
- The west section of Depot Road has a large drainage channel that most likely connects to the San Francisco Bay. This channel might attract birds and small mammals to forage for aquatic and terrestrial invertebrates, as well as provide shelter.
- A larger, flat grassland/field exists within the 1-mile radius at the intersection of Breakwater Road and Whitesell Road. *Rumex crispus* is present in the center of the field, and the field is surrounded by dense, landscaped vegetation. This area was enclosed by chain link fence and observations were made outside the fence. Migratory birds and wetland bird species use this area, and several species were noted during the survey (such as redwing blackbird [*Agelaius phoeniceus*], willet [*Catoptrophorus semipalmatus*], snowy egret [*Egretta thula*], black-necked stilt [*Himantopus mexicanus*]).
- The Hayward Regional Shoreline, associated Northern Coastal Salt Marsh, and Oliver Salt Ponds are on the western extent of the study area. These three baylands are the most significant habitat areas within one mile of the Eastshore site. The habitats attract migratory birds, shorebirds, and raptors, and are inhabited by a variety of mammals, including the endangered salt marsh harvest mouse.

8.2.4.6 Regional Overview

The Eastshore site is located in the City of Hayward in Alameda County, California. The project survey area, defined as a one-mile radius around the project site, is within the eastern shore of the San Francisco Bay. The site is less than one mile east of the Bay waters. Characteristic plant communities of the San Francisco Bay include intertidal/subtidal marsh, coastal salt marsh, brackish sloughs, mud flats, emergent marsh, annual grassland wetlands, coastal scrub, oak woodland, and coniferous forest. Other biological habitats in the Bay include salt evaporation ponds, ruderal areas, and urban landscapes with ornamental trees and shrubs (Figure 8.2-1).

However, the proposed site itself is contained within a highly developed, industrialized area.

The proposed project is located on the alluvial coastal plain of the San Francisco Bay. Most of the alluvial coastal plains, including the proposed project site, have been converted to urban development, salt evaporation ponds, or ruderal areas. Remnants of the historic northern coastal salt marsh complex exist in parks and preserves, and include the Hayward Regional Shoreline (west of the project site), the San Leandro Shoreline Park (northwest of the project site), the Don Edwards San Francisco Bay National Wildlife Refuge (south of the project site), Garin/Dry Creek Regional Park (east of the project site) and Coyote Hills Regional Park (southeast of the project site) (Figure 8.2-1).

8.2.4.7 Habitat Characterization

The purpose of habitat characterization is to provide a general description of the ecological setting and habitat types within the project vicinity. Plant communities within the project area were characterized according to the dominant plant taxa present throughout the project area. Qualitative observations of plant cover, structure, and obvious spatial changes in species composition were used to determine the plant communities. Vegetation characterization follows the classification system developed by Sawyer and Keeler-Wolf (1995), which is the basis for the List of California Terrestrial Natural Communities (CDFG, 1999). Under this system, plant communities are placed into floristically, defined vegetation types known as a *series*. A *series* is identified by the dominant or characteristic species in the highest strata of a given stand. The Holland (1986) community types are also included because they have been incorporated into the CDFG descriptions. A brief description of the plant classification, species composition, structure, and physical and geographic setting was developed for each habitat type.

8.2.4.8 Habitat and Vegetation Communities in the Project Area

The following is a discussion of the habitat community types found within the project area. Figure 8.2.2 shows the surrounding land use of the Eastshore site. Although the Hayward area is primarily industrial, biological resources, such as natural habitat communities, denning or nesting sites, migration corridors, breeding habitats, and Special Status Species potentially exist in the Hayward Regional Shoreline. The project site is characterized by industrial uses and landscaped vegetation.

Habitat types within and adjacent to the areas within a one-mile radius of the site and general region include mudflats and channel bottoms, tidal marshes, wetlands, saltwater evaporation ponds, perennial freshwater ponds, and ornamental-industrial, commercial, and residential landscapes. Habitat types in the project area are discussed in a general manner followed by specific Eastshore information.

8.2.4.8.1 Hayward Regional Shoreline. The Hayward Regional Shoreline covers 817 acres along the San Francisco Bay shore between Highway 92 and San Lorenzo Creek. Mudflats, channel bottoms, tidal marshes, salt evaporation ponds, perennial freshwater ponds, diked vegetated wetlands, uplands and seasonal wetlands characterize the shoreline. Each of these areas provide habitat for resident shore bird species and migratory waterfowl that use the Pacific Flyway. Aquatic invertebrates, mammals, reptiles, and amphibians also use these areas. Perennial freshwater ponds receive pumped water from the WPCF operated by the

City of Hayward. Uplands comprise levees, man-made islands, farmlands, and former solid-waste disposal sites that can be sealed and replanted as man-made habitat. These habitats are adjacent to the project area and several types are within the one-mile radius of the project site (Figure 8.2-2) (http://sanlorenzoexpress.nstemp.com/shoreprk.htm). Eastshore construction or operation activities will not affect any habitats within the Hayward Regional Shoreline.

8.2.4.8.2 Ornamental-Industrial, Commercial, and Residential Landscaped Communities. Man-made structures within the project impact vicinity and adjacent communities include roadways, railroads, residential areas, and various infrastructure features. Compared to vegetated habitats, these developed areas support a low diversity of wildlife. Non-native ornamental landscaping including rose (*Rosa* sp.), pines (*Pinus* sp.), eucalyptus (*Eucalyptus* sp.), pepper tree (*Schinus* sp.), and palm (*Washingtonia* sp.) are typical in these areas. The availability of water, shady cover, and insects make the yards and landscaping around urban areas attractive to certain adaptable species, many of which are non-native. American crows (*Corvus brachyrhynchos*), Brewer's blackbirds (*Euphagus cyanocephalus*), European starling (*Sturnus vulgaris*), mourning dove (*Zenaida macroura*), northern mockingbird (*Mimus polyglottos*), house finch (*Carpodacus mexicanus*), and house sparrows (*Passer domesticus*) are common in these areas.

Mammal species attracted to ornamental landscapes include house mouse (*Mus musculus*), Virginia opossum, striped skunk, raccoon (*Procyon lotor*) and domestic or feral cats (*Felis catus L.*). These species tend to be highly adaptable, widespread, and common. They are able to use industrial, commercial, and residential landscapes that dominate the project impact area.

8.2.5 Special-status Species

The designation of Special Status Species includes federally- and state-listed species under the FESA and California Endangered Species Act (CESA); species proposed for those listings; federal fully protected and species of concern; California species of special concern; and plant species designated as Rare, Threatened, or Endangered by the California Native Plant Society (CNPS).

The California Energy Commission (CEC) guidelines call for the identification of Special Status Species potentially affected by a proposed power project within one mile of the plant site and 1,000 feet from the outer edge of linear facilities.

