C.3 BIOLOGICAL RESOURCES

C.3.1 ENVIRONMENTAL BASELINE AND REGULATORY SETTING

This section describes the existing biological resources in the Proposed Project region, specific biological resources within the project study area, and the regulations applicable to biological resources. The description of the biological resources setting is divided here into sections: a regional overview of general habitat types, and the biological resources in the vicinity of the proposed transmission line route and alternatives is given in Section C.3.1.1. The environmental settings for each of the proposed and alternative routes and substation sites are grouped by geographic areas within the Tri-Valley area (Sections C.3.1.1.1 through C.3.1.1.4).

C.3.1.1 Regional Overview and Regulatory Setting

A variety of habitats occur within the project study area, which lies within the Tri-Valley area. Located in the southeastern portion of the San Francisco Bay region, it is a moderately dry area that receives an average of 14 to 15 inches of annual precipitation and experiences cool, wet winters and very warm, dry summers. Within the undeveloped portions of the project study area, the availability of seasonal water and the topography of the land are the critical factors that determine the distribution of vegetation types and associated wildlife species.

Plant communities, wildlife habitats, and potential habitats for special status species were assessed along the Proposed Project route and all alternative routes. Assessment methods included a combination of aerial photograph analysis, reviews of previous relevant regional studies and surveys, and field surveys conducted from August through October, 2000.

The Tri-Valley area includes the San Ramon, Amador and Livermore valleys and is contained within the Diablo inner coastal mountain range. Natural features in the undeveloped project study area include grassland hills, oak and scrub dominated canyons, seasonal creeks, and alkaline flats.

C.3.1.1.1 *Vegetation Habitat*

A region's vegetation largely results from environmental variation and disturbance history. Individual plant communities generally separate themselves along environmental gradients (Whittaker, 1967). Gradients such as soil moisture, soil fertility, temperature, slope, and other physical parameters affect the distribution of individual species and, in turn, affect the type of plant community that develops at a given location. Since plants generally act as individuals along environmental gradients (Sawyer and Keeler-Wolf, 1995) it is often difficult to separate the continuum into discrete and ecologically meaningful plant communities. Plant community classification, despite its limitations, nonetheless serves an important role in grouping vegetation into relatively homogeneous units which facilitate study and management of vegetation.

The wealth of environmental variation found throughout the San Francisco Bay region produces plant communities composed of an equally diverse assortment of species. Common species throughout the region include valley and foothill grasslands, with soft chess (*Bromus hordeaceus*), wild oat (*Avena fatua*), and other non-native annual grasses, curly dock (*Rumex crispus*), bristly ox-tongue (*Picris echioides*), coyote brush (*Baccharis pilularis*), and mustard (*Brassica* spp.). In marsh and wetland environments, rush (*Juncus* spp.), common pickleweed (*Salicornia virginica*), bulrush (*Scirpus* spp.), and cattail (*Typha* spp.) are common. In riparian areas, willow (*Salix* spp.), western sycamore (*Platanus racemosa*) and Fremont cottonwood (*Populus fremontii* ssp. *fremontii*) are dominant species. Seasonal water and soil moisture availability, and human disturbance are the prime determinants of regional plant community composition and distribution. Human disturbance in particular has had a dramatic affect on the composition and distribution of plant communities throughout the San Francisco Bay region.

Plant communities in the San Francisco Bay region were classified based on existing descriptions developed by Holland (1986). This allows comparison with other local or regional plant communities. In some cases it was necessary to identify subdivisions or variants of larger community types that are not described in the literature.

The dominant plant communities associated with the San Francisco Bay region that occur along the proposed and alternative transmission line routes include:

- Alkali-Freshwater Marsh
- Coastal Brackish Marsh
- Seasonal Wetland
- Central Coast Riparian Scrub
- Central Coast Cottonwood-Sycamore Riparian Forest
- Blue Oak Woodland
- Valley Oak Woodland
- Digger Pine-Oak Woodland
- Diablan Sage Scrub
- Non-Native Annual Grassland
- Alkali Meadow
- Agricultural Areas
- Developed Areas

Plant communities along the proposed transmission line route were described by CH2M Hill and PG&E biologists (PG&E 1999). They described six plant communities, mostly according to the classification methodologies and nomenclature developed by Holland (1986), while conducting surveys for wetlands and special status plants. In the present study, plant communities were added to the initial six to provide a more detailed description of the habitats along the proposed route. Table C.3-1 compares communities given in the Proponent's Environmental Assessment (PG&E 1999) with Holland's *Preliminary Descriptions of the Terrestrial Natural Communities of California* (1986) and communities described in this EIR. Tables in Sections C.3.1.1.1 through C.3.1.1.4 give the occurrence of each

plant community and other areas along the proposed transmission line route by milepost interval (Figures C.3-1A and C.3-1B).

Table C.3-1 Comparison of Plant Community Classifications

CH2M Hill and PG&E (1999)	Holland (1986)	Wetlands Research Associates, Inc. (2000)
Emergent Wetland	Coastal and Valley Freshwater Marsh	Alkali-Freshwater Marsh
	Cismontane Alkali Marsh	
not treated	not treated	Seasonal Wetland
not treated	Central Coast Riparian Scrub	Central Coast Riparian Scrub
not treated	Central Coast Cottonwood-Sycamore Riparian Forest	Central Coast Cottonwood-Sycamore Riparian Forest
Blue Oak Woodland	Blue Oak Woodland	Blue Oak Woodland
Non-native Grassland	Non-native Grassland	Non-Native Annual Grassland
Alkali Meadow	Alkali Meadow	Alkali Meadow
Agricultural Lands	not treated	Agricultural Areas
Developed Lands	not treated	Developed Areas
not treated	Coastal Brackish Marsh	Coastal Brackish Marsh
Not treated	Valley Oak Woodland	Valley Oak Woodland
Not treated	Digger Pine-Oak Woodland	Digger Pine-Oak Woodland
Not treated	Diablan Sage Scrub	Diablan Sage Scrub

Wetland Plant Communities

Wetland plant communities occur throughout the San Francisco Bay region wherever surface soils remain saturated for a sufficient period to favor the growth of hydrophytic (wetland-adapted) species. Saturation and resultant lack of oxygen produce soils with mottling and other characteristic hydric features. Wetlands and their accompanying vegetation types are distinguished based on such factors as topography, rate of water flow, and duration of inundation or saturation.

Alkali-Freshwater Marsh. Alkali-Freshwater Marsh habitat is a combination of two habitat types described by Holland: Coastal and Valley Freshwater Marsh and Cismontane Alkali Marsh. These were combined because many wetland areas in the Tri-Valley area exhibit characteristics of both marsh types in terms of vegetation and hydrology. Some of these marshes contain vegetation characteristic of a Freshwater Marsh, while the high evaporation rate and alkaline nature of the soils are characteristic of an Alkali Marsh. These intermediate Alkali-Freshwater Marsh areas occur in sites that are saturated or flooded during most or all of the year. High evaporation and low input of fresh water result in the alkaline nature of these marshes, especially during the summer. This habitat type is frequently found in natural and artificial channels, in stock ponds and settling basins, in slow-moving portions of perennial and ephemeral streams, and at the mouths of rivers. The prolonged soil saturation allows for the development of anaerobic soils and promotes dominance by perennial, emergent wetland plant species such as bulrush, cattail, sedge (*Carex* spp. And *Cyperus* spp.), rush, and spikerush. This vegetation

usually grows in very dense stands along the edges of, or sometimes within, the Alkali-Freshwater Marsh. Grass species such as saltgrass (*Distichlis spicata*) and blue wild rye (*Leymus triticoides*) may be found growing within or around these marshes.

Coastal Brackish Marsh. Coastal brackish marsh is usually located at the interior edges of bays and estuaries, mostly around Suisun Bay and at the mouth of the Sacramento-San Joaquin Delta. The brackish water is the result of salt water from the bay and freshwater from the river systems. This habitat type is dominated by perennial, emergent plants up to 2 meters tall, including sedges (*Carex* spp.), bulrush, cattail, common reed (*Phragmites australis*), and common pickleweed.

Seasonal Wetland. Seasonal Wetland habitat is characterized by poorly drained soils that are inundated during the winter and are dry from late spring to early fall. Seasonal drainages were also included in this habitat. Seasonal Wetlands commonly occur within Grassland, Oak Woodland and Alkali Meadow plant communities. Species common to this habitat type include annual non-native plant species such as curly dock, annual beard grass (*Polypogon monspeliensis*), and Mediterranean barley (*Hordeum marinum ssp. gussoneanum*), as well as native species such as spikerush, cocklebur (*Xanthium* spp.), and salt bush (*Atriplex* spp.). Included in this plant community are ephemeral and intermittent drainages, seasonally wet depressions and vernal pools, which are generally dominated by similar plant species, but differ in their hydrology. Ephemeral and intermittent drainages (swales) carry storm runoff to a system of larger tributaries and streams; these drainages are often unvegetated and would be considered "Waters of the United States" (see Section C.3.1.2). Seasonally wet depressions are usually ponded for brief periods throughout the year due to a combination of variables including low topography, high water table, and impermeable soils. Vernal pools are characterized by an impermeable "clay pan" subsoil which allows for long periods of ponding during the winter and supports many endemic annual plant species when the pools dry in late spring.

Central Coast Riparian Scrub. Central Coast Riparian Scrub consists of a dense, low-growing canopy of shrubs and small trees dominated by arroyo willow (*Salix lasiolepis*). This habitat occurs along low gradient streams and rivers on moist sandy or gravelly soils located on bottomlands. Other associated species include coyote brush, Fremont's cottonwood (*Populus fremontii* ssp. *fremontii*), Pacific willow (*Salix lasiandra*) and wax myrtle (*Myrica californica*).

Central Coast Cottonwood-Sycamore Riparian Forest. Central Coast Cottonwood-Sycamore Riparian Forest has a moderately closed canopy of riparian trees dominated by Fremont's cottonwood, western sycamore (*Platanus racemosa*), and sub-dominant species, such as coast live oak (*Quercus agrifolia*) and California buckeye (*Aesculus californica*). The understory may contain dense thickets of shrubby willows (*Salix* spp.) and coyote brush. This habitat occurs along the floodplains of seasonal and perennial streams with coarse, gravelly soils.

Placeholder: Figure C.3-1A **Habitat Types**

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Placeholder: Figure C.3-1A Habitat Types (page 2 of 2**)**

Placeholder: Figure C.3-1B Habitat Types D2 Reconductoring (page 1 of 2)

Placeholder: Figure C.3-1B Habitat Types D2 Reconductoring (page 2 of 2)

Upland Plant Communities

Blue Oak Woodland. Blue Oak Woodland is dominated by blue oak (*Quercus douglasii*), with scattered coast live oak and valley oak (*Q. lobata*). This community often intergrades with Non-Native Annual Grassland to form a larger mosaic of woodland-grassland savannah. Blue Oak Woodland occurs on well-drained soils below 3000-4000 feet, often on open, rolling hills. Other associated species may include California buckeye, coffeeberry (*Rhamnus californica*), toyon (*Heteromeles arbutifolia*), and poison oak (*Toxicodendron diversilobum*).

Valley Oak Woodland. Except for its dominant species valley oak, Valley Oak Woodland is similar to Blue Oak Woodland. This community also intergrades with Non-Native Annual Grassland, and often intergrades with Blue Oak Woodland on drier slopes. Valley Oak Woodland is found on deep, well-drained alluvial soils, which usually occur in valley bottoms, canyons and seasonal drainages. Other associated species include coast live oak, blue oak, and western sycamore.

Digger Pine-Oak Woodland. Digger Pine-Oak Woodland consists of a mixture of digger pine (*Pinus sabiniana*) and blue oak; the pines usually tower over the oaks in undisturbed areas, whereas blue oaks are more dominant in frequently burned areas. This habitat type is typically found on well-drained, rocky sites in Mediterranean climates, along ridges or canyons. This habitat type often intergrades with chaparral habitats and Blue Oak Woodland.

Diablan Sage Scrub. Diablan Sage Scrub is typically found on southern exposures in the dry interior slopes within the coast range, well inland from the fog incursion zone. This habitat type is frequently found in disturbed areas and on shallow, rocky soils. Dominant species include California sage (*Artemesia californica*), chamise (*Adenostoma fasciculatum*), sticky monkey flower (*Mimulus aurantiacus*), and black sage (*Salvia mellifera*).

Non-Native Annual Grassland. Non-Native Annual Grassland is characterized by dense to sparse cover of mostly non-native annual grasses that germinate in fall after the first rains. They grow, flower, and set seed throughout winter and spring, with the next generation surviving the summer in the seed bank to begin a new cycle after the next fall rains. Showy native annual forbs are often present, especially in high rainfall years. Common associates include soft chess, wild oat, Italian ryegrass, yellow star thistle (*Centaurea solstitialis*), fox-tail barley (*Hordeum murinum* ssp. *leporinum*), ripgut brome (*Bromus diandrus*), rattail fescue (*Vulpia myuros*), curly dock, bristly ox-tongue, black mustard (*Brassica nigra*), lupine (*Lupinus* spp.), common bindweed (*Convolvulus arvensis*), and wild radish (*Raphanus sativus*). In some areas, this habitat type intergrades with Alkali Meadow habitat and may contain species such as saltgrass, alkali mallow (*Malvella leprosa*), gumplant (*Grindelia* spp.) and tarweed/spikeweed (*Hemizonia* spp.). Coyote brush is often found in scattered patches of varying density throughout grassland habitats. Non-Native Annual Grassland is found through most of California in valleys and foothills below 3000 feet. Factors such as grazing, agriculture, and fire have

facilitated the replacement of native grasslands with non-native species (Barbour and Major 1977). This plant community often grades into oak woodland communities as moisture and drainage increase.

Alkali Meadow. Alkali Meadow is a community characterized by a dense to open growth of perennial and annual grasses and alkaline herbaceous species less than one meter high. Growth and flowering take place from early spring to early fall. It occurs on fine-textured, seasonally moist, alkaline soils. This habitat type is often found with Seasonal Wetland habitats. Characteristic species include saltgrass, alkali heath (*Frankenia salina*), Mediterranean barley, sand spurrey (*Spergularia* spp.), rush (*Juncus* spp.) and non-native grasses as well as herbaceous species such as alkali mallow and tarweed/spikeweed.

Other Areas

Agricultural Areas. Cultivated fields are common throughout the San Francisco Bay region. As a result of disking, fertilizer application, and weed control, Agricultural Areas support few, if any, plants that are not under cultivation.

Developed Areas. Developed Areas include buildings, roadways, parking lots, railroad tracks, quarries and landscaped areas. These areas are highly disturbed and most vegetation is either ornamental or ruderal weeds.

C.3.1.1.2 *Wildlife Habitat*

It is often difficult to determine what elements in the landscape actually increase the wildlife value of a given habitat. The type of vegetation and the structure of the community are important characteristics of habitat since wildlife species rely upon vegetation for food and cover. Slope, elevation, exposure, and accessibility by predators or humans can also have an impact on habitat suitability.

Habitat requirements vary according to species, season, and climatic conditions. Wildlife species often require different habitat types during various seasons or life stages. Amphibian species require water for breeding and early development but are generally less dependent on water upon reaching maturity and during the non-breeding season. Other animals have the ability to migrate in search of suitable habitat or preferable climatic conditions during specific times of the year. In dry climates, rainfall is an important variable in habitat suitability. During years of heavy rainfall foraging habitat may be available over a broader area, or aquatic habitat may be more abundant, offering wildlife increased foraging opportunities.

The varied wildlife habitat types present in central and eastern Alameda and Contra Costa counties provide opportunities for wildlife during all or portions of their life history. However, many areas have been developed and, in addition to habitat loss, human disturbance in the area has degraded the opportunity for wildlife species to live and reproduce without disturbance. Assessments of wildlife habitat types are discussed in this section based on vegetation components and will allow evaluation of

project impacts on important wildlife habitat features as well as direct impacts on individuals or populations.

Habitat descriptions are based on vegetation type and physical characteristics. The plant communities previously identified are described in this section in terms of their value to wildlife. Table C.3-2 correlates the plant communities described previously with the wildlife habitat types discussed herein.

In the undeveloped portions of central and eastern Contra Costa and Alameda counties, dominant wildlife habitat types include Non-Native Annual Grassland, oak woodlands, and Agricultural Areas. Non-Native Annual Grassland is the most common upland habitat. Oak woodland is usually associated with slopes and stream courses. Agricultural Areas are primarily used for hay production and grazing. Vineyards are also an important land use in the southern Tri-Valley area.

Table C.3-2 Regional Habitats and Associated Wildlife Use

Plant Community	Vegetation Types (See Section C.3.1.1.1)	Typical Representative Wildlife Species	Typical Habitat Use	Important Features
Alkali-Freshwater Marsh	bulrush cattail sedge rush	BIRDS great blue heron mallard red-winged blackbird MAMMALS raccoon black-tailed deer AMPHIBIANS Pacific treefrog California newt	Reproduction Foraging Cover	Emergent vegetation Moisture/water Open water Food sources
Coastal Brackish Marsh	sedge bulrush cattail common reed pickleweed	BIRDS California black rail Suisun song sparrow marsh wren red-winged blackbird great blue heron MAMMALS salt marsh harvest mouse raccoon California vole	Reproduction Foraging Cover	Emergent vegetation Food sources Moisture/water Open water
Seasonal Wetland	curly Dock annual Beard Grass Mediterranean Barley spikerush cocklebur salt bush rush	BIRDS Killdeer greater yellowlegs MAMMALS raccoon California vole Black-tailed jackrabbit AMPHIBIANS Pacific treefrog California tiger salamander	Reproduction Foraging Cover	Moisture/water Food sources

Plant Community	Vegetation Types (See Section C.3.1.1.1)	Typical Representative Wildlife Species	Typical Habitat Use	Important Features
Central Coast Riparian Scrub	Arroyo willow Pacific willow wax myrtle	BIRDS California yellow warbler song sparrow white-crowned sparrow MAMMALS black-tailed deer raccoon striped skunk	Reproduction Foraging Cover	Ecotone (edge habitat) Moisture/water Dense overstory Dense understory Food sources
Central Coast Cottonwood-Sycamore Riparian Forest	Fremont cottonwood Western sycamore willow coyote brush	BIRDS tree swallow downy woodpecker Pacific-slope flycatcher American robin MAMMALS black-tailed deer raccoon California vole gray fox	Reproduction Foraging Cover	Ecotone (edge habitat) Moisture/water Dense overstory Dense understory Food sources
Blue Oak Woodland	blue oak valley oak coast live oak buckeye coffeeberry toyon poison oak	BIRDS white-breasted nuthatch western bluebird MAMMALS black-tailed deer California vole deer mouse	Reproduction Foraging Cover	Ecotone (edge habitat) Overstory Food sources
Valley Oak Woodland	valley oak blue oak coast live oak western sycamore	BIRDS acorn woodpecker oak titmouse MAMMALS black-tailed deer raccoon western gray squirrel	Reproduction Foraging Cover	Ecotone (edge habitat) Overstory Food sources
Digger Pine-Oak Woodland	Digger pine Blue oak California buckeye Coast live oak Valley oak	BIRDS golden eagle acorn woodpecker oak titmouse MAMMALS black-tailed deer raccoon western gray squirrel	Reproduction Foraging Cover	Ecotone (edge habitat) Overstory Food sources
Diablan Sage Scrub	California sage Black sage Sticky monkey flower Chamise	BIRDS golden eagle California thrasher Bewicks' wren REPTILES Alameda whipsnake western fence lizard MAMMALS black-tailed deer coyote	Reproduction Foraging Cover	Overstory Food sources Ecotone (edge habitat)

Plant Community	Vegetation Types (See Section C.3.1.1.1)	Typical Representative Wildlife Species	Typical Habitat Use	Important Features
Non-Native Annual Grassland	Soft chess wild oat Italian ryegrass yellow star thistle fox-tail barley ripgut brome rattail fescue curly dock bristly ox-tongue black mustard lupine common bindweed wild radish salt grass alkali mallow tarweed	BIRDS loggerhead shrike savannah sparrow western meadowlark MAMMALS coyote California ground squirrel Botta's pocket gopher black-tailed jackrabbit	Reproduction Foraging Cover	Open, clear views Uniform cover Prey source
Alkali Meadow	salt grass alkali heath Mediterranean barley alkali mallow tarweed/spikeweed sand spurrey	BIRDS savannah sparrow western meadowlark MAMMALS California ground squirrel western harvest mouse California vole	Reproduction Foraging Cover	Open, clear views Uniform cover Prey source
Agricultural Areas	Monoculture to ruderal	BIRDS long-billed curlew killdeer western meadowlark MAMMALS coyote feral cat raccoon striped skunk	Foraging Cover	Soft, turned soils Irrigation structures Fence posts Food sources Open, clear views
Developed Areas	Sparse, limited to exotic landscaping	BIRDS northern mockingbird house finch European starling rock dove house sparrow MAMMALS feral cat raccoon opossum striped skunk	Reproduction Foraging Cover	Reliable, abundant food sources Minimal predation risk

Alkali-Freshwater Marsh

Alkali-Freshwater Marsh, including aquatic habitats of ponds and streams, support a diversity of wetland-dependent mammal, bird, reptile, amphibian, and invertebrate species. Water is an important resource for many species, including large mammals such as mule deer (*Odocoileus hemionus*). Raccoons *(Procyon lotor*) are often associated with Alkali-Freshwater Marsh, where they forage for amphibians and other aquatic prey. Marshes generally support high insect densities, and therefore are important foraging areas for many bat species.

Alkali-Freshwater Marsh areas along the proposed route provide habitat for bird species relying on it at various times of the year for nesting or foraging, especially in emergent vegetation along streams and ponds. Red-winged blackbirds (*Agelaius phoeniceus*) forage and breed in marshes. Herons and egrets forage for amphibians, while several species of waterfowl rest and feed on the seasonal ponds in winter and spring. Alkali-Freshwater Marsh associated with seeps, seasonal drainages, and intermittent streams provide water and insect prey for many other bird species, including northern harrier (*Circus cyaneus,* CSC), especially where this habitat is adjacent to oak woodland or grassland communities.

The occurrence of water-dependent species depends on the annual flows of seasonal and intermittent streams, as well as the seasonal water retention in ponds. Therefore, the occurrence of amphibian species would be expected to vary according to annual water availability. Pacific treefrog (*Hyla regilla*), California newt (*Taricha torosa*), California tiger salamander (*Ambystoma californiense*), and California red-legged frog (*Rana aurora draytonii*) utilize Alkali-Freshwater Marsh habitats for foraging and reproduction. The presence of amphibians attracts reptilian predators such as the common garter snake (*Thamnophis sirtalis*).

Coastal Brackish Marsh

Northern Coastal Brackish Marsh occurs in bays in the San Francisco Bay region where tidal water is diluted by freshwater inflow. As with the brackish aquatic habitat, salinity in these marshes varies from season to season and from year to year, depending largely on rainfall patterns. In contrast to the tidal salt marshes, however, freshwater sources generally keep salinity levels relatively low and within the tolerance limits of plant species unable to survive the levels found in regional salt marshes. Increased urbanization and resulting increased sewage effluent discharge levels have promoted the conversion of South Bay salt marshes to brackish marsh.

Brackish marsh provides habitat for numerous birds and mammals, some relying on this habitat type for their entire life cycle. Representative species include the marsh wren (*Cistothorus palustris*), red-winged blackbird (*Agelaius phoeniceus*), and Virginia rail (*Rallus limicola*). Where pickleweed forms dense stands, the federally endangered salt marsh harvest mouse (*Reithrodontomys raviventris*) may also occur.

Seasonal Wetland

Seasonal Wetland pools and streams pond water during the winter and are dry during the summer. Seasonal Wetlands are present at several locations throughout the project site (mostly seasonal drainages) and are primarily associated with Non-Native Annual Grassland. These wetlands provide important habitat for California tiger salamander (FC, CSC), Pacific treefrogs, vernal pool fairy shrimp (FT), and versatile fairy shrimp. Seasonal Wetlands also provide important foraging habitat for many avian species. Seasonal Wetlands with tall, emergent vegetation also provide nesting habitat for avian species such as red-winged blackbirds. Several wildlife species are adapted to survive in this habitat type throughout the year, while others are present only during periods of inundation. Seasonal

Wetlands provide winter and spring habitat for waterfowl, shorebirds, and amphibians. Aquatic insects and other invertebrates, including the versatile fairy shrimp (*Branchinecta lindahli*) and the vernal pool fairy shrimp (*Branchinecta lynchi*), are dependent on seasonal wetland pools and swales.

Central Coast Riparian Scrub and Central Coast Cottonwood-Sycamore Riparian Forest

Riparian habitats include the plant communities found along rivers and creeks. Riparian habitats typically include a dense understory of shrubs and vines sheltered by an overstory of willow, alder, sycamore, and cottonwood. Many riparian systems in the San Francisco Bay region are subject to human disturbances. Natural riparian vegetation associated with typical riparian habitats is limited in the region and the project area.

Riparian areas are critical to many species of wildlife. The vegetative structure of riparian habitats provides cover and nesting habitat for herons, songbirds and smaller birds of prey. These areas are critical for wildlife migration and dispersal. The linear configuration of riparian areas creates corridors for animal movement including travel to and from various other habitat types. Riparian habitats are linear strips through various upland habitat types. The edges where riparian and upland habitats meet are known as ecotones, or edge habitats. Studies have shown that edge habitats are critical for many animal species. The diversity of riparian vegetative structure and species composition is critical for breeding birds, small mammals, reptiles, and amphibian species that have a terrestrial stage in their life history.

Riparian areas provide cover, food sources, and nesting habitat for many wildlife species. Riparian habitats are also important corridors for movement and dispersal of wildlife. California red-legged frogs are associated with riparian habitats in the project area. Many special status avian species potentially nest in riparian habitats along the proposed route, including Cooper's hawk (*Accipiter cooperi,* CSC), sharp-shinned hawk (*Accipiter striatus,* CSC), long-eared owl (*Asio otus*, CSC), Pacific-slope flycatcher (*Empidonax difficilis,* FSC), yellow warbler (*Dendroica petechia brewsteri*, CSC), and yellow-breasted chat (*Icteria virens*, CSC).

Blue Oak Woodland, Valley Oak Woodland and Digger Pine-Oak Woodland

Oak woodland habitats are crucial to wildlife in the project area. Hardwood-dominated habitats are optimum or suitable for reproduction for about half of the terrestrial vertebrates native to California. This habitat ranks third among six broad vegetation types in California in number of wildlife species that depend solely upon it for reproduction (Ohmann and Mayer 1987). Many mammals and birds depend upon the annual mast or acorn crop as a food supply (Graves 1979).

Raccoons may use hollow oaks for den sites, while fallen trees provide cover for rodents. The hollow snags are important habitat for several bat species, which use them for roost sites. Oaks also provide habitat for several other mammals including voles, western gray squirrel (*Sciurus griseus*), pocket gophers, and mule deer which forage on leaves and twigs. Coyote are also common residents.

Oak woodland communities provide significant cover, foraging, and nesting habitat for many resident and migratory bird species. Common residents of oak woodland include red-shouldered hawk (*Buteo lineatus*), red-tailed hawk (*Buteo jamaicensis*), acorn woodpecker (*Melanerpes formicivorus*), Nuttall's woodpecker (*Picoides nuttallii*), oak titmouse (*Baeolophus inornatus*), white-breasted *nuthatch (Sitta carolinensis*), western scrub jay (*Aphelocoma californica*), and spotted towhee (*Pipilo maculatus*). Common summer visitors that nest in oak woodlands include ash-throated flycatcher (*Myiarchus cinerascens*) and Bullock's oriole (*Icterus bullockii*).

Reptiles and amphibians that are found in oak woodlands include western fence lizard (*Sceloporus occidentalis*), common kingsnake (*Lampropeltis getulus*), western toad (*Bufo boreas*), and California newt. They forage and seek cover in the debris and herbaceous ground cover environment created by the oaks, which support a variety of invertebrate prey.

Diablan Sage Scrub

Diablan sage scrub is typically found on southern slope exposures within the Coast Range in areas inland of the fog incursion zone. This vegetative community provides important cover, forage, and nesting habitat for several species of wildlife including golden eagle (*Aquila chrysaetos*), California thrasher (*Toxostoma redivivum*), Bewick's wren (*Thryomanes bewickii*), Alameda whipsnake (*Masticophis lateralis euryxanthus*), western fence lizard, black-tailed deer, and coyote (*Canis latrans*). Rock outcroppings are common in this type of habitat and provide shelter for numerous animal species.

Non-Native Annual Grassland

Non-native grasslands are common and widespread throughout California, including the San Francisco Bay region. This habitat type is characterized by a dense to sparse cover of introduced annual grasses and ruderal herbs (species that grow on disturbed ground). Sparse coyote brush scrub is often associated with these grasslands, and provides important cover, forage, and nesting habitat for several grassland wildlife species. Typical grassland species include California ground squirrel (*Spermophilus beecheyi*), black-tailed jackrabbit (*Lepus californicus*), western meadowlark (*Sturnella neglecta*), savannah sparrow (*Passerculus sandwichensis*), and burrowing owl (*Athene cunicularia*). In addition, ponds and drainages located in annual grasslands provide habitat for aquatic species such as California tiger salamander, western pond turtle (*Clemmys marmorata*), California red-legged frog, and Pacific treefrogs.

Non-Native Annual Grassland is the dominant plant community within the project area. Typical grassland wildlife species include California ground squirrels, savannah sparrows, western meadowlark, mourning dove (*Zenaida macroura*), black-tailed jackrabbits, mule deer, and burrowing owl (CSC). In addition, Non-Native Annual Grassland is important foraging habitat for many raptors including golden eagles (CSC) and red-tailed hawk.

Numerous ephemeral and perennial drainages are present within the grasslands in the project area. Stock ponds have been created by impounding ephemeral drainages in many locations. Ponds and

drainages may provide seasonal or year-round habitat for aquatic and terrestrial species. Aquatic species associated with ponds and drainages include the California tiger salamander (FC, CSC), California red-legged frog (FT, CSC), Pacific treefrog, and western pond turtles (CSC).

Alkali Meadow

Alkali Meadow provides habitat for wildlife species that are generally found in Non-Native Annual Grasslands.

Agricultural Areas

Generally, Agricultural Areas are disked in the fall and planted in the spring with harvest occurring in late summer and fall. Wildlife use of agricultural lands in and near urban areas is similar to that of developed sites. The conversion of native plant communities to agriculture eliminates habitats for most native species; however, raptors, long-billed curlews *(Numenius americana*), killdeer (*Charadrius vociferus*), and other species typical of annual grasslands occasionally forage in the cultivated fields and in the fallow winter fields. Wildlife species observed in this habitat within the project area include mourning dove, common crow (*Corvus brachyrhynchos*), California ground squirrel, and turkey vultures (*Cathartes aura*).

Developed Areas

The extensive Developed Areas with urban landscaping that characterize the San Francisco Bay region provide limited wildlife habitat value. Generally, only those species able to adapt to regular human disturbance and habitat conversion remain in urbanized areas, including northern mockingbird (*Mimus polyglottos*), house finch (*Carpodacus mexicanus*), raccoon, and non-native species such as rock dove (*Columba livia*), house sparrow (*Passer domesticus*), European starling (*Sturnus vulgaris*), and feral cat (*Felis cattus*). Developed Areas generally do not provide the habitat requirements of most native plants and wildlife. Some locations in the project area are developed and support primarily horticultural vegetation in landscaped areas or are essentially devoid of vegetation.

C.3.1.1.3 *Rare, Threatened, or Endangered Species*

Special Status Plants

Special status plants are defined as species that are listed under the state or federal endangered species laws, candidates for such listing, or species that would meet the criteria for listing but have not yet been formally listed, such as plants included in Lists 1A, 1B, and 2 of the California Native Plant Society's (CNPS) Inventory (Skinner and Pavlik, 1994). Plant species on CNPS Lists 3 and 4 generally do not qualify for protection under the California Environmental Quality Act (CEQA).

Based on previous surveys, database records, preliminary reports, and consultation with professional botanists who are familiar with the area, 31 special status plant species have been identified which have the potential to occur within the vicinity of the Proposed Project and alternative routes (Table C.3-3). One species (*Fritillaria agrestis*) listed in Table C.3-3 is not considered rare, threatened, or endangered

but has limited distribution; sufficient biological information to warrant listing is lacking (CNPS List 3 or 4).

The principal reasons for the decline in available habitat for the plant species listed in Table C.3-3 are residential and commercial development, agriculture, grazing, and competition from invasive, non-native plant species.

Table C.3-3 Special Status Plant Species Known to Occur in the Region of the Proposed Project Right-of Way and/or Alternative Routes.