A list of Special Status Plant and Animal Species was compiled for the project area based upon the following references: the CDFG's CNDDB, CNPS Electronic Inventory, a USFWS species list for Redwood Point Quad, and a project-specific onsite field survey. A number of Special Status Species either historically occurred in the area or might still be present in the general vicinity of the project site. A comprehensive list of Special Status Species with the potential to occur in the regional vicinity of the USGS 7.5-minute Redwood Point, Hayward, Newark, Mountain View, Palo Alto, Woodside, San Mateo, Hunter's Point, and San Leandro Quads can be found in Appendix 8.2C Table 8.2-2. The list includes species listed as threatened or endangered that have special requirements under the FESA and CESA and other non-listed Special Status Species that could become listed in the future and includes

the habitat types that could support these species, as well as the potential for occurrence in the project area.

Species were listed if they had historically or recently been recorded in the regional vicinity (CNDDB, 2006). These species are associated with natural habitats that were once prevalent in the area but have since been lost to extensive urban development.

A reconnaissance level survey for the project site and area was performed by two biologists from CH2M HILL on June 28, 2006 (see section 8.2.3.7 for details on the survey). No Special Status Species were observed during this survey. The surveyors' qualifications are provided in Appendix 8.2B.

Preliminary surveys, habitat evaluations, and aerial photographs suggest that the site is not located in a sensitive area. The majority of land uses within the one-mile radius of the power plant is for industrial purposes and has been completely developed. The highly developed nature of the project vicinity would not support Special Status Species except for a few plant species, other transient uses by migratory birds, and mammals.

According to the CNDDB, there are two Special Status Species occurrences documented within a one-mile radius of the Eastshore site, or from 1,000 feet of either side of the proposed transmission line. The two species are the Contra Costa goldfields (*Lasthenia conjugens*) and the salt marsh harvest mouse. Based on a review of the one-mile area surrounding the site, there are native habitat, such as the salt marshes and portions of coastal grassland, that could potentially support these and other Special Status Species within the project impact areas (Figures 8.2-1 & 8.2-2). Table 8.2-3 discusses the Special Status Species that are known to occur or have potential to occur on or adjacent to the Eastshore site.

8.2.6 Wetlands and Water Resources

A reconnaissance-level field survey of the site and within the one-mile radius indicates that there are wetland and water resources present, the most obvious being the Hayward Regional Shoreline. Additional searches using topography maps and internet sites (http://www.museumca.org/creeks/wb-resc.html) revealed in detail other water sources near Eastshore, such as Alameda Creek, San Lorenzo Creek, Sulfur Creek, Zeile Creek, Ward Creek, Dry Creek, the Hayward Regional Shoreline and salt evaporation ponds, located between one to five miles of the site (Figure 8.2-1).

The proposed project site and transmission route will not affect wetland and/or water resources. To connect the transmission line, the stringing crew would cross (enter) paved, concrete areas with light to medium duty trucks (with conductor reels mounted on them).

8.2.7 Biological Surveys

The reconnaissance-level field survey was conducted on June 28, 2006, by CH2M HILL biologists (A. Rossi and M. Kasparian) to characterize the biological resources within the project area (one-mile radius from the proposed Eastshore Energy Center, and 1/4- mile radius from the proposed transmission line route; see Figure 8.2-2). During this field visit, information on the existing biological resources was recorded, including dominant vegetation types, wildlife species observed, and overall site condition. More detailed observations were made at project site locations where access was permitted.

TABLE 8.2-3
Special-Status Species Potentially Occurring in or Adjacent to the Eastshore Project Area

Common Name	Scientific Name[a]	Status[b]	Season[c]	Primary Habitat[d]	Potential Occurrence in Project Area	Comments
Plants						
California seablite	*Suaeda californica*	FE/ CNPS: 1B.1	Jul-Oct	Coastal salt marshes and swamps.	Suitable habitat potentially present within a 1 mi radius.	Rare; could occur on salt marsh margins along Hayward shoreline. No effects to this species from the Eastshore project are expected.
Santa Cruz tarplant	*Holocarpha macradenia*	FT/CE/ CNPS: 1B.1	Jun-Oct	Coastal prairie, coastal scrub, valley and foothill grassland (often clay, sandy).	Suitable habitat potentially present within a 1 mi radius.	Rare due to very limited coastal prairie habitat in the project vicinity. No effects to this species from the Eastshore project are expected.
Contra Costa goldfields	*Lasthenia conjugens*	FE/ CNPS: 1B.1	Mar-Jun	Vernal pools within open grassy areas in woodlands and valley grasslands from sea level to 1,500 ft.	Suitable habitat potentially present within a 1 mi radius.	Rare due to very limited vernal pool habitat in the project vicinity. No effects to this species from the Eastshore project are expected.
Animals						
Salt marsh harvest mouse	*Reithrodeontomys raviventris*	FE, CE	RES	Tidal and nontidal salt marshes of Suisun, San Pablo, and central and south San Francisco bays. Dependent on dense cover and prefer pickleweed (Salicornia virginica).	Suitable habitat potentially present within 1 mi radius.	May occur at Hayward Regional Shoreline salt marshes. No effects to this species from the Eastshore project are expected.
California least tern	*Sterna antilarium browni*	FE, CE	SPR, SUMR	Nesting range is along the Pacific coast from southern Baja California to San Francisco Bay in colonies on bare or sparsely vegetated flat surfaces near the coast.	Suitable habitat potentially present within 1 mi radius.	Most likely occur at Hayward Regional Shoreline and in areas adjacent to SF Bay. No effects to this species from the Eastshore project are expected.
Western snowy plover	*Charadrius alexandrinus nivosus*	FT, CSC	Mar-Sept	Flat, open coastal beaches, in dunes, and near stream mouths. Habitats used by nesting and non-nesting birds include sandy coastal beaches, salt pans, coastal dredged spoils sites, dry salt ponds, salt pond levees, and gravel bars.	Suitable habitat potentially present within 1 mi radius.	Could occur at salt pond levees. Most likely occur at Hayward Regional Shoreline and in areas adjacent to SF Bay. No effects to this species from the Eastshore project are expected.