Scientific Name Common Name	Status	Habitat Type	Potential for Species Occurrence within vicinity of Project Area	Flowering Phenology
Amsinckia grandiflora Large flowered fiddleneck	FE, SE, List 1B	Occurs in annual grasslands and woodlands at elevations of 900-1,800 feet. Common associates include slender wild oat (*Avena fatua*) and soft chess (*Bromus hordeaceus*).	**Moderate potential.** Large flowered fiddleneck was last observed in the Tri-Valley area in 1996. Known occurrences exist 4.5 miles north of the North Area route and less than 3 miles southeast of the Stanislaus Line alternative.	April - May
Astragalus tener var. ferrisiae Ferris' milk vetch	FSC, List 1B	Occurs in alkaline grasslands and meadows at elevations below 200 feet. Common associates include saltgrass (*Distichlis spicata*) and alkali heath (*Frankenia salina*).	**Low potential.** Ferris' milk vetch was last observed in the Tri-Valley area in 1884 three miles north of the North Area route, near Mountain House.	April - May
Astragalus tener var. tener alkali milk vetch	List 1B	Occurs within alkaline grasslands and vernal pools at elevations below 200 feet. Common associates include saltgrass and alkali heath.	**Low potential.** Alkali milk vetch was last observed in the Tri-Valley area in 1938.	March - June
Atriplex cordulata heartscale	FSC, List 1B	Occurs on sandy soils in saline and alkaline meadows at elevations below 660 feet. Common associates include saltgrass and alkali heath .	**Moderate potential.** Heartscale was last observed in the Tri-Valley area in 1999 near Frick Lake northeast of Livermore.	May - October
Atriplex depressa brittlescale	List 1B	Occurs on alkaline or clay soils within meadows, annual grasslands, and vernal pools at elevations below 980 feet. Common associates include meadow barley (*Hordeum brachyantherum*) and saltgrass.	**High potential.** Brittlescale was last observed in the Tri-Valley area in 1999 near Frick Lake, less than one mile from the North Area route, the Brushy Peak alternative, and the L1 alternative.	May - October
Atriplex joaquiniana San Joaquin saltbush	FSC, List 1B	Occurs within seasonally wet alkaline meadows or grasslands at elevations below 980 feet. Common associates include saltgrass and alkali heath.	**High potential.** San Joaquin saltbush was observed along the North Area route in 1999 near Laughlin Road. Other occurrences have been noted less than one mile from the North Area route, the Brushy Peak alternative, and the L1 and D1 alternatives.	April – September
Balsamorhiza macrolepis var. macrolepis Big scale balsamroot	List 1B	Occurs on open grassy slopes, and in valleys and woodlands at elevations of 110-3,300 feet, sometimes on serpentine. Common associates include slender wild oat and lupine (*Lupinus* spp.).	**Moderate potential.** Big scale balsamroot was last observed in the Tri-Valley area in 1995 less than two miles south of the Stanislaus line alternative.	March – June
Blepharizonia plumosa ssp. plumosa Big tarplant	List 1B	Occurs on dry hills and plains on clay soils at elevations below 1,480 feet. Often on slopes or in burned areas. Common associates include slender wild oat and pepper grass (*Lepidium nitidum*).	**High potential.** Big tarplant was last observed in the Tri-Valley area in 1998 approximately 0.25 miles southeast of the Tesla substation. Many other known occurrences exist throughout the 4 mile area south of the Tesla substation and the Stanislaus Line.	July - October

Scientific Name Common Name	Status	Habitat Type	Potential for Species Occurrence within vicinity of Project Area	Flowering Phenology
Cordylanthus mollis ssp. hispidus hispid bird's beak	FSC, List 1B	Occurs in damp alkaline soils within alkaline meadows at elevations below 500 feet. Common associates include saltgrass and iodine bush (*Allenrolfea occidentalis*).	**Moderate potential.** Hispid bird's beak was last observed in the Tri-Valley area in 1993 within the Springtown Wetlands Preserve northeast of Livermore, approximately 0.25 miles south of the L1 alternative and less than 2 miles south of the North Area route.	June - September
Cordylanthus palmatus Palmate-bracted bird's beak	FE, SE, List 1B	Occurs within alkaline meadows and grasslands on silty clay at elevations below 200 feet. Common associates include saltgrass and alkali heath.	**Moderate potential.** Palmate-bracted bird's beak was last observed in the Tri-Valley area in 1993 within the Springtown Wetlands Preserve northeast of Livermore, approximately 0.5 miles south of the L1 alternative and less than 2 miles south of the North Area route.	May - October
Eriogonum truncatum Mount Diablo buckwheat	List 1A	Occurs on dry, exposed clay or sandy substrates in scrub and grassland habitats at elevations of 330-2,000 feet. Common associates include slender wild oat.	**Low potential.** Mount Diablo buckwheat was last observed within the Tri-Valley area in 1987, less than 2.5 miles south of the Stanislaus line near Corral Hollow Canyon, and 4 miles west of the Pittsburg-San Ramon line alternative (D2).	April - September
Eschscholzia rhombipetala Diamond petaled California poppy	FSC, List 1A	Occurs on alkaline, clay slopes and grasslands at elevations below 3,300 feet. Common associates include slender wild oat and foxtail chess (*Bromus madritensis* ssp. r*ubens*).	**Low potential.** Diamond petaled California poppy was last observed within the Tri-Valley area in 1997 in upper Corral Hollow Canyon, approximately 3 miles south of the Stanislaus line alternative.	March - April
Fritillaria agrestis stinkbells	List 4	Occurs on grassy openings in clay soils at elevations of 30-5,085 feet. Common associates include slendeer wild oat and ripgut brome.	**High potential.** Stinkbells was last observed in the Tri-Valley area in 1992 near the intersection of Raymond and Dagnino Roads near the L1 alternative.	March - April
Hemizonia parryi ssp. congdonii Congdon's tarplant	FSC, List 1B	Occurs on alkaline, clay soils within grasslands at elevations below 330 feet. Common associates include saltgrass and goosefoot (*Chenopodium californicum*).	**High potential.** Congdon's tarplant was last observed in the Tri-Valley area in 1998, with one occurrence within the S1 alternative route. Other occurrences are known less than one mile from the South Area route and the D1, S2 and S4 alternatives.	June-November
Madia radiata showy madia	List 1B	Occurs on grassy slopes or among shrubs on clay soils at elevations below 2,950 feet. Common associates include slender wild oat.	**Low potential.** Showy madia was last observed within the project vicinity in 1922 along Corral Hollow Canyon in Alameda County, approximately 4.25 miles southeast of the Stanislaus line alternative.	March - May
Plagiobothrys glaber Hairless popcorn flower	List 1A	Occurs within alkaline meadows and seeps and in coastal salt marshes at elevations below 330 feet. Common associates include saltgrass and alkali heath.	**Low potential.** Hairless popcorn flower was last observed in the Tri-Valley area in 1942 east of Livermore; species believed to be extinct.	April-May
Tropidocarpum capparideum caper-fruited tropidocarpum	FSC, List 1A	Occurs on alkaline hill and valley grasslands at elevations below 1,500 feet. Common associates include saltgrass.	**Low potential.** Caper-fruited tropidocarpum was last observed in the Tri-Valley area near Mountain House in 1933; species believed to be extinct.	March-April

Scientific Name **Common Name**	**Status**	**Habitat Type**	**Potential for Species Occurrence within vicinity of Project Area**	**Flowering Phenology**
D2 Alternative San Ramon-Pittsburg line ONLY				
Arctostaphylos auriculata Mt. Diablo manzanita	List 1B	Occurs in chaparral habitats on sandstone. Known from canyons and slopes in the Mt. Diablo area.	**High potential.** Mt. Diablo manzanita was last observed in 1991 between 0.5 and 3.75 miles west of Milepost 8.0 and at several locations within 0.25 miles of Milepost 16.0 of the San Ramon-Pittsburg line.	January - March
Aster lentus Suisun marsh aster	FSC, List 1B	Occurs in brackish and freshwater marshes and swamps, often along sloughs with common reed and bulrush. Endemic to the Sacramento/San Joaquin River delta.	**Moderate potential.** Suisun marsh aster was last observed in 1990 near the Pittsburg Marina (east of the Pittsburg substation), and in 1993 at two locations approximately four miles west of the Pittsburg substation.	August – November
Calochortus pulchellus Mt. Diablo fairy-lantern	List 1B	Occurs in chaparral, woodland, riparian and grassland habitats, primarily from the Mt. Diablo area at elevations between 650 and 2,500 feet.	**High potential.** Mt. Diablo fairy-lantern was last observed in 1993 approximately a quarter mile west of Milepost 12.0 of the San Ramon-Pittsburg line.	April – June
Fritillaria liliacea Fragrant fritillary	FSC, List 1B	Occurs in coastal scrub, prairie and grassland habitats, often on serpentine or clay soils.	**Moderate potential.** Fragrant fritillary was last observed in 1992 approximately 6 miles west of Milepost 11.0 of the San Ramon-Pittsburg line.	February – April
Helianthella castanea Diablo helianthella	FSC, List 1B	Occurs in rocky soils generally within the interface between chaparral and woodland, often in partial shade, at elevations of 80-3,770 feet. Common associates include coast live oak (*Quercus agrifolia*) and chamise (*Adenostoma fasciculatum*).	**High potential.** Diablo helianthella was last observed at two locations in 1991 less than a quarter mile from Milepost 16.0 of the San Ramon-Pittsburg line.	March – May
Hesperolinon breweri Brewer's western flax	FSC, List 1B	Occurs in rocky serpentine sols within chaparral and grassland at elevations of 100-2,900 feet. Common associates include manzanita (*Arctostaphylos manzanita*) and slender wild oat.	**High potential.** Brewer's western flax was last observed in the area in 1991 less than 0.25 miles west of Milepost 9.0 of the San Ramon-Pittsburg line.	May-July
Lathyrus jepsonii var. jepsonii Delta tule pea	FSC, List 1B	Occurs in freshwater and brackish marshes, often with cattail, rush, bulrush on slough edges. Most occurrences are restricted to the Sacramento/ San Joaquin River delta.	**Moderate potential.** Delta tule pea was last observed in the area in 1990 near the Pittsburg marina, east of the Pittsburg substation, and in 1992 on Browns Island approximately one mile east of the substation across New York Slough.	May – June
Lilaeopsis masonii Mason's lilaeopsis	FSC, SR, List 1B	Occurs in freshwater and brackish marsh and riparian scrub habitats, particularly in tidal zones or muddy/silty soil.	**Moderate potential.** Mason's lilaeopsis was last observed in the area in 1990 near the Pittsburg marina, east of the Pittsburg substation, and in 1996 on Browns Island approximately one mile east of the substation across New York Slough.	April – October
Malacothamnus hallii Hall's bush mallow	List 1B	Occurs in chaparral habitats, sometimes on serpentine, at elevations between 30 and 2,000 feet.	**Low potential.** Hall's bush mallow was last observed in the project vicinity in 1969, approximately 3 miles west of Milepost 10.0 of the San Ramon-Pittsburg line.	May – September

Scientific Name Common Name	Status	Habitat Type	Potential for Species Occurrence within vicinity of Project Area	Flowering Phenology
Oenothera deltoides ssp. *howellii* Antioch dunes evening-primrose	FE, SE, List 1B	Occurs on non-coastal sand dunes and along remnant river bluffs east of Antioch. Known only from Contra Costa and Sacramento counties.	**Low potential.** Antioch dunes evening-primrose was last observed in the project vicinity in 1984 on Browns Island approximately one mile east of the substation across New York Slough.	March – September
Phacelia phacelioides Mt. Diablo phacelia	FSC, List 1B	Occurs in chaparral and woodland habitats, on serpentine or rocky outcrops at elevations between 1,500 and 4,500 feet.	**High potential.** Mt. Diablo phacelia was last observed in the project vicinity in 1993, less than one mile west of Milepost 11.0 of the San Ramon-Pittsburg line.	April – May
Sanicula saxatilis Rock sanicle	FSC, SR, List 1B	Occurs in forest, chaparral, woodland and grassland habitats on bedrock outcrops and slopes. Known only from Contra Costa and Santa Clara counties.	**High potential.** Rock sanicle was last observed in the project vicinity in 1991, approximately one mile west of Milepost 11.5 of the San Ramon-Pittsburg line.	April – May
Streptanthus albidus ssp. *peramoenus* Most beautiful jewel-flower	FSC, List 1B	Occurs in chaparral, woodland, and grassland habitats on serpentine outcrops along ridges and slopes.	**Moderate potential.** Most beautiful jewel-flower was last observed in the project vicinity in 1991, approximately 3 miles west of Milepost 11.5 of the San Ramon-Pittsburg line.	April - June
Streptanthus hispidus Mt. Diablo jewel-flower	FSC, List 1B	Occurs on rocky outcrops in grassland and chaparral habitats, at elevations between 900 and 3,000 feet.	**High potential.** Mt. Diablo jewel-flower was last observed in the project vicinity in 1994, approximately one mile west of Milepost 12.0 of the San Ramon-Pittsburg line.	March - June

Notes:
Botanical nomenclature corresponds to Hickman (1993).

Key to Status Codes:

FE = Listed as Endangered by the U.S. Fish and Wildlife Service
FSC = Candidate for listing by the U.S. Fish and Wildlife Service (Existing information indicate taxa may warrant listing, but substantial biological information necessary to support a proposed rule is lacking)
SE = Listed as Endangered by the California Department of Fish and Game
SR = Listed as Rare by the California Department of Fish and Game

California Native Plant Society Lists:
List 1A = Plants presumed extinct in California
List 1B = Plants rare, threatened, or endangered in California and elsewhere
List 4 = Plants of limited distribution -- a watch list

Special Status Wildlife

The term "special status species" as it applies to wildlife is defined as those species that have been listed or proposed for listing, or are candidates for listing by the U.S. Fish and Wildlife Service (USFWS), California Fish and Game Commission, or California Fish and Game Code. A total of 61 special status wildlife species have the potential to occur in the region (see Table C.3-3) in habitats similar to those found along the proposed alignment. Their legal status and habitat use within the region are discussed in Table C.3-4 below.

Table C.3-4 Special Status Wildlife Species That May Occur Within the Proposed Project Right-of-Way and Alternatives.

Common name Scientific name	Status[1]	Habitat	Potential for Species Occurrence within Project Area
MAMMALS			
San Joaquin pocket mouse *Perognathus inornatus*	FSC	Dry open grasslands or scrub areas with fine textured or sandy soils in the Central and San Joaquin Valleys.	**Low potential.** Suitable habitat exists within project area. It is known to occur in North Area Phase 2 area (Alameda County 1993), and also in Corral Hollow approximately 4.0 miles from the route (CDFG 2000
Berkeley kangaroo rat *Dipodomys heermanni berkeleyensis*	FSC	Open grassy hilltops and open spaces in chaparral and blue oak/digger pine. Needs fine, deep, well-drained soil for burrowing.	**Low potential.** Suitable habitat for the Berkeley kangaroo rat exists through much of Mt. Diablo State Park (San Ramon-Pittsburg transmission line) and in isolated areas within the proposed transmission line routes. Species last observed in 1940.
Pallid bat *Antrozous pallidus*	CSC	Forages in many habitats. Roosts in buildings, rocky outcrops, caves and mines.	**Moderate potential.** Potentially suitable roosting habitat may be present in oak woodlands. Species is a potential forager.
Townsend's western big-eared bat *Plecotus townsendii townsendii*	CSC	Roosts in caves, buildings, and mine tunnels in a variety of habitats. Small moths are principal food source.	**Low potential.** No suitable roosting or nursery habitat is present. Species is a potential forager.
Long-eared myotis *Myotis evotis*	FSC	Roosts in trees, under bark, caves, buildings and rocky outcrops.	**Moderate potential.** Suitable roosting habitat is present in oak woodlands. Species is a potential forager.
Fringed myotis *Myotis thysanodes*	FSC	Roosts in mines, caves, trees, and buildings.	**Moderate potential.** Suitable roosting habitat is present in oak woodlands. Species is a potential forager.
Long-legged myotis *Myotis volans*	FSC	Roosts in trees, crevices, mines, and buildings.	**Moderate potential.** Suitable roosting habitat is present in oak woodlands. Species is a potential forager.
Yuma myotis *Myotis yumanensis*	FSC, CSC	Wide variety of habitats, optimal habitat is open forest and woodland with sources of water over which to feed.	**Moderate potential.** Hollow oaks may provide roosting habitat. Species is a potential forager.
California mastiff bat *Eumops perotis californicus*	FSC, CSC	Occurs in many open, semi-arid to arid habitats including conifer and deciduous woodlands, annual and perennial grasslands, chaparral, desert scrub, and urban.	**Moderate potential.** Suitable roosting habitat may be present in oak woodlands. Species is a potential forager.
San Joaquin kit fox *Vulpes macrotis mutica*	FE, ST	Desert alkali scrub and annual grasslands, may forage in adjacent agricultural habitats.	**Moderate to high potential.** North Area route is within the range of this species. Suitable habitat exists throughout much of the project area. Recently in 1986 in the northeast Livermore area (CDFG 2000). There is a record of a kit fox den in Doolan Canyon and near the Altamont Speedway (CDFG 2000). Two observations of kit fox along Laughlin Road, east of Vasco Road were made by Harvey and Associates (1992). These sightings were approximately 4.0 miles south of the North Area route Phase 2. One kit fox was observed in 1996 on Morgan Territory Road, approximately 2.0 miles north of the North Area route

Common name Scientific name	Status[1]	Habitat	Potential for Species Occurrence within Project Area
			(Harvey and Associates 1997). During 1991, two San Joaquin kit fox were sighted at the Altamont Sanitary Landfill expansion (Alameda County 1993), approximately 1.5 miles from the proposed transmission line. Suitable habitat for denning and foraging is present in Non-Native Annual Grassland along the North Area Phase 1 and Phase 2 transmission line route.
Badger *Taxidea taxus*	CSC	Dry, friable soils generally associated with open stages of shrub, forest, and herbaceous habitats.	**Moderate to high potential.** Suitable habitat is present throughout much of the project area in Non-Native Annual Grasslands. Known to occur at the Camp Parks Military Reserve near the North Area route. PG&E reconnaissance level surveys found a dead adult male badger alongside North Livermore Road near the North Livermore Substation site. Several potential burrows were observed along the proposed North Area route (Jones & Stokes 2000b).
Alternative D2, San Ramon-Pittsburg Transmission Line ONLY			
Salt-marsh harvest mouse *Reithrodontomys raviventris*	FE, SE	Restricted to salt and brackish water marshes of San Francisco Bay. Associated with areas of dense pickleweed.	**Moderate to high potential.** Suitable habitat is present near Pittsburg substation in Coastal Brackish Marsh.
BIRDS			
Mountain plover *Charadrius montanus*	FC, CSC	Short grasslands and plowed fields of the Central Valley and in foothill valleys west of San Joaquin Valley.	**Low to moderate potential.** Species does not nest in California. Potential transient forager.
Cooper's hawk *Accipiter cooperi*	CSC	Associated with woodland habitats, especially riparian areas and dense stands of live oak.	**Moderate potential.** Potential foraging habitat. Habitat may be suitable for nesting along Arroyo del Valle (South Area route). The closest recorded incidence of a Cooper's hawk nest occurred in the Sunol Regional Wilderness, approximately 6 miles from the proposed South Area route (CDFG 2000).
Sharp-shinned hawk *Accipiter striatus*	CSC	Associated with woodland habitats, prefers riparian areas. Usually nests in conifer stands.	**Moderate potential.** Migrant and winter visitor; potential forager; suitable nesting habitat may be present along Arroyo del Valle (South Area route). The closest recorded incidence of a sharp-shinned hawk nest occurred in the Sunol Regional Wilderness, approximately 6 miles from the South Area route (CDFG 2000).
Bald eagle *Haliaeetus leucocephalus*	FT, SE	Coast, rivers, large lakes; nests in large trees, usually near a permanent water source. Feeds on fish, birds, voles, and other small mammals. Will occasionally scavenge.	**Low potential.** No suitable nesting habitat present within project boundaries. Nest recorded at San Antonio Reservoir, approximately 1.0 miles south. No suitable foraging habitat within project boundaries.
Golden eagle *Aquila chrysaetos*	CSC	Open grassy hilltops and open spaces in chaparral and blue oak/digger pine woodlands.	**Present.** Suitable nesting and foraging habitat is present throughout much of the project area in Non-Native Annual Grassland. The nearest known nesting golden eagle site in the project area is located in east Dublin just west of Doolan

Common name Scientific name	Status[1]	Habitat	Potential for Species Occurrence within Project Area
			Canyon (Roberts 1992), approximately 1.0 mile from the proposed North Area transmission line route; however, the pair was unsuccessful in hatching any young (Contra Costa County 1997). Golden eagle nests have also been recorded in the general area of San Antonio Reservoir, approximately 1.5 miles from the proposed transmission line route in the South Area (CDFG 2000). Non-Native Annual Grassland areas along both proposed routes are considered good quality foraging habitat for the eagle. The general area around Livermore is considered to have one of the densest nesting concentrations of golden eagles in the world (PG&E 1999).
Merlin *Falco columbarius*	CSC	Open grasslands, wetlands, edges, and early successional stages.	**Low potential.** May forage within the project area, however species does not breed in California.
Ferruginous hawk *Buteo regalis*	FSC, CSC	Grassland, sagebrush flats, low valley foothills, Agricultural Areas, and pinyon-juniper habitats.	**Present.** Known transient forager during migration and winter. Species does not breed in California.
Swainson's hawk *Buteo swainsoni*	ST	Breeds in sparse stands of trees, in the Central Valley, especially in riparian areas. Forages in grasslands.	**Moderate potential.** Suitable nesting and foraging habitat present throughout portions of the North Area route and along Arroyo del Valle (South Area route).
Northern harrier *Circus cyaneus*	CSC	Forages in open to herbaceous stages of many habitats. Nests on ground usually near wetlands.	**Present.** Potentially suitable nesting habitat along Arroyo del Valle (South Area route) and very limited opportunity along the North Area route; common forager.
White-tailed kite *Elanus leucurus*	FP	Forages in open to herbaceous stages of many habitats, including grasslands, meadows, and emergent wetlands. Nests in trees and shrubs adjacent to grasslands.	**Present.** Limited suitable breeding habitat along the North Area route, suitable breeding habitat present along South Area route; common forager noted along the North Area route.
Prairie falcon *Falco mexicanus*	CSC	Distributed from annual grasslands to alpine meadows, but associated primarily with perennial grasslands, savannahs, and rangeland.	**Low potential.** No suitable nesting habitat; suitable foraging habitat is present.
American peregrine falcon *Falco peregrinus anatum*	FT, SE	Forages in many habitats, requires cliffs for nesting.	**Low potential.** No suitable nesting habitat is present; suitable foraging habitat is present.
Short-eared owl *Asio flammeus*	CSC	Found in open areas with few trees such as grasslands, meadows, and fresh emergent wetlands. Requires dense vegetation for resting and roosting.	**Present.** Known forager. May be limited marginal breeding habitat along North Area route and South Area route.
Long-eared owl *Asio otus*	CSC	Riparian habitats and other thickets with small, densely canopied trees.	**Low potential**. Riparian and oak woodlands may provide roosting habitat. Very rare in region.

Common name Scientific name	Status[1]	Habitat	Potential for Species Occurrence within Project Area
Burrowing owl *Athene cunicularia hypugea*	FSC, CSC	Nests and forages in low-growing grasslands that support burrowing mammals. Utilizes burrows for roosting and nesting.	**Present.** Project area provides suitable habitat, numerous sightings along North Area route. CDFG (2000) records for the owl are concentrated in the area west of Tracy, near PG&E's Tesla Substation. Other records note the owl very near the proposed North Livermore Substation site and elsewhere in the North Livermore area. (Jones & Stokes 2000b). Jones and Stokes Associates (2000b) found several burrowing owls along the North Area Phase 2 route.
Lewis' woodpecker *Melanerpes lewis*	FSC	Uncommon local winter resident in open oak savannahs, broken deciduous and coniferous habitats.	**Low potential.** Suitable breeding habitat is present. Potential forager.
Allen's hummingbird *Selasphorus sasis*	FSC	Coastal scrub, valley-foothill hardwood, valley foothill riparian habitats.	**Moderate potential.** Suitable breeding habitat present in riparian areas. Potential transient forager.
Olive-sided flycatcher *Contopus borealis*	FSC	Mixed conifer, montane hardwood-conifer, Douglas-fir, redwood, red fir, and lodgepole pine. Requires large, tall trees, usually conifers for nesting and roosting.	**Low potential.** No suitable habitat on site.
Red-breasted sapsucker *Sphyrapicus ruber*	FSC	Nesting habitat includes montane riparian, aspen, montane hardwood-conifer, red fir, especially near meadows.	**Low potential.** No suitable nesting habitat is present. Potential transient forager.
Pacific-slope flycatcher *Empidonax difficilis*	FSC	Common in warm, moist woodlands. Usually breeds in riparian habitats.	**Low potential.** May occur in riparian forests along proposed route and along Arroyo del Valle (South Area route).
California horned lark *Eremophila alpestris actia*	CSC	Nests and forages in short grass prairie, mountain meadow, coastal plain, fallow fields, and alkali flats.	**Present.** Suitable habitat is grassland portions of all project routes. Jones and Stokes Associates (2000b) observed likely breeding pairs along the North Area Phase 1 and 2 routes.
Bank swallow *Riparia riparia*	ST	Colonial nester on vertical banks or cliffs with fine-textured soils near water. Feeds primarily over open riparian areas, but also over grassland and cropland.	**Low potential.** No breeding habitat is present. Potential transient forager. Common throughout Project Area (Jones & Stokes 2000b).
Loggerhead shrike *Lanius ludovicianus*	FSC, CSC	Prefers open habitats with scattered shrubs, posts or other perches. Commonly found in open-canopied valley foothill hardwood and valley foothill riparian.	**Present.** The project area provides foraging and nesting habitat. Species has been commonly observed along the North Area route. (Jones & Stokes 2000b)
Tri-colored blackbird *Agelaius tricolor*	FSC, CSC	Breeds near freshwater marsh with dense emergent vegetation near trees and shrubs. Nests in stands of cattails or bulrushes.	**Low potential.** Arroyo del Valle (South Area route) provides suitable nesting habitat for this species. May be limited breeding opportunities in marginal emergent wetland along the North Area route.
California thrasher *Toxostoma redivivum*	FSC	Moderate to dense chaparral habitats. Also found in riparian thickets.	**Low potential.** Limited or marginal habitat is present.
Bewick's wren *Thryomanes bewickii*	FSC	Common resident throughout the state. Occurs in chaparral, but also utilizes riparian areas and woodland edges.	**Moderate potential.** Suitable breeding habitat is present at Arroyo del Valle (South Area route) near Shadow Cliffs Regional Recreation Area.

Common name Scientific name	Status[1]	Habitat	Potential for Species Occurrence within Project Area
Yellow warbler *Dendroica petechia brewsteri*	CSC	Breeds in riparian woodlands, particularly those dominated by willows and cottonwoods. Feeds on insects and spiders.	**Low potential.** Suitable riparian breeding habitat found along Arroyo del Valle (South Area route). Potential forager.
Yellow-breasted chat *Icteria virens*	CSC	Valley and foothill riparian habitats, requires willow thickets and other brushy vegetation near water for cover.	**Low potential.** Suitable riparian breeding habitat found along Arroyo del Valle (South Area route). Potential forager.
Grasshopper sparrow *Ammodramus savannarum*	FSC	Dry, dense grasslands with grasses, forbs and scattered shrubs.	**High potential.** Suitable habitat throughout much of the project area.
Bell's sage sparrow *Amphispiza belli belli*	FSC, CSC	Prefers dense or continuous chaparral.	**Low potential.** No chaparral or shrub habitat onsite.
Lark sparrow *Chondestes grammacus*	FSC	Sparse valley foothill hardwood, open mixed chaparral, brush habitats, grassland with scattered trees or shrubs.	**Low potential.** Limited breeding habitat is present. Species is a potential forager.
Alternative D2, San Ramon-Pittsburg Transmission Line ONLY			
California black rail *Laterallus jamaicensis coturniculus*	ST	Occurs most commonly in tidal emergent wetlands dominated by pickleweed, or in brackish marshes with bulrush. Usually found near tidal sloughs.	**High potential.** Suitable habitat is present near the Pittsburg substation in Coastal Brackish Marsh. Documented occurrence of this species less than one mile from the Pittsburg substation on Mallard Island.
California clapper rail *Rallus longirostris obsoletus*	FE, SE	Occurs most commonly in salt water and brackish water marshes traversed by tidal sloughs.	**Moderate potential.** Suitable habitat is present near the Pittsburg substation in Coastal Brackish Marsh.
Saltmarsh common yellowthroat *Geothlypis trichas sinuosa*	FSC, CSC	Found in saline emergent wetlands and fresh emergent wetlands. Prefers stands of dense vegetation for cover.	**Moderate potential.** Suitable habitat is present near the Pittsburg substation in Coastal Brackish Marsh.
Suisun song sparrow *Melospiza melodia maxillaris*	FSC, CSC	Found in tidal and brackish emergent wetlands.	**Moderate potential.** Suitable habitat is present near the Pittsburg substation in Coastal Brackish Marsh.
REPTILES			
Western pond turtle *Clemmys marmorata*	FSC	Ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation and basking sites.	**Moderate to high potential.** This species has been documented in a few isolated locations, although suitable habitat is present throughout much of the project area.
California horned lizard *Phyrnosoma coronatum frontale*	FSC, CSC	Frequents a wide variety of habitats; most common in lowlands along sandy washes with scattered low bushes.	**Low potential.** No suitable habitat is present.
Alameda whipsnake *Masticophis lateralis euryxanthus*	FT, ST	Restricted to valley-foothill hardwood habitat of the coast ranges between the vicinity of Monterey and north San Francisco Bay.	**Moderate potential.** Suitable habitat is present along portions of the San Ramon-Pittsburg line. Potentially suitable habitat is present in the South Area. This area is within Unit 5 of the Alameda whipsnake Critical Habitat designation (USFWS 2000a).

Common name Scientific name	Status[1]	Habitat	Potential for Species Occurrence within Project Area
AMPHIBIANS			
California tiger salamander *Ambystoma californiense*	FC, CSC	Occurs primarily in grasslands and open oak woodland. Breeding occurs in seasonally ponded wetlands, vernal pools, or slow-moving calm streams that do not support predatory aquatic species. Require suitable cracks in ground as estivation habitat.	**Present.** This species has been documented in portions of the project area and suitable habitat is present throughout much of the project area.
California red-legged frog *Rana aurora draytonii*	FT, CSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. They can travel great distances (several miles) while migrating to and from breeding sites.	**Present.** This species has been documented in portions of the project area and suitable habitat is present throughout much of the project area. Most of the project area is within Unit 15 of the proposed California red-legged frog Critical Habitat designation (USFWS 2000b).
Foothill yellow-legged frog *Rana boylii*	FSC	Rocky streams in a variety of habitats, including valley foothill hardwood, valley-foothill riparian chaparral and coastal scrub.	**Low potential**. Most streams in the project area are seasonal. Very limited suitable habitat available.
Western spadefoot toad *Scaphiopus hammondii*	FSC, CSC	Occurs in valley and foothill grasslands, open chaparral, and pine-oak woodlands. They can travel great distances while moving to and from breeding areas. Adults estivate in sandy or gravelly soil in the vicinity of aquatic habitats during the non-breeding season.	**Low to moderate potential.** Suitable habitat is present along portions of the project area.
INVERTEBRATES			
Longhorn fairy shrimp *Branchinecta longiantenna*	FE	Occurs primarily in grasslands along the eastern margin of the central coast mountains in clear to moderately turbid vernal pools and other seasonally ponded wetlands and in clear pools in sandstone rock outcrops.	**Moderate to high potential.** Suitable habitat is present along portions of the project area, especially the North Area route.
Vernal pool fairy shrimp *Branchinecta lynchi*	FT	Endemic to the grasslands of the Central Valley, central coast mountains and south coast mountains in astatic rain-filled pools.	**Low to moderate potential.** Suitable habitat is present within the project area, especially the North Area route, but is of limited extent.
Vernal pool tadpole shrimp *Lepidurus packardi*	FE	Inhabits vernal pools, vernal playa pools, and other seasonally ponded wetlands that occur in areas dominated by grassland habitat.	**Low potential.** Suitable habitat is present within the project area, especially the North Area route, but is of limited extent. This species has not been documented in the Tri-Valley area.
Bridges' coast range shoulderband *Helminthoglypta nickliniana bridgesi*	FSC	Inhabits open hillsides of Alameda and Contra Costa counties, tends to colonize under tall grasses and weeds.	**Low potential**. Dry, grazed hillsides along the proposed route provide limited habitat.
Curved-foot hygrotus diving beetle *Hygrotus curvipes*	FSC	Drainages, seeps, and wet areas.	**Low to moderate potential.** Suitable habitat is present along the eastern portions of the North Area route.

Common name Scientific name	Status[1]	Habitat	Potential for Species Occurrence within Project Area
Ricksecker's water scavenger beetle *Hydrochara rickseckeri*	FSC	Ponds and other aquatic habitats.	**Low to moderate potential.** Suitable habitat may be present within the project area. However, this species has not been observed in this region.
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	FT	Mature elderberry shrubs.	**Low potential.** No suitable habitat is present.

Status[1]:

U. S. Fish and Wildlife Service

FE Federal-listed, endangered
FT Federal-listed, threatened
FC Federal candidate for listing
FSC Federal species of concern

California Department of Fish and Game

SE State-listed, endangered
ST State-listed, threatened
FP Fully protected species
CSC California Species of Special Concern

Sensitive Habitats

Sensitive habitats are those habitats that require special consideration and/or permitting from agencies due to their potential for support of special status plant or animal species, or due to their regulatory status (e.g. wetlands).

Vegetation

Six plant communities within the Tri-Valley area have been identified as sensitive habitats. These are:

- Alkali Meadow
- Blue Oak Woodland / Valley Oak Woodland
- Digger Pine-Oak Woodland
- Diablan Sage Scrub
- Coastal Brackish Marsh
- Central Coast Cottonwood-Sycamore Riparian Forest

Each of these sensitive habitats and the associated special status plant species are described below.

Alkali Meadow. Several Alkali Meadow plant community areas are found along the North Area proposed transmission line route, as well as along the Brushy Peak Alternative segment and the L1 Alternative route. In the study area, Alkali Meadow vegetation grows in low, flat grassland areas or seasonally wet depressions. Special status species associated with this plant community that have potential to occur within the project area include heartscale, brittlescale, hispid bird's beak, palmate-bracted bird's beak, Congdon's tarplant, and San Joaquin saltbush. San Joaquin saltbush has been observed along the Proposed Project route during surveys conducted by PG&E (1999).

Blue Oak Woodland / Valley Oak Woodland. Several Blue Oak Woodland plant community areas are found throughout the Pleasanton Area (Proposed Project and alternatives), the D2 alternative, and at several small areas along the Stanislaus Corridor. Special status plant species associated with this plant community that have potential to occur within the project area include large flowered fiddleneck and

big scale balsamroot. Trees associated with this habitat type (blue oak, valley oak, coast live oak, California buckeye) may be considered sensitive by the City of Pleasanton, City of Livermore, Alameda County, and Contra Costa County and are protected by local ordinances (see Section C.3.1.2).

Digger Pine-Oak Woodland. Large sections of the Digger Pine-Oak Woodland plant community are found along the D2 Alternative route, San Ramon-Pittsburg line (see Section C.3.1.1.2). Special status plant species associated with this plant community that have potential to occur within the project area include Mt. Diablo fairy-lantern, Diablo helianthella, Mt. Diablo phacelia, rock sanicle, and most beautiful jewel-flower. Trees associated with this habitat type (digger pine, blue oak, valley oak, coast live oak, California buckeye) may be considered sensitive by Contra Costa County and are protected by local ordinances (see Section C.3.1.2).

Diablan Sage Scrub. Large sections of the Diablan Sage Scrub plant community are found along the D2 Alternative route (San Ramon-Pittsburg line) and several small patches of Diablan Sage Scrub are located along the S4 Alternative. Special status species associated with this plant community that have potential to occur within the project area include Mt. Diablo manzanita, Mt. Diablo fairy-lantern, Fragrant fritillary, Diablo helianthella, Brewer's western flax, Hall's bush mallow, Mt. Diablo phacelia, rock sanicle, most beautiful jewel-flower, and Mt. Diablo jewel-flower.

Coastal Brackish Marsh. One area of Coastal Brackish Marsh plant community occurs at the northernmost end of the D2 Alternative (San Ramon-Pittsburg line) adjacent to the San Joaquin River Delta. Special status species associated with this plant community that have potential to occur within the project area include Suisun marsh aster, Delta tule pea, and Mason's lilaeopsis.

Central Coast Cottonwood-Sycamore Riparian Forest. This habitat type occurs along perennial or intermittent waterways and is found where the S1 and S2 Alternatives run near Arroyo Del Valle, where the Stanislaus line crosses Arroyo Del Valle and Arroyo Mocho, and where the D2 Alternative (San Ramon-Pittsburg line) crosses an intermittent drainage. No special status species with potential to occur in the Tri-Valley area are associated with this plant community; however, trees associated with this habitat type (Fremont's cottonwood, sycamore, blue oak, California buckeye) may be considered sensitive by the City of Pleasanton, City of Livermore, Alameda County, and Contra Costa County and are protected by local ordinances (see Section C.3.1.2).

Potential Jurisdictional Wetlands

Wetlands are also considered sensitive habitats as a result of their protection under Section 404 of the Clean Water Act. Wetland types along the proposed route that are potentially subject to jurisdiction under Section 404 are:

- Alkali-Freshwater Marsh
- Coastal Brackish Marsh
- Seasonal Wetland
- Central Coast Riparian Scrub

- Central Coast Cottonwood-Sycamore Riparian Forest

Additional wetland areas may be located within other habitats, such as Alkali Meadow. Other habitats with "wetland" hydrology but lacking the vegetation component may be eligible for protection as "Other Waters of the United States" under Section 404 and under the wetland guidelines adopted by the California Fish and Game Commission. These areas include stream channels or other areas that are inundated during a portion of the wet season but lack the wetland soil and vegetation criteria defined by the U.S. Army Corps of Engineers. Detailed descriptions of each of the potential wetland types are presented in Section C.3.1.1.

Wildlife

Several special status wildlife species are associated with the sensitive habitats just discussed. Alkali meadow provides potential foraging and breeding habitat for the burrowing owl, and estivation habitat for the California tiger salamander. Blue Oak Woodland, Valley Oak Woodland, and Digger Pine-Oak Woodland provide nesting and foraging habitat for several special status birds, including the white-tailed kite. Diablan Sage Scrub provides nesting and foraging habitat for special status birds and the Endangered Alamada whipsnake. Coastal Brackish Marsh provides nesting and foraging habitat for many special status birds, including the Clapper rail and California rail, as well as the salt marsh harvest mouse. Other potential jurisdictional wetlands may provide suitable breeding and estivation habitat for California red-legged frog and California tiger salamander. All these habitats may be used as dispersal habitat for the California red-legged frog. Agency-designated sensitive habitats are discussed below in "Special Habitat Management Areas".

Special Habitat Management Areas

Seven special habitat management areas are present in the study area. In the North Area are the Springtown Wetlands Refuge, Brushy Peak Regional Preserve, Black Diamond Mines Regional Park, Mount Diablo State Park, and Las Positas College wetland mitigation area. In the South Area are Sycamore Grove Regional Park and the Ruby Hill California Tiger Salamander Preserve.

The Springtown Wetlands Refuge is located in the North Livermore area, east of Vasco Road, south of Raymond Road, and north of Interstate 580. The L1 Alternative route would run directly north of the Springtown Refuge. The Refuge includes Alkali Meadow and Seasonal Wetland (alkali) habitat. This area is used primarily for cattle grazing; most of the refuge land is not accessible to the public. The Refuge provides protection for migrating and breeding waterfowl in the winter when areas of the land are ponded, as well as for several rare plant species and invertebrate species, which require the winter ponding as well as the unique alkali soils of the refuge.

Brushy Peak Regional Preserve (part of the East Bay Regional Parks District) supports grassland, chaparral, scrub, and oak habitats along several hillsides north of Laughlin Road in the North Livermore area. The proposed transmission line route would traverse Brushy Peak Regional Preserve property; the Brushy Peak alternative alignment would be south of the preserve. The Brushy Peak area

is currently used for cattle grazing and has some residential use. It is in the process of conversion to public use parkland. The Brushy Peak area provides habitat for many foraging bird and small and large mammal species, and contains several wetland areas that provide habitat for amphibians and seasonal waterfowl species.

Black Diamond Mines Regional Park (part of the East Bay Regional Parks District) is a 5,036 acre preserve located north of Mount Diablo State Park and South of Pittsburg. This park contains many historical structures and supports grassland, woodland, forest, chaparral and riparian habitats. The proposed transmission line route is located approximately 15 miles south of Black Diamond Mines Park; however, the San Ramon-Pittsburg reconductoring which may be required for Alternative D2 is located just west of the park. Black Diamond Mines Regional Park is currently used for public recreation and habitat preservation. The park provides habitat for many common birds and mammals, as well as several rare animal and plant species.

Mount Diablo State Park is located east of the City of Walnut Creek. It is northwest of the proposed transmission line route, but would be traversed by the D2 Alternative (San Ramon-Pittsburg line reconductoring). Mount Diablo State Park is a large (approximately 20,000 acre) park with a diversity of habitats, including chaparral, oak woodlands, riparian forests, serpentine outcrops, and grassland habitats. The park is used for public recreation, as well as research and habitat preservation. Mount Diablo State Park provides habitat for many foraging and nesting bird species, small and large mammals, and many other rare, threatened and endangered plant and animal species.

The Las Positas College Wetland Mitigation Area is located east of Las Positas College off Collier Canyon Road in North Livermore. It is south of the North Area route but is within the immediate vicinity of the D2 Alternative Substation (North Livermore). The approximately two-acre site consists of Seasonal Wetland habitat constructed as mitigation for wetlands lost as a result of college construction. The wetland mitigation area is located between two hills at the head of a small drainage that flows into Arroyo Las Positas. The mitigation area is used only for wetland habitat preservation, and is used by many foraging and nesting bird and mammal species.

Sycamore Grove Regional Park (part of the Livermore Area Recreation and Park District) is located in South Livermore, east of Highway 84 along the Arroyo Del Valle. The common southernmost portion of the S1, S2, and L2 Alternatives, as well as a portion of the Stanislaus Corridor Alternative, would traverse the park. Sycamore Grove Regional Park habitat types include grassland, oak woodland, scrub, and riparian habitats. The park is used for recreation, and provides habitat for nesting and foraging bird species, small and large mammals, and aquatic species including invertebrates and amphibians.

The Ruby Hill California Tiger Salamander Preserve was developed in the early 1990's as mitigation to reduce impacts to the California tiger salamander associated with development of the Ruby Hill Project. In a cooperative agreement with an adjacent landowner and the CDFG, a series of salamander breeding ponds were constructed and/or enhanced by the developer and adjacent annual

grassland was protected as estivation habitat. Estivation is the adaptation of certain animals (especially amphibians) to the conditions of summer, or the taking on of certain modifications, which enables them to survive a hot, dry summer. Grazing is used on portions of the mitigation area to maintain suitable habitat for ground squirrels, which create estivation burrows for salamanders. Annual monitoring has found that all created and enhanced ponds have been used by California tiger salamanders. In addition, California red-legged frogs have also been observed in several of the ponds. A PG&E Co. right-of-way is present along the eastern boundary of the mitigation area. Construction of underground transmission lines could potentially impact estivating salamanders at this site. Overhead transmission lines would not create impacts as long as the lines spanned the site.

C.3.1.1.4 *Pleasanton Area*

Undeveloped portions of the Pleasanton Area are rolling hills dominated by a combination of grazed Non-Native Annual Grassland and Blue Oak Woodland, interspersed with seasonal and intermittent drainages and perennial stock ponds. Most of the flatlands are developed or are in agriculture. Intermittent flows in the Arroyo Valle and Arroyo Mocho) support riparian communities such as Central Coast Cottonwood-Sycamore Riparian Forest and Central Coast Riparian Scrub. Table C.3-5 lists special status species that have a moderate or high potential to occur within the Pleasanton Area.

Proposed Project: South Area Route

The South Area proposed transmission line route would intersect the Tesla-Newark transmission line (which runs south of and parallel to Highway 84) and run north to the existing Vineyard Substation. The South Area would traverse a combination of grazed Non-Native Annual Grassland, Blue Oak Woodland, and Developed Areas. This route would cross Vallecitos Creek, Arroyo Valle, and seven Seasonal Wetlands (drainages). Plant communities along the South Area proposed transmission line are given in Table C.3-6.

Table C.3-5 Special Status Species With Moderate Or High Potential To Occur In The Pleasanton Area (See Tables C.3-3 And C.3-4 For Species Information)

Plants	Mammals	Birds	Reptiles and Amphibians	Invertebrates
Large flowered fiddleneck Big scale balsamroot Congdon's tarplant	Pallid bat Long-eared myotis Long-legged myotis Yuma myotis California mastiff bat Badger	Cooper's hawk Sharp-shinned hawk Golden eagle Ferruginous hawk Swainson's hawk Northern harrier White-tailed kite Short-eared owl Burrowing owl Allen's hummingbird California horned lark Loggerhead shrike Bewick's wren Grasshopper sparrow	Western pond turtle Alameda whipsnake California tiger salamander California red-legged frog Western spadefoot toad	Curved-foot hygrotus diving beetle

Table C.3-6 Plant Communities and Other Areas along the Proposed Transmission Line South Area Route

Milepost	Plant Communities/ Other Areas	Comments
MX0.00 – MX0.21	Non-Native Annual Grassland	Grazed
MX0.21 – MX0.23	Developed Area	State Route 84
MX0.23 – MX0.25	Alkali-Freshwater Marsh	Vallecitos Creek
MX0.25 – MX1.13	Non-Native Annual Grassland	Grazed
MX1.13 – MX1.14	Seasonal Wetland	Seasonal drainage
MX1.14 – MX1.71	Non-Native Annual Grassland	Grazed
MX1.71– MX1.72	Seasonal Wetland	Seasonal drainage leading to stock pond
MX1.72– MX1.84	Non-Native Annual Grassland	Grazed
MX1.84– MX1.85	Alkali-Freshwater Marsh	Seasonal drainage
MX1.85 – MX2.37	Non-Native Annual Grassland	Grazed
MX1.70 – MX1.71	Seasonal Wetland	Seasonal drainage
MX1.71 – MX1.82	Non-Native Annual Grassland	Grazed
MX1.82 – MX1.83	Seasonal Wetland	Seasonal drainage
MX1.83 – MX1.97	Non-Native Annual Grassland	Grazed
MX1.97 – MX1.99	Seasonal Wetland	Seasonal drainage
MX1.99 – MX2.37	Non-Native Annual Grassland	Grazed
MX2.37 – MX2.47	Blue Oak Woodland	Moderately open canopy
MX2.47 – MX2.75	Non-Native Annual Grassland	Grazed
MX2.75 – MX2.86	Blue Oak Woodland/Seasonal Wetland	Moderately open canopy/Seasonal Drainage
MX2.86 – M2.95	Non-Native Annual Grassland	Grazed
M2.95 – M3.07	Blue Oak Woodland	Moderately open canopy
M3.07 – M3.35	Non-Native Annual Grassland	Grazed
M3.35 – M3.79	Developed Area	Hearst Drive
M3.79 – M4.59	Developed Area	Bernal Avenue
M4.59 – M4.60	Central Coast Riparian Scrub	Arroyo Valle
M4.60 – M4.73	Developed Area	Vineyard Substation

Alternative S1: Vineyard-Isabel-Stanley

The S1 Alternative would replace the South Area proposed transmission line route between the Tesla-Newark Corridor and the Vineyard Substation. The transmission line would be installed overhead from the tap point in the Tesla-Newark corridor to the southwest corner of Highway 84 and Vineyard Avenue. The southernmost 2,000 feet of the line would be in the Sycamore Grove Regional Park and pass through Non-Native Annual Grassland with scattered shrubs and trees, and through Central Coast Cottonwood-Sycamore Riparian Forest at the northern end of the park (Table C.3-7). The new 230kV line would follow the existing 60kV route out of the park (except for the portion of the 60kV distribution line that turns into the park), on the same side of the road as the existing line and as close as possible to that line. The remaining overhead and underground segments would be constructed in mostly developed or ruderal areas. The overhead/underground transition point would be located about 100 feet southwest of the corner of Highway 84, and the underground line would be bored under the highway and installed underground along the property line west of the property on the northwest corner of Vineyard and Highway 84. The underground line would continue in the firebreak road on the south side of Vineyard to Isabel, which contains ruderal vegetation with scattered trees and shrubs. It would be installed overhead, crossing Arroyo Valle, and along the western side of Isabel (about 40 feet west of the roadway), which includes gravel quarries and Non-Native Annual Grassland, some with shrubs and trees. The line would continue to Stanley Boulevard, then turn west along the north side of

Stanley, aligned south of the mainline UPRR railroad tracks and north of the spur line. It would cross Stanley Boulevard into Vineyard Substation, just east of Bernal Avenue.

Table C.3-7 Plant Communities and Other Areas along the S1 Alternative Alignment

Milepost (approximate)	Plant Communities/ Other Areas	Comments
0.00 – 0.08	Valley Oak Woodland	Also contains coast live oak, California buckeye, eucalyptus, olive, walnut (may have been planted)
0.08 – 0.09	Seasonal Wetland	Seasonal drainage with culvert
0.09 – 0.55	Non-Native Annual Grassland	Contains scattered coyote brush, sycamore, walnut and dirt roads
0.55 – 0.90	Central Coast Cottonwood-Sycamore Riparian Forest	Along the edge of the Arroyo Valle
0.90 – 0.91	Developed Area	State Route 84
0.91 – 2.00	Developed Area	Fire break road, ruderal vegetation, planted trees
2.00 – 2.01	Developed Area	Vineyard Avenue
2.01 – 2.09	Non-Native Annual Grassland	Ruderal vegetation with scattered shrubs and trees
2.09 – 2.10	Central Coast Riparian Scrub	Arroyo Valle, contains sparse willows and cattails
2.10 – 3.76	Non-Native Annual Grassland	Ruderal vegetation with scattered shrubs and trees – gravel quarries
3.76 – 3.77	Developed Area	Stanley Boulevard
3.77 – 6.60	Developed Area	Gravel and ruderal vegetation adjacent to railroad tracks
6.60 – 6.61	Developed Area	Stanley Boulevard
6.61 – 6.70	Developed Area	Vineyard Substation

Alternative S2: Vineyard Avenue

The S2 Alternative would replace the proposed South Area transmission line route between the Tesla-Newark Corridor and the Vineyard Substation. The S2 Alternative shares a common route with Alternative S1 (and L2), between the tap point in the Tesla-Newark Corridor to the intersection of Vineyard and Isabel; please see S1 description of this common segment.

At Isabel, the underground line along Vineyard would remain south of the road under the firebreak road to the western boundary of the Ruby Hill Development. From that point west, the line would be installed south of the roadway in the adjacent private property frontage, at the base of the slope. This area includes Non-Native Annual Grassland and a small Blue Oak Woodland. Where Vineyard becomes a divided road, the underground line would move into the roadway. Where Vineyard meets Bernal Avenue, the line would turn north on Bernal (still underground) assuming the proposed route into the Vineyard Substation (including a bored crossing of the Arroyo Valle).

Table C.3-8 Plant Communities and Other Areas along the S2 Alternative Alignment

Milepost (approximate)	Plant Communities/ Other Areas	Comments
0.00 – 0.08	Valley Oak Woodland	Also contains coast live oak, California buckeye, eucalyptus, olive, walnut
0.08 – 0.09	Seasonal Wetland	Seasonal drainage with culvert
0.09 – 0.55	Non-Native Annual Grassland	Contains scattered coyote brush, sycamore, walnut and dirt roads
0.55 – 0.90	Central Coast Cottonwood-Sycamore Riparian Forest	Along the edge of the Arroyo Valle
0.90 – 0.91	Developed Area	State Route 84
0.91 – 3.00	Developed Area	Fire break road, ruderal vegetation, planted trees
3.00 – 3.34	Non-Native Annual Grassland	Grazed
3.34 – 3.47	Blue Oak Woodland	Open canopy, along roadside
3.47 – 4.10	Non-Native Annual Grassland	Scattered trees, traverses driveways, may be grazed
4.10 – 5.07	Developed Area	Vineyard Avenue
5.07 – 5.41	Developed Area	Bernal Avenue
5.41 – 5.60	Developed Area	Vineyard Substation

Alternative S4: Eastern Open Space

The S4 Alternative would use a 2.8-mile overhead portion of the Proposed route from the tap point in the Tesla-Newark Corridor, to approximately MPM2 where S4 would turn northeasterly, away from the proposed route. At this point, the alternative route would cross a ravine with Blue Oak Woodland and a seasonal drainage (Table C.3-9). The S4 route would continue northeasterly and overhead for 1.2 miles, crossing several Non-Native Annual Grassland ridgetops and Blue Oak Woodland/Diablan Sage Scrub canyons, until it transitions to an underground line for the last 0.7–0.8 mile to Vineyard Avenue. The underground portion begins in Blue Oak Woodland and alternates between woodland and grassland until it reaches the Non-Native Annual Grassland at the base of the hill at Vineyard Avenue, where it would assume the S2 Alternative Route to the Vineyard Substation.

Table C.3-9 Plant Communities and Other Areas along the S4 Alternative Alignment

Milepost (approximate)	Plant Communities/ Other Areas	Comments
MX0.00 – MX0.21	Non-Native Annual Grassland	Grazed
MX0.21 – MX0.23	Developed Area	State Route 84
MX0.23 – MX0.24	Non-Native Annual Grassland	Grazed
MX0.24 – MX0.25	Alkali-Freshwater Marsh	Vallecitos Creek
MX0.25 – MX1.13	Non-Native Annual Grassland	Grazed
MX1.13 – MX1.14	Seasonal Wetland	Seasonal drainage
MX1.14 – MX1.71	Non-Native Annual Grassland	Grazed
MX1.71– MX1.72	Seasonal Wetland	Seasonal drainage
MX1.72– MX1.84	Non-Native Annual Grassland	Grazed
MX1.84– MX1.85	Alkali-Freshwater Marsh	Seasonal drainage
MX1.85 – MX2.37	Non-Native Annual Grassland	Grazed
MX1.70 – MX1.71	Seasonal Wetland	Seasonal drainage
MX1.71 – MX1.82	Non-Native Annual Grassland	Grazed
MX1.82 – MX1.83	Seasonal Wetland	Seasonal drainage
MX1.83 – MX1.97	Non-Native Annual Grassland	Grazed
MX1.97 – MX1.99	Seasonal Wetland	Seasonal drainage
MX1.99 – MX2.30	Non-Native Annual Grassland	Grazed
2.30 – 2.35	Non-Native Annual Grassland	Grazed
2.35 – 2.40	Blue Oak Woodland / Seasonal Wetland	Moderately open canopy with a seasonal drainage
2.40 – 2.42	Non-Native Annual Grassland	Grazed
2.42 – 2.47	Blue Oak Woodland	Moderately open canopy

Milepost (approximate)	Plant Communities/ Other Areas	Comments
2.47 – 2.49	Diablan Sage Scrub	Dense brush
2.49 – 2.56	Non-Native Annual Grassland	Grazed
2.56 – 2.61	Blue Oak Woodland	Moderately open canopy
2.61 – 2.63	Diablan Sage Scrub	Dense brush
2.63 – 2.82	Non-Native Annual Grassland	Grazed
2.82 – 2.87	Blue Oak Woodland	Moderately open canopy
2.87 – 2.89	Non-Native Annual Grassland	Grazed
2.89 – 2.91	Blue Oak Woodland	Moderately open canopy
2.91 – 2.93	Diablan Sage Scrub	Dense brush
2.93 – 2.95	Blue Oak Woodland	Moderately open canopy
2.95 – 3.02	Non-Native Annual Grassland	Grazed
3.02 – 3.30	Blue Oak Woodland	Open canopy
3.30 – 3.32	Diablan Sage Scrub	Dense brush
3.32 – 3.37	Blue Oak Woodland	Open canopy
3.37 – 3.42	Non-Native Annual Grassland	Grazed
3.42 – 3.44	Blue Oak Woodland	Open canopy
3.44 – 3.51	Non-Native Annual Grassland	Grazed
3.51 – 3.56	Blue Oak Woodland	Open canopy
3.56 – 3.75	Non-Native Annual Grassland	Grazed
3.75 – 3.82	Blue Oak Woodland	Moderately open canopy
3.82 – 3.87	Non-Native Annual Grassland	Grazed
3.87 – 3.99	Blue Oak Woodland	Open canopy
3.99 – 4.04	Non-Native Annual Grassland	Grazed
4.04 – 4.09	Blue Oak Woodland	Open canopy
4.09 – 4.18	Non-Native Annual Grassland	Grazed
4.18 – 4.27	Blue Oak Woodland	Open canopy
4.27 – 4.39	Non-Native Annual Grassland	Grazed
4.39 – 4.51 (junction with S1/S2 routes)	Non-Native Annual Grassland	Grazed
4.51 – 4.64	Blue Oak Woodland	Open canopy, along roadside
4.64 – 5.27	Non-Native Annual Grassland	Scattered trees, traverses driveways, may be grazed
5.27 – 6.24	Developed Area	Vineyard Avenue
6.24 – 6.58	Developed Area	Bernal Avenue
6.58 – 6.77	Developed Area	Vineyard Substation

C.3.1.1.5 *Dublin Area*

The Dublin Area has similar topography, plant communities, and land uses to the Pleasanton Area. Special status species with moderate or high potential to occur in the Dublin Area are the same as to those in the Pleasanton Area (Table C.3-5), but also may include the following additional species:

Plants
- San Joaquin saltbush
- Stinkbells

Mammals
- San Joaquin kit fox

Birds
- Mountain plover

Invertebrates

- Longhorn fairy shrimp
- Vernal pool fairy shrimp
- Ricksecker's water scavenger beetle

North of the Dublin Area, along the San Ramon-Pittsburg Line which may require reconductoring under the D2 Alternative, variable topography and wide expanses of undeveloped land increase habitat for plants and wildlife. Plant communities and special status species associated with this area are given in Tables C.3-3 and C.3-4.

Proposed Project: North Area Route

The Dublin Area portion of the North Area route consists of the new Dublin Substation and the proposed transmission line between Milepost B13.2 west of North Livermore Road and the proposed substation located north of Dublin and east of Tassajara Road. This route would traverse Non-Native Annual Grassland used for grazing or agriculture, interspersed with Alkali-Freshwater Marshes and Seasonal Wetlands. Plant communities along this portion of the North Area proposed transmission line are identified in Table C.3-10.

Table C.3-10 Plant Communities and Other Areas along the Dublin Area Portion of the Proposed North Area Transmission Line route

Milepost	Plant Communities/ Other Areas	Comments
B13.20 – B14.09	Non-Native Annual Grassland	Grazed
B14.09 – B14.10	Alkali-Freshwater Marsh	Unnamed watercourse - contains cattails and willows
B14.10 – B14.74	Non-Native Annual Grassland	Grazed, horses and cattle
B14.74 – B14.78	Developed Area	Slabaugh Ranch, horses
B14.78 – B14.79	Alkali-Freshwater Marsh	Collier Canyon Creek - contains cattails and willows
B14.79 – B14.80	Developed Area	Collier Canyon Road
B14.80 – B15.05	Non-Native Annual Grassland	Grazed
B15.05 – B15.06	Seasonal Wetland	Seasonal Drainage with a marsh at base
B15.06 – B15.20	Non-Native Annual Grassland	Grazed
B15.20 – B15.21	Alkali-Freshwater Marsh	At the base of a Seasonal Drainage, contains cattails
B15.21 – B15.38	Non-Native Annual Grassland	Grazed, dirt roads
B15.38 – B15.39	Seasonal Wetland	Perennial Stock Pond, with swamp grass and beard grass
B15.39 – B16.05	Non-Native Annual Grassland	Grazed, dirt road
B16.05 – B16.06	Alkali-Freshwater Marsh	Cottonwood Creek, seasonal -contains cattails, spikerush, saltgrass, and curly dock.
B16.06 – B16.08	Seasonal Wetland	Grazed, adjacent to creek
B16.08 – B16.09	Developed Area	Doolan Canyon Road
B16.09 – B17.25	Non-Native Annual Grassland	Grazed, alkaline soils
B17.25 – B17.26	Alkali-Freshwater Marsh	Unnamed seasonal creek containing bulrush, cattails, willows, curly dock
B17.26 – B17.28	Non-Native Annual Grassland	Grazed
V0.00 – V1.04	Non-Native Annual Grassland	Grazed, disked
Substation Site		
Dublin Substation	Non-Native Annual Grassland	Grazed

Alternative D1: South Dublin

The D1 Alternative South Dublin Substation would be located between Fallon and Tassajara Roads, north of Interstate 580. It would be about 2,600 feet west of Fallon Road, 1,000 feet north of I-580 and immediately south of the future extension of Dublin Boulevard. The 230kV transmission line connection would run from Vineyard Substation to the south through the gravel quarries between Stanley Boulevard and Interstate 580 along El Charro Road. Starting at the Vineyard Substation, the overhead transmission line would go north across Stanley Boulevard and then turn east to run north along the west side of El Charro Road. This area is dominated by ruderal vegetation with scattered shrubs and trees (Table C.3-11). The line would cross to the east side of El Charro Road and back again to the west side, and would cross over Arroyo Mocho and Arroyo Las Positas Creeks, before reaching Interstate 580. At that point, the line would transition underground, turning west to follow the south side of the I-580 (Caltrans) right-of-way. It would then cross under the freeway one-half mile west of Fallon Road and continue north through a (currently) Agricultural Area for 1,000 feet to the proposed South Dublin Substation.

The proposed South Dublin Substation site is located in an existing Agricultural Area (slated for commercial development) with minimal wildlife habitat value. Species that may seasonally occur include savannah sparrow and western meadowlark. Suitable habitat for the burrowing owl and loggerhead shrike is also present. Remaining portions of the D1 Alternative would be constructed in largely Developed Areas with little or no habitat value.

Table C.3-11 Plant Communities and Other Areas along the D1 Alternative Alignment

Milepost (approximate)	Plant Communities/ Other Areas	Comments
0.00	Developed Area	Vineyard Substation
0.00 – 1.04	Non-Native Annual Grassland	Ruderal, along roadside
1.04 – 1.05	Developed Area	El Charro Road
1.05 – 1.76	Developed Area	Gravel mining, ruderal plants
1.76 – 1.77	Developed Area	El Charro Road
1.77 – 1.91	Non-Native Annual Grassland	Ruderal, along roadside
1.91 – 1.92	Central Coast Riparian Scrub	Arroyo Mocho, also contains eucalyptus, walnut, willows
1.92 – 2.16	Non-Native Annual Grassland	Ruderal
2.16 – 2.17	Alkali-Freshwater Marsh	Arroyo Las Positas, also contains walnut, grasses
2.17 – 2.31	Non-Native Annual Grassland	Ruderal, along roadside
2.31 – 2.64	Developed Area	Caltrans ROW, ruderal
2.64 – 2.69	Developed Area	Interstate 580
2.69 – 2.88 (Substation Site)	Agricultural Area	Disked, soon to be developed

Alternative D2: Dublin-San Ramon

Under the D2 Alternative, the proposed Dublin Substation would be fed from the existing San Ramon Substation to the west. The new 230kV line from Dublin to San Ramon would follow PG&E Co.'s vacant ROW and traverse predominantly Non-Native Annual Grassland areas, as well as Developed Areas (roads, structures) and several seasonal drainages and creeks dominated by Alkali-Freshwater Marsh habitat, some with arroyo willows (Tables C.3-12a). The westernmost one mile from the

ridgeline into PG&E Co.'s existing San Ramon Substation would be undergrounded in Non-Native Annual Grassland.

Table C.3-12a Plant Communities and Other Areas along the D2 Alternative Alignment: Underground Section from the proposed Dublin substation to the San Ramon substation

Milepost (approximate)	Plant Communities/ Other Areas	Comments
B17.30 – B18.09	Non-Native Annual Grassland	Grazed
B18.09 – B18.10	Developed Area	Tassajara Road
B18.10 – B18.27	Non-Native Annual Grassland	Grazed
B18.27 – B18.28	Central Coast Riparian Scrub	Tassajara Creek
B18.28 – F0.86	Non-Native Annual Grassland	Grazed
F0.86 – F0.87	Seasonal Wetland	Seasonal drainage
F0.87 – B19.89	Non-Native Annual Grassland	Grazed
B19.89 – B19.90	Blue Oak Woodland/ Seasonal Wetland	Seasonal drainage with blue oaks; Connects several stockponds
B19.90 – X0.15	Non-Native Annual Grassland	Grazed
X0.15 – X0.16	Alkali-Freshwater Marsh	Alamo Creek
X0.16 – B21.40	Non-Native Annual Grassland	Grazed
B21.40 – SP0.00	Developed Area	San Ramon Substation

The D2 Alternative may also involve reconductoring the entire length (20 miles) of the San Ramon-Pittsburg line. Plant communities by milepost along the San Ramon-Pittsburg line are given in Table C.3-12b.