TABLE 8.2-3
Special-Status Species Potentially Occurring in or Adjacent to the Eastshore Project Area

Common Name	Scientific Name[a]	Status[b]	Season[c]	Primary Habitat[d]	Potential Occurrence in Project Area	Comments
California brown pelican	*Pelecanus occidentalis californicus*	FE, CE	SPR	Non-breeding California brown pelicans range northward along the Pacific Coast from the Gulf of California to Washington and southern British Columbia. Important roosting sites include offshore rocks and islands, river mouths with sand bars, breakwaters, pilings, and jetties along the Pacific Coast and San Francisco Bay.	Suitable habitat potentially present within 1 mi radius.	Could occur along Hayware Regional Shoreline and portions of SF Bay adjacent to Eastshore Project area. No direct effects on nesting and forage habitats are expected; however, collisions with transmission lines may occur.
California clapper rail	*Rallus longirostris*	FE, CE	Mar-Aug	Tidal salt marshes of the greater San Francisco Bay, although some individuals use brackish marshes during the spring breeding season.	Suitable habitat potentially present within 1 mi radius.	No direct effects on nesting and forage habitats are expected. Could occur at Hayward marshes. Known to occur at nearby Don Edwards San Francisco Bay NWR.
Vernal pool fairy shrimp	*Branchinecta lynchi*	FT	Dec-May	Ephemeral freshwater habitats, such as vernal pools and swales; clear to tea-colored water, or basalt flow depression pools in unplowed grasslands, but one population occurs in sandstone rock outcrops.	Suitable habitat potentially present within 1 mi radius.	Could occur in ephemeral, freshwater habitats along railroad and Hayward Regional Shoreline.
San Francisco garter snake	*Thamnophis sirtalis tetrataenia*	FE, CE	RES	Preferred habitat is densely vegetated ponds near open hillsides. Emergent and bankside vegetation such as cattails (*Typha* spp.), bulrushes (*Scirpus* spp.), rushes (*Juncus* spp.) and spike rushes (*Eleocharis* spp.) are preferred and used for cover, while grasslands or bank sides are used for basking. They avoid brackish marsh areas.	Suitable habitat potentially present within 1 mi radius.	Could occur in ruderal grasslands, freshwater wetlands and marshes near local wastewater treatment plant. No effects to this species from the Eastshore project are expected.
Myrtle's silverspot	*Speyeria zerene myrtleae*	FE	Jun-Sept	Coastal or dune habitat with dog violet (*Viola adunca*) as host plant. Four populations occur in coastal terrace prairie, coastal bluff and non-native grassland in western Marin and southwestern Sonoma County.	Suitable habitat potentially present within 1 mi radius.	Could occur in non-native grasslands along the Hayward Regional Shoreline. No effects to this species from the Eastshore project are expected.

TABLE 8.2-3
Special-Status Species Potentially Occurring in or Adjacent to the Eastshore Project Area

Common Name	Scientific Name[a]	Status[b]	Season[c]	Primary Habitat[d]	Potential Occurrence in Project Area	Comments

Sources: California Dept. of Fish and Game, California Natural Diversity Database, September 2006; California Native Plant Society, Inventory of Rare and Endangered Vascular Plants of California, September 2006.

[a] Scientific names are based on the following sources: AOU, 1983; Jennings, 1983; Zeiner et al., 1990a-c.

[b] Status of species relative to the Federal and California State Endangered Species Acts and Fish and Game Code:

Federal Status

FE = Federally listed as endangered.
FT = Federally listed as threatened.
FPE = Proposed endangered.
FPT = Proposed threatened.

Candidate for listing as federally endangered or threatened. Proposed rules have not yet been issued because they have been precluded at present by other listing activity.

FD = Delisted from Federal threatened or endangered status.
FSC = Federal Species of Concern. Proposed rules have not yet been issued because they have been precluded at present by other listing activity.
MB = Migratory Bird Treaty Act. of 1918. Protects native birds, eggs, and their nests.

California Status

CE = State listed as endangered. Species whose continued existence in California is jeopardized.
ST = State listed as threatened. Species that although not presently threatened in California with extinction is likely to become endangered in the foreseeable future.
CSC = California Department of Fish and Game "Species of Special Concern." Species with declining populations in California.
FP = Fully protected against take pursuant to the Fish and Game Code Sections 3503.5, 3511, 4700, 5050, 5515.

Other Status.

CNPS California Native Plant Society Listing (does not apply to wildlife species).

Plants, rare, threatened or endangered in California and elsewhere and are rare throughout their range. According to CNPS, all of the plants constituting List 1B meet the definitions of Sec. 1901, Chapter 10 (Native Plant Protection) of the California Department of Fish and Game Code and are eligible for state listing.

[c] Season: Blooming period for plants. Season of use for animals: RES = Resident; SPR = Spring; SUMR = Summer; WNTR = Winter.

[d] Primary Habitat: Most likely habitat association.

The survey conducted in the project area was adequate for the highly developed area as no significant, sensitive, natural resources are present in the proposed affected areas. Although direct access of the PG&E substation, salt evaporation ponds, treatment ponds, areas within 25 feet of the UPPR right-of-way and private properties was not available during the survey, observations with binoculars were adequate to determine the habitat types and potential for sensitive species to occur. The survey only identifies the resources present where access is feasible, and does not include the level of detail necessary to quantify direct impacts on resources. However, the survey results are considered adequate given the highly urbanized nature of the project site and affected project area.

The survey identified areas within the project area that could support protected habitats or species, such as wetlands or trees. The results of the habitat analysis and proximity to highly developed areas were used to determine whether Special Status Plant and Animal Species could be present and affected by the project.

Access for the surveys was limited to the proposed substation site, publicly accessible portions of the Hayward Regional Shoreline, and public streets. Access to the Berkeley Farms property (a proposed laydown area), the substation and corridors of the UPRR were limited or restricted at the time of this survey. Therefore, observations were made and noted from a distance, and sometime sites were viewed through chain-linked fences. The biologists did not walk or drive onto the interchange at the Caltrans right-of-way on Highway 92 for safety concerns.

In addition, the latter portion of the proposed transmission line route was slightly modified (a revised alignment along surface streets within the same Industrial Park) after the survey. While this new route area was not surveyed in detail as the previous one, it was assessed during the general survey of the area within one mile of the project site, and determined that the nature and quality of resources present were very similar to the earlier route.

Before the site visit, a search of several sources was conducted to obtain information about the biological resources that are known to occur, or that potentially could occur, within the project area. A search of the California Department of Fish and Game (CDFG) Natural Diversity Database (CNDDB) was conducted to check for the known occurrences of any Special Status Species within the project area (CDFG, 2006). The database is not intended to be the sole source of Special Status Species information within the project area; rather, it is an indicator of species that have been observed, documented, and likely to occur.

In addition to the CNDDB, the California Native Plant Society's (CNPS) Inventory of Rare and Endangered Plants was also searched to identify Special Status Plants that could potentially occur onsite (CNPS, 2006). A list of endangered and threatened species that could occur in the project area or be affected by the project can be found in the USFWS website (USFWS, 2006).

Finally, current aerial photographs were used to determine areas that may contain habitat, and for assessing inaccessible areas. Developed parcels were surveyed primarily from a vehicle along public roads. Areas with additional habitat value, such as grasslands and marshland, were surveyed by foot where access was available.

8.2.8 Environmental Consequences

Potential direct and indirect impacts on biological resources were evaluated to determine the permanent and temporary effects of project construction, operation, maintenance, and decommissioning of Eastshore and supporting facilities. Table 8.2-4 provides a summary of project impacts.