Table C.3-12b Plant Communities and Other Areas along the Aboveground Section from the San Ramon substation to the Pittsburg substation (D2 Alternative)

Milepost (approximate)	Plant Communities/ Other Areas	Comments
SP0.00 – SP0.30	Developed Area	Residential development
SP0.30 – SP0.59	Non-Native Annual Grassland	Grazed
SP0.59 – SP0.60	Seasonal Wetland	Seasonally wet depression
SP0.60 – SP0.62	Non-Native Annual Grassland	Grazed
SP0.62 – SP0.63	Seasonal Wetland	Seasonal drainage
SP0.63 – SP0.75	Non-Native Annual Grassland	Grazed
SP0.75 – SP0.76	Seasonal Wetland	Seasonal drainage
SP0.76 – SP0.86	Non-Native Annual Grassland	Grazed
SP0.86 – SP0.87	Seasonal Wetland	Seasonal drainage
SP0.87 – SP1.08	Non-Native Annual Grassland	Grazed
SP1.08 – SP1.09	Seasonal Wetland	Seasonal drainage
SP1.09 – SP1.24	Non-Native Annual Grassland	Grazed
SP1.24 – SP1.25	Seasonal Wetland	Seasonal drainage and swale
SP1.25 – SP1.48	Non-Native Annual Grassland	Grazed
SP1.48 – SP1.50	Alkali-Freshwater Marsh	Cattails, bulrush in drainage between two stock ponds
SP1.50 – SP1.70	Non-Native Annual Grassland	Grazed
SP1.70 – SP1.71	Seasonal Wetland	Seasonal drainage
SP1.71 – SP1.81	Non-Native Annual Grassland	Grazed
SP1.81 – SP1.83	Alkali-Freshwater Marsh	West Branch of Alamo Creek, with bulrush, cattail, and a few willow
SP1.83 – SP2.26	Non-Native Annual Grassland	Grazed
SP2.26 – SP2.27	Developed Area	Dougherty Road
SP2.27 – SP2.53	Non-Native Annual Grassland	Grazed
SP2.53 – SP2.54	Seasonal Wetland	Seasonal drainage
SP2.54 – SP2.84	Non-Native Annual Grassland	Grazed
SP2.84 – SP2.89	Seasonal Wetland	Seasonal drainage and swale

Milepost (approximate)	Plant Communities/ Other Areas	Comments
SP2.89 – SP3.01	Non-Native Annual Grassland	Grazed
SP3.01 – SP3.02	Seasonal Wetland	Seasonal drainage
SP3.02 – SP3.21	Non-Native Annual Grassland	Grazed
SP3.21 – SP3.22	Seasonal Wetland	Seasonal drainage
SP3.22 – SP3.40	Non-Native Annual Grassland	Grazed
SP3.40 – SP3.41	Seasonal Wetland	Seasonal drainage
SP3.41 – SP4.05	Non-Native Annual Grassland	Grazed
SP4.05 – SP4.06	Developed Area	Residential development road
SP4.06 – SP4.37	Non-Native Annual Grassland	Surrounded by residential development
SP4.37 – SP4.38	Central Coast Riparian Scrub	Willows in creek/drainage
SP4.38 – SP4.55	Developed Area	Residential development and Tassajara Road
SP4.55 – SP4.62	Central Coast Riparian Scrub	Willows and riparian vegetation surrounding drainage
SP4.62 – SP4.76	Developed Area	Residential development
SP4.76 – SP5.07	Non-Native Annual Grassland	Grazed
SP5.07 – SP5.12	Blue Oak Woodland	Small grove of blue oak
SP5.12 – SP5.27	Non-Native Annual Grassland	Adjacent to residential development
SP5.27 – SP5.36	Developed Area	Residential development
SP5.36 – SP5.69	Non-Native Annual Grassland	Surrounded by residential development
SP5.69 – SP6.05	Developed Area	Residential development
SP6.05 – SP6.55	Non-Native Annual Grassland	Grazed
SP6.55 – SP6.57	Blue Oak Woodland/Seasonal Wetland	Blue oaks along a seasonal drainage
SP6.57 – SP6.67	Non-Native Annual Grassland	Grazed, with scattered oaks
SP6.67 – SP6.77	Diablan Sage Scrub	Dense chemise and sage
SP6.77 – SP6.90	Blue Oak Woodland	Moderately open canopy
SP6.90 – SP6.91	Blue Oak Woodland/Seasonal Wetland	Blue oaks along seasonal drainage
SP6.91 – SP7.14	Diablan Sage Scrub	Dense chemise and sage
SP7.14 – SP7.31	Non-Native Annual Grassland	Grazed
SP7.31 – SP7.50	Blue Oak Woodland	Dense canopy, rocky outcrops
SP7.50 – SP7.88	Diablan Sage Scrub	Open, rocky outcrops
SP7.88 – SP8.26	Digger Pine-Oak Woodland	Moderately open canopy
SP8.26 – SP8.54	Non-Native Annual Grassland	Grazed, with scattered oaks
SP8.54 – SP9.11	Digger Pine-Oak Woodland	Moderately open canopy
SP9.11 – SP9.12	Digger Pine-Oak Woodland/Seasonal Wetland	Oaks and pines along an intermittent, rocky drainage
SP9.12 – SP9.25	Non-Native Annual Grassland	Grazed
SP9.25 – SP9.26	Blue Oak Woodland/Seasonal Wetland	Blue oaks along a seasonal drainage
SP9.26 – SP9.41	Non-Native Annual Grassland	Grazed, with scattered oaks
SP9.41 – SP9.52	Digger Pine-Oak Woodland	Moderately open canopy
SP9.52 – SP9.53	Digger Pine-Oak Woodland/Seasonal Wetland	Oaks and pines along an intermittent, rocky drainage
SP9.53 – SP9.60	Digger Pine-Oak Woodland	Moderately open canopy
SP9.60 – SP9.86	Non-Native Annual Grassland	Grazed, with scattered oaks
SP9.86 – SP9.87	Blue Oak Woodland/Seasonal Wetland	Oaks along an intermittent, rocky drainage
SP9.87 – SP10.00	Blue Oak Woodland	Open canopy
SP10.00 – SP10.01	Blue Oak Woodland/Seasonal Wetland	Oaks and buckeye along a seasonal drainage
SP10.01 – SP10.21	Non-Native Annual Grassland	Potentially grazed
SP10.21 – SP10.22	Seasonal Wetland	Seasonal drainage with a few oaks
SP10.22 – SP10.29	Non-Native Annual Grassland	Potentially grazed
SP10.29 – SP10.43	Diablan Sage Scrub	Moderately dense with oaks and pines
SP10.43 – SP10.76	Non-Native Annual Grassland	Potentially grazed
SP10.76 – SP11.48	Digger Pine-Oak Woodland	Dense canopy
SP11.48 – SP11.49	Digger Pine-Oak Woodland/Seasonal Wetland	Oaks and pines along an intermittent, rocky drainage (Perkins Canyon)
SP11.49 – SP11.62	Diablan Sage Scrub	Dense chemise and sage
SP11.62 – SP11.66	Digger Pine-Oak Woodland	Open canopy with chemise, sage
SP11.66 – SP12.76	Diablan Sage Scrub	Chemise and sage mixed with oaks and pines
SP12.76 – SP12.98	Non-Native Annual Grassland	With scattered oaks
SP12.98 – SP12.99	Developed Area	Marsh Creek Road

Milepost (approximate)	Plant Communities/ Other Areas	Comments
SP12.99 – SP13.24	Non-Native Annual Grassland	Grazed, adjacent to Blue Oak Woodland
SP13.24 – SP13.43	Blue Oak Woodland	Moderately open canopy
SP13.43 – SP13.44	Blue Oak Woodland/Seasonal Wetland	Blue oaks along a seasonal drainage, connected to a stock pond
SP13.44 – SP13.88	Blue Oak Woodland	Moderately open canopy
SP13.88 – SP13.89	Blue Oak Woodland/Seasonal Wetland	Blue oaks along an intermittent drainage
SP13.89 – SP14.13	Diablan Sage Scrub	Dense chemise and sage
SP14.13 – SP14.32	Blue Oak Woodland	Moderately open canopy
SP14.32 – SP14.33	Seasonal Wetland	Intermittent drainage
SP14.33 – SP14.77	Non-Native Annual Grassland	Grazed, with scattered oaks and buckeye
SP14.77 – SP14.78	Seasonal Wetland	Seasonal drainage
SP14.78 – SP15.33	Non-Native Annual Grassland	Grazed
SP15.33 – SP15.52	Blue Oak Woodland	Moderately open canopy
SP15.52 – SP15.58	Diablan Sage Scrub	Dense chemise and sage
SP15.58 – SP15.64	Non-Native Annual Grassland	Grazed
SP15.64 – SP15.70	Diablan Sage Scrub	Dense chemise and sage
SP15.70 – SP16.05	Blue Oak Woodland	Moderately open canopy
SP16.05 – SP16.14	Non-Native Annual Grassland	Grazed
SP16.14 – SP16.28	Blue Oak Woodland	Moderately open canopy
SP16.28 – SP16.45	Non-Native Annual Grassland	Grazed
SP16.45 – SP16.50	Seasonal Wetland	Two seasonal drainages
SP16.50 – SP17.13	Non-Native Annual Grassland	Grazed, with scattered oaks
SP17.13 – SP17.14	Seasonal Wetland	Seasonal drainage
SP17.14 – SP17.40	Non-Native Annual Grassland	Grazed
SP17.40 – SP17.57	Alkali-Freshwater Marsh	Drainage empties into a wetland depression
SP17.57 – SP17.76	Non-Native Annual Grassland	Grazed
SP17.76 – SP17.78	Central Coast Cottonwood-Sycamore Riparian Forest	Along an intermittent drainage
SP17.78 – SP18.25	Non-Native Annual Grassland	Grazed
SP18.25 – SP18.27	Developed Area	Kirker Pass Road
SP18.27 – SP18.31	Non-Native Annual Grassland	Grazed
SP18.31 – SP18.32	Alkali-Freshwater Marsh	Emergent vegetation in a drainage
SP18.32 – SP18.92	Non-Native Annual Grassland	Grazed
SP18.92 – SP18.93	Seasonal Wetland	Seasonal drainage
SP18.93 – SP19.07	Non-Native Annual Grassland	Grazed, with scattered oaks
SP19.07 – SP19.08	Seasonal Wetland	Seasonal drainage
SP19.08 – SP19.23	Non-Native Annual Grassland	Grazed, with scattered oaks
SP19.23 – SP19.24	Alkali-Freshwater Marsh	Emergent vegetation and a few oaks in a drainage
SP19.24 – SP19.43	Non-Native Annual Grassland	Grazed
SP19.43 – SP19.44	Seasonal Wetland	Seasonal drainage
SP19.44 – SP19.55	Non-Native Annual Grassland	Grazed
SP19.55 – SP19.56	Alkali-Freshwater Marsh	Emergent vegetation and a few oaks in a drainage
SP19.56 – SP20.43	Non-Native Annual Grassland	Adjacent to a residential development
SP20.43 – SP20.44	Seasonal Wetland	Seasonal drainage
SP20.44 – SP20.46	Non-Native Annual Grassland	Adjacent to residential development, potentially grazed
SP20.46 – SP20.47	Developed Area	Aqueduct canal
SP20.47 – SP20.51	Non-Native Annual Grassland	Adjacent to residential development, potentially grazed
SP20.51 – SP20.52	Alkali-Freshwater Marsh	Aqueduct canal
SP20.52 – SP20.69	Non-Native Annual Grassland	Adjacent to residential development
SP20.69 – SP20.70	Central Coast Riparian Scrub	Emergent vegetation and a few willows and cottonwood in a perennial steam
SP20.70 – SP20.78	Non-Native Annual Grassland	Adjacent to residential development
SP20.78 – SP21.00	Developed Area	Residential development
SP21.00 – SP21.12	Non-Native Annual Grassland	Ruderal
SP21.12 – SP21.13	Alkali-Freshwater Marsh	Emergent vegetation in a perennial waterway
SP21.13 – SP21.26	Non-Native Annual Grassland	Ruderal

Milepost (approximate)	Plant Communities/ Other Areas	Comments
SP21.26 – SP21.28	Developed Area	Highway 4
SP21.28 – SP21.46	Non-Native Annual Grassland	Ruderal
SP21.46 – SP21.47	Developed Area	Paved roadway
SP21.47 – SP21.69	Non-Native Annual Grassland	Ruderal
SP21.69 – SP21.71	Developed Area	Railroad tracks
SP21.71 – SP21.72	Coastal Brackish Marsh	In ditch between railroad tracks
SP21.72 – SP21.73	Developed Area	Railroad tracks
SP21.73 – SP21.94	Non-Native Annual Grassland	Ruderal
SP21.94 – SP21.95	Developed Area	Willow Pass Road
SP21.95 – SP22.54	Coastal Brackish Marsh	Marsh with common reed, bulrush and pickleweed influenced by a tidal channel
SP22.54 – SP22.75	Developed Area	Pittsburg Substation

C.3.1.1.6 *North Livermore Area*

The North Livermore Area has gently sloping hills and flatlands dominated by Non-Native Annual Grassland interspersed with small seasonal drainages and Alkali Meadow. This area is used for cattle grazing and agriculture. There is also scattered residential and commercial development. Most of the special status species associated with the North Livermore Area are the same as those associated with the Dublin Area (Section C.3.1.1.5), but also may include the following additional species:

Plants

- Heartscale
- Brittlescale
- Hispid bird's beak
- Palmate-bracted bird's beak

Proposed Project: North Area Route

The North Livermore Area portion of the North Area transmission line route would begin at the existing Contra Costa-Newark line west of Vasco Road and travel west to Milepost B13.2 (west of North Livermore Road). A portion of this route would also travel south along the west side of North Livermore Road to the proposed North Livermore substation. This route would traverse mostly Non-Native Annual Grassland, much of which is used for grazing or agriculture. Plant communities along the North Area proposed transmission line are identified in Table C.3-13.

Table C.3-13 Plant Communities and Other Areas along the North Livermore Area Portion of the Proposed North Area Transmission Line route

Milepost	Plant Communities/ Other Areas	Comments
B10.42 – B10.53	Non-Native Annual Grassland	Grazed
B10.53 – B10.54	Seasonal Wetland	Grazed
B10.54 – B11.17	Non-Native Annual Grassland	Grazed
B11.17 – B11.18	Developed Area	Dagnino Road
B11.18 – B11.34	Agricultural Area	Hay production
B11.34 – B11.41	Non-Native Annual Grassland	Grazed, disked
B11.41 – B11.43	Seasonal Wetland	Two seasonal drainages
B11.43 – B11.92	Non-Native Annual Grassland	Grazed, disked
B11.92 – B12.42	Agricultural Area	Barley crop, disked

Milepost	Plant Communities/ Other Areas	Comments
B12.42 – B12.43	Developed Area	North Livermore Road
B12.43 – B12.59	Non-Native Annual Grassland	Grazed
B12.59 – B12.60	Seasonal Wetland	Cayetano Creek, seasonal - scattered valley oaks, willows along watercourse
B12.60 – B13.16	Non-Native Annual Grassland	Grazed
B13.16 – B13.17	Seasonal Wetland	Unnamed seasonal drainage
B13.17 – B13.20	Non-Native Annual Grassland	Grazed
Substation Site and Transmission Line Lateral		
From B12.5 south to the North Livermore Substation	Agricultural Area	Hay production

P1 Variant Alternative

The P-1 Variant Alternative is identical to the Proposed Project (North Area route), except that the one mile of north-south 230 kV transmission line along North Livermore Road to the proposed substation would run underground through Agricultural Areas and Non-Native Annual Grassland 50 feet west of the fence on the west side of North Livermore Avenue.

P2 Variant Alternative

The P-2 Variant Alternative also follows the route of the Proposed Project, but would require undergrounding two components: (a) the 230 kV transmission line between the Contra Costa-Newark line (at its tap near Milepost B10.4) and a point near Milepost B13.2, and (b) the north-south 230 kV transmission line approximately one mile west of North Livermore Road. The east-west component would run underground through the center of the vacant PG&E Co. easement (south of Manning Road) and traverse Agricultural Areas and Non-Native Annual Grassland with several seasonal drainages and creeks (Table C.3-13). The north-south segment would run 50 feet west of the fence on the west side of North Livermore Avenue through an Agricultural Area and Non-Native Annual Grassland.

Alternative L1: Raymond Road

The L1 Alternative would start as a tap to the Contra Costa-Newark line at the northeast corner of Ames Street and Raymond Road. A transition structure would take the line underground at that corner, and the line would run underground to the west for one mile to the corner of Raymond Road and Lorraine Road, traversing about one-quarter of a mile of Alkali Meadow/Non-Native Annual Grassland habitat (currently grazed) on the eastern end, and would then cross grassland and an Agricultural Area to the west (Table C.3-14). The L1 Alternative Substation would be located northeast of the corner of Raymond and Lorraine Roads in an Agricultural Area, east of existing farm buildings.

Table C.3-14 Plant Communities and Other Areas along the L1 Alternative Alignment

Milepost (approximate)	Plant Communities/ Other Areas	Comments
0.00 – 0.30	Alkali Meadow	Grazed, horses
0.30 – 1.00	Agricultural Area	Hay production
1.00 – 1.01	Developed Area	Dagnino Road
1.01 – 1.20 (Substation site)	Agricultural Area	Hay production, disked

Alternative L2: Hartman Road

The L2 Alternative 230 kV transmission line route would be the same as for the S1 Alternative until the S1 route turns west on Stanley Boulevard to the Vineyard Substation; the L2 route would instead continue north for an additional 1.7 miles along the planned Highway 84 corridor (Isabel Av. extension) to the I-580 junction. Between Stanley Boulevard and Jack London Boulevard, the L2 line would be overhead and about 40 feet west of the soon-to-be expanded highway. This portion of the line would traverse an Agricultural Area and cross Arroyo Mocho just north of the corner of Stanley and Isabel Boulevards (Table C.3-15). At Jack London Boulevard, the line would turn west to a location just west of the Water Reclamation Plant and east of the airport runways, and then would run through an Alkali-Freshwater Marsh that borders the south side of the Reclamation Plant. Because the L2 alternative would pass the Livermore Municipal Airport, the route would have to be undergrounded from Jack London Drive to approximately one mile south of I-580. The line would continue north and cross Airway Boulevard, run under Arroyo Las Positas, then turn north again along Kitty Hawk Road. The line would be bored under I-580 at a point north of Kitty Hawk Road. The L2 line would continue underground approximately 1.3 miles north of 580 through Non-Native Annual Grassland and Seasonal Wetland to a Substation Site in the southwest corner of the North Livermore development area, near Las Positas College. The Seasonal Wetland is the Las Positas College wetland mitigation area.

Table C.3-15 Plant Communities and Other Areas along the L2 Alternative Alignment

Milepost (approximate)	Plant Communities/ Other Areas	Comments
0.00 – 3.76	Same as S1/S2 Alternatives (See section C.3.1.1.4)	
3.76 – 3.77	Developed Area	Stanley Road
3.77 – 3.84	Agricultural Area	Hay production
3.84 – 3.85	Central Coast Riparian Scrub	Arroyo Mocho, also contains eucalyptus, pepper tree, cottonwood
3.85 – 4.65	Agricultural Area	
4.65 – 4.66	Developed Area	Jack London Boulevard
4.66 – 4.73	Developed Area	Water reclamation plant, landscaping along road shoulder
4.73 – 4.78	Alkali-Freshwater Marsh	Along southern edge of water reclamation plant, possibly artificial
4.78 – 5.01	Developed Area	Industrial, adjacent to water reclamation plant
5.01 – 5.55	Non-Native Annual Grassland	Ruderal vegetation, air field
5.47 – 5.56	Developed Area	Industrial structures, road
5.56 – 5.58	Central Coast Riparian Scrub	Arroyo Las Positas, contains ruderal vegetation with willows
5.58 – 5.77	Developed Area	Industrial, roads, ruderal
5.77 – 5.86	Non-Native Annual Grassland	Ruderal, Caltrans right-of-way
5.86 – 5.91	Developed Area	Interstate 580
5.91 – 6.67	Non-Native Annual Grassland	Grazed; Housing development and Hartman Road extension in progress
6.67 – 6.68	Seasonal Wetland	Seasonal drainage
6.68 – 7.06	Non-Native Annual Grassland	Grazed
7.06 – 7.44 (Substation Site)	Non-Native Annual Grassland and Seasonal Wetland	Grazed, depression between hills

C.3.1.1.7 *Tesla Connection (Phase 2)*

The biological resources along the routes associated with the Phase 2 Tesla Connection are similar to areas previously described. The Proposed Project Phase 2 North Area route, the Brushy Peak Alternative and the eastern portion of the Stanislaus Corridor Alternative traverse grazed Non-Native Annual Grassland hills and flatlands interspersed with Seasonal Wetlands, similar to the North Livermore Area (Section C.3.1.1.6). The western portion of the Stanislaus Corridor traverses grazed Non-Native Annual Grassland hills interspersed with Seasonal Wetlands and Oak Woodlands, similar to the Pleasanton Area (Section C.3.1.1.4). Most of the special status species associated with the Tesla Connection routes are the same as those associated with the North Livermore and Pleasanton Areas (Section C.3.1.1.6 and C.3.1.1.4), but also may include the following additional species:

Plants
- Big tarplant

Mammals
- San Joaquin pocket mouse

Proposed Project – Phase 2 Route (North Area)

The Proposed Phase 2 route would begin in the east at the Tesla Substation and travel west to connect to the Proposed (Phase 1) North Area line at its junction with the Contra Costa-Newark line west of Vasco Road. This route would traverse through mostly Non-Native Annual Grassland, primarily used for grazing or agriculture. Plant communities along the Proposed Phase 2 (North Area) transmission line, are identified in Table C.3-16.

Table C.3-16 Plant Communities and Other Areas along the Proposed Transmission Line North Area route (Phase 2)

Milepost	Plant Communities/ Other Areas	Comments
A0.00 – A0.01	Alkali-Freshwater Marsh	Perennial drainage with cattail
A0.01 – A0.05	Non-Native Annual Grassland	Disked
A0.05 – A0.06	Developed Area	Patterson Pass Road
A0.06 – A0.21	Non-Native Annual Grassland	Grazed, wind farm
C0.00 – C1.62	Non-Native Annual Grassland	Grazed, wind farm
C1.62 – C1.63	Alkali-Freshwater Marsh	Stock pond
C1.63 – C1.74	Non-Native Annual Grassland	Grazed
C1.74 – C1.75	Developed Area	Railroad right-of-way
C1.75 – C3.45	Non-Native Annual Grassland	Grazed, wind farm
C3.45 – C3.49	Alkali Meadow	Seasonally flooded by Mountain House Creek
C3.49 – C3.50	Alkali-Freshwater Marsh	Mountain House Creek
C3.50 – C3.61	Non-Native Annual Grassland	Grazed
C3.61 – C3.65	Developed Area	Interstate 580, eastbound
C3.65 – C3.70	Non-Native Annual Grassland	Interstate 580, median
C3.70 – C3.74	Developed Area	Interstate 580, westbound
C3.74 – C4.11	Non-Native Annual Grassland	Grazed, wind farm
C4.11 – C4.15	Alkali-Freshwater Marsh	Stock Pond
C4.15 – C4.46	Non-Native Annual Grassland	Grazed, wind farm
C4.46 – C4.49	Seasonal Wetland	Grazed
C4.49 – C5.58	Non-Native Annual Grassland	Grazed, wind farm

Milepost	Plant Communities/ Other Areas	Comments
C5.58 – C5.60	Developed Area	Altamont Pass Road
C5.60 – C5.63	Non-Native Annual Grassland	Grazed, alkaline soils
C5.63 – C5.64	Alkali-Freshwater Marsh	Altamont Creek, seasonal – contains cattails, willows
C5.64 – C5.67	Developed Area	Railroad right-of-way
C5.67 – C7.83	Non-Native Annual Grassland	Grazed, wind farm
W2.47 – W2.58	Non-Native Annual Grassland	Grazed, San Joaquin saltbush habitat
W2.58 – W2.59	Alkali Meadow	Grazed, San Joaquin saltbush habitat
W2.59 – W2.60	Alkali-Freshwater Marsh	Unnamed watercourse – contains cattails, willows, blue wild rye, salt grass, bulrush
W2.60 – W2.61	Developed Area	Laughlin Road
W2.61 – W2.62	Alkali-Freshwater Marsh	Unnamed watercourse – contains bulrush, salt bush
W2.62 – W2.68	Alkali Meadow	Grazed
W2.68 – W3.05	Non-Native Annual Grassland	Grazed
W3.05 – W3.09	Developed Area	Republic Services Landfill - includes a settling basin
W3.09 – W3.13	Non-Native Annual Grassland	Grazed
W3.13 – W3.14	Developed Area	Republic Services Landfill – paved entrance
W3.14 – W3.81	Non-Native Annual Grassland	Includes a paved drainage
B10.13 – B10.33	Non-Native Annual Grassland	Grazed
B10.33 – B10.34	Seasonal Wetland	Seasonal drainage with scattered live oak, willow
B10.34 – B10.35	Developed Area	Vasco Road
B10.35 – B10.42	Non-Native Annual Grassland	Grazed

Brushy Peak Alternative

The East Bay Regional Park District requested a Phase 2 (North Area) alternative to reduce visual impacts to the Brushy Peak Preserve. This alternative segment would begin east of Milepost W3.0 of the Proposed Phase 2 (North Area) route and run directly south through Non-Native Annual Grassland until it meets Laughlin Road (Table C.3-17). At this point, the alternative route would turn east to cross Laughlin Road and a seasonal drainage east of the road and through grazed Non-Native Annual Grassland habitat, except between Mileposts BP0.54 – BP0.61 where it runs through a heavily grazed Alkali Meadow. The Brushy Peak Alternative route continues east until it meets the proposed route again near Milepost C7.0.

Table C.3-17 Plant Communities and Other Areas along the Brushy Peak Alternative

Milepost (approximate)	Plant Communities/ Other Areas	Comments
W2.80 – BP0.00	Proposed Phase 2 (North Area) route	
BP0.00 – BP0.52	Non-Native Annual Grassland	Grazed
BP0.52 – BP0.53	Developed Area	Laughlin Road
BP0.53 – BP0.54	Seasonal Wetland	Seasonal drainage, alkali
BP0.54 – BP0.61	Potential Alkali Meadow/ Non-Native Annual Grassland	Heavily grazed by horses, dominated by saltbush
BP0.61 – BP0.73	Non-Native Annual Grassland	Grazed
BP0.73 – BP0.74	Seasonal Wetland	Seasonal drainage
BP0.74 – BP1.31	Non-Native Annual Grassland	Grazed
BP1.31 – C7.1	Proposed Phase 2 (North Area) route	

Stanislaus Corridor

The Stanislaus Corridor is an alternative to PG&E Co.'s proposed Phase 2 (North Area) route. In this alternative, a new 230 kV double circuit line would be constructed from Tesla Substation to the tap point of (a) the South Area Proposed route or S4 Alternative at about Milepost V17 or (b) the S1 / S2 / L2 Alternatives near Milepost V14. If combined with the S1 / S2 / L2 Alternatives, this route would be about 14 miles; if combined with the Proposed South Area route or the S4 Alternative, this route would be about 17 miles.

The new line would be in the center of the existing ROW. Tubular steel towers would be installed and the set of two parallel old lattice towers currently in place would be removed. At the Tesla Junction, where the Stanislaus Corridor continues east across the valley, the new line would turn north for 2.1 miles (paralleling an existing 115kV lattice line) to the Tesla Substation. Most of the route would traverse Non-Native Annual Grassland (grazed) or Agricultural Areas (vineyards) (Table C.3-18). Other common habitats include several seasonal drainages, creeks with Alkali-Freshwater Marsh, Central Coast Cottonwood-Sycamore Riparian Forest (at Arroyo Valle and Arroyo Mocho), and Blue Oak Woodland (primarily in Sycamore Grove Regional Park).

Table C.3-18 Plant Communities and Other Areas along the Stanislaus Corridor Alternative Alignment

Milepost (approximate)	Plant Communities/ Other Areas	Comments
V 0.0 - V 0.11	Developed Area	Tesla Substation
V 0.11 - V 0.12	Alkali-Freshwater Marsh	Perennial drainage with emergent vegetation
V 0.12 - V 0.14	Non-Native Annual Grassland	Ruderal, disked
V 0.14 - V 0.15	Developed Area	Patterson Pass Road
V 0.15 - V 0.43	Non-Native Annual Grassland	Grazed
V 0.43 - V 0.44	Developed Area	Patterson Pass Road
V 0.44 - V 0.45	Central Coast Riparian Scrub	Perennial drainage with scattered willow, cottonwood and cattails
V 0.45 - V 0.73	Non-Native Annual Grassland	Grazed
V 0.73 - V 0.74	Developed Area	Railroad tracks
V 0.74 - V 1.44	Non-Native Annual Grassland	Grazed
V 1.44 - V 1.45	Alkali-Freshwater Marsh	Perennial drainage with emergent vegetation and a few willows
V 1.45 - V 1.83	Non-Native Annual Grassland	Grazed
V 1.83 - V 1.84	Seasonal Wetland	Seasonal drainage
V 1.84 - V 2.22	Non-Native Annual Grassland	Grazed, wind farm
V 2.22 - V 2.23	Seasonal Wetland	Seasonal drainage
V 2.23 - V 2.38	Non-Native Annual Grassland	Grazed, wind farm
V 2.38 - V 2.39	Seasonal Wetland	Seasonal drainage
V 2.39 - V 2.52	Non-Native Annual Grassland	Grazed, wind farm
V 2.52 - V 2.53	Seasonal Wetland	Drainage
V 2.53 - V 3.16	Non-Native Annual Grassland	Grazed, wind farm
V 3.16 - V 3.20	Seasonal Wetland	Incised drainage with willows near stock pond with cattails

Milepost (approximate)	Plant Communities/ Other Areas	Comments
V 3.20 - V 3.71	Non-Native Annual Grassland	Grazed, wind farm
V 3.71 - V 3.76	Seasonal Wetland	Two seasonal drainages
V 3.76 - V 4.04	Non-Native Annual Grassland	Grazed
V 4.04 - V 4.05	Central Coast Riparian Scrub	Perennial drainage
V 4.05 - V 4.69	Non-Native Annual Grassland	Grazed
V 4.69 - V 4.70	Seasonal Wetland	Seasonal drainage leading to a stock pond
V 4.70 - V 4.83	Non-Native Annual Grassland	Grazed
V 4.83 - V 4.84	Seasonal Wetland	Seasonal drainage leading to a stock pond
V 4.84 - V 5.39	Non-Native Annual Grassland	Grazed
V 5.39 - V 5.40	Seasonal Wetland	Seasonal drainage
V 5.40 - V 5.59	Non-Native Annual Grassland	Grazed
V 5.59 - V 5.60	Seasonal Wetland	Seasonal drainage
V 5.60 - V 5.79	Non-Native Annual Grassland	Grazed
V 5.79 - V 5.80	Seasonal Wetland	Seasonal drainage
V 5.80 - V 6.48	Non-Native Annual Grassland	Grazed
V 6.48 - V 6.49	Seasonal Wetland	Seasonal drainage
V 6.49 - V 6.62	Non-Native Annual Grassland	Grazed
V 6.62 - V 6.87	Blue Oak Woodland/ Seasonal Wetland	Seasonal drainage with a moderately open canopy of blue oaks
V 6.87 - V 7.49	Agricultural Area	Disked
V 7.49 - V 7.50	Seasonal Wetland	Seasonal drainage, ruderal
V 7.50 - V 8.12	Agricultural Area	Disked, vineyards
V 8.12 - V 8.13	Developed Area	Cross road
V 8.13 - V 8.41	Agricultural Area	Disked
V 8.41 - V 8.44	Seasonal Wetland	Arroyo Seco, dry creekbed with a few blue oaks and eucalyptus
V 8.44 - V 8.45	Developed Area	Tesla road
V 8.45 - V 8.61	Agricultural Area	Vineyards
V 8.61 - V 9.14	Developed Area	Ranches, light industrial area
V 9.14 - V 9.15	Developed Area	Greenville Road
V 9.15 - V 9.24	Agricultural Area	Vineyards
V 9.24 - V 9.26	Developed Area	South Bay Aqueduct
V 9.26 - V 10.95	Agricultural Area	Vineyards
V 10.95 - V 10.96	Developed Area	Mines Road
V 10.96 - V 11.06	Non-Native Annual Grassland	Ruderal grassland
V 11.06 - V 11.20	Central Coast Cottonwood-Sycamore Riparian Forest	Arroyo Mocho
V 11.20 - V 11.96	Non-Native Annual Grassland	Grazed
V 11.96 - V 11.97	Seasonal Wetland	Seasonal drainage with scattered oaks and eucalyptus
V 11.97 - V 12.25	Non-Native Annual Grassland	Grazed
V 12.25 - V 12.42	Agricultural Area	Vineyards
V 12.42 - V 12.88	Non-Native Annual Grassland	Horse pasture, grazed
V 12.88 - V 13.36	Agricultural Area	Vineyards
V 13.36 - V 13.37	Developed Area	Arroyo Road
V 13.37 - V 13.80	Agricultural Area	Vineyards

Milepost (approximate)	Plant Communities/ Other Areas	Comments
V 13.80 - V 13.81	Seasonal Wetland	Dry creek bed with sparse vegetation
V 13.81 - V 13.93	Blue Oak Woodland	Very open canopy
V 13.93 - V 13.94	Central Coast Cottonwood-Sycamore Riparian Forest	Arroyo Valle, well-spaced canopy
V 13.94 - V 14.15	Non-Native Annual Grassland	Grazed
V 14.15 - V 14.19	Valley Oak Woodland	Also contains coast live oak, California buckeye, eucalyptus, olive, and walnut trees (may have been planted)
V 14.19 - V 14.55	Non-Native Annual Grassland	Grazed
V 14.55 - V 14.76	Developed Area	Alameda County Flood Control, ruderal vegetation
V 14.76 - V 14.85	Agricultural Area	Vineyards
V 14.85 - V 14.89	Blue Oak Woodland/perennial drainage	Perennial drainage dominated by blue oak with a few elderberry, and blackberry
V 14.89 - V 14.99	Agricultural Area	Vineyards
V 14.99 - V 15.04	Non-Native Annual Grassland	Grazed
V 15.04 - V 15.08	Blue Oak Woodland	Eucalyptus and blue oak
V 15.08 - V 15.78	Non-Native Annual Grassland	Grazed
V 15.78 - V 15.79	Seasonal Wetland	Seasonal drainage with willow and blue oak
V 15.79 - V 16.08	Non-Native Annual Grassland	Grazed
V 16.08 - V 16.09	Developed Area	Private residence
V 16.09 - V 16.56	Non-Native Annual Grassland	Grazed
V 16.56 - V 16.57	Seasonal Wetland	Seasonal drainage with a few willows
V 16.57 - V 16.69	Non-Native Annual Grassland	Grazed
V 16.69 - V 16.70	Seasonal Wetland	Seasonal drainage with willow, inundated stockpond at top
V 16.70 - V 16.87	Non-Native Annual Grassland	Grazed
V 16.87 - V 16.88	Seasonal Wetland	Flowing drainage with scattered blue oaks, willows, and emergent vegetation
V 16.88 - V 16.97	Non-Native Annual Grassland	Grazed
V 16.97 - V 16.98	Seasonal Wetland	Seasonally wet topographic depression between hills
V 16.98 - V 17.42	Non-Native Annual Grassland	Grazed

C.3.1.2 Applicable Regulations, Plans, and Standards

Applicable regulations include federal, state and local regulations that address the protection of sensitive species, wetlands, streams, riparian plant communities, and heritage trees.