Because of the highly-developed nature of the project site and area, no direct impacts on sensitive biological resources will occur from construction; however, any new disturbance areas not previously identified will require additional surveys to determine the impacts on biological resources, including unforeseen laydown or staging areas.

There might be temporary direct impacts from construction vehicles on ruderal grassland in the substation tie-in location and project site affecting species such as killdeer. Tree surveys under the Hayward tree ordinance might be needed should trees be removed or altered beneath the proposed transmission line corridor on Production Avenue. Appropriate permits from the city and county might be required for direct impacts on trees.

Exhaust stack emissions may have an indirect impact on soil and vegetation in the east hills of Walpert Ridge. Emissions may also pose potential impacts on habitats in Garin/Dry Creek Regional Park in the east hills potentially affecting plant and animal species. Air quality modeling results presented in Section 8.1 (Air Quality) are referenced and discussed below to assess the possibility of significant impacts.

8.2.9 Standards of Significance

Impacts on biological resources are considered significant if one or more of the following conditions result from implementation of the proposed project:

- Substantial effect, reduction in numbers, restricted range or loss of habitat for a population of a federally or state-listed threatened or endangered species.
- Substantial effect, reduction in numbers, restricted range, or loss of habitat for a population of Special Status Species, including fully protected, candidate proposed for listing, CSC, and certain CNPS list designations.
- Substantial interference with the movement of any resident or migratory fish or wildlife species.
- Substantial reduction of habitat for native fish, wildlife, or plants.
- Substantial disturbance of wetlands, marshes, riparian woodlands, and other wildlife habitat.
- Removal of trees designated as heritage or significant under county or local ordinances.

TABLE 8.2-4
Summary of Permanent and Temporary Eastshore Impacts on Biological Resources During Construction

Location	Project Work	Construction Zone Size	Time Requirements	Habitat Type	Biological Resources	Impacts	
						Temporary	Permanent
Power plant site	Grading for footprint construction	6.22 acres	Up to 18 months	Previously developed/concrete-asphalt lot and limited ruderal grass habitat	None	None	6.22 acres of previously disturbed property that is largely paved. A small portion has ruderal grass habitat
Access roads (main and emergency access)	Clawiter Road	Within the 6.22-acre site	Part of site development	Existing paved roads and previously developed	None	None	Within the previously 6.22-acre project site
Construction laydown and parking area	Construction laydown and parking areas will be located on paved lots/Berkeley Farms	4.65 acres	Up to 18 months	Existing paved lots, ruderal grassland	None	4.65 acres of previously disturbed industrial property with ruderal grass habitat	None
Natural gas pipeline	Jack and Bore	~200-foot long 4 ½ -inch pipeline	4 months	Paved road, road shoulders, and parking lot	None	Work space	None
Emission stacks	Construction of fourteen (14), 70-foot stacks	Within the 6.22-acre site	Up to 18 months	Previously developed/concrete-asphalt lot	None	None	Within the 6.22-acre project site

TABLE 8.2-4
Summary of Permanent and Temporary Eastshore Impacts on Biological Resources During Construction

Location	Project Work	Construction Zone Size	Time Requirements	Habitat Type	Biological Resources	Impacts	
						Temporary	Permanent
Water supply line	Existing City supply connection on project site	Part of site development	Part of site development	N/A	None	None	Within the 6.22-acre project site
Transmission structures	Installation of steel or compact wood poles	Proposed: Ten to twelve (10-12) pole structures with potential right-of-way widening	2 to 3 months	Roads, ornamental vegetation, open lots, developed areas, and ruderal grassland.	Landscaped trees	Length and width of constructing corridor	Potential loss of trees
115-kV transmission lines	Line installation from Eastshore to PG&E's Eastshore Substation approximately 1.1mile south of the project site.	Proposed: 3,600 feet within a 30-foot wide construction corridor	2 to 3 months	Roads, ornamental vegetation, open lots, developed areas, and ruderal grassland.	Landscaped trees	Length and width of constructing corridor	Potential loss of trees

8.2.10 Potential Impacts on Biological Resources from Construction and Operation of Eastshore

8.2.10.1 Threatened & Endangered Species

A search using the CNDDB, species lists from the USFWS, the CNPS inventory, and plant lists by the East Bay Regional Park District provided the following Special Status Species that could within the one-mile radius of the project site. Specifically, species that are most likely to occur along the salt marshes, evaporation ponds, and tidal flats of the Hayward Regional Shoreline are the salt marsh harvest mouse, California clapper rail (*Rallus longirostris*), western snowy plover (*Charadrius alexandrinus nivosus*), and California brown pelican (*Pelicanus occidentalis californicus*) and California least tern (*Sterna antilarium browni*).

Contra Costa goldfields, Myrtle's silverspot butterfly (*Speyeria zerene myrtleae*) and the Santa Cruz tarplant (*Holocarpha macradenia*) may occur at the Regional Shoreline, but also within other locations of the one- and five-mile radii. Other rare plants that could occur within the five-mile radius are the hairless popcorn flower (*Plagiobothrys glaber*), alkali milk vetch (*Astragalus tener var. tener*), and Congdon's tarplant (*Centromadia parryi ssp. congdonii*) (Figure 8.2.2).

8.2.10.2 Impacts from Site Construction

Eastshore will require the installation of new equipment. No vegetation, other than landscape plant species and ruderal grassland, is currently located within the fence line of the power plant site, laydown, or parking areas. The City and the County may need to be consulted regarding tree impacts on the property. Ruderal grassland found in the laydown and site parking lot may need to be monitored before and during construction for ground nesting birds. Otherwise, no impacts on sensitive biological resources will occur from site construction activities.

8.2.10.3 Impacts from Pipeline Installation

Potential impacts from pipeline installation are not expected because the pipeline will be constructed in existing city streets within the industrial area. The new natural gas pipeline will be constructed from the northeast corner of the property to a parking lot belonging to Berkeley Farms across Clawiter Road. It spans approximately 200 feet in length. No sensitive biological resources are expected to occur or be affected because construction proceeds from the disturbed parcel lot to a parking lot across Clawiter Road.

8.2.10.4 Potential Impacts on Birds from Transmission Line, Poles, and Emission Stacks

Collisions. The project involves the installation of 10 to 12, 90-foot tall, electric transmission poles that could potentially result in bird collisions. Most bird collisions involve nocturnal migrants that fly in inclement weather and low-visibility conditions, colliding with tall guyed television or radio transmission towers (CEC, 1995; Kerlinger, 2000 in Final Staff Assessment for Contra Costa Power Plant). Migratory birds generally fly at an altitude that would avoid ground structures, except when crossing over topographic features (such as ridge tops) or when inclement weather forces them closer to the ground.

There are ecological features that could potentially attract birds to this location or "funnel" them into the vicinity of exhaust stacks or other elevated features in the project area, such as the habitats in the San Francisco Bay and the hills to the east where Garin/Dry Creek Regional Parks are located. These parks and bay habitats provide nesting and foraging habitat for a variety of nocturnally migrating birds. Because most of the proposed transmission lines would be located in corridors of existing transmission lines, and because of the relatively low structure height, the potential for bird collisions with stacks, poles, electric conductor wires, structures, and towers of the project is considered less than significant.

Fourteen, 70-foot tall emission stacks will be constructed as part of the Eastshore site. The stacks could cause bird collisions with predatory hawks or large waterbirds that use the San Francisco Bay habitats for forage and resting during migrations. Mitigation measures, such as swan flight diverters, will be used to reduce the level of avian collision to less than significant.

8.2.10.4.1 Electrocutions. Large raptors and waterbirds (for example, red-tailed hawks [*Buteo jamaicensis*], herons and egrets [*Egretta ssp.*], and pelicans) can be electrocuted by transmission lines when a bird's wings simultaneously contact two conductors of different phases, or a conductor and a ground. The installation of transmission lines or poles will be constructed according to "raptor-friendly" guidelines (Avian Power Line Interaction Committee [APLIC, 1996]). There is risk of electrocution because the area attracts a large numbers of birds at the Hayward Regional Shoreline, from the nearby Don Edwards San Francisco Bay National Wildlife Refuge (11 miles southwest), and Garin/Dry Creek Regional Parks to the east. The 115-kV electrical transmission lines for the project will be constructed with at least a 5.5-foot span between conductor wires using the "raptor-friendly" design to reduce potential impacts to less than significant.

8.2.10.5 Impacts from Noise and Lights from Plant Operations

The Eastshore site is zoned industrial and there are several industrial facilities adjacent to the site. Some of these facilities operate during the nighttime and have standard industrial lighting and significant noise.

Operation of the plant would produce some noise, as described in Subsection 8.5 (Noise), and construction activities could temporarily prevent wildlife from foraging and nesting adjacent to the site. Generally, noise from operations would not adversely affect wildlife, as wildlife usually become accustomed to routine background noise. Therefore, Eastshore noise is not expected to cause significant adverse impacts to wildlife.

Bright, night lighting could disturb wildlife (for example, California least tern, western snowy plover, California brown pelican, raccoon, striped skunk, and flying insects). Night lighting, particularly if the lights are on tall buildings, are may attract migratory birds. However light fixtures will be shielded, downcast and directed inward to the facility. In addition, lights that are not required for safety and security will be operated manually to reduce nighttime light. These measures will reduce negative impacts on wildlife to insignificant levels.

8.2.10.6 Potential Stack Emission Impacts on Soil and Vegetation

Emissions from the emission stacks will not significantly affect vegetation and soils surrounding the project area. There may be potential impacts of emissions on vegetation on the Walpert Ridge in the east from Eastshore. However, Eastshore air emissions impacts are below levels which have been determined to be of significant concern to biological resources.

Potential pollutant stack emissions from Eastshore include carbon monoxide (CO), fine particulates (PM_{10} and $PM_{2.5}$), and oxides of nitrogen (NO_x) and oxides of sulfur and (SO_2). No pollutant emissions are predicted to result in concentrations exceeding EPA prevention of significant deterioration (PSD) significant impact levels Section 8.1 (Air Quality), for either short-term or annual averaging periods for CO, PM_{10}, NO_x and SO_2.

8.2.10.6.1 Carbon Monoxide. Plants metabolize and produce carbon monoxide (CO). Few studies on thresholds for detrimental effects on vegetation have been conducted. Most available studies use very high CO concentrations (above 100 parts per million [ppm]). Soil microorganisms probably act as a buffering system and sink for CO. There are no known detrimental effects on plants due to CO concentrations of 10,000 to 230,000 $\mu g/m^3$ (USEPA 1979).

Zimmerman exposed a variety of plant species to CO at concentrations of 115,000 $\mu g/m^3$ to 11,500,000 $\mu g/m^3$ from 4 to 23 days (Zimmerman et al., 1989). While practically no growth retardation was noted in plants exposed at the lower level, retarded stem elongation and leaf deformation were observed at the higher concentrations. Pea and bean seedlings also exhibited abnormal leaf formation after exposure to CO at 27,000 $\mu g/m^3$ for several days (USEPA 1979).

Comparatively low levels of CO in the soil have been shown to inhibit nitrogen fixation. Concentrations of 113,000 $\mu g/m^3$ have been shown to reduce nitrogen fixation, while 572,000 $\mu g/m^3$ to 1,142,000 $\mu g/m^3$ result in nearly complete inhibition (USEPA, 1979).

As shown in Section 8.1, maximum predicted one-hour and eight-hour CO emissions have been calculated for Eastshore, when added to background air quality levels, are significantly less than the CO concentration of 115,000 $\mu g/m^3$ determined to result in minimal growth retardation of plants, as well as the 113,000 $\mu g/m^3$ concentration found to result in slight reduction of nitrogen fixation. Therefore, predicted CO emission levels from Eastshore are not expected to result in adverse effects on vegetation.

8.2.10.6.2 Sulfur Dioxide and Nitrogen Oxides. SO_2 and NO_x are also potential pollutants of concern for Eastshore. The extent of their effect on soils and vegetation would be directly related to a variety of factors, including wind speed, direction and frequency, air temperature, humidity, the geomorphology of the area, and the location of the proposed project in relation to sensitive plant communities in the zone of impact.

Sulfur dioxide tends to convert to sulfite and sulfate during chemical transformation in soils. Interpretation of the results of investigations published to date has engendered considerable controversy due to the complexity of terrestrial ecosystems. However, the effects of acidified precipitation containing sulfate (SO_4) on terrestrial ecosystems have been investigated with respect to alteration of soil chemistry as it relates to vegetation health.

High levels of SO_4 could reduce soil pH, thereby decreasing the availability of certain essential nutrients and increasing the concentrations of soluble aluminum, which reduces plant growth.

In soils where nitrate-nitrogen is not limiting plant growth, excess nitrate could percolate through the soil column, carrying base cations and exerting an acidifying effect. Increased atmospheric contributions of nitrate could influence vegetation in a species-specific way, with some species taking advantage of its fertilizing characteristics while others (such as those occurring in nitrogen-limited soils) are adversely affected.

Sulfur is a major plant nutrient and can be directly absorbed into the soil. Therefore, an increase in SO_2 in the soil (particularly at levels below threshold limits) would not have an adverse effect on vegetation.

SO_2 can affect vegetation directly (as a gas) or indirectly by means of its principal reaction product, SO_4 (for example, acidification of soils). In addition, a third mechanism of impact is the formation of acid mist. Direct effects of injury can be manifested as foliar necrosis, decreased rates of growth or yield, predisposition to disease, and reduced reproductive capacity.

Environmental factors, such as temperature, light, humidity, and wind speed, influence both the rate of gas absorption and the plant physiological response to absorbed quantities. The higher the humidity, the higher the absorption of gases. Exposure duration and frequency are also important factors that determine the extent of injuries.