Federal Endangered Species Act. The Federal Endangered Species Act of 1973 and Title 16 (implementing regulations) of the United States Code of Regulations (CFR) 17.1 et seq., designate and provide for protection of threatened and endangered plants and animals and their critical habitat. Procedures for addressing federal-listed species follow two principal pathways, both of which require consultation with the USFWS, which administers the act for all terrestrial species. The first pathway is set up for situations where a non-federal government entity must resolve potential adverse impacts to species protected under the Act. The second pathway is spelled out under Section 7 of the Act and involves projects with a federal connection or requirement; typically these are projects where a federal

lead agency is sponsoring or permitting the Proposed Project. For example, a permit from the U.S. Army Corp of Engineers may be required if a project will result in wetland impacts. In these instances, the federal lead agency initiates and coordinates the following steps:

- Informal consultation with USFWS to establish a list of target species
- Preparation of biological assessment assessing potential for the project to adversely affect listed species
- Coordination between state and federal biological resource agencies to assess impacts/proposed mitigation
- Development of appropriate mitigation for all significant impacts on federally listed species.

The USFWS ultimately issues a final opinion on whether the project will affect the federally listed species. A Section 10(a) Endangered Species Incidental Take Permit may be necessary when the "taking" of a species is incidental to the lawful operation of a project.

Migratory Bird Treaty Act. The Migratory Bird Treaty Act (MBTA) implements international treaties between the United States and other nations devised to protect migratory birds, any of their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. The State of California has incorporated the protection of birds of prey in Sections 3800, 3513, and 3503.5 of the Fish and Game Code. Enforcement of the Act is carried out by USFWS law enforcement officials, while California Fish and Game codes are enforced by CDFG game wardens.

Federal Clean Water Act. As also described in Sections C. (Hydrology) and C. (Land Use), Section 404 of the Clean Water Act prohibits the discharge of dredged or fill material into "waters of the United States" without a permit from the U.S. Army Corps of Engineers (USACE). The definition of waters of the United States includes wetland areas "that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3 7b). The U.S. Environmental Protection Agency (U.S. EPA) also has authority over wetlands and may override a USACE permit. Substantial impacts to wetlands may require an individual permit. Projects that only minimally affect wetlands may be eligible for one of the Nationwide Permits that require less review than an individual permit.

Executive Order 11990, Section 1(a) established a policy of "no net loss" of wetlands. Compensation for wetland impacts may include restoration and/or off-site replacement or enhancement. However, the characteristics of the restored or enhanced wetlands must be equal to or better than those of the affected wetlands.

California Endangered Species Act. Sections 2050 through 2098 of the California Fish and Game Code outline the protection provided to California's rare, endangered, and threatened species. Section 2080 of the California Fish and Game Code prohibits the taking of plants and animals listed under the authority of the California Endangered Species Act of 1984. Individual animal species declared to be threatened or endangered by the California Fish and Game Commission are listed in Title 14 of the

California Code of Regulations (CCR) under Section 670.5. In addition, the Native Plant Protection Act of 1977 (Fish and Game Code Section 1900 et seq.) gives the California Department of Fish and Game (CDFG) authority to designate state Endangered, Threatened, and Rare plants and provides specific protection measures for identified populations.

Sensitive species that would qualify for listing but are not currently listed are afforded protection under CEQA. The CEQA Guidelines, Section 15065 ("Mandatory Findings of Significance") requires that a reduction in numbers of a rare or endangered species be considered a significant effect. CEQA Guidelines Section 15380 ("Rare or endangered species") provides for assessment of unlisted species as rare or endangered under CEQA if the species can be shown to meet the criteria for listing. Unlisted plant species on the California Native Plant Society's Lists 1A, 1B, and 2 would typically be considered under CEQA.

California Streambed Alteration Notification/Agreement. Sections 1601-1606 of the California Fish and Game Code require that a Streambed Alteration Application be submitted to the CDFG for "any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake". The CEQA reviews the proposed actions and, if necessary, submits to the Applicant a proposal for measures to protect affected fish and wildlife resources. The final proposal that is mutually agreed upon by the Department and the Applicant is the Streambed Alteration Agreement. Often, projects that require a Streambed Alteration Agreement also require a permit from the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act. In these instances, the conditions of the Section 404 permit and the Streambed Alteration Agreement may overlap.

Local Tree Ordinances. The Contra Costa County Tree Ordinance Chapter 816 (1989), the Alameda County Public Works Agency Pilot Tree Policy (2000), the City of Livermore Tree Ordinance, Chapter 12:20 (1997), and the City of Pleasanton Tree Preservation Ordinance, Chapter 17.16 (1999) establish standards for maintenance, management, and preservation of native and indigenous trees.

C.3.2 ENVIRONMENTAL IMPACTS ANALYSIS AND APPLICANT PROPOSED MEASURES

C.3.2.1 Introduction

This section presents the environmental impacts and mitigation measures for the Proposed Project related to biological resources. The first part of the section is an overview of the definition and use of significance criteria related to biological resources. The second part discusses impact assessment methodology. The third part of the section presents the Applicant's proposed measures to avoid or minimize project impacts related to vegetation and wildlife resources, identifies impacts, assigns a level of significance to each impact, and outlines steps that would be taken to mitigate significant impacts.

C.3.2.2 Definition and Use of Significance Criteria

Significance criteria for impacts to biological resources were developed based on Section 15065 and Appendices G and I of the CEQA Guidelines, and Section 21083 of the Public Resources Code.

According to these guidelines, a project will have a significant effect on biological resources if it would:

- Substantially affect, reduce the number of, or restrict the range of a unique, rare, or endangered species of animal or plant, or the habitat of the species (Section 15065, Appendix G, Appendix I)
- Interfere substantially with the movement of any resident or migratory fish or wildlife species (Appendix G)
- Threaten to eliminate a plant or animal community (Section 15065a)
- Substantially diminish or reduce habitat for fish, wildlife, or plants (Appendix G)
- Change the diversity of species, or number of any species of plants or animals (Appendix I)
- Cause a fish or wildlife population to drop below self-sustaining levels (Section 15065)
- Introduce new species of plants or animals into an area, or in a barrier to the normal replenishment of existing species (Appendix I)
- Deteriorate existing fish or wildlife habitat (Appendix I).

For the purposes of this EIR, three principal components of these guidelines were considered:

- Magnitude of the impact (e.g., substantial/not substantial)
- Uniqueness of the affected resource (rarity)
- Susceptibility of the affected resource to disturbance (sensitivity).

The evaluation of significance must consider the interrelationship of these three components. For example, a relatively small magnitude impact to breeding burrowing owls (*Athene cunicularia*) would be considered significant because the species is increasingly rare in the San Francisco Bay region and is believed to be very susceptible to burrow disturbance. On the other hand, a plant community such as Non-Native Annual Grassland is neither rare nor sensitive to disturbance. Therefore, a much larger magnitude of impact would be required to result in a significant impact.

C.3.2.2.1 *Vegetation*

The following significance criteria were used to assess the significance of potential project impacts to affected vegetation resources. References to CEQA Guidelines are included in parentheses. Significant impacts are those that would result in:

- Substantial disturbance of a special status plant species[1] or its habitat (Section 15065, Appendix G, Appendix I)

[1] Special status species are defined here to include all species listed and proposed for listing, or candidates for listing under the Federal Endangered Species Act; the California Endangered Species Act, the CDFG's list of Species of Special Concern; plant species included on CNPS Lists 1A, 1B, and 2; as well as species that would qualify for inclusion into any one of these lists (CEQA Guidelines, Section 15380). This EIR

- A substantial reduction in the numbers of a special status plant species (Section 15065)
- Indirect loss of a special status plant species or its habitat (Section 15065a)
- Filling or degradation of wetlands and waters subject to the jurisdiction of the USACE pursuant to the Federal Clean Water Act (no net loss of wetlands) (Appendix G and Appendix I)
- Creation of substantial barriers for dispersal of plant species (Appendix G)
- Compaction of soils, clearing of vegetation, or other activities that substantially increase erosion and sedimentation (Appendix G)
- Introduction of non-native plant species or facilitating the dispersal of existing populations of non-native plants (Appendix I).

C.3.2.2.2 *Wildlife*

All impacts that are defined in Section 15065 of the CEQA Guidelines as significant have been designated as significant in this EIR. A project is considered to have potentially significant biological impacts if it would:

- Substantially diminish habitat for fish or wildlife
- Cause a fish or wildlife population to drop below self-sustaining levels
- Interfere substantially with the movement of any resident or migratory fish or wildlife species
- Reduce the number or restrict the range of a rare or endangered species
- Adversely affect species under the protection of the Migratory Bird Treaty Act (burrowing owls, nesting raptors, passerines)
- Threaten to eliminate a plant or animal community
- Substantially affect a rare or endangered wildlife species or the habitat of that species.

Non Listed Species

Significant impacts to plant and wildlife species are not limited to projects affecting only federal or state listed endangered species. A species that is not listed will also be considered rare or endangered if it can be shown to meet the following criteria (CEQA Guidelines 15380):

- When its survival and reproduction in the wild are in immediate jeopardy from one or more causes
- It is existing in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens
- It is likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

incorporates recently-finalized changes to the CNPS Inventory, which reflect the current state of knowledge on the rarity and endangerment of species.

C.3.2.3 Impact Assessment Methodology

C.3.2.3.1 *Vegetation*

Plant communities along the EIR study corridors were identified using aerial photography analysis and field surveys conducted from August through October, 2000. Proposed locations and impacting parameters were compared with the locations of identified biological resources to determine the following:

- Type of affected resource
- Area, population, and status of the affected resource
- Nature of the potential impact (e.g., construction vs. maintenance, short-term vs. long-term, and direct vs. indirect).

Special status plant populations were reviewed and designated for avoidance based on the species' rarity, magnitude of the potential impacts, and sensitivity of the species to disturbance. Only one special status plant species, San Joaquin saltbush, has been found within the Proposed transmission line routes and would be avoided by the Proposed Project. No other special status plant species have been recorded within the Proposed transmission line routes, but habitat for several locally occurring plant species lies within portions of the EIR study corridors. Disturbance to potential habitats for special status plant species (such as Alkali Meadow, Seasonal Wetland) as a result of tower construction or overland travel, would be considered a significant impact.

Other examples of potentially significant impacts to vegetation resources include trenching to install underground lines through wetland and riparian habitats and removal of trees or other vegetation for construction of towers, underground lines, or overland travel.

Potential impacts to vegetation resources were compared to the significance thresholds listed in Section C.3.2.2.1, and impact significance determined. Mitigation for significant impacts is also recommended.

C.3.2.3.2 *Wildlife*

The significance criteria (Sec. C.3.2.2.2.) were applied to the wildlife species and habitats within the Proposed transmission line routes in order to evaluate the significance of impacts associated with the construction and operation of the Proposed Project. An example of a significant impact is substantial disturbance or habitat removal of a burrowing owl nest site. Burrowing owl burrows are often used on an annual basis during the breeding season and are established by owl use over many years. In this example, a substantial impact may be construction activity in the vicinity of a nest that would disrupt normal breeding behavior or result in the abandonment of a nest.

Other examples of sensitive wildlife resources include breeding habitat for the California red-legged frog and California tiger salamander, and the Alameda whipsnake critical habitat areas. These limited-

distribution habitats are most susceptible to project impacts due to their importance to wildlife populations during critical life stages, and the limited amount of these resources available. Project impacts to such sensitive resources would have far-reaching consequences for one or more wildlife populations, and are therefore considered significant.

Impacts to less sensitive wildlife habitat would be considered adverse but not significant. Widespread habitat that does not have concentrated wildlife populations or critical resources is considered less sensitive. For example, impacts to most Non-Native Annual Grassland and Landscaped Areas would not be considered significant.

C.3.2.4 Applicant Proposed Measures

In the Proponent's Environmental Assessment (November 1999), PG&E Co. proposed several measures designed to reduce potential impacts to biological resources associated with construction and operation of the Proposed Project. The following general commitments have been made by PG&E Co. in the PEA:

- An ongoing endangered species/sensitive habitat educational program for construction crews will be conducted by a qualified biologist(s) prior to the commencement of the Proposed Project and during construction activities. Sessions will include discussion of the federal and state Endangered Species Acts, the consequences of noncompliance with these acts, identification and values of sensitive species and wetland habitats, and review of mitigation requirements.
- An educational brochure will be produced for construction crews working on the project. Color photographs of sensitive species will be included, as well as a discussion of protective measures agreed to by PG&E Co. and the resource agencies.
- Vehicles will be confined to existing roads or approved routes.
- Sensitive resource areas such as rare plant populations, habitat for listed species, and active nests of protected birds in the project vicinity will be mapped and marked in the field.
- A biological monitor will be on site during any construction activity in sensitive habitat and will ensure implementation of, and compliance with, mitigation measures. The monitor has the authority to stop work and determine alternative work practices in consultation with construction personnel if construction activities are likely to impact sensitive biological resources. (Note: this does not refer to the Mitigation Monitor which the CPUC and/or other permitting agencies may independently assign. See Section C.3.7)
- Photodocumentation of all habitat before and after construction will occur and be part of the project report due to the resource agencies no later than 90 days following completion of construction.
- Diligent efforts by PG&E Co. will be used to protect the existing plant community and to keep temporary impacts to a minimum. However, temporary impacts to habitat will be addressed through a revegetation/restoration plan prepared in conjunction with the resource agencies.
- The biological monitor will document monitoring activities and prepare a report within 90 days of completion of construction.
- Trash dumping, firearms, open fires (such as barbecues), hunting, and pets will be prohibited in the project area.

Table C.3-19 presents more specific Applicant Proposed Measures that PG&E Co. has stated it will implement to minimize environmental impacts.

Table C.3-19 Applicant Proposed Measures

Issue/Species	Measure Text
Construction	
Measure 7.1. Emergent Wetlands	Any permanent loss of emergent wetlands resulting from the construction of access roads will be mitigated at a ratio of 1:1 through: • The purchase, restoration and protection of severely degraded wetlands in the vicinity of the project, • The creation of new emergent wetland from upland habitat within the vicinity of the project, and/or • The purchase from a mitigation bank of similar wetlands in the vicinity of the project.
Measure 7.2. Special Status Plant Species	Following the completion of all special status plant surveys, if it is determined that they occur within the project area, PG&E will modify the project to avoid impacts to the identified species. If identified special status plant species cannot be avoided, PG&E will: • Modify the project to minimize impacts to identified species • Acquire suitable habitat for identified species within the project vicinity • Develop a long term habitat enhancement plan (HEP) for identified species • Monitor the implementation of and the compliance with mitigation measures as outlined in the HEP
Measure 7.3. Harm or Harassment of a Federal Listed Endangered Species. San Joaquin Kit Fox	PG&E will comply with the USFWS's "Standard Recommendations for the Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance," (USFWS, April 1, 1997). This document includes measures for preconstruction surveys and measures to minimize or eliminate mortality, harm, or harassment resulting from construction activity. • All surveys and den excavations will be conducted by a qualified biologist. • Preconstruction/preactivity surveys will be conducted in the proposed active phase area no less than 14 days and no more than 30 days prior to the beginning of ground disturbance and/or construction activities that are likely to impact the San Joaquin kit fox • Any potential den will be monitored for evidence of kit fox use by placing a tracking medium at den entrances for at least 3 consecutive nights. If a den is determined to be occupied, progressive plugging of the den may be employed to discourage use, and the den closed after it is determined to be unoccupied for a minimum of 3 consecutive nights (USFWS, 1997) • Potential dens that can be avoided during ground disturbing activities will have an exclusion zone established around them. The radius of the exclusion zone will be 100 feet for known dens and 50 feet for potential or atypical dens • Project-related vehicles will observe a 20-mph speed limit in project areas deemed to provide kit fox habitat (as per Construction and Operational Requirements, USFWS 1997), except as posted on county roads, and state and federal highways. Nighttime construction will be minimized. Vehicles will be limited to the designated project area to avoid kit fox habitat • The use of rodenticides and herbicides will be restricted by PG&E within project boundaries • To prevent accidental entrapment of kit fox during construction, all excavated holes or trenches will be covered at the end of each work day with plywood or similar materials. Before such holes are filled, they will be thoroughly inspected for trapped animals. In the event of a trapped animal, ramps or other structures will be installed immediately to allow the animal to escape, or the USFWS will be contacted for advice • PG&E will appoint a representative who will notify the USFWS and CDFG immediately in the event of an accidental death or injury to a kit fox during project-related activities, and a follow-up letter will be submitted within 3 working days of the accident • All temporary disturbance areas will be recontoured, if necessary, and revegetated to promote restoration of the area to pre-project conditions.
Measure 7.3(a). Replacement of Denning and Foraging Habitat for the San Joaquin Kit Fox	All foraging and denning habitat that could be lost to construction activities will be calculated and reported to the USFWS and CDFG. This acreage will be mitigated at a 3:1 ratio with the purchase of habitat credits or the purchase of offsite mitigation land.

Issue/Species	Measure Text
Measure 7.4. Interruption of Breeding and Nesting Activities of Avian Species	If occupied habitat is detected either within the right-of-way or 250 feet from the project-impact area, measures to avoid, minimize, or if necessary, mitigate impacts will be incorporated into the project. For the burrowing owl (known to be present), specific mitigation measures are suggested by CDFG (Burrowing Owl Consortium, 1993) and are discussed separately under Measure 4(a). All species and subspecies of the families listed in the Migratory Bird Treaty Act and their nests are protected. In addition, the golden eagle is protected under the Bald Eagle Protection Act. Take of individual animals will be avoided by conducting pre-construction surveys before the spring breeding season (and prior to start of construction). A survey of the construction area for potential avian species will be performed by a qualified biologist. It is expected that if construction occurs in suitable habitat before the onset of the breeding season, the construction disturbance would cause bird species to seek alternate sites for breeding and nest construction. The following measures will reduce the likelihood of impacting either sensitive habitat or directly impacting birds that could be nesting. • To the extent possible, transmission line towers and access roads will avoid sensitive habitat. Flexibility exists in the exact placement of these features • To the extent possible, the breeding season (February to September) will be avoided; however, if avoidance of active nests is not practicable, a construction-free buffer of at least 250 feet around the nest will be maintained to protect breeding birds • A biological monitor will remain onsite to monitor the activity of the nesting birds during work to determine if work could continue without causing significant disturbance to the birds and to ensure implementation of and compliance with all avoidance and mitigation measures • Wetland habitat will be spanned by the transmission line. At Arroyo Valle, a dry bore will be made under the riverbed. These methods are included to avoid direct impacts to breeding habitat • Should nest abandonment during breeding occur, the biological monitors will notify the appropriate resource agencies.
Measure 7.4(a). Burrowing Owl	A pre-construction survey will be conducted by a qualified biologist in all areas providing suitable habitat at least 30 days prior to construction according to the most recent Burrowing Owl Survey Protocol and Mitigation Guidelines (Burrowing Owl Consortium, 1993), and as suggested by CDFG. Surveys will cover grassland areas within a 500-foot buffer along the proposed transmission line routes and substations, and they will include areas designated for temporary laydown areas and access roads. The survey will include checking for the burrowing owl and owl sign. If owls are found to be using the site and avoidance is not feasible, a passive relocation effort (displacing the owls from the site) may be conducted as described below, subject to the approval of the CDFG. If occupied habitat is found on or adjacent to the Proposed Project features, measures to avoid, minimize, or mitigate impacts to burrowing owls will be incorporated into the project. They will include: • Confirmed unoccupied burrows along the route may be collapsed • Establish areas around the occupied burrows where no disturbance may occur. The sensitive areas shall extend 160 feet around the occupied burrows during the non-breeding season of September 1 through January 31, and shall extend 250 feet around occupied burrows during the breeding season from February 1 through August 31. A barrier fence will be erected during the breeding season around occupied burrows. If this avoidance method is not possible, passive relocation of the owls may occur but only during the non-breeding season. Passive relocation would include installing one-way doors on the entrances of burrows located within 250 feet of the Proposed Project features. The one-way doors shall be left in for 48 hours to ensure the owls have vacated the burrow. Owls would not be relocated during the breeding season. • For each active burrow that will be excavated by project construction, one natural or artificial burrow will be provided outside of the 250-foot buffer. These alternate burrows will be monitored daily for 1 week to ensure the owls have successfully moved • Burrows within the construction area shall be excavated under the supervision of a biological monitor using hand tools and then refilled to prevent reoccupation. If any burrowing owls are discovered during excavation, the excavation shall cease and the owl allowed to escape. Excavation may be completed when the biological monitor confirms that the burrow is empty • All work will be coordinated with CDFG.

Issue/Species	Measure Text
Measure 7.5. Interruption of Breeding/Denning Activities of Sensitive Wildlife. Mammals	• Before the spring breeding season (and prior to start of construction), a survey of the construction area for potential sensitive habitat will be performed by a qualified biologist. It is expected that if construction occurs in suitable habitat before the onset of the breeding season, the construction disturbance would cause mammal species to seek alternate sites for breeding and denning • To the extent possible, sensitive habitat, including burrows, would be avoided by moving the location of the transmission pole or the location of access roads. Some flexibility exists in the exact placement of these features along the route • A biological monitor will be present to ensure implementation of, and compliance with, these mitigation measures • A minimum buffer of at least 300 feet will be maintained around known dens of the American badger during the breeding season (March to September) to avoid direct loss of individuals • Vehicular speeds will be kept to 20 mph in sensitive wildlife habitat • If sensitive species are located prior to construction, PG&E will consult with the USFWS and CDFG to coordinate avoidance.
Measure 7.6. California Red-legged Frog (CRLF)	Prior to construction, surveys will be performed at aquatic sites that could potentially be impacted by project activities and for which presence or absence of the species has not yet been demonstrated. To avoid construction impacts to aquatic habitats, a buffer zone of 30 feet during the dry season (May to October) and 200 feet during the wet season (November to April) will be established around all ponds and drainages in the project area that contain this species and could potentially be impacted by project activities. Buffers are work exclusion areas. If work must be conducted in buffer zones, the type and duration of the work will be negotiated with the appropriate resource agency prior to construction in the area. To minimize impacts to the ephemeral drainage at Milepost B13.18, appropriate construction techniques will be employed to minimize disturbance of stream channels and banks. If significant impacts occur to breeding or estivation habitat of the CRLF, PG&E will replace the habitat at a ratio negotiated with USFWS. The permanent loss of estivation habitat (upland impacts) due to construction of access roads and towers could be considered a significant impact by the USFWS and could require a replacement ratio of 1:1. However, this would vary depending on the abundance of suitable habitat in the project vicinity. In the unlikely event that construction activities occur in wetlands identified as suitable CRLF habitat, PG&E will enter into formal consultation with the USFWS and implement the avoidance and minimization measures outlined in a Biological Assessment prepared for the CRLF. Avoidance and minimization measures that the USFWS would likely require include the following: • Prior to the initial site investigation and subsequent ground-disturbing activities, a qualified biologist would instruct all project personnel in environmental training, including recognition of CRLF and their habitat. Under this program, workers shall be informed about the presence of CRLF and habitat associated with the species, and that unlawful take of the an9imal or destruction of its habitat is a violation of the federal Endangered Species Act. The biologist shall instruct all construction personnel regarding the life history of CRLF, the importance of marshes/wetlands to the frog, and the terms and conditions of the Biological Opinion • A qualified biologist would be present during construction activities to monitor and determine the extent of potential ground-disturbing activities within 30 feet of suitable habitat • Ground-disturbing activities within 30 feet of suitable habitat could only occur between May 1 and October 31 • Between November 1 and April 30, ground-disturbing activities will not occur within 30 feet of suitable habitat • Between May 1 and October 31, equipment will not be allowed within 30 feet of suitable habitat until a qualified biologist inspects the site to ensure the route was clear of CRLF • Clearing of wetland vegetation will be confined to the minimal area necessary. Excavation activities will be accomplished by using equipment located on and operated from the side of the drainage with the least interference practicable for emergent vegetation • If a CRLF is encountered during excavations, activities would cease until the frog was removed and relocated by a USFWS approved biologist. After completion of construction activities, any debris will be removed and, wherever feasible, disturbed areas will be restored to pre-project conditions. A restoration plan will be prepared for those sites where emergent vegetation is removed. The following elements will be included in the restoration plan: • Prior to all construction activities, the site will be photographed to establish the pre-project condition • After completion of construction activities, the site will be graded to the pre-existing contour or a contour that would improve the restoration potential of the site.

Issue/Species	Measure Text
	• The site will be replanted and hydro-seeded. Recommended plantings consist of wetland emergents, low-growing cover on or adjacent to banks, and upland plantings/hydro-seeding to encourage use by other wildlife. Replanting should involve the same species removed during construction. Plantings should be at least the same density and compositions as the pre-project level • The restoration plan will identify success criteria for the restoration • Habitat restoration will be monitored for 1 year from implementation. Monitoring reports documenting the restoration effort will be submitted to the USFWS upon completion of the restoration implementation and 1 year from restoration implementation. Monitoring reports will include photo documentation, the date restoration was completed, and the species used for plantings. Monitoring reports will also include recommendations for remedial actions; approval from the USFWS, if necessary; and justification from release of any further monitoring, if requested.
Measure 7.7. California Tiger Salamander (CTS)	Prior to construction, surveys will be performed at aquatic sites that could potentially be impacted by project activities and for which presence or absence of the species has not yet been demonstrated. To avoid potential construction impacts to aquatic habitats, a buffer zone of 30 feet during the dry season (May to October) and 200 feet during the wet season (November to April) will be established around all ponds and drainages in the project area that contain this species and could potentially be impacted by project activities. Buffers are work exclusion areas. If work must be conducted in buffer zones, the type and duration of the work will be negotiated with the appropriate resource agency prior to construction in the area. If significant impacts occur to CTS estivation or breeding habitat, PG&E will replace the habitat at a ratio negotiated with CDFG. The permanent loss of estivation habitat usually requires a replacement ratio of 1:1; however, this may vary if estivation habitat is abundant in the general vicinity. In the unlikely event that excavation activities occur in wetlands identified as suitable CTS habitat, PG&E will enter into formal consultation with CDFG and USFWS and will implement avoidance and minimization measures. These measures could include the following: • Before construction begins, a qualified biologist will instruct all project personnel in environmental awareness training, including recognition of CTS and their habitat. Under this program, workers shall be informed about the presence of CTS and habitat associated with the species, and that unlawful take of the animal or destruction of its habitat would be a violation under state law. The biologist will instruct all construction personnel regarding the life history of CTS, the importance of wetlands to the salamander • A qualified biologist will be present during construction activities to monitor and determine the extent of potential ground-disturbing activities within 30 feet of suitable habitat • Ground-disturbing activities within 30 feet of suitable habitat could only occur between May 1 and October 31 • Between November 1 and April 30, ground-disturbing activities will not occur within 200 feet of suitable habitat • Clearing of wetland vegetation will be confined to the minimal area necessary. Excavation activities will be accomplished by using equipment located on and operated from the side of the drainage with the least interference practicable for emergent vegetation • Before allowing equipment within 30 feet of suitable habitat, a qualified biologist will inspect the site to ensure the route is clear of CTS • If a CTS is encountered during excavations, activities would cease until the salamander was removed and relocated by a CDFG-approved biologist • After completion of construction activities, any construction debris will be removed; wherever feasible, disturbed areas shall be restored to pre-project conditions.
Measure 7.8. Western Pond Turtle (WPT)	Prior to construction, surveys will be performed at aquatic sites that could potentially be impacted by project activities and for which presence or absence of the species has not yet been determined. To avoid potential construction impacts to aquatic habitats, a buffer zone will be established around all ponds in the project area which contain this species and could potentially be impacted by project activities. Buffers are work exclusion areas. If work must be conducted in buffer zones, the type and duration of the work will be negotiated with the appropriate resource agency prior to construction in the area. This buffer zone will be a minimum of 30 feet during the dry season (May to October) and a minimum of 200 feet during the wet season (November to April).
Measure 7.9. Western Spadefoot Toad (WST)	Prior to construction, surveys will be performed at aquatic sites that could potentially be impacted by project activities and for which presence or absence of the species has not yet been determined. To avoid potential construction impacts to aquatic habitats, a buffer zone of 30 feet during the dry season (May to October) and 200 feet during the wet season (November to April) will be established around all ponds in the project area that contain this species and could potentially be impacted by project activities. Buffers are work exclusion areas. If work must be conducted in buffer zones, the type and duration of the work will be negotiated with the appropriate resource agency prior to construction in the area.

Issue/Species	Measure Text
Measure 7.10. Vernal Pool Fairy Shrimp (VPFS) and Longhorn Fairy Shrimp (LFS)	Prior to construction, surveys will be performed at aquatic sites that could potentially be impacted by project activities and for which presence or absence of the species has not yet been determined. To avoid potential construction impacts to aquatic habitats, a buffer zone will be established around all ponds and drainages in the project area which contain this species and could potentially be impacted by project activities. Buffers are work exclusion areas. If work must be conducted in buffer zones, the type and duration of the work will be negotiated with the appropriate resource agency prior to construction in the area. A 250-foot buffer will be maintained during the wet season (first substantial rainfall after October 31 until May 15), and a 100-foot buffer will be maintained during the remainder of the year. Construction monitoring will be done at each Seasonal Wetland with the potential to support listed shrimp. Monitoring of each site will occur during all construction activities within 250 feet of potential habitat. If the areas of potential shrimp habitat can be avoided, no additional mitigation measures are required. If the wetlands cannot be avoided, formal consultation with the USFWS would be required, and a Biological Assessment would need to be prepared.
Measure 7.11. Curved-foot Hygrotus Diving Beetle and Ricksecker's Water Scavenger Beetle	To avoid potential construction impacts to aquatic habitats, a buffer zone of 30 feet during the dry season (May to October) and 200 feet during the wet season (November to April) will be established around all ponds in the project area that contain this species and could potentially be impacted by project activities. Buffers are work exclusion areas. If work must be conducted in buffer zones, the type and duration of the work will be negotiated with the appropriate resource agency prior to construction in the area.
Measure 7.12. San Joaquin Saltbush	Neither towers nor access roads will be located within the San Joaquin saltbush population present at Milepost W2.53 to W2.60. Sock line stringing will be done by helicopter, and a monitor will be present during construction to ensure that impacts to the population are reduced to less than significant levels.
Operation	
Measure 7.13. Predation	The following measure will be implemented to reduce perching and predation opportunities: • Tubular steel poles will be used extensively throughout the project area to minimize perching and predation opportunities • Predation opportunities will be further reduced through the use of deterrents such as bird guards (Nixalite) to discourage perching of raptors at all tower locations within areas containing suitable habitat for burrowing owls. This deterrent consists of rows of spring-tempered nickel stainless-steel prongs with sharp points extending outward at all angles, except where affixed, on potential perches on new poles.
Measure 7.14. Bird Collisions	No major flyways along the Phase 2 (North Area) route have been identified in the existing literature. However, bird flight patterns and collision mortality will be monitored for 3 years after construction on portions of the line where the potential for mortality is considered moderate to high (such as the Altamont Pass area). The purpose of the monitoring is to determine where problems might occur. This information would be necessary prior to discussing the need for appropriate mitigation methods and further action with the USFWS. All monitoring data, and the need for any further action, will be shared with the USFWS.

C.3.2.5 Impact Overview

This section is an overview of the biological resource impact categories identified in the impact assessment. Sections C.3.3 through C.3.6 present the potential project impacts related to vegetation and wildlife resources and outline the steps that could be taken to mitigate significant impacts.

C.3.2.5.1 *Vegetation*

Assessments of potential impacts to special status plants and plant communities are organized into four impact categories:

- Temporary and permanent loss of plant communities
- Temporary and permanent loss of special status plant species and their habitats
- Overland travel disturbance of plant communities
- Overland travel disturbance of special status plant species and their habitats.

Temporary and permanent habitat losses are direct impacts to special status plants and plant communities. The remaining two impact categories are considered indirect impacts of the Proposed Project. Direct impacts can be quantitatively assessed because they are functionally linked to the actions required to construct, operate, and maintain the Proposed Project. Indirect impacts are assessed with less quantification because they can be affected by a number of independent factors that can vary in magnitude or frequency (e.g., duration of construction, time of year, existing plant community condition). All four impact categories contain potential impacts that could result from all phases of the project: construction, operation, and maintenance of the proposed facilities.