Guidelines for air emission impact assessment provided in the technical literature are diverse, and threshold dosages required to cause injury are extremely variable because of the variety of factors affecting plant responses to phytotoxic gases. Consequently, in cases where emissions are below lower threshold limits, decreased yields can result in the absence of visible injury (Sprugel et al., 1980) and long-term impacts should be addressed.

Among the different published attempts to define SO_2 thresholds for vegetation effects, two represent worst-case scenarios. Loucks presented threshold ranges between 131 $\mu g/m^3$ and 262 $\mu g/m^3$ SO_2 (Loucks et al., 1980), and McLaughlin suggested values of 1310 $\mu g/m^3$ SO_2 for the one-hour average and 786 $\mu g/m^3$ for the three-hour average (McLaughlin, 1981).

According to the dose-injury curve for SO_2-sensitive plant species provided by the USFWS, the lowest three-hour concentration expected to cause injury to plants is approximately 390 $\mu g/m^3$(USFWS, 1978). Section 8.1 demonstrates that projected emissions from Eastshore are well below this significance threshold. However, these predicted values are applicable only when plants are growing under the most sensitive environmental conditions and stage of maturity. Thresholds for chronic plant injury by SO_2 have been estimated at about 130 $\mu g/m^3$ annual average (USFWS, 1978). As shown in Section 8.1, the maximum annual average concentration modeled for this project is also far below the USFWS threshold for chronic exposure, and the worst-case projected, three-hour maximum impact is substantially below the McLaughlin protection level of 786 $\mu g/m^3$. Consequently, the projected concentration of SO_2 is not expected to cause visible foliar injury or significant adverse chronic effects.

Nitrogen dioxide is potentially phytotoxic, but generally at exposures considerably higher than those resulting from most industrial emissions. Exposures for several weeks at concentrations of 280 to 490 μg/m^3 can cause decreases in dry weight and leaf area, but one-hour exposures of at least 18,000 μg/m^3 are required to cause leaf damage. The modeled maximum Eastshore NO_2 impacts are far below these threshold limits. In addition, the total predicted maximum one-hour NO_2 concentration is significantly less than the one-hour threshold (7,500 μg/m^3 or 3,989 ppm) for five percent foliar injury to sensitive vegetation (USEPA, 1991). These results indicates that NO_x emissions from Eastshore, when considered in the absence of other air pollutants, would not adversely affect vegetation.

8.2.10.6.3 Airborne Particulates. Particulate emissions will be controlled by inlet air filtration and use of natural gas. The deposition of airborne particulates (PM_{10}) can affect vegetation through either physical or chemical mechanisms. Physical mechanisms include the blocking of stomata so that normal gas exchange is impaired, as well as potential effects on leaf adsorption and reflectance of solar radiation. Information on physical effects is scarce, partly because such effects are obscure except under extreme situation (Lodge et al., 1981). Lerman and Darley found that particulate deposition rates of 365 g/m^2/year caused damage to fir trees, but rates of 274 g/m^2/year and 400 to 600 g/m^2/year did not damage vegetation at other sites (Lerman and Darley, 1975).

The addition of the maximum predicted annual particulate impact from Eastshore to the maximum background concentration of 23.6 μg/m^3, measured at the nearest monitoring station yields a total estimated particulate deposition rate of 14.9 g/m^2/year, assuming a deposition velocity of 2 cm/sec (worst-case deposition velocity, as recommended by the California Air Resources Board [CARB]). This total is more than an order of magnitude less than levels expected to result in injury to vegetation (i.e., 365 g/m^2/year). Therefore no significant injury to vegetation is expected from Eastshore particulate emissions.

The primary chemical mechanism for airborne particulates to cause injury to vegetation is by trace element toxicity. Many factors, such as temperature, precipitation, soil type, and plant species, could influence the effects of trace elements on vegetation (USFWS, 1978). Trace elements adsorbed into particulates emitted from power plant emissions reach the soil through direct deposition, the washing of plant surfaces by rainfall, and the decomposition of leaf litter. Ultimately, the potential toxicity of trace elements that reach the root zone through leaching will depend on whether the element is in a form readily available to plants. The availability is controlled in part by the soil cation exchange capacity, which is determined by soil texture, organic matter content, and any kind of clay present. Soil pH is also an important influence on cation exchange capacity; in acidic soils, the more mobile, lower valance forms of trace metals usually predominate over less mobile, higher valence forms. The silty clay and clay soils located in the project area will have a lower potential for trace element toxicity because of the comparatively high soil pH commonly found in bay soils.

Perhaps the most important consideration in determining toxicity of trace elements to plants relates to existing concentrations in the soil. Several studies have been conducted relating endogenous trace element concentrations to the effects of emissions from model power plants on biota (Dvorak et al. 1977;, Dvorak and Pentecost et al. 1977; Vaughan et al. 1975). These studies revealed that the predicted levels of particulate deposition for the area

surrounding the model plant add trace elements to the soil over the operating life of the plant, which were usually less than ten percent of the total existing levels. Therefore, uptake by vegetation could not increase dramatically unless the forms of deposited trace elements were considerably more available than normal elements present in the soil.

8.2.11 Conflicts with Regional Habitat Conservation Plans

There are no regional HCPs that affect this project. Therefore, construction of the project would not conflict with goals of any HCP or other regional conservation plan.

8.2.12 Cumulative Impacts

The Russell City Energy Center (RCEC) that is proposed to be constructed in the City of Hayward and located within a one-mile radius from the Hayward Regional Shoreline was approved by the CEC in September 2002 but has not yet commenced construction. RCEC is subject to conditions of certification that insure it will not have a significant impact on biological resources. The CEC concluded that "implementation of the Conditions of Certification below will ensure that the construction and operation of the RCEC Power project will not create any significant direct, indirect or cumulative adverse impacts to biological resources…" Eastshore will also not cause any significant impacts to biological resources. Because both projects will be mitigated to insignificant impact levels, cumulative impacts are also expected to be insignificant.

8.2.13 Proposed Mitigation, Monitoring and Future Surveys

The biological resources potentially affected by this project are ruderal grassland within the PG &E substation (if used as laydown) and landscaped trees on city streets. The following measures are proposed:

Project biologists will conduct additional preconstruction field surveys of the project site, laydown area and transmission route for nesting birds and other species that may be adversely impacted by construction and to identify trees within the project area that may be altered or removed during the transmission line construction process.

Proposed mitigation for potential collision will include the addition of swan flight diverters on transmission lines. Removal or alteration of trees may require potential replacement and the city ordinances. Worker Environmental Awareness Training (WEAT) for construction staff will be provided to ensure that construction staff will avoid interactions with wildlife and activities will not affect wildlife habitats. All appropriate, construction BMPs for construction sites will be used (for example, proper disposal of hazardous wastes, treatment of construction wastewater and proper discharge).