It was assumed that temporary habitat loss would consist of areas that have been cleared or bladed to facilitate construction but possess potential for restoration. Temporary habitat loss is assumed for all areas around towers and substations during the construction phase. Examples of impacts assumed to cause temporary habitat loss include bladed construction access and foot work areas at structure locations. Temporary disturbance around each constructed structure site will be limited to a 100-foot radius around the foundation. Overland travel by construction traffic is considered an indirect impact, and is assumed for areas between towers that do not have existing or proposed access roads. Permanent habitat loss was assumed for areas that will be occupied by permanent project facilities such as substations, towers, and permanent access routes inside the corridor. Tower work areas would occupy approximately 30,000 square feet (100-foot radius around structure), and structure foundations would occupy approximately 50 square feet per structure (4-foot diameter foundation holes) (PG&E 1999).

All impacts discussed in the following section are designated as "significant" or "not significant." However, the sensitivity of the adversely affected resources varies. Impacts to some natural plant communities are considered significant because of the potential for indirect effects, such as erosion of soils from a construction site into a wetland. Other impacts are considered significant because of the inherent value or sensitivity of the resource, such as an impact to a California Native Plant Society List 1B plant species because it is considered by CNPS to be rare, threatened, or endangered in California and elsewhere.

C.3.2.5.2 *Wildlife*

Impacts to wildlife resources as a result of Proposed Project construction, operations, and maintenance were separated into those likely to occur from construction (both short-term and long-term impacts) and those that could occur as a result of transmission line and substation operation. Potential impacts to federal- and state-listed species, candidate species, and species of special concern are also discussed.

Seven general impact categories are described below. Project-related disturbances described in each category are meant to include all activities that might occur during the life of the project, including scheduled maintenance activities.

Wildlife Habitat Removal. Wildlife habitat removal includes activities such as: (1) grading and blading, (2) tree or shrub removal, and (3) tree trimming or scraping road surfaces such that subsurface

disturbance occurs. Each of these activities could effectively remove existing habitat, thereby reducing the amount of habitat available to local wildlife populations. Habitat removal would occur primarily during project construction when vehicles require access to structure or substation locations. In some areas, access would require construction of new roads or upgrade of existing roads, including road widening. Blading of previously undisturbed surfaces may also occur to access structure locations. Blading would remove rocks, large shrubs, and other objects from the soil surface, leaving a relatively clear pathway for construction vehicles. Tree trimming would remove branches within the right-of-way (ROW) to provide clearance for the transmission lines. In addition, habitat would be removed at many structure locations, at substation locations, and at construction staging areas. Staging areas may not be graded in all cases; however, it is anticipated that these areas could be substantially damaged by vehicle parking and materials storage activities during construction. Specific wildlife habitats, which would be affected, are discussed in Section C.3.1.1.

Wildlife Habitat Disturbance. This category includes activities during construction or operation that would affect the local wildlife habitat but would not involve subsurface soil disturbance, blading, or clearing of vegetation. The primary form of habitat disturbance would be the use of heavy equipment during stringing of the line, and use of off-road vehicles within the 160-foot ROW (see Project Description). Off-road overland travel would not involve grading or road improvements. Overland travel during construction and maintenance of the Proposed Project would result in some crushed vegetation and potential loss of individual animals such as small mammals or reptiles whose burrows would be compacted.

Direct Mortality and Direct Disturbance to Wildlife. Direct loss of small mammals, reptiles, and other less mobile species would result primarily from the use of construction vehicles. Direct mortality associated with increased human activity is also anticipated, particularly animal/vehicle collisions. In addition, temporary direct disturbance to wildlife would occur during project construction.

Indirect Impacts to Wildlife from Increased Human Presence and Access. Indirect impacts resulting from human disturbance during project construction, maintenance, or the reclamation process (due to heavy vehicle operation, or helicopter flights, etc.) would cause displacement of some wildlife to other habitats, which may or may not be able to support additional animals. Impacts as a result of increased human disturbance may also include reduced reproductive success in local wildlife populations, including songbirds, small mammals, reptiles, and special status species.

Increased Predation. The Proposed Project would introduce structures to areas that are currently open, treeless habitats. As a result, wildlife species such as raptors in the vicinity of the proposed transmission line route would be given a competitive advantage. The addition of tall structures that can be used as perches during hunting would benefit some raptor populations by providing a secure vantage point from which to survey large areas of habitat. In addition, habitats, which raptors had previously used only occasionally, would become routine hunting areas due to the increase in available perches.

Bird Electrocution. Raptors are most susceptible to electrocution because of their size, distribution, and behavior (Olendorff et al., 1981). They often perch on tall structures that offer them optimal views of prey. Bird electrocutions occur when the wingspan of the bird is greater than the spacing between any two conductors on a power pole or when a bird bridges the gap between a conductor and a ground wire. Bird electrocutions are, therefore, generally a problem associated with low voltage powerlines less than 69 kV (on which conductors are closer together). High voltage transmission lines, such as those to be constructed in the Proposed Project, are typically constructed with a greater distance between conductors; thus, there is less risk of bird electrocutions. The spacing of conductors on transmission line structures is almost always greater than the largest North American bird, except perhaps for the California Condor.

Bird Collisions. Most bird collisions with powerlines occur under two common conditions: (1) when a powerline or other aerial structure transects a daily flight path used by a concentration of birds, and (2) when migrants are traveling at reduced altitudes and encounter tall structures in their path (Brown et al., 1993). Collision rates generally increase in low light conditions, during inclement weather, such as rain or snow, during strong winds, and during panic flushes when birds are startled by a disturbance or are fleeing from danger. Collisions are more probable along wetlands, valleys that are bisected by powerlines, and within narrow passes where powerlines run perpendicular to flight paths.

C.3.2.5.3 *Environmental Impacts and Mitigation Measures*

The Proposed Project (and some Alternatives) will result in temporary and permanent removal of habitat. Temporary habitat removal would include short-term impacts during construction. Permanent habitat removal would involve long-term impacts associated with permanent project facilities, such as substations, that will remain throughout the life of the project. Examples of these impacts are:

- Construction/upgrade of access roads within proposed transmission line route for travel between towers (temporary)
- Blading around tower sites (temporary)
- Substation construction (permanent)
- Structure foundations (permanent)
- Construction of permanent access routes within the proposed transmission line route (permanent).

Each of these activities would cause the removal of existing vegetation and substantial disturbance of the surface soil layers. Specific impacts and mitigation measures are described below. Impacts are broken down into Construction, Operations, and Special Status Species impacts.

Proposed project impacts are presented according to the impact categories already described. Impacts are identified as significant or not significant and classified according to the resulting level of impact when mitigation measures are implemented. Mitigation measures are numbered and cross-referenced when they apply to more than one impact. Not all of the wildlife species identified in the setting

section will be discussed in this section. The impacts and mitigation discussion will address wildlife species and habitats that would be affected by the project, based on information obtained through field surveys and published and unpublished resource agency data.

Mitigation measures have not been proposed for **Class III** impacts (adverse, but not significant) for the following reasons: (1) these impacts would be mitigated indirectly when plant community mitigation is implemented, (2) impacts are associated with wildlife habitat proposed for mitigation, and (3) avoidance of sensitive species to the extent possible are included as part of the project description.

C.3.3 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES: PLEASANTON AREA

C.3.3.1 Proposed Project – South Area

C.3.3.1.1 *Construction Impacts*

There are 36 potential impacts to habitats along the proposed transmission line route that will result from construction of the Proposed Project. These include: temporary and permanent loss of plant communities, wildlife habitat removal, wildlife habitat disturbance, direct mortality and direct disturbance to wildlife, overland travel disturbance of plant communities, and indirect impacts.

Impact 3-1: Temporary and permanent loss of wetland plant communities.

Seasonal Wetland. Permanent impacts to Seasonal Wetland habitat, including drainages with jurisdictional "waters," will result from access road construction along the South Area route at Milepost MX 1.97 – 1.99. The Applicant's planned tower placement has avoided Seasonal Wetland habitat, therefore no permanent impacts will result from tower construction in that area. The work area around towers near MX 1.71 may result in temporary impacts to Seasonal Wetlands. Due to the sensitivity of this plant community, potential impacts to Seasonal Wetlands are considered **Class II** impacts that are significant but mitigable by restoration and off-site compensation as described in Mitigation Measure B-1.

Alkali-Freshwater Marsh. Permanent impacts to Alkali-Freshwater Marsh may result from access road construction along the South Area route west of Milepost MX 1.0 (PG&E 2000). No permanent impacts to this habitat will result from tower construction, since towers will be located outside of all Alkali-Freshwater Marshes along the route. Due to the sensitivity of this plant community, potential impacts to Alkali-Freshwater Marsh are considered **Class II** impacts that are significant but mitigable by restoration and off-site compensation as described in Mitigation Measure B-1.

Mitigation Measure for Temporary and Permanent Loss of Wetland Plant Communities

The objective of this **avoidance**, **restoration**, **and off-site compensation** mitigation measure is to reduce the potential impacts to wetland plant communities within and adjacent to the Proposed transmission line route to a less-than-significant level by restoring affected areas and enhancing areas

off-site. Permanent and temporary loss of wetland plant communities will be mitigated by a combination of avoidance, restoration, and off-site compensation.

B-1 a) The initial step for this measure will be completion of a jurisdictional wetlands delineation of the Proposed transmission line route by a qualified biologist/wetland scientist prior to the initiation of any construction activities. Once the delineated wetlands have been verified by the U.S. Army Corps of Engineers (USACE), site-specific avoidance measures will be finalized. Avoidance will consist of flagging or fencing designated travel routes and construction areas to minimize impacts to wetland plant communities. Flagging will be used to designate travel routes and work areas in portions of the Project route that are not immediately adjacent to wetland plant communities. Protective fencing will be installed to designate travel routes in those portions of the Proposed transmission line route that are immediately adjacent to wetlands. Construction work areas within or immediately adjacent to wetlands will be located and fenced to avoid or minimize wetland impacts.

b) Unavoidable temporary loss of wetland plant communities during construction shall be mitigated by restoration of the affected area to pre-construction conditions, as established in the jurisdictional wetland delineation. Where tower installation will permanently impact wetlands, compensatory mitigation shall be provided at a 2:1 ratio. Additional compensation will be required if the responsible agencies determine that restoration of temporary impacts has failed. A Restoration Plan/Compensatory Mitigation Plan shall be developed by PG&E Co. The plan shall be submitted to and approved by the USACE and Regional Water Quality Control Board (RWQCB) prior to the start of any construction activities. Implementation of the Restoration Plan/Compensatory Mitigation Plan shall be prior to or concurrent with project construction. The Plan will contain information for wetland mitigation location and wetland type to be created for any proposed off-site wetland creation, and details on soil preparation, seed collection, planting, maintenance, and monitoring for on-site restoration efforts and off-site wetland creation. Quantitative success criteria will also be presented in the plan. The mitigation objective for affected wetland plant communities will be restoration to pre-construction conditions as measured by species cover, species composition, and species diversity. Success criteria will be established by comparison with reference sites approved by the USACE and RWQCB.

c) Wetland restoration and creation shall be monitored by a qualified biologist for five years after mitigation site construction to assess progress and identify problems. Remediation actions shall be required if determined necessary by a qualified biologist to ensure the success of the restoration effort.

Impact 3-2: Temporary and permanent loss of upland plant communities.

Blue Oak Woodland. Portions of Blue Oak Woodland habitat along the Proposed South Area route between Mileposts MX2.37 - MX3.07 may be temporarily and/or permanently affected by access road and tower construction. Heritage Trees[2] are given protected status by local jurisdictions (Section

[2]A Heritage Tree is defined by the Alameda County Public Works Agency as any tree growing on county right-of-way land located in the unincorporated area of the county, designated as a heritage or landmark tree by a certified Arborist and the Board of Supervisors (2000). A Heritage Tree is defined by the City of Pleasanton as (1) any single-trunked tree with a circumference of fifty-five inches or more measured four and one-half feet above ground level; (2) any multi-trunked tree of which the two largest trunks have a circumference as previously stated; (3) any tree thirty-five feet or more in height; (4) any tree of particular

C.3.1.2). Potential impacts to these trees are considered **Class II** impacts that are significant but mitigable by avoidance, impact minimization, or replacement as described in Mitigation Measure B-2.

Mitigation Measure for Temporary and Permanent Loss of Heritage Trees

The objective of this **avoidance, minimization, or replacement** mitigation measure is to reduce the potential impacts to Heritage Trees within and adjacent to the proposed transmission line route to a less than-significant level.

B-2 a) A qualified biologist will determine if any of the trees located within the vicinity of the proposed access roads and within the 100-foot disturbance radius surrounding the proposed tower locations (PG&E 1999) qualify as Heritage Trees as defined by the governing jurisdiction (either the City of Pleasanton or Alameda County). If it is determined that the proposed access roads, transmission line towers, or surrounding impact areas will impact any Heritage Trees (due to trimming, removal, etc.), the following avoidance measures will be taken: re-routing or relocating access roads or towers and flagging or fencing designated travel routes and construction areas to ensure avoidance of Heritage Trees (supplemental CEQA review may be required if reroute/relocation not previously assessed in this EIR); protective fencing will be installed at the dripline of any Heritage Tree that will be avoided but may be indirectly affected by construction activities; excavation, grading, leveling, and disposal or deposition of harmful materials will be prohibited inside the dripline fence. Attachment of wires, ropes, or signs to Heritage Trees shall also be prohibited. A qualified biologist or arborist shall verify compliance with these protective measures prior to initiation of construction activities near Heritage Trees.

b) If Heritage Tree trimming or removal is unavoidable, the governing jurisdiction will be consulted. Further actions may require a permit that will include fees and/or replacement for affected trees. The City of Pleasanton Heritage Tree removal permit process requires payment of a fee in the amount of the appraised value of the tree in addition to 6:1 replacement with 24-inch boxed trees. Alameda County may require 1:1 tree replacement. These and other local jurisdictions, such as the City of Livermore, may apply their tree preservation ordinances on a case-by-case basis, so the replacement ratios and permit fees may vary.

If the Proposed Project requires removal of any Heritage Trees, a Tree Replacement Plan will be prepared by a qualified forester, arborist, or restoration ecologist. This plan shall include:

- Discussion of appropriate tree replacement ratios
- Identification of suitable tree replacement locations within or adjacent to the affected plant community
- Tree specifications, planting methodology, and timing of planting
- Description of protective staking and caging measures
- Description of five-year monitoring effort to measure replacement success
- Success criteria and contingency measures

historical significance specifically designated by official action; (5) a stand of trees, the nature of which makes each dependent upon the other for survival or the area's natural beauty (1999).

The Tree Replacement Plan shall be submitted to and approved by the governing jurisdiction (either the City of Pleasanton or Alameda County) prior to the start of any construction activities. Implementation of the Tree Replacement Plan shall be concurrent with project construction.

Non-Native Annual Grassland/Agricultural Area. Less than one-tenth of an acre of Non-native Annual Grassland and Agricultural Areas will be permanently lost as a result of tower construction, and less than one acre will be permanently lost as a result of new access road construction along the Proposed Project South Area route. Permanent loss of this plant community will occur where tower footings and access roads are constructed. Portions of Non-native Annual Grassland will be temporarily affected by construction vehicles traveling to and between towers to deliver supplies and equipment during construction activities. Due to the disturbed nature of Non-Native Annual Grassland and Agricultural Areas, temporary and permanent impacts to these plant communities are considered **Class III** impacts that are adverse but not significant. No specific mitigation measures are proposed for impacts to Non-Native Annual Grassland or Agricultural Areas.

Impact 3-3: Wildlife habitat removal.

Wildlife habitat removal may occur during construction of access roads and tower placement along the Proposed transmission line route. These activities could effectively remove existing habitat, thereby reducing the amount of habitat available to local wildlife populations. Habitat removal would occur primarily during project construction when vehicles require access to structure or substation locations. In addition, habitat would be removed at many structure locations, at substation locations, and at construction staging areas. Staging areas may not be graded in all cases; however, it is anticipated that these areas could be substantially affected by vehicle parking and materials storage activities during construction. Non-Native Annual Grassland is the primary habitat that will be affected during construction. Since this habitat type is abundant in the region, the relatively small area removed is considered adverse, but not significant, and a **Class III** impact to wildlife.

Impact 3-4: Wildlife habitat disturbance.

Wildlife habitat disturbance includes activities during construction or maintenance that would affect the local wildlife habitat but would not involve subsurface soil disturbance, blading, or clearing of vegetation. The primary form of habitat disturbance would be the use of heavy equipment during stringing of the line, and use of off-road vehicles within the 160-foot ROW (see Project Description, Section B.2). Off-road overland travel would not involve grading or road improvements. Overland travel during construction of the Proposed Project would result in some crushed vegetation and potential loss of individual animals such as small mammals or reptiles whose burrows would be compacted, resulting in an adverse **Class III** impact.

Impact 3-5: Direct mortality and direct disturbance to wildlife.

Direct loss of small mammals, reptiles, and other less mobile species would result primarily from the use of construction and maintenance vehicles. Direct mortality could occur as a result of animal-vehicle collisions, and crushing of burrows or nests by heavy equipment. Direct mortality associated with increased human activity is also anticipated, particularly animal-vehicle collisions. In addition, temporary direct disturbance to wildlife would occur during project construction. Direct mortality of reptiles and small mammals, which are not as mobile as larger wildlife species, would likely occur, resulting in an adverse **Class III** impact. Direct mortality of larger, mobile wildlife species, resulting in a **Class II** impact, could be mitigated by implementation of Mitigation Measure B-3 below. In addition, mortality of ground-nesting birds (or their young) such as northern harrier, would be considered a **Class II** impact.

Mitigation Measure for Mortality and Disturbance to Wildlife

The purpose of this measure is to provide specific directions and descriptions of actions that would reduce human-contact related mortality among wildlife in the vicinity of the project during construction and maintenance.

B-3 To reduce direct mortality impacts during construction, construction specifications will include the following conditions:

- Vehicles will not exceed 10 mph on designated access roads or in the ROW
- Litter or other debris that may attract animals will be removed from the project area; organic waste will be stored in enclosed receptacles, removed from the project site daily, and disposed of at a suitable waste facility
- No pets will be allowed in the construction area, including access routes and staging areas
- Construction crews will be monitored by a qualified biologist approved by the CPUC.
- No weapons will be allowed in the project area, including air or conventional firearms, archery equipment, or knives.

Application of this mitigation measure would reduce impacts to wildlife to a less-than-significant level. Successful application of this measure would result in few to no mortalities among wildlife in the vicinity of the Proposed Project during construction and maintenance.

Impact 3-6: Overland travel disturbance of plant communities.

Overland travel will involve vehicles traveling off of the existing roads without a bladed route. Impacts to plant communities would result from overland travel by construction and maintenance vehicles and assorted heavy equipment moving between towers during construction, as well as travel for annual maintenance of the facility and use by the general public. Each of these activities would cause

temporary impacts to existing vegetation but would not involve the same magnitude of disturbance as described for temporary and permanent habitat removal. Impacts would include soil compaction, crushing of vegetation, and disturbance of Seasonal Wetland habitat.

Overland travel impacts will vary in magnitude from minor to severe depending on variables such as vegetation type, topography, volume of traffic, and types of vehicles. Efforts to restore areas that have not been severely affected by overland travel may cause more disturbance than the original impact. The proposed mitigation for overland travel impacts provides agency discretion to identify areas where restoration would be undesirable. Specific impacts and mitigation measures are described below. Plant communities that may be affected by overland travel include:

- Non-Native Annual Grassland
- Agricultural Areas
- Seasonal Wetland.

Not all of the plant communities are equally sensitive to overland travel disturbance, not all of these impacts would occur in every plant community, and overland travel would be limited to areas where other existing surface roads are not available. Impacts to Non-Native Annual Grassland and Agricultural Areas are considered adverse but not significant **Class III** impacts and no specific mitigation measures are proposed. Impacts to Seasonal Wetland habitat are considered **Class II** impacts, significant but mitigable by avoidance and minimization as described in Mitigation Measure B-4.

Mitigation Measure for Disturbance to Plant Communities from Overland Travel

B-4 PG&E Co. shall map and flag overland travel routes prior to construction and periodic maintenance during operation to identify and avoid impacts to sensitive habitats (i.e., Seasonal Wetland) and minimize total impact area. Vehicles shall follow only the pre-approved travel routes marked by flags, including a recommended buffer distance (with a minimum of 25 feet) that construction-related activities shall occur from the identified individual or population. The mapping/flagging shall be reviewed by a CPUC-approved biologist prior to use of these routes for construction or maintenance to ensure adequate protection for sensitive plant communities.

Impact 3-7: Indirect impacts to wildlife from increased human presence and access.

Indirect impacts would occur as a result of increased human presence throughout the project area, with heaviest concentrations occurring during construction at tower and substation locations, during stringing of the line, and at construction staging areas. Wildlife in the vicinity of the Proposed Project would be displaced by increased human activity and associated disturbance to wildlife. Since this effect could potentially harm wildlife populations during critical life stages and would increase pressures upon adjacent populations and habitats, the impact would be significant. Indirect impacts resulting from human disturbance during project construction, maintenance, or the reclamation process (due to heavy vehicle operation, or helicopter flights, etc.) would cause displacement of some wildlife to other

habitats, which may or may not be able to support additional animals. Impacts as a result of increased human disturbance may also include reduced reproductive success in local wildlife populations, including songbirds, small mammals, reptiles, and special status species. Mitigation of indirect impacts through avoidance during critical seasons (Mitigation Measure B-5, below) would result in a **Class II** impact.

Mitigation Measure for Impacts to Wildlife from Increased Human Presence and Access

The primary mitigation measure to reduce impacts to wildlife as a result of increased human presence during construction and maintenance of the Proposed Project is avoidance by scheduling and pre-construction/pre-maintenance surveys.

B-5 a) Construction and maintenance activities shall be scheduled to avoid critical seasons. Raptor nests, vernal pools, riparian communities, sensitive habitats, and sensitive wildlife species will be avoided during specific seasons throughout the construction, operation, and maintenance of the Proposed Project. Avoidance periods and buffer distances for special status wildlife and plant species are shown in Table C.3-20. These buffer distances and avoidance periods are subject to review and modification by CDFG and are in accordance with the Applicant Proposed Measures.

b) Surveys conducted prior to any construction activities will be performed by qualified biologists to locate raptor nests and other resources in/or adjacent to the ROW and access road areas. The burrowing owl is a ground nesting bird known to occur in the project area. To avoid disturbance to ground nests, pre-construction surveys will be conducted to identify current locations of these resources and to flag allowable travel routes. If nests are observed, the avoidance period and buffer distances shown in Table C.3-20 will be observed. Surveys will be based on the CDFG survey protocol established for baseline surveys on the Proposed Project.

c) Specific distances from resources (see Table C.3-20) will be maintained during construction, maintenance, and overflights. Designated existing roads will be used; if such roads are not present, flagged routes that have been surveyed by a qualified biologist will be used (as in Mitigation Measure B-4).

d) Biological monitors as specified by CPUC will be present during construction to verify that no vehicular travel occurs outside flagged areas. These biological monitors will have the authority to terminate construction activities if any adverse effect on special status species is observed or anticipated.

Table C.3-20 Avoidance and Buffer Requirements for Reducing Impacts to Special Status Species

Special Status Species	Habitat[1]	Potential Impact	Sensitive Period	Buffer Distance	Buffer for over-flights
San Joaquin pocket mouse	known sites in grassland	construction	None	none	none
Pallid bat	roost sites in hollow trees	construction	None	none	none
Yuma myotis	roost sites in hollow trees, loose bark	construction	None	none	none
American badger	dens	construction	3/1 - 9/1	300 feet	none
San Joaquin kit fox	known dens potential dens	construction	None	100 feet 50 feet	500 feet
Mountain plover	wintering grassland areas	none	None	none	none
Cooper's hawk	nest site	construction	2/1 - 9/1	0.25 mile	500 feet
Sharp-shinned hawk	nest site	construction	2/1 - 9/1	0.25 mile	500 feet
Golden eagle	nest site	construction	2/1 - 9/1	0.25 mile	500 feet
Ferruginous hawk	wintering grassland areas, perches	none	None	none	none
Northern harrier	nest site	construction	2/1 - 9/1	0.25 mile	500 feet
White-tailed kite	nest site	construction	2/1 - 9/1	0.25 mile	500 feet
Prairie falcon	wintering grassland areas, perches	none	None	none	none
American peregrine falcon	wintering habitat (grasslands, woodlands)	construction	None	none	none
Burrowing owl	wintering burrow nest site	construction	9/1 - 1/31 2/1 - 8/31	160 feet 250 feet	500 feet 500 feet
Pacific-slope flycatcher	nest site	construction	2/1 - 9/1	250 feet	500 feet
Loggerhead shrike	nest site	construction	2/1 - 9/1	250 feet	500 feet
Bewick's wren	nest site	construction	2/1 - 9/1	250 feet	500 feet
California yellow warbler	nest site	construction	2/1 - 9/1	250 feet	500 feet
Grasshopper sparrow	nest site	construction	2/1 - 9/1	250 feet	500 feet
Western pond turtle	aquatic habitat	construction	5/1 - 10/31 11/1 - 4/30	30 feet 200 feet	none none
Alameda whipsnake	proposed critical habitat	construction	all year	none	none
California tiger salamander	breeding pools	construction	5/1 - 10/31 11/1 - 4/30	30 feet 200 feet	none none
California red-legged frog	proposed critical habitat aquatic breeding habitat	construction	5/1 - 10/31 11/1 - 4/30	30 feet 200 feet	none
Western spadefoot toad	aquatic breeding habitat	construction	5/1 - 10/31 11/1 - 4/30	30 feet 200 feet	none
Longhorn fairy shrimp	seasonal pools	construction	11/1 - 5/15 5/16 - 10/31	250 feet 100 feet	none
Vernal pool fairy shrimp	seasonal pools	construction	11/1 - 5/15 5/16 - 10/31	250 feet 100 feet	none
Curved-foot hygrotus diving beetle	aquatic habitat	construction	5/1 - 10/31 11/1 - 4/30	30 feet 200 feet	none
Ricksecker's water scavenger beetle	aquatic habitat	construction	5/1 - 10/31 11/1 - 4/30	30 feet 200 feet	none

[1] Avoidance areas will be identified by coordinate or Milepost and will be provided to construction management before project construction begins.

Impact 3-8: Temporary and permanent loss of special status plant species and their habitats.

The special status plant species with potential to occur in the vicinity of the proposed transmission line route have not been observed during surveys (Table C.3-5). Potential habitat for the special status plant species has been identified along the route; however, CNDDB reported occurrences of these species have been at a sufficient distance from the transmission line route that direct impacts from construction and overland travel are unlikely. No permanent impacts are anticipated for any of these species following implementation of Mitigation Measure B-6. Temporary impacts to special status plant species and their habitats are possible if individuals of any of these species occur but were not identified during previous rare plant surveys within the proposed transmission line corridor. Impacts to special status plant species and their habitats would be considered a **Class II** impact, significant but one that can be mitigated, as described in Applicant Proposed Measures 7.2 and 7.12, and Mitigation Measure B-6.

Mitigation Measure for Loss of Special Status Plant Species and Their Habitats

The objective of this mitigation measure is to **avoid** special status plants. Permanent and temporary loss of special status plants will be mitigated through avoidance.

B-6 Surveys for special status plant species shall be conducted by a qualified biologist along the Proposed South Area route at the proposed tower construction sites and along proposed access roads according to the protocol developed by the California Native Plant Society (Nelson 1994, 1986). These surveys shall be conducted prior to the initiation of any construction activities and coincide with the appropriate flowering period of the special status plant species with the potential to occur in the area (Table C.3-3). Maps depicting the results of these surveys will be prepared and will include other recently mapped special status plant occurrences in the area to ensure that the full scope of rare plant habitat in the project route vicinity is delineated, including a recommended buffer distance (with a minimum of 25 feet) that construction-related activities shall occur from the identified individual or population. Any special status plant occurrences located within 200 feet of the proposed tower construction sites and along the proposed access roads will be fenced prior to the start of any construction. Maps and reports, as well as proposed fence locations, shall be provided to and approved by the CPUC's biological monitor prior to the start of construction.

Impact 3-9: Overland travel disturbance of special status plant species and their habitats.

The special status plant species with potential to occur in the vicinity of the proposed transmission line route have not been observed during surveys. CNDDB occurrences of these species have been noted at a sufficient distance from the transmission line route that direct impacts from construction and overland travel are unlikely. However, Non-Native Annual Grassland is potential habitat for several other special status plant species (large flowered fiddleneck, big scale balsamroot, big tarplant, stinkbells, and Congdon's tarplant) and traffic movement between proposed towers in grassland areas during construction and maintenance could disrupt this plant community and the special status plant species that have the potential to occur there. Impacts to special status plant species and their habitats would be

a **Class II** impact, significant, but one that can be mitigated to a less than significant level as described in Mitigation Measure B-7.

Mitigation Measure for Disturbance of Special Status Plant Species and Their Habitats

B-7 Surveys for special status plant species shall be conducted prior to initiation of any construction and maintenance activities as described in Mitigation Measure **B-6**. Occurrences of special status plant species shall be flagged and overland travel shall be prohibited in these areas, including a recommended buffer distance (with a minimum of 25 feet) that construction-related activities shall occur from the identified individual or population. Travel routes which avoid special status plant species occurrences shall be flagged and mapped following approval consistent with Mitigation Measure **B-4**. Vehicles shall follow only the pre-approved travel routes marked by flags. Approval of survey reports and maps shall be consistent with Mitigation Measure **B-6**.

Impact 3-10: Pallid Bat.

Although the pallid bat is likely to occur in the project area, impacts to day roosts, maternity roosts, and night roosts are not anticipated because little or no impact to trees in undeveloped areas of the routes will occur. The project will not significantly impact the pallid bat (**Class III**).

Impact 3-11: Yuma Myotis.

The Yuma myotis is likely to occur in the project area, where it may roost in hollow trees. Impacts to day roosts, maternity roosts, and night roosts are not anticipated because little or no impact to trees in undeveloped areas of the routes will occur. The project will not significantly impact the Yuma myotis (**Class III**).

Impact 3-12: San Joaquin Kit Fox.

While direct impacts to the federally endangered and state threatened San Joaquin kit fox can be avoided, construction-related disturbances could have a negative effect upon its habitat. A permanent loss of breeding and foraging habitat could occur as a result of the construction of access roads and the permanent placement of tower footings. The anticipated permanent loss of grasslands is very low throughout the project area (less than 10 acres). This loss is considered less-than-significant because of the large areas of Non-Native Annual Grassland habitat in the region. While literature review reveals that intensive surveys for the kit fox have failed to detect denning sites, and few observations have been made west of Vasco Road (Jones and Stokes, 1983; ESA 1986; Harvey and Associates, 1987, 1991, 1992, 1997; Biosystems 1989; Wesco 1991; LSA 1992; EIP 1992; Mori et al. 1992), increased traffic and human presence in the area could adversely impact the kit fox.

Construction disturbance to the San Joaquin kit fox is considered to be potentially significant, but it would be avoided with implementation of Applicant Proposed Measure 7.3, which will adequately protect the kit fox, resulting in non-significant **(Class III)** impacts.

Impact 3-13: American Badger.

Direct impacts to the American badger can be avoided, but construction-related disturbances could have a negative effect upon its habitat. A permanent loss of breeding and foraging habitat could occur as a result of construction of access roads and the permanent placement of tower footings. The anticipated permanent loss of grasslands is very low throughout the project area (less than 10 acres); this loss is considered less-than-significant because of the large areas of Non-Native Annual Grassland in the region. Implementation of Applicant Proposed Measures 7.3, 7.3(a), 7.4(a), and 7.5 will cumulatively protect the American badger and reduce potential impacts to a less than significant (**Class III**) level.

Impact 3-14: Cooper's Hawk.

Noise and activity associated with transmission tower construction during the non-nesting season could disturb the Cooper's hawk, which is typically associated with woodlands, and cause it to temporarily avoid the construction area. This would be a less than significant (**Class III**) impact. Cooper's hawks, like other raptors, could abandon nesting attempts if disturbed during the breeding season. This would be considered a potentially significant impact, but it would be avoided with implementation of Applicant Proposed Measure 7.4, which will adequately protect breeding Cooper's hawks resulting in non-significant (**Class III**) impacts.

Impact 3-15: Sharp-shinned Hawk.

Like the Cooper's hawk, the sharp-shinned hawk is generally associated with woodlands. It is more common in winter and during migration, but a few nests have been documented in the San Francisco Bay region. Noise and activity associated with transmission tower construction during the non-nesting season could disturb the sharp-shinned hawk, and cause it to temporarily avoid the construction area. This would be considered a less than significant (**Class III**) impact because non-breeding raptors would be able to temporarily disperse to similar adjacent habitat during construction or reconductoring. This species could abandon nesting attempts if disturbed during the breeding season. This would be considered a potentially significant impact, but it would be avoided with implementation of Applicant Proposed Measure 7.4, which will adequately protect breeding sharp-shinned hawks resulting in non-significant (**Class III**) impacts.

Impact 3-16: Golden Eagle.

Golden eagle nest sites are scattered throughout the San Francisco Bay region, usually in areas that receive few human visitors. This species is sensitive to human presence and may abandon a nesting attempt if disturbed. At other times of the year, golden eagles may be found foraging in annual grasslands or soaring along ridges. Noise and activity associated with transmission tower construction during the non-nesting season could disturb the golden eagle, and cause it to temporarily avoid the construction area. This would be considered a less than significant (**Class III**) impact because non-breeding golden eagles, which have a large foraging range, would be able to temporarily disperse to

similar adjacent habitat during construction or reconductoring. This species could abandon nesting attempts if disturbed during the breeding season. This would be considered a potentially significant impact, but it would be avoided with implementation of Applicant Proposed Measure 7.4, which will adequately protect breeding golden eagles resulting in non-significant (**Class III**) impacts.

Impact 3-17: Ferruginous Hawk.

The ferruginous hawk is an occasional winter visitor to the foothills of the eastern San Francisco Bay region. Noise and activity associated with transmission tower construction during the non-nesting season could disturb this species and cause temporary avoidance of the construction area. Because wintering ferruginous hawks are only occasional visitors to the study area, and their foraging range is extensive, impacts to this species would be considered less than significant (**Class III**).

Impact 3-18: Northern Harrier.

Noise and activity associated with transmission tower construction during the non-nesting season could disturb the northern harrier, and cause it to temporarily avoid the construction area. This would be considered a less than significant (**Class III**) impact because non-breeding northern harriers would be able to temporarily disperse to similar adjacent habitat during construction or reconductoring. Harriers are ground-nesting raptors that are sensitive to human disturbance. This species could abandon nesting attempts if disturbed during the breeding season. This would be considered a potentially significant impact, but it would be avoided with implementation of Applicant Proposed Measure 7.4, which will adequately protect breeding northern harriers resulting in non-significant (**Class III**) impacts.

Impact 3-19: White-tailed Kite.

Like other raptors, white-tailed kites would be disturbed by noise and activity associated with transmission tower construction during the non-nesting season, causing the species to temporarily avoid the construction area. This would be considered a less than significant (**Class III**) impact because non-breeding kites would be able to temporarily disperse to large areas of suitable foraging habitat adjacent to the study area during construction or reconductoring. The white-tailed kite, a CDFG Fully Protected Species, nests in trees or shrubs along woodland edges or in grasslands. This species could abandon nesting attempts if disturbed during the breeding season. This would be considered a potentially significant impact, but it would be avoided with implementation of Applicant Proposed Measure 7.4, which will adequately protect breeding white-tailed kites resulting in non-significant (**Class III**) impacts.

Impact 3-20: Prairie Falcon.

Prairie falcons are probably occasional winter visitors and migrants in the project area. A few nests have been documented in cliffs in the eastern San Francisco Bay region. No breeding habitat is present along the proposed route, but prairie falcons are likely to forage in winter and during migration in the area. Noise and activity associated with transmission tower construction during the non-nesting season

could disturb this species and cause temporary avoidance of the construction area. This would be considered a less than significant (**Class III**) impact because non-breeding prairie falcons, which would occur on rare occasions during migration and in winter, would be able to temporarily disperse to large areas of suitable foraging habitat during construction or reconductoring.

Impact 3-21: American Peregrine Falcon.

American peregrine falcons nest on cliffs, tall buildings, and bridges. Suitable nesting habitat is not present along the proposed route, but this raptor is likely a visitor during migration and in winter. Noise and activity associated with transmission tower construction during the non-nesting season could disturb this species and cause temporary avoidance of the construction area. This would be a less than significant (**Class III**) impact because migratory or wintering peregrine falcons would likely only transit through the area, and would be able to temporarily disperse to large areas of adjacent habitat during construction.

Impact 3-22: Burrowing Owl.

Burrowing owls in the San Francisco Bay region are generally found in annual grasslands supporting populations of California ground squirrels. The owls utilize ground squirrel burrows for roosting and nesting. Impacts to the burrowing owl could occur if construction activities occurred within a 250-foot buffer of an active nest. Likewise, if burrowing owls move into a construction zone prior to the start of construction, or during construction, there is a potential for individual owls, their young, and their eggs to be destroyed.

Loss of foraging and nesting habitat, or construction disturbance during the breeding season are considered potentially significant, but these impacts would be avoided with implementation of Applicant Proposed Measure 7.4(a), which will adequately protect the burrowing owl, resulting in non-significant (**Class III**) impacts. Burrowing owls would also benefit from implementation of Mitigation Measure B-5.

Impact 3-23: Pacific-slope Flycatcher.

Along the proposed transmission line route, suitable breeding habitat in riparian forest and adjacent oak- woodland for the Pacific-slope flycatcher occurs in the general area of Arroyo del Valle. Significant impacts to the Pacific-slope flycatcher, a USFWS species of concern, could occur if construction of new transmission towers along the proposed route coincided with the breeding season and resulted in nest abandonment. No significant impacts to suitable habitat are expected since riparian and oak woodlands will be largely avoided by the Proposed Project.

Construction disturbance during the breeding season of the Pacific-slope flycatcher is considered a potentially significant impact, but it would be avoided with implementation of Applicant Proposed

Measure 7.4, which will adequately protect this neotropical migrant songbird, resulting in non-significant (**Class III**) impacts.

Impact 3-24: California Horned Lark.

Suitable habitat in Non-Native Annual Grassland and sparsely vegetated ground for the California horned lark is found at several locations along the proposed route. Significant impacts to the horned lark could occur if construction coincided with the breeding season and resulted in nest abandonment.

Construction disturbance during the breeding season of the California horned lark is considered a potentially significant impact but it would be avoided with implementation of Applicant Proposed Measure 7.4, which will adequately protect this CDFG Species of Special Concern, resulting in non-significant (**Class III**) impacts.

Impact 3-25: Loggerhead Shrike.

Suitable habitat in Non-Native Annual Grassland, chaparral, oak woodland edges, and riparian forest edges for the loggerhead shrike is found at several locations along the proposed route. Significant impacts to the shrike could occur if construction coincided with the breeding season and resulted in nest abandonment.

Construction disturbance during the breeding season of the loggerhead shrike is considered a potentially significant impact but it would be avoided with implementation of Applicant Proposed Measure 7.4, which will adequately protect the loggerhead shrike, resulting in non-significant (**Class III**) impacts.

Impact 3-26: Bewick's Wren.

Suitable habitat in chaparral, oak woodland, and riparian forest for the Bewick's wren is found at several locations in the proposed route. Significant impacts to the wren could occur if construction coincided with the breeding season and resulted in nest abandonment.

Construction disturbance during the breeding season of the Bewick's wren is considered a potentially significant impact but it would be avoided with implementation of Applicant Proposed Measure 7.4, which will adequately protect this USFWS species of concern, resulting in non-significant (**Class III**) impacts.

Impact 3-27: California Yellow Warbler.

Along the proposed transmission line route, suitable breeding habitat in riparian forest for the California yellow warbler occurs in the general area of Arroyo Del Valle and other drainages that support riparian plant communities. Significant impacts to the California yellow warbler could occur if construction of new transmission towers along the proposed route coincided with the breeding season and resulted in nest abandonment.

Construction disturbance during the breeding season of the California yellow warbler is considered a potentially significant impact, but it would be avoided with implementation of Applicant Proposed Measure 7.4, which will adequately protect the warbler, resulting in non-significant **(Class III)** impacts.

Impact 3-28: Grasshopper Sparrow.

Suitable habitat in Non-Native Annual Grassland for the Grasshopper sparrow, a USFWS species of concern, is found at several locations along the proposed route. Significant impacts to the grasshopper sparrow could occur if construction coincided with the breeding season and resulted in nest abandonment.

Construction disturbance during the breeding season of the grasshopper sparrow is considered a potentially significant impact but it would be avoided with implementation of Applicant Proposed Measure 7.4, which will adequately protect this sparrow, resulting in non-significant (**Class III**) impacts.

Impact 3-29: Western Pond Turtle.

Construction activities near stock ponds and drainage crossings may disturb or remove suitable habitat or potentially suitable habitat for this species. Construction activities for access roads near streams could result in the loss of nests, hatchlings, and/or adults. The western pond turtle is a CDFG Species of Special Concern; therefore, removal of potential aquatic turtle habitat would be considered a significant impact. These impacts would be avoided with implementation of Applicant Proposed Measure 7.8, which would reduce impacts to a less than significant (**Class III**) level.

Impact 3-30: Alameda Whipsnake.

Suitable habitat for the Alameda whipsnake is present along the Proposed South Area route in a portion of designated Alameda whipsnake critical habitat Unit 5 (USFWS 2000a). Critical habitat identifies specific areas that are essential to the conservation of a listed species and that require special management considerations or protection. The Proposed South Area route is near scrub and rock outcrop habitat typically associated with the Alameda whipsnake; the species is also known to use adjacent woodland and grassland habitats.

Construction activities for access roads near scrub areas could result in the loss of individual snakes, resulting in a significant impact. Direct impacts would be reduced to a less than significant (**Class III**) level through implementation of Applicant Proposed Measure 7.5.

Construction and maintenance activities near scrub habitats may disturb or remove habitat occupied or potentially occupied by this species. The Alameda whipsnake is a federal- and state-threatened species, and critical habitat has been designated; therefore, removal of critical habitat would be considered a

(**Class II**) impact, significant, but one that can be mitigated to a less than significant level as described in Mitigation Measure B-8.

Mitigation Measure for Disturbance of Proposed Alameda Whipsnake Critical Habitat

B-8 Pre-construction and pre-maintenance mapping and marking of designated critical habitat areas will be conducted in areas susceptible to construction and maintenance disturbance. Results of this delineation of critical habitat will be approved by the USFWS. In the event that excavation activities occur in areas identified as Alameda whipsnake critical habitat, PG&E Co. will enter into formal consultation with the USFWS and implement avoidance and minimization measures outlined in a Biological Assessment prepared for the whipsnake. Avoidance and minimization measures that the USFWS would likely require include the following:

- Prior to ground-disturbing activities, a qualified biologist will instruct all project personnel in environmental training, including recognition of the Alameda whipsnake and its habitat. Under this program, workers shall be informed about the presence of the whipsnake and critical habitat associated with the species, and that unlawful take of the animal or destruction of its habitat is a violation of the federal Endangered Species Act. The biologist shall instruct all construction personnel regarding the life history of the whipsnake, the importance of scrub habitats to the snake, and the terms and conditions of the Biological Opinion issued by the USFWS.

- A qualified biologist will be present during construction activities to monitor and determine the extent of ground-disturbing activities within 50 feet of suitable habitat.

- All Alameda whipsnake critical habitat that could be lost due to construction activities will be calculated and reported to the USFWS and CDFG. This acreage will be mitigated at a 3:1 ratio with the purchase of habitat credits or the purchase of offsite mitigation land.

Impact 3-31: California Tiger Salamander.

Construction activities in the vicinity of stock ponds, seasonal pools, drainage crossings, and estivation habitat may disturb or remove habitat occupied or potentially occupied by this salamander. Estivation is the adaptation of certain animals (especially amphibians) to the conditions of summer, or the taking on of certain modifications, which enables them to survive a hot, dry summer. The permanent loss of estivation habitat as a result of construction of access roads and towers could occur in numerous grassland areas with Seasonal Wetlands in close proximity. The temporary loss of estivation habitat could occur at laydown areas and pull sites. Removal or disturbance of small drainages, stock ponds, and estivation and breeding habitat would be considered a significant impact; however, implementation of Applicant Proposed Measure 7.7 will reduce potential impacts to a less than significant level (**Class III**).

Impact 3-32: California Red-legged Frog.

Suitable breeding, estivation (mammal burrows, riparian thickets), and dispersal habitat for the California red-legged frog is present throughout most of the undeveloped portions of the Proposed South Area route, which is located in proposed California red-legged frog critical habitat Unit 15 (USFWS 2000b). Critical habitat identifies specific areas that are essential to the conservation of a listed species and that require special management considerations or protection.

Construction activities in the vicinity of stock ponds, permanent seeps, drainage crossings, dispersal corridors and estivation habitat could potentially disturb or remove habitat occupied or potentially occupied by this frog. Construction activities for access roads could result in the loss of eggs, tadpoles, juveniles, and adults. The permanent loss of estivation habitat could occur in numerous locations in the project area as a result of construction of access roads and towers. Temporary loss of estivation habitat could occur at laydown areas and pull sites. Removal or disturbance of small drainages, stock ponds, and estivation and breeding habitat would be a significant impact. Implementation of Applicant Proposed Measure 7.6 will reduce potential impacts to individual frogs to a less than significant (**Class III**) level; however, removal of critical habitat would be considered a **Class II** impact, significant, but one that can be mitigated to a less than significant level as described in Mitigation Measure B-9.

Mitigation Measure for Disturbance of Proposed California Red-legged Frog Critical Habitat

B-9 Pre-construction and pre-maintenance mapping and marking of proposed critical habitat areas shall be conducted in areas susceptible to construction and maintenance disturbance. Results of this delineation of critical habitat shall be submitted to the USFWS for review and approval. In the event that excavation activities occur in areas identified as California red-legged frog critical habitat, PG&E Co. will enter into formal consultation with the USFWS and implement avoidance and minimization measures outlined in a Biological Assessment prepared for the frog. Avoidance and minimization measures that the USFWS would likely require include the following:

- Prior to ground-disturbing activities, a qualified biologist will provide environmental training to all project personnel, including recognition of the California red-legged frog and its habitat. Under this program, workers shall be informed about the presence of the frog and critical habitat associated with the species, and that unlawful take of the animal or destruction of its habitat is a violation of the federal Endangered Species Act. The biologist shall instruct all construction personnel regarding the life history of the frog, the importance of aquatic and upland habitats to the species, and the terms and conditions of the Biological Opinion issued by the USFWS.

- A qualified biologist will be present during construction activities to monitor and determine the extent of ground-disturbing activities within 50 feet of suitable habitat.

- All proposed California red-legged frog critical habitat that could be lost due to construction activities will be calculated and reported to the USFWS and CDFG. This acreage will be mitigated at a 3:1 ratio with the purchase of habitat credits or the purchase of offsite mitigation land.

Impact 3-33: Western Spadefoot Toad.

Field surveys conducted by PG&E Co. in 1999 concluded that potential breeding and estivation habitat for the western spadefoot may be present in the Dublin Area, North Livermore Area, and Tesla Connection route. Estivation is the adaptation of certain animals (especially amphibians) to the conditions of summer, or the taking on of certain modifications, which enables them to survive a hot, dry summer. Construction activities near quiet streams, temporary pools, and estivation habitat may disturb or remove habitat occupied or potentially occupied by this species. The permanent loss of estivation habitat could occur along this route as a result of construction of access roads and towers. The temporary loss of estivation/breeding habitat could also occur at laydown areas and pull sites. Because the western spadefoot is a CDFG Species of Special Concern, removal of aquatic habitats potentially suitable for this species would be considered a significant impact. These impacts would be avoided with implementation of Applicant Proposed Measure 7.9, which would reduce impacts to a less than significant (**Class III**) level.

Impact 3-34: Curved-foot Hygrotus Diving Beetle.

Surveys for this species were not conducted; however, presence of suitable aquatic habitat (stock ponds) suggests it may occur near the proposed transmission line route. Removal of or disturbance to aquatic habitat potentially suitable for the curved-foot hygrotus diving beetle would be considered a significant impact. Implementation of Applicant Proposed Measure 7.11 will reduce this impact to a less than significant level (**Class III**).

Impact 3-35: Raptors.

Noise and activity associated with transmission tower construction during the non-nesting season could disturb raptors, such as red-tailed hawk and American kestrel, and cause them to temporarily avoid the construction area. This would be considered a less than significant (**Class III**) impact because non-breeding raptors would be able to temporarily disperse to adjacent suitable foraging habitat during construction. Sensitive raptor species could abandon nesting attempts if disturbed during the breeding season. This would be considered a potentially significant impact, but it would be avoided with implementation of Applicant Proposed Measure 7.4, which will adequately protect breeding raptors resulting in non-significant **(Class III)** impacts.

Impact 3-36: Other Avian Species.

Noise and activity associated with transmission tower construction could cause disturbance to other avian species that are not designated as special status species. These include migratory waterfowl, shorebirds, and other birds common to the region, but protected by state and federal regulations (including the Migratory Bird Treaty Act). Work performed near foraging habitat could cause some birds to disperse, but this would be a temporary and therefore less-than-significant **Class III** impact. Construction activity also has the potential to cause nest abandonment if nests are present. Species covered under the Migratory Bird Treaty Act are protected. Nest abandonment would be a considered a potentially significant impact, but would be avoided with implementation of Applicant Proposed Measure 7.4, which will adequately protect other avian species, resulting in non-significant **(Class III)** impacts.

C.3.3.1.2 *Operation and Maintenance Impacts*

Three potential biological resource impacts are associated with the operation of electric transmission lines: predation on wildlife by raptors, the electrocution of birds (particularly raptors), and bird collisions with conductors. Impacts to raptors could result throughout the life of the project. Maintenance activities could also result in temporary loss of upland plant communities (Impact 2), wildlife habitat disturbance (Impact 4), direct mortality and disturbance to wildlife (Impact 5), overland travel disturbance of plant communities (Impact 6), indirect impacts to wildlife from increased human presence and access (Impact 7), temporary and permanent loss of special status plant species and their habitats (Impact 8), overland travel disturbance of special status plant species and their habitats (Impact 9), impacts to the Alameda whipsnake (Impact 30) and impacts to the California red-legged frog (Impact 32), described in Section C.3.3.1.1.

Impact 3-37: Increased predation.

New transmission towers could increase the opportunity for raptors to prey on wildlife in general along the proposed route. There is a potential for raptors to perch on new towers and prey on sensitive species such as the burrowing owl. Likewise, predation on tricolored blackbirds and yellow warblers or their young would be a significant impact. Increased predation on sensitive species, therefore, would be considered potentially significant; however Applicant Proposed Measure 7.13 would prevent these impacts from occurring. Therefore, the impact is considered to be adverse **(Class III)** but not significant.

Impact 3-38: Bird electrocutions.

Electrocution only occurs when a bird simultaneously contacts two conductors of different phases or a conductor and a ground. This happens most frequently when a bird attempts to perch on a structure with insufficient clearance between these elements. On a 230 kV transmission line, all clearances

between conductors or between conductors and ground are sufficient to protect even the largest birds and no impacts are expected (APLIC, 1996).

Impact 3-39: Bird collisions.

Bird collisions with man-made structures have been reported in the scientific literature for over a century (see Avery et al., 1980 and Herbert and Reese, 1995 for extensive annotated bibliographies). A number of bird collision studies of transmission lines have been conducted. Many of these are of limited scope, but several recent studies have been both well designed and complete (Hartman et al., 1992; Faanes, 1987; Pearson, 1993). These studies indicate that the primary factor in determining the number of birds colliding with a transmission line is the number of birds flying through the area. For instance, a Mare Island study (Hartman et al., 1992) found that both bird flights and collision mortality were much greater on a section of a 115 kV pole line that paralleled a tidally-influenced salt pond than on a section that passed through a hayfield. High use of the salt pond by migratory waterfowl and shorebirds resulted in more collisions than a hayfield that is generally used by fewer birds. Other factors that influence the rate of bird collision are species, age, flocking behavior, weather conditions, land use, topography, and line placement and configuration (APLIC, 1994).

It is impossible to predict the magnitude of bird mortality from a transmission line without extensive information on bird species and movements in the project vicinity. Since no special studies have been conducted, these data are not available for the proposed transmission line route. However, it is possible to make some qualitative predictions based on previous studies in other areas. It is generally expected that collision mortality will be greatest where the movements of susceptible species are the greatest. In addition, the placement and visibility of the line will influence the amount of collision mortality.

Along the Proposed North and South Area transmission line routes, significant habitat features used by waterfowl and shorebirds are not present, such as large wetlands, flooded agricultural areas, and lakes or reservoirs. Furthermore, significant movement corridors linking high bird use areas do not appear to be present along the Proposed route. Although the route is regularly used by raptors, this group of birds is not particularly susceptible to collisions with power lines (Leitner, 1981). Bird movements in the project area depend on the complex relationships between feeding and resting areas, here and elsewhere in the region, which are largely undocumented.

Since the proposed transmission line route is not in or adjacent to any known high bird-use area, the effective placement of bird flight diverters cannot be determined. PG&E's Applicant Proposed Measure 7.14 would determine if and where collision impacts were occurring along the transmission line route. If bird strikes are significantly higher in these areas, flight diverters could be installed and their effectiveness monitored. Bird strikes in areas of high bird use would be considered a potentially significant impact; however, Applicant Proposed Measure 7.14 would address site-specific issues and reduce the likelihood of bird strikes. Therefore, the impact is considered to be potentially adverse **(Class III)** but not significant.

Unavoidable Significant Impacts. No unavoidable significant impacts to biological resources would result if the Proposed Project were implemented.

C.3.3.2 Alternative S1: Vineyard-Isabel-Stanley

Most impacts associated with the S1 Alternative route are considered not significant (**Class III**) and are similar to those described in Section C.3.3.1. **Class II** potential impacts associated with the S1 Alternative are identified below with the relevant mitigation measures in Section C.3.3.1. cited and modified as may be necessary. Implementation of these mitigation measures would reduce these **Class II** impacts to a less than significant level.

Impact 3-1: Impacts to a Seasonal Wetland drainage may occur in Sycamore Grove Park due to tower or access road construction. Implementation of Mitigation Measure B-1 would allow for delineation and avoidance of the Seasonal Wetlands. If impacts are unavoidable, Mitigation Measure B-1 would provide compensation for temporary impacts through restoration, or for permanent impacts, through 2:1 replacement of wetlands and/or waters.

Impact 3-2: Impacts to Heritage Trees may occur in the Valley Oak Woodland and/or Central Coast Cottonwood-Sycamore Riparian Forest in Sycamore Grove Park due to tower or access road construction. Implementation of Mitigation Measure B-2, discussed in Section C.3.3.1, will include determining the size and location of proposed access roads, transmission line towers and associated disturbance zones. All trees within these potentially affected areas shall be assessed by a qualified biologist to determine their Heritage Tree status as defined by the governing jurisdiction (the City of Livermore, the Livermore Area Recreation and Parks District, or Alameda County). This measure requires identification and avoidance of potential Heritage Trees. However, if impacts are unavoidable, Mitigation Measure B-2 requires compensation for impacts through the development of a Tree Replacement Plan, to be approved by the governing jurisdiction prior to construction activities.

Impact 3-5: Direct mortality or direct disturbance of wildlife during construction and maintenance may occur, particularly in Sycamore Grove Park. Implementation of Mitigation Measures B-3 and B-5 would reduce potential disturbance or mortality to wildlife, including large and small mammals and nesting birds, to a less than significant level.

Impact 3-6: Impacts to plant communities due to overland travel may result during construction and maintenance. Mitigation measure B-4 would require avoidance of potential overland travel impacts to the Seasonal Wetlands in Sycamore Grove Park.

Impact 3-7: Indirect impacts to wildlife from increased human presence and access may result from construction and maintenance in Sycamore Grove Park. Implementation of Mitigation Measure B-5 would reduce impacts to wildlife by scheduling construction activities during non-breeding seasons and

maintaining an adequate buffer distance between construction activities and wildlife in the project vicinity.

Impact 3-32: Impacts to the California red-legged frog or its critical habitat may result during construction of towers in Sycamore Grove Park. Potential habitat occurs along the portion of the S1 Alternative that runs through Sycamore Grove Park, due to its close proximity to Arroyo del Valle, perennial stock ponds to the south, and its inclusion within USFWS designated critical habitat. Implementation of Mitigation Measure B-9 would reduce impacts to the California red-legged frog through avoidance of suitable habitat as identified by a qualified biologist, monitoring activities within 50 feet of suitable habitat, and replacement of critical habitat that may be removed.

The S1 Alternative would reduce potential impacts to biological resources compared to the Proposed South Area route. It avoids Alameda whipsnake critical habitat, large areas of proposed California red-legged frog critical habitat, and potential California tiger salamander habitat that is present along the proposed South Area route. Figure C.3-1A shows potential special status species habitats along the South Area route and the S1 Alternative alignment. Compared to the South Area route, this alternative would reduce temporary and permanent loss of plant communities, direct mortality and disturbance to wildlife, and overland travel disturbance of plant communities. Construction of the underground segment would be in Developed Areas and would not affect any sensitive biological resources. A portion of the Central Coast Cottonwood-Sycamore Riparian Forest plant community along the S1 Alternative route (adjacent to Arroyo Del Valle in Sycamore Grove Park) may be affected by tower construction; however, potential impacts to Heritage Trees would be less than the Proposed South Area route. Impacts to Arroyo Del Valle would be avoided by spanning the overhead lines where they cross the stream. Other potential impacts along this alternative alignment (particularly in Sycamore Grove Park) would be similar to impacts that could occur elsewhere along the Proposed South Area route. Potential impacts resulting from the alternative alignment segment through Sycamore Grove Park can be reduced to a less than significant level by implementing Mitigation Measures B-1 through B-9.

Unavoidable Significant Impacts. No unavoidable significant impacts to biological resources would result if the S1 Alternative were implemented.

C.3.3.3 Alternative S2: Vineyard Avenue

Potential impacts associated with the S2 Alternative are the same as the S1 Alternative, as described Section C.3.3.2, except:

Impact 3-2: Impacts to Heritage Trees may also occur in the Blue Oak Woodland along Vineyard Avenue, as shown in Table C.3-7 and Figure C.3-1A, due to undergrounding of the transmission line. Implementation of Mitigation Measure B-2, as discussed in Section C.3.3.2, would require identification and avoidance of Heritage Trees. However, if impacts are unavoidable, Mitigation Measure B-2 would compensate for impacts through the development of a Tree Replacement Plan, to approved by the governing jurisdiction (the City of Livermore, the Livermore Area Recreation and Parks District, or Alameda County) prior to construction activities.

As with the S1 Alternative, the S2 Alternative would reduce potential impacts to biological resources compared to the Proposed South Area route. It avoids Alameda whipsnake critical habitat, and the potential California tiger salamander and California red-legged frog proposed critical habitat along the South Area route. Figure C.3-1A shows potential special status species habitats along the Proposed South Area route and the S2 Alternative alignment. As with the S1 Alternative, compared to the Proposed South Area route, this alternative would reduce temporary and permanent loss of plant communities, direct mortality and disturbance to wildlife, and overland travel disturbance of plant communities. Most of the underground segment would be in Developed Areas and would not affect sensitive biological resources. Additional to the S1 Alternative's impacts, the Blue Oak Woodland and associated trees between Mileposts 3.34 – 3.47 on the S2 Alternative may be affected; impacts to potential Heritage Trees will be less than or equal to the proposed South Area route, although additive to those also affected in Sycamore Grove Park (see Sec. C.3.3.2).

Unavoidable Significant Impacts. No unavoidable significant impacts to biological resources would result if the S2 Alternative were implemented.

C.3.3.4 Alternative S4: Eastern Open Space

Most of the impacts associated with the S4 Alternative route are considered not significant (**Class III**) and are similar to those described in Section C.3.3.1. **Class II** potential impacts associated with the S4 Alternative are identified below, with the relevant mitigation measures in Section C.3.3.1 cited and modified as may be necessary. Implementation of these mitigation measures would reduce these **Class II** impacts to a less than significant level.

Impact 3-1: Potential impacts to wetland plant communities would be the same as those described for the Proposed South Area route in Section C.3.3.1.1. Implementation of Mitigation Measure B-1 would compensate for temporary impacts through restoration and for permanent impacts through 2:1 replacement of wetlands and/or waters.

Impact 3-2: Impacts to Heritage Trees may occur in Blue Oak Woodland along the S4 Alternative route due to tower or access road construction. Implementation of Mitigation Measure B-2, as discussed in Section C.3.3.2, would require identification and avoidance of Heritage Trees from Milepost 2.35 to 4.64. However, if impacts are unavoidable, Mitigation Measure B-2 would compensate for impacts through the development of a Tree Replacement Plan, to be approved by the governing jurisdiction (the City of Pleasanton and/or Alameda County) prior to construction activities.

Impact 3-5: Direct mortality or direct disturbance of wildlife during construction and maintenance may occur. Implementation of Mitigation Measures B-3 and B-5 would reduce potential disturbance or mortality to wildlife, including large and small mammals and nesting birds, to a less than significant level.

Impact 3-6: Impacts to a Seasonal Wetland near Milepost MX1.71 from overland travel may result during construction and maintenance. Implementation of Mitigation Measure B-4 would require avoidance of overland travel impacts to this wetland. Impacts to Non-Native Annual Grassland from overland travel may also result during construction and maintenance; however, this impact is considered a less than significant (**Class III** impact which would not require implementation of Mitigation Measure B4.

Impact 3-7: Indirect impacts to wildlife from increased human presence and access may result from construction and maintenance. Implementation of Mitigation Measure B-5 would reduce impacts to wildlife by scheduling construction activities during non-breeding seasons and maintaining an adequate buffer distance between construction activities and wildlife in the project vicinity.

Impact 3-8: Temporary and permanent loss of special status plant species and their habitats (Section C.3.1.1.1) may occur during construction between Mileposts MX0.0 and 4.5. Implementation of Mitigation Measure B-6 will require identification and delineation of special status plant populations prior to initiation of any construction activities. Identified populations are to be avoided during construction.

Impact 3-9: Overland travel disturbance of special status plant species and their habitats (Section C.3.1.1.1) may occur during construction and maintenance between Mileposts MX0.0 and 4.5. Implementation of Mitigation Measure B-7 will require identification and delineation of special status plant populations prior to initiation of construction and maintenance activities, and associated overland travel. Identified populations are to be avoided during construction and maintenance.

Impact 3-30: Impacts to the Alameda whipsnake or its critical habitat may occur along the S4 Alternative route during construction and maintenance, particularly between Milepost 2.4 and 4.4. Implementation of Mitigation Measure B-8 will reduce impacts through either (1) avoidance of potential habitat or (2) a combination of project personnel education, on-site monitoring by a qualified biologist during construction and maintenance, and compensation of habitat at a 3:1 ratio.

Impact 3-32: Impacts to the California red-legged frog or its critical habitat may result during construction. Potential habitat occurs along the S4 Alternative between Mileposts MX0.0 and 4.4 due to its proximity to perennial stock ponds. This area is within USFWS designated critical habitat for the species. Implementation of Mitigation Measure B-9 would reduce impacts to the California red-legged frog through avoidance of suitable habitat as identified by a qualified biologist, monitoring of activities within 50 feet of suitable habitat, and replacement of removed critical habitat.

Alternative S4 would have greater potential impacts to biological resources than the Proposed South Area route, particularly between the Tesla-Newark Corridor and Vineyard Avenue. Figure C.3-1A shows potential special status species habitats along the Proposed South Area route and the S4 Alternative alignment. Compared to the Proposed South Area route, this alternative increases temporary and permanent loss of plant communities (including Blue Oak Woodland) and overland travel

disturbance to plant communities and wildlife habitat due to the increased length of the alignment. This alternative increases potential impacts to potential Heritage Trees. In addition, this alternative increases the chance of direct mortality of wildlife species, including the federal threatened Alameda whipsnake. Alternative S4 will be constructed through more Alameda whipsnake critical habitat and proposed California red-legged frog critical habitat than the Proposed South Area route. Implementation of this alternative would increase potential impacts to special status species. Between the S4 Alternative's intersection with Vineyard Avenue and the Vineyard Substation, potential impacts to biological resources are similar to those of the Proposed South Area route. Potential impacts resulting from this alternative alignment segment can be reduced to a less than significant level (**Class II**) by implementing Mitigation Measures B-1 through B-9 (as specified above).

***Unavoidable Significant Impacts*.** No unavoidable significant impacts to biological resources would result if the S4 Alternative were implemented.

C.3.4 Environmental Impacts and Mitigation Measures: Dublin Area

C.3.4.1 Proposed Project – North Area

Most of the impacts associated with the Proposed Project in the Dublin Area, are considered not significant (**Class III**) and are similar to those described in Section C.3.3.1. **Class II** potential impacts associated with the Proposed Project are given below and are described with accompanying mitigation measures in Section C.3.3.1. Implementation of these mitigation measures would reduce these **Class II** impacts to a less than significant level.

Impact 3-1: Seasonal Wetland near towers at Milepost B16.0 may be temporarily affected by construction activities. Permanent impacts to Alkali-Freshwater Marsh may result from vehicle traffic access road construction along the North Area route at the following locations: (a) southeast of the proposed Dublin Substation where the access road crosses Tassajara Creek to meet Tassajara Road and (b) near Milepost B17.25 (PG&E 2000). Implementation of Mitigation Measure B-1 would compensate for temporary impacts through restoration and for permanent impacts through 2:1 replacement of wetlands and/or waters.

Impact 3-5: Direct mortality or direct disturbance of wildlife during construction and maintenance may occur. Implementation of Mitigation Measures B-3 and B-5 would reduce potential disturbance or mortality to wildlife, including large and small mammals and nesting birds, to a less than significant level.

Impact 3-6: Impacts to a Seasonal Wetland north of Milepost B15.7 from overland travel may occur during construction and maintenance. Implementation of Mitigation Measure B-4 would require avoidance of potential overland travel impacts to this wetland. Impacts to Non-Native Annual Grassland from overland travel may also result during construction and maintenance; however, this

impact is considered a less than significant (**Class III**) impact and would not require implementation of Mitigation Measure B4.