8.2.14 Involved Agencies and Agency Contacts

The agencies and contacts listed in Table 8.2-6 are involved with biological resources and special status species.

TABLE 8.2-6
Potential Agencies to Contact for the Eastshore Project

Biological Resource Agency	Contact	Title	Telephone/Email	Potential Issue
U.S. Fish and Wildlife Service Federal Building 2800 Cottage Way, Room W-2605 Sacramento, California 95825	Ryan Olah		(916) 414-6625 Ryan_Olah@fws.gov	Federal threatened or endangered species
California Department of Fish and Game 7329 Silverado Trail Napa, California 94558 Mail: P.O. Box 47, Yountville, California 94599	Marcia Grefsrud	Environmental Specialist, Central Coast Region	(707) 944-5559 MGrefsrud@dfg.ca.gov General # for Central Coast Region §1600 permits: (707) 944-5520	§1600, Streambed Alteration Agreement
San Francisco Regional Water Quality Control Board 1515 Clay Street, Suite 1400 Oakland, California 94612	Brian Wines	Water Quality Engineer, San Francisco Bay Region	(510) 622-5680 BWines@waterboards.ca.gov Address correspondence "Attn: Certifications".	401 Certification
U.S. Army Corps of Engineers 333 Market Street San Francisco, California 94105	Mark D'Avignon	South Section Chief	(415) 977-8507 mark.r.d'avignon@usace.army.mil General # for wetlands permits: (415) 977-8460	404 Permitting

8.2.15 Permits Required and Anticipated Schedule

No required biological resources permits have been identified for the Eastshore project.

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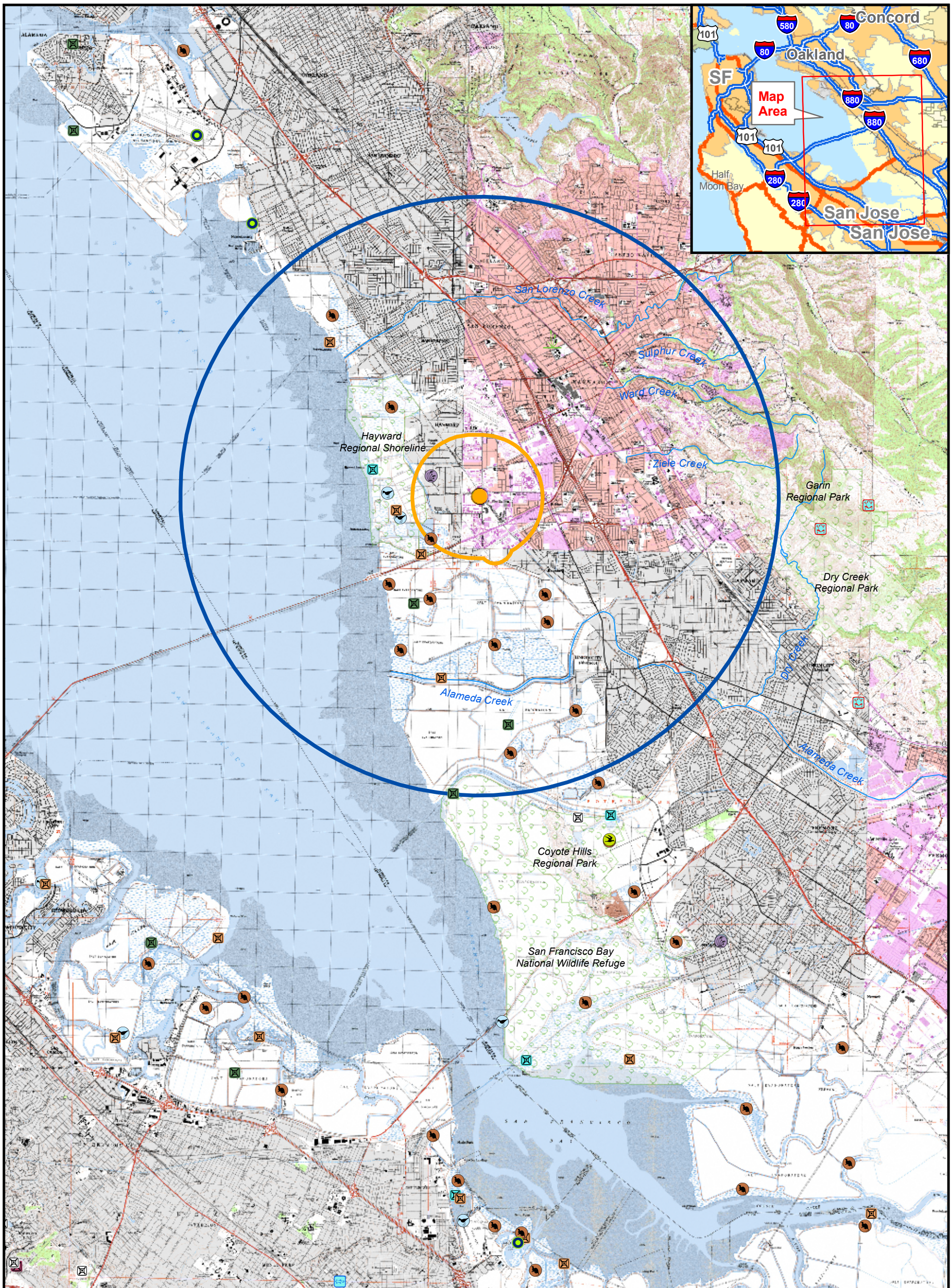

LEGEND

- CNDDB An
- Bay checkerspot butterfly
- California black rail
- California clapper rail
- California least tern
- California red-legged frog
- California seablite
- California tiger salamander
- Contra Costa goldfields
- Myrtle's silverspot
- Bank Swallow
- Western Snowy Plover
- Santa Cruz tarplant
- Salt-Marsh Harvest Mouse
- Site Location
- 1 Mile Buffer
- 5 Mile Buffer
- Salt Evaporators

N

SCALE IS APPROXIMATE

Miles

0 0.5 1 2

FIGURE 8.2-1
REGIONAL BIOLOGICAL RESOURCES
EASTSHORE ENERGY CENTER
HAYWARD, CALIFORNIA

CH2MHILL

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LEGEND

California clapper rail
Contra Costa goldfields
Salt-Marsh Harvest Mouse
Schools
Parks/Recreation
Industrial
Light Manufacturing
Ruderal Grassland
Transmission Line Route
Site Location
1-Mile Radius
Plant (circular)
Animal (specific)
Animal (non-specific)
Animal (circular)
Diked Marsh
Managed Marsh
Inactive Salt Pond
Muted Tidal Marsh
High Elevation Tidal Marsh
Active Salt Pond
Storage or Treatment Basin
Wastewater Treatment Facility
Neighborhoods

N

SCALE IS APPROXIMATE

0 250 500 1,000 1,500 Feet

FIGURE 8.2-2
LOCATION OF SPECIAL STATUS SPECIES RECORDS WITHIN THE PROJECT IMPACT AREA
EASTSHORE ENERGY CENTER
HAYWARD, CALIFORNIA

CH2MHILL

BAO \\ZINFANDEL\GIS\PROJECTS\EASTSHORE\MAPFILES\FIG_8_2_2_SPECIAL_STATUS_SPECIES.MXD FIG_8_2_2_SPECIAL_STATUS_SPECIES.PDF 8/24/2006 16:24:31

FIGURE 8.2-2(A)
LOCATION OF SPECIAL STATUS SPECIES RECORDS WITHIN THE PROJECT IMPACT AREA
EASTSHORE ENERGY CENTER
HAYWARD, CALIFORNIA

FIGURE 8.2-2(B)
LOCATION OF SPECIAL STATUS SPECIES RECORDS WITHIN THE PROJECT IMPACT AREA
EASTSHORE ENERGY CENTER
HAYWARD, CALIFORNIA

CH2MHILL

BAO \\ZINFANDEL\GIS\PROJECTS\EASTSHORE\MAPFILES\FIG_8_2_2_SPECIAL_STATUS_SPECIES_11_17_B.MXD FIG_8_2_2_SPECIAL_STATUS_SPECIES_11_17_B.PDF 8/24/2006 16:58:28

FIGURE 8.2-2(C)
LOCATION OF SPECIAL STATUS SPECIES RECORDS WITHIN THE PROJECT IMPACT AREA
EASTSHORE ENERGY CENTER
HAYWARD, CALIFORNIA

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BAO \\ZINFANDEL\GIS\PROJECTS\EASTSHORE\MAPFILES\FIG_8_2_2_SPECIAL_STATUS_SPECIES_11_17_C.MXD FIG_8_2_2_SPECIAL_STATUS_SPECIES_11_17_C.PDF 8/24/2006 17:05:48

FIGURE 8.2-2(D)
LOCATION OF SPECIAL STATUS SPECIES RECORDS WITHIN THE PROJECT IMPACT AREA
EASTSHORE ENERGY CENTER
HAYWARD, CALIFORNIA

CH2MHILL

BAO \\ZINFANDEL\GIS\PROJECTS\EASTSHORE\MAPFILES\FIG_8_2_2_SPECIAL_STATUS_SPECIES_11_17_D.MXD FIG_8_2_2_SPECIAL_STATUS_SPECIES_11_17_D.PDF 8/24/2006 17:10:18

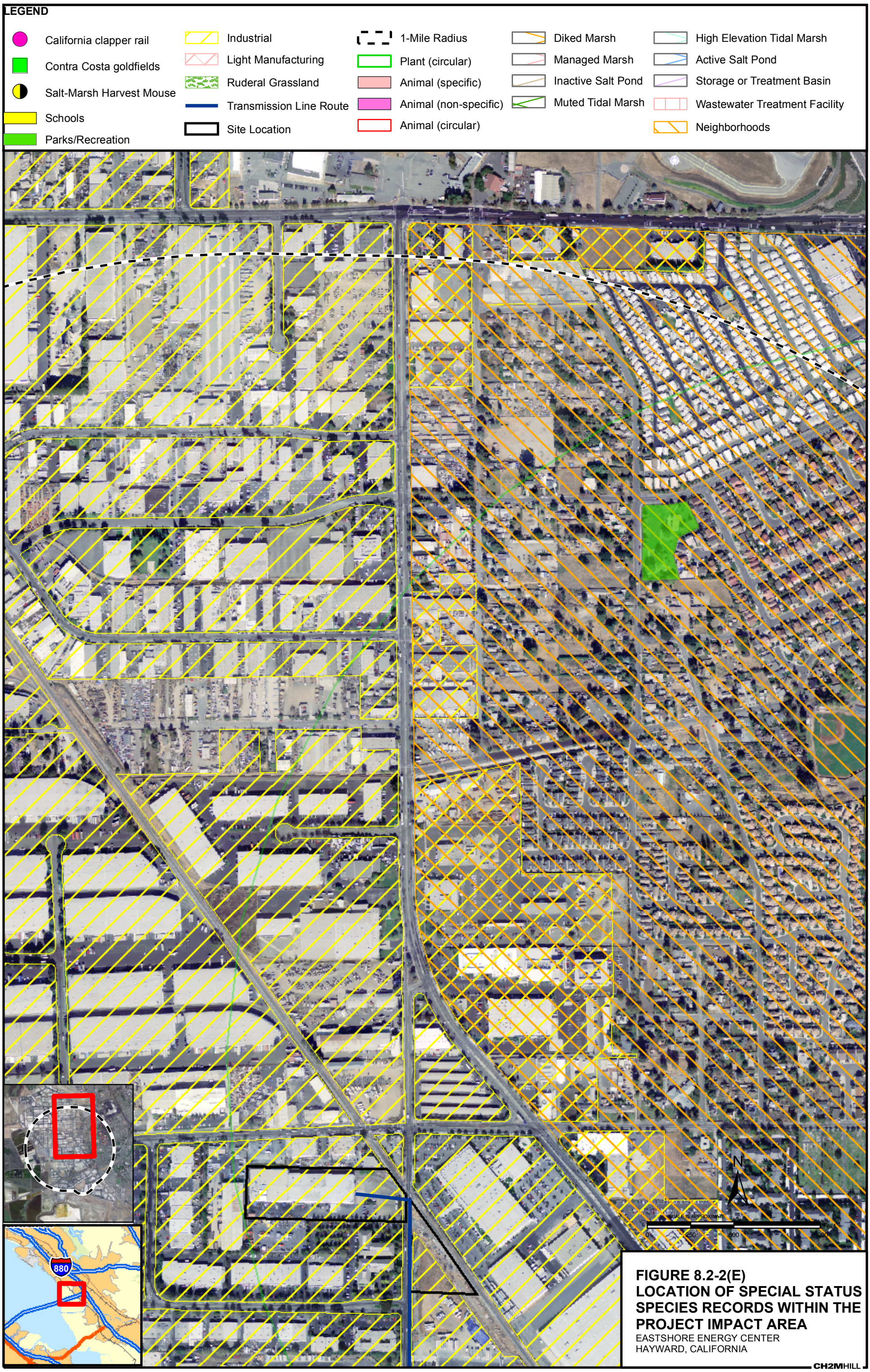

FIGURE 8.2-2(E)
LOCATION OF SPECIAL STATUS SPECIES RECORDS WITHIN THE PROJECT IMPACT AREA
EASTSHORE ENERGY CENTER
HAYWARD, CALIFORNIA

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FIGURE 8.2-2(F)
LOCATION OF SPECIAL STATUS SPECIES RECORDS WITHIN THE PROJECT IMPACT AREA
EASTSHORE ENERGY CENTER
HAYWARD, CALIFORNIA

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