Impact 3-7: Indirect impacts to wildlife from increased human presence and access may result from construction and maintenance. Implementation of Mitigation Measure B-5 would reduce impacts to wildlife by scheduling construction activities during non-breeding seasons and maintaining an adequate buffer distance between construction activities and wildlife in the project vicinity.

Impact 3-8: Temporary and permanent loss of special status plant species and their habitats (Section C.3.1.1.2) may occur during construction along the Proposed North Area route in the Dublin Area. Implementation of Mitigation Measure B-6 will require identification and delineation of special status plant populations prior to construction. Identified populations are to be avoided during construction.

Impact 3-9: Overland travel disturbance of special status plant species mentioned in Section C.3.1.1.2 and their habitats may occur during construction and maintenance along the Proposed North Area route in the Dublin Area. Implementation of Mitigation Measure B-7 will require identification and delineation of special status plant populations prior to initiation of construction and maintenance activities, and associated overland travel. Identified populations are to be avoided during construction and maintenance.

Impact 3-32: Impacts to the California red-legged frog or its critical habitat may result during construction and maintenance. Potential habitat occurs along the Proposed North Area route in the Dublin Area due to its proximity to perennial stock ponds and to local drainages that provide a perennial water source. This area is within USFWS designated critical habitat for the species. Implementation of Mitigation Measure B-9 would reduce impacts to the California red-legged frog through avoidance of suitable habitat as identified by a qualified biologist, monitoring of activities within 50 feet of suitable habitat, and replacement of removed critical habitat.

Additional **Class III** impacts associated with the Proposed Project, not listed in Section C.3.3.1, , include:

Impact 3-40: Mountain Plover.

The mountain plover may be an occasional winter visitor to annual grassland in the North Area route. Noise and activity associated with transmission tower construction during the non-nesting season could disturb this species and cause temporary avoidance of the construction area. This would be a less than significant (**Class III**) impact because migratory or wintering mountain plovers would likely only transit through the area, and would be able to temporarily disperse to large areas of adjacent habitat during construction.

Impact 3-41: Longhorn Fairy Shrimp.

Potential habitat for the longhorn fairy shrimp has been documented at five locations within 300 feet of the Proposed North Area transmission line right-of-way. The USFWS considers that ground disturbance within 250 feet of any pools has the potential to indirectly impact vernal pool crustacean habitat (USFWS 1995). Removal of, or disturbance to, aquatic habitats potentially occupied by longhorn fairy shrimp as a result of the construction activities would be a significant impact, but for Applicant Proposed Measure 7.10 which will reduce potential impacts to a less than significant level (**Class III**).

Impact 3-42: Vernal Pool Fairy Shrimp.

Potential habitat for the vernal pool fairy shrimp has been documented at five locations within 300 feet of the Proposed North Area transmission line right-of-way. The USFWS considers that ground disturbance within 250 feet of any pools has the potential to indirectly impact vernal pool crustacean habitat (USFWS 1995). Removal of, or disturbance to, aquatic habitats potentially occupied by vernal pool fairy shrimp as a result of the construction activities would be a significant impact, but for Applicant Proposed Measure 7.10 which will reduce potential impacts to a less than significant level (**Class III**).

Impact 3-43: Ricksecker's Water Scavenger Beetle.

Surveys for this species were not conducted; however, habitat for Ricksecker's water scavenger beetle may be present in some of the seasonal pools, ephemeral drainages, or stock ponds in the North Area route. Removal of or disturbance to aquatic habitat potentially suitable for the curved-foot hygrotus diving beetle would be considered a significant impact, but for Applicant Proposed Measure 7.11 which will reduce this impact to a less than significant level (**Class III**).

Impact 3-44: Special status species at proposed substation sites.

The proposed substation site and its associated transmission line will be constructed in Non-Native Annual Grassland, and will therefore not affect any native plant communities. However, Non-Native Annual Grassland and Agricultural Areas, which provide habitat for the burrowing owl, loggerhead shrike, and raptors, as well as several special status plant species, will be lost. Approximately 5 acres of Agricultural Area would be permanently lost by construction of the Proposed Dublin substation.

The burrowing owl, loggerhead shrike, and raptors could be affected if construction of the proposed substations occurred within 250 feet of a nest and caused an interruption in breeding or abandonment of an active nest. Construction disturbance during the breeding season of the burrowing owl, loggerhead shrike, raptors, and other special status species associated with grasslands, is considered a potentially significant impact that can be reduced to non-significant levels (**Class III**) with implementation of

Applicant Proposed Measures 7.3, 7.4, 7.4(a), and 7.5. Impacts to special status plant species associated with grassland habitat are discussed in Impacts 8 and 9.

C.3.4.2 Alternative D1: South Dublin

There are no **Class II** potential impacts associated with the D1 Alternative. Implementation of the Applicant Proposed Measures would reduce all potentially significant impacts to a not significant (**Class III**) level.

The D1 Alternative would reduce potential impacts to all biological resources compared to the Proposed Project in the Dublin Area. Potential impacts to California red-legged frog, proposed critical habitat for the frog, and California tiger salamander would be reduced compared to the Proposed Project, since it would not require construction of a line connecting the proposed Dublin substation to the North Livermore Area. Figure C.3-1A shows potential special status species habitats along the Dublin Area Proposed route and the D1 Alternative alignment. This alternative reduces temporary and permanent plant community and wildlife habitat losses compared to the Proposed Project. In addition, overland travel impacts would be reduced. At the Arroyo Mocho and Arroyo Las Positas crossings, the transmission lines would span the streams and their associated riparian and wetland plant communities.

Unavoidable Significant Impacts. No unavoidable significant impacts to biological resources would result if the D1 Alternative were implemented.

C.3.4.3 Alternative D2: Dublin – San Ramon

Most of the impacts associated with the D2 Alternative route are considered not significant (**Class III**) and are similar to those described in Sections C.3.3.1 and C.3.4.1. **Class II** potential impacts associated with the D2 Alternative are given below and are described with accompanying mitigation measures in Section C.3.3.1. Implementation of these mitigation measures would reduce these **Class II** impacts to a less than significant level.

Impact 3-1: Temporary or permanent impacts to Seasonal Wetlands at Mileposts F0.86 and B19.89, an Alkali-Freshwater Marsh at Milepost X0.15, and a Central Coast Riparian Scrub plant community along Tassajara Creek at Milepost B18.27 may occur along the D2 Alternative between the San Ramon Substation and the proposed Dublin Substation during construction. Implementation of Mitigation Measure B-1 would require delineation and avoidance of the Seasonal Wetlands. If impacts are unavoidable, Mitigation Measure B-1 requires restoration for temporary impacts or 2:1 replacement for permanent impacts.

Impact 3-2: Impacts to Heritage Trees in Blue Oak Woodland and Digger Pine-Oak Woodland communities as a result of trimming or removal may occur during reconductoring along the San Ramon-Pittsburg line, particularly between Mileposts SP6.5 and SP16.25. Implementation of Mitigation Measure B-2, as discussed in Section C.3.3.2, would require identification and avoidance of potential Heritage Trees. If impacts are unavoidable, Mitigation Measure B-2 would also compensate

for impacts through the development of a Tree Replacement Plan, to be approved by the governing jurisdiciton (Contra Costa County and/or the California State Parks System, if impacts occur in Mt. Diablo State Park) prior to construction or reconductoring activities.

Impact 3-5: Direct mortality or direct disturbance of wildlife during construction, reconductoring and maintenance may occur. Implementation of Mitigation Measure B-3 would reduce potential disturbance or mortality to wildlife, including large and small mammals and nesting birds, to a less than significant level.

Impact 3-6: Impacts to Seasonal Wetlands along the D2 Alternative between the San Ramon Substation and the Proposed Dublin Substation from overland travel may occur during construction and maintenance. These same types of impacts may occur along the San Ramon-Pittsburg line, particularly between Mileposts SP0.25 and SP3.5 and between Mileposts SP16.25 and SP21.0, due to overland travel during reconductoring and maintenance. Implementation of Mitigation Measure B-4 would require avoidance of overland travel impacts to these wetlands. Impacts to Non-Native Annual Grassland due to overland travel may also result during construction and maintenance; however, these impacts are considered a less than significant (**Class III**) impact which would not require implementation of Mitigation Measure B4.

Impact 3-7: Indirect impacts to wildlife from increased human presence and access may occur during construction and maintenance of the transmission line between the San Ramon and Proposed Dublin Substations and during reconductoring and maintenance of the San Ramon-Pittsburg line. Implementation of Mitigation Measure B-5 would reduce impacts to wildlife by scheduling construction activities during non-breeding seasons and maintaining an adequate buffer distance between construction, reconductoring, and maintenance activities and wildlife in the project vicinity.

Impact 3-8: Temporary and permanent loss of special status plant species and their habitats (Section C.3.1.1.2) may occur during construction of the transmission line between the San Ramon and Proposed Dublin Substations and during reconductoring of the San Ramon-Pittsburg line, particularly between Mileposts SP6.5 and SP16.5. Implementation of Mitigation Measure B-6 will require identification and delineation of any special status plant populations prior to construction and reconductoring. Identified populations are to be avoided during construction and reconductoring.

Impact 3-9: Overland travel disturbance of special status plant species and their habitats (Section C.3.1.1.2) may occur during construction and maintenance of the transmission line between the San Ramon and Proposed Dublin Substations, and during reconductoring and maintenance of the San Ramon-Pittsburg line from Milepost SP0.0 to approximately SP6.5. Overland travel disturbance of some of the special status plant species mentioned in Table C.3-3 and their habitats may occur during reconductoring and maintenance of the San Ramon-Pittsburg line north of Milepost SP6.5. Implementation of Mitigation Measure B-7 will require identification and delineation of special status plant populations prior to initiation of construction, reconductoring and maintenance activities, and

associated overland travel. Identified populations are to be avoided during construction, reconductoring and maintenance.

Impact 3-32: Impacts to the California red-legged frog or its critical habitat may result during construction and maintenance of the transmission line between the San Ramon and Proposed Dublin Substations, and during reconductoring and maintenance of the San Ramon-Pittsburg line. Potential habitat occurs along the D2 Alternative route due to its proximity to perennial stock ponds and drainages that provide a perennial water source. This area is within USFWS designated critical habitat for the species. Implementation of Mitigation Measure B-9 would reduce impacts to the California red-legged frog through avoidance of suitable habitat as identified by a qualified biologist, monitoring of activities within 50 feet of suitable habitat, and replacement of removed critical habitat.

Additional **Class II** impacts associated with the D2 Alternative route include:

Impact 3-45: Salt marsh harvest mouse.

Significant impacts to the salt marsh harvest mouse and its habitat could occur if reconductoring of the San Ramon-Pittsburg Line is required, and reconductoring equipment is placed in pickleweed habitat. Direct mortality could occur as a result of vehicle strikes, and loss and/or temporary disturbance of habitat may result from vehicle use and /or tower placement. These are considered significant impacts (**Class II**); however, the impacts can be reduced to less-than-significant levels by implementing Mitigation Measure B-10.

B-10 If Alternative D2 (San Ramon-Dublin), including reconductoring of the San Ramon-Pittsburg Line, were to be implemented, consultation is required with the USFWS and CDFG to coordinate avoidance and/or mitigation measures for the salt marsh harvest mouse. It is expected that all potential salt marsh harvest mouse habitat will be avoided. If habitat cannot be avoided, mitigation measures could include, but would not be limited to, the following:

- Where reconductoring equipment is placed or new towers are located, an exclosure will be constructed to preclude the mouse from construction areas.
- A qualified biologist will remove all mice from within the exclosure in accordance with CDFG guidelines and federal requirements.
- A biological monitor will ensure the integrity of the exclosure by checking it daily.
- In any area where workers must walk through sensitive habitat to access construction areas, appropriate routes will be selected under the supervision of a biological monitor to minimize or avoid contact with pickleweed, even if such routes are less direct.
- Where several trips must be made through sensitive vegetation, the biological monitor will ensure that workers use multiple routes to avoid wearing a path into the vegetation.
- Upon reaching the construction area, workers will limit their daily trips to a minimum.
- Any temporary impacts to salt marsh habitat will be mitigated by implementation of a restoration/revegetation plan approved by resource agency personnel.
- Any permanent impacts will be mitigated through purchase of habitat credits or mitigation land.
- If necessary, a Section 7 consultation will be entered into with USFWS.

Impact 3-46: California Clapper Rail and California Black Rail.

Potential impacts to California clapper rail and California black rail include noise impacts during the breeding season and habitat disturbance during construction and/or reconductoring. Noise impacts during the breeding season could result in the abandonment of the nest or young. Vehicle or crew disturbance of tidal wetland habitat and adjacent upland refugia could result in temporary habitat impacts. These are considered potentially significant impacts (**Class II**); however, the impacts can be reduced to less-than-significant levels by implementing Mitigation Measure B-11.

B-11 Areas along the route with suitable foraging and/or nesting habitat for the California clapper rail and California black rail will be surveyed by a qualified biologist. The applicant will coordinate avoidance and/or mitigation measures developed with the resource agencies. Mitigation will include, but not be limited to the following:

- Habitat will be avoided by spanning all suitable habitat.
- No construction will occur within 250 feet of known California clapper rail or California black rail breeding habitat during the period February 1 through August 31. No access to the construction site through rail habitat will occur during the same period.
- A biological monitor will be present at all times while construction occurs near the 250-foot buffer area for rail breeding habitat. The monitor will be on site from February 1 through August 31.
- In construction zones that occur close to the 250-foot buffer where workers must access, the number of daily trips made by the crew will be minimized.
- Any temporary impacts to salt marsh habitat will be mitigated by implementation of a restoration/revegetation plan approved by the resource agencies.
- Any permanent impact to suitable habitat will be mitigated with a purchase of habitat credits or purchase of off-site mitigation land.
- If necessary, a Section 7 consultation will be entered into with USFWS.

If reconductoring the San Ramon-Pittsburg Line is required, the D2 Alternative would increase potential impacts to biological resources compared to the Proposed Dublin Area route, due to the increased overall length of the route. It would require construction of approximately four miles of transmission line between the existing San Ramon substation and the Proposed Dublin Substation, and may require reconductoring of about 22 miles of the San Ramon-Pittsburg line; whereas the Proposed North Area route would require construction of approximately seven miles of transmission line. However, if reconductoring is not required, the D2 Alternative would have equivalent impacts to the Proposed Route in the Dublin Area.

Potential impacts to the California red-legged frog and its proposed critical habitat, and to the California tiger salamander would increase as a result of the D2 Alternative. While the total length of new transmission line along the D2 Alternative is less than that of the Proposed Project, the potential impacts associated with the reconductoring of 22 miles of transmission line would offset any benefits (Figure C.3-1A shows potential special status species habitats along the North Area Dublin route and Figure C.3-1B shows potential special status species habitats along the D2 Alternative alignment.).

Potential impacts to Seasonal Wetlands may be increased compared to the Proposed Route due to overland travel and construction of underground lines along the San Ramon-Dublin route, and overland travel along portions of the San Ramon-Pittsburg transmission line (approximately between Mileposts 0.0 – 10.0 and 14.5 – 20.0) during reconductoring. The San Ramon-Dublin transmission line would also be constructed in California red-legged frog proposed critical habitat Unit 15. In addition, temporary loss of plant communities and overland travel disturbance may be increased since the total construction and reconductoring distance would be greater than the proposed route.

The San Ramon-Pittsburg transmission line (which may require reconductoring) passes through large areas of Blue Oak Woodland, Diablan Sage Scrub, and Digger Pine-Oak Woodland habitat types that support many special status wildlife and plant species (particularly between Mileposts 6.5 – 16.25). Compared to the Proposed Route, potential impacts to the Alameda whipsnake and its critical habitat (Unit 4) would increase as a result of a D2 Alternative that includes reconductoring, as well as potential impacts to the California red-legged frog, proposed frog critical habitat, and the California tiger salamander. Potential impacts in this area would include noise disturbance to breeding wildlife, vehicle strikes with wildlife, and removal of vegetation for vehicle and equipment access along existing roads and towers. Although this portion of the San Ramon-Pittsburg line could only be reconductored, potential impacts to special status plant species due to vegetation removal would increase compared to the proposed route. This is due to the greater number of special status plant species occurring in the vicinity of the San Ramon-Pittsburg line, and due to the increased length of the line compared to the proposed North Area/Dublin route. Potential impacts to Heritage Trees may also be increased compared to the Proposed Route, due to trimming or removal for vehicle and equipment access to roads and towers.

At the northern end of the San Ramon-Pittsburg line (approximately between Mileposts 22.0 – 22.5), the route crosses Coastal Brackish Marsh habitat that may support the federal endangered salt marsh harvest mouse and California clapper rail, and the state threatened California black rail. Habitat impacts and construction noise during the breeding season are considered potential significant impacts (**Class II**) to these species. Mitigation measures B-10 and B-11 would reduce potential impacts to the salt marsh harvest mouse, California clapper rail, and California black rail to a less than significant level.

Unavoidable Significant Impacts. No unavoidable significant impacts to biological resources would result if the D2 Alternative were implemented.

C.3.5 Environmental Impacts and Mitigation Measures: North Livermore Area

C.3.5.1 Proposed Project – North Area

Most of the impacts associated with the Proposed Project North Area route, are considered not significant (**Class III**) and are similar to those described in Sections C.3.3.1 and C.3.4.1. **Class II** potential impacts associated with the Proposed Project are given below and are described with

accompanying mitigation measures in Section C.3.3.1. Implementation of these mitigation measures would reduce these **Class II** impacts to a less than significant level.

Impact 3-5: Direct mortality or direct disturbance of wildlife during construction and maintenance may occur. Implementation of Mitigation Measure B-3 would reduce potential disturbance or mortality to wildlife, including large and small mammals and nesting birds, to a less than significant level.

Impact 3-6: Impacts to a Seasonal Wetland along Cayetano Creek at Milepost B12.7 from overland travel may occur during construction and maintenance. Implementation of Mitigation Measure B-4 would require avoidance of potential overland travel impacts to this wetland. Impacts to Non-Native Annual Grassland and Agricultural Areas from overland travel may also result during construction and maintenance; however, this impact is considered a less than significant (**Class III**) impact and would not require implementation of Mitigation Measure B4.

Impact 3-7: Implementation of Mitigation Measure B-5 would reduce impacts to wildlife by scheduling construction activities during non-breeding seasons and maintaining an adequate buffer distance between construction and maintenance activities and wildlife in the project vicinity.

Impact 3-8: Temporary and permanent loss of special status plant species and their habitats (Section C.3.1.1.3) may occur during construction of the transmission line along the Proposed North Area route, particularly between Mileposts B10.4 and B12.0. Implementation of Mitigation Measure B-6 will require identification and delineation of any special status plant populations prior to construction. Identified populations are to be avoided during construction.

Impact 3-9: Overland travel disturbance of special status plant species mentioned in Section C.3.1.1.3 and their habitats may occur during construction of the transmission line along the Proposed North Area route, particularly between Mileposts B10.4 and B12.0. Implementation of Mitigation Measure B-7 will require identification and delineation of special status plant populations prior to initiation of construction and maintenance activities, and associated overland travel. Identified populations are to be avoided during construction and maintenance.

Impact 3-32: Impacts to the California red-legged frog or its critical habitat may result during construction and maintenance of the transmission line along the Proposed North Area route. Potential habitat occurs along the Proposed North Area route due to its proximity to perennial stock ponds. This area is within within USFWS designated critical habitat for the species. Implementation of Mitigation Measure B-9 would reduce impacts to the California red-legged frog through avoidance of suitable habitat as identified by a qualified biologist, monitoring of activities within 50 feet of suitable habitat, and replacement of removed critical habitat.

C.3.5.2 P1 Variant Alternative

Potential impacts to biological resources would be the same as the North Livermore Area Proposed Project, except that potential bird collision impacts would be reduced, due to undergrounding of one mile of transmission line. Potential Class II impacts resulting from this alternative alignment segment can be reduced to a less than significant level by implementing Mitigation Measures B-1 through B-9.

Unavoidable Significant Impacts. No unavoidable significant impacts to biological resources would result if the P1 Variant Alternative were implemented.

C.3.5.3 P2 Variant Alternative

Potential impacts to biological resources would be the same as the North Livermore Proposed Project, except that bird collision impacts would be reduced due to undergrounding, and impacts to Seasonal Wetland habitat may be increased due to ground disturbance associated with undergrounding. Potential Class II impacts resulting from this alternative alignment segment can be reduced to a less than significant level by implementing Mitigation Measures B-1 through B-9.

Unavoidable Significant Impacts. No unavoidable significant impacts to biological resources would result if the P2 Variant Alternative were implemented.

C.3.5.4 Alternative L1: Raymond Road

Most of the impacts associated with the L1 Alternative route are considered not significant (**Class III**) and are similar to those described in Sections C.3.3.1 and C.3.4.1. **Class II** potential impacts associated with the L1 Alternative are given below and are described with accompanying mitigation measures in Section C.3.3.1. Implementation of these mitigation measures would reduce these **Class II** impacts to a less than significant level.

Impact 3-5: Direct mortality or direct disturbance of wildlife during construction and maintenance may occur. Implementation of Mitigation Measure B-3 would reduce potential disturbance or mortality to wildlife, including large and small mammals and nesting birds, to a less than significant level.

Impact 3-6: Impacts to an Alkali Meadow from Milepost 0.0 to 0.3 from overland travel may occur during construction and maintenance. Implementation of Mitigation Measure B-4 would require avoidance of overland travel impacts to this sensitive habitat. Impacts to Agricultural Areas from overland travel may also result during construction and maintenance; however, this impact is considered a less than significant (**Class III**) impact and would not require implementation of Mitigation Measure B-4.

Impact 3-8: Temporary and permanent loss of special status plant species associated with Alkali Meadows (Section C.3.1.1.3 and Table C.3-3) may occur during construction of the underground transmission line along the L1 Alternative route between Mileposts 0.0 and 0.3. Implementation of

Mitigation Measure B-6 will require identification and delineation of any special status plant populations prior to construction. Identified populations are to be avoided during construction.

Impact 3-9: Overland travel disturbance of special status plant species associated with Alkali Meadows (Section C.3.1.1.3 and Table C.3-3) may occur during construction and maintenance of the underground transmission line along the L1 Alternative route between Mileposts 0.0 and 0.3. Implementation of Mitigation Measure B-7 will require identification and delineation of special status plant populations prior to initiation of construction and maintenance activities, and associated overland travel. Identified populations are to be avoided during construction and maintenance.

The following additional **Class II** impact associated with the L1 Alternative route may also occur:

Impact 3-47: Hydrologic impacts to special status plants**.**

An interruption to subsurface water flow caused by undergrounding the line (see Sec. C. (Hydrology)) could potentially impact water availability at critical periods during the life cycle of special status plant species that may occur at the Springtown Wetlands Preserve. Impacts to special status plant species and their habitats would be a **Class II** impact, significant, but one that can be mitigated to a less than significant level as described in Mitigation Measure B-12.

Mitigation Measure for Hydrologic Impacts to Special Status Plant Species at the Springtown Wetlands Preserve

B-12 Prior to construction, PG&E Co. shall use a qualified hydrologist to conduct groundwater flow studies to determine if the proposed underground line design will interfere with groundwater flows into the Springtown Wetlands Preserve. If the study determines that the underground transmission line and its associated trench and insulation will inhibit groundwater flows downslope, then a revised underground design that does not restrict flow will be required. Results of the studies will be provided to the Preserve Manager, CDFG and USFWS for review. The hydrologic assessment conducted for this environmental review has concluded it is unlikely that feasible undergrounding design can be developed (Section C.6.5.4, Impact 6-26). If no feasible design can be developed, implementation of the L1 Alternative would result in an unavoidable significant impact.

L1 Alternative potential impacts to biological resources could be reduced compared to the proposed North Area route (Phase 1). The reduced impacts include less potential for bird collisions, less overland travel, and increased avoidance of special status wildlife habitat. However, impacts to special status plants that may be present in the Alkali Meadow habitat route (San Joaquin saltbush, brittlescale, heartscale, palmate-bracted bird's beak, Congdon's tarplant) between Milepost 0.0 – 0.3 would be increased. In addition, undergrounding north of the Springtown Wetlands Preserve along Raymond Road could potentially affect subsurface water flow that is important to special status plants (including the palmate-bracted bird's-beak) (Figure C.3-1A shows potential special status species habitats along the North Area route and the L2 alternative alignment.). Mitigation measure B-12 would reduce

potential hydrologic impacts to special status plants at the Springtown Wetlands Preserve to a less than significant level.

Unavoidable Significant Impacts. If hydrological studies determine that undergrouding along Raymond Road would significantly limit groundwater flow to the Springtown Wetlands Preserve and no feasible design can be developed to avoid that impact, this would result in an unavoidable significant impact to biological resources if the L1 Alternative were implemented. With that exception, no unavoidable significant impacts to biological resources would result if the L1 Variant Alternative were implemented.

C.3.5.5 Alternative L2: Hartman Road

Most of the impacts associated with the L2 Alternative route are considered not significant (**Class III**) and are similar to those described in Sections C.3.3.1 and C.3.4.1. **Class II** potential impacts associated with the L2 Alternative are given below and are described with accompanying mitigation measures in Section C.3.3.1. Implementation of these mitigation measures would reduce these **Class II** impacts to a less than significant level.

Impact 3-1: Temporary and permanent impacts to Seasonal Wetlands at Mileposts 0.08 and 6.67, and to an Alkali-Freshwater Marsh at Milepost 4.73 may occur along the L2 Alternative during construction. Implementation of Mitigation Measure B-1 would require delineation and avoidance of the Seasonal Wetlands and Alkali-Freshwater Marsh. If impacts are unavoidable, Mitigation Measure B-1 requires restoration for temporary impacts or 2:1 replacement for permanent impacts.

Impact 3-2: Potential impacts to upland plant communities would be the same as those described for the S1 Alternative route (Section C.3.3.2). Implementation of Mitigation Measure B-2 would require identification and avoidance of Heritage Trees. If impacts are unavoidable, Mitigation Measure B-2 would compensate for impacts through the development of a Tree Replacement Plan, to be approved by the governing jurisdiction (the City of Livermore, the Livermore Area Recreation and Parks District, or Alameda County) prior to construction activities.

Impact 3-5: Direct mortality or direct disturbance of wildlife during construction may occur along the northern portion of the L2 Alternative route. Implementation of Mitigation Measure B-3 would reduce potential mortality or disturbance to wildlife, including large and small mammals and nesting birds, to a less than significant level.

Impact 3-6: Impacts to Seasonal Wetlands at Mileposts 0.08 and 6.67 from overland travel may occur during construction and maintenance. Implementation of Mitigation Measure B-4 would require avoidance of overland travel impacts to this sensitive habitat. Impacts to Non-Native Annual Grassland and Agricultural Areas from overland travel may also occur during construction and maintenance; however, this impact is considered a less than significant (**Class III**) impact and would not require implementation of Mitigation Measure B-4.

Impact 3-7: Indirect impacts to wildlife from increased human presence and access may result from construction and maintenance of the L2 Alternative route, particularly in Sycamore Grove Park and north of I-580. Implementation of Mitigation Measure B-5 would reduce impacts to wildlife by scheduling construction activities during non-breeding seasons and maintaining an adequate buffer distance between construction and maintenance activities and wildlife in the project vicinity.

Impact 3-8: Temporary and permanent loss of special status plant species and their habitats (Section C.3.1.1.3) may occur during construction of the transmission line along the L2 Alternative route, particularly the underground portion north of I-580. Implementation of Mitigation Measure B-6 will require identification and delineation of any special status plant populations prior to construction. Identified populations are to be avoided during construction.

Impact 3-9: Overland travel disturbance of special status plant species mentioned in Section C.3.1.1.3 may occur during construction and maintenance of the transmission line along the L2 Alternative, particularly the underground portion north of I-580. Implementation of Mitigation Measure B-7 will require identification and delineation of special status plant populations prior to initiation of construction and maintenance activities, and associated overland travel. Identified populations are to be avoided during construction and maintenance.

Impact 3-32: Impacts to the California red-legged frog or its critical habitat may occur during construction and maintenance of the transmission line along the L2 Alternative route. Potential habitat occurs along the portion of the L2 Alternative that runs through Sycamore Grove Park, due to its close proximity to Arroyo del Valle and perennial stock ponds to the south. This area is within USFWS designated critical habitat for the species. Potential habitat also occurs along the L2 Alternative route north of I-580 due to its proximity to perennial stock ponds and creeks; this area is also within USFWS designated critical habitat for the species. Implementation of Mitigation Measure B-9 would reduce impacts to the California red-legged frog through avoidance of suitable habitat as identified by a qualified biologist, monitoring of activities within 50 feet of suitable habitat, and replacement of removed critical habitat.

Between Mileposts 0.0 and 3.76, the L2, S1 and S2 Alternatives follow the same route and potential impacts would be identical (Sections C.3.3.1.1 and C.3.3.1.2). The remainder of the L2 Alternative alignment would have fewer impacts to plant communities and wildlife habitat than the Proposed North Area route since it would not require construction of a line from the Contra Costa-Newark line west to the Proposed Dublin Substation. Figure C.3-1A shows potential special status species habitats along the North Area route and the L2 Alternative alignment. The L2 Alternative alignment would avoid potential habitat for special status species, including the California tiger salamander and California red-legged frog and its proposed critical habitat, resulting in reduced potential impacts to those species. Potential impacts to plant communities and habitat from overland travel would also be reduced compared to the Proposed North Area route, since the L2 Alternative would require fewer miles of

transmission line. L2 Alternative potential impacts can be reduced to a less than significant level by implementing Mitigation Measures B-1 through B-9.

Unavoidable Significant Impacts. No unavoidable significant impacts to biological resources would result if the L2 Variant Alternative were implemented.

C.3.6 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES: TESLA CONNECTION (PHASE 2)

C.3.6.1 Proposed Project – North Area

Most of the impacts associated with the Proposed Phase 2 route (North Area), are considered not significant (**Class III**) and are similar to those described in Sections C.3.3.1 and C.3.4.1. **Class II** potential impacts associated with the Proposed Project are given below and are described with accompanying mitigation measures in Section C.3.3.1. Implementation of these mitigation measures would reduce these **Class II** impacts to a less than significant level.

Impact 3-5: Direct mortality or direct disturbance of wildlife during construction may occur along the Proposed Phase 2 route. Implementation of Mitigation Measure B-3 would reduce potential mortality or disturbance to wildlife, including large and small mammals and nesting birds, to a less than significant level.

Impact 3-6: Impacts to Non-Native Annual Grassland from overland travel may also occur during construction and maintenance; however, this impact is considered a less than significant (**Class III**) impact and would not require implementation of Mitigation Measure B-4.

Impact 3-7: Indirect impacts to wildlife from increased human presence and access may result from construction and maintenance activities along the entire Proposed Phase 2 route. Implementation of Mitigation Measure B-5 would reduce impacts to wildlife by scheduling construction activities during non-breeding seasons and maintaining an adequate buffer distance between construction and maintenance activities and wildlife in the project vicinity.

Impact 3-8: Temporary and permanent loss of special status plant species and their habitats may occur during construction. One special status plant species, San Joaquin saltbush, has been observed along the proposed transmission line route between Mileposts W2.53 and W2.60 during surveys conducted by PG&E (1999). The Proposed Project, however, will avoid this area and no permanent impacts are anticipated for San Joaquin saltbush, or any other special status plant species. Potential impacts to special status plant species and their habitats (Section C.3.1.1.4) may occur if individuals of any of these species occur but were not identified during rare plant surveys along the proposed transmission line corridor. Implementation of Mitigation Measure B-6 will require identification and delineation of any special status plant populations prior to construction. Identified populations are to be avoided during construction.

Impact 3-9: Overland travel disturbance of special status plant species and their habitats (Section C.3.1.1.4) may occur during construction and maintenance of the transmission line along the Proposed

Phase 2 route. Implementation of Mitigation Measure B-7 will require identification and delineation of special status plant populations prior to initiation of construction and maintenance activities, and associated overland travel. Identified populations are to be avoided during construction and maintenance.

Impact 3-32: Impacts to the California red-legged frog or its critical habitat may occur during construction and maintenance of the transmission line along the Proposed Phase 2 route. Potential habitat is present along the entire route due to its close proximity to perennial stock ponds and creeks. This area is within USFWS designated critical habitat for the species. Implementation of Mitigation Measure B-9 would reduce impacts to the California red-legged frog through avoidance of suitable habitat as identified by a qualified biologist, monitoring of activities within 50 feet of suitable habitat, and replacement of removed critical habitat.

The following additional **Class III** impact associated with the Proposed Phase 2 route may also occur:

Impact 3-48: San Joaquin Pocket Mouse.

The San Joaquin pocket mouse occurs in dry, open grasslands or scrub areas on fine-textured soils. Potentially suitable habitat occurs in the Proposed Phase 2 transmission line right-of-way. Construction activities could result in direct mortality of individuals and habitat disturbance. These impacts would be considered significant, but would be avoided with implementation of Applicant Proposed Measure 7.5, resulting in non-significant (**Class III**) impacts.

C.3.6.2 Brushy Peak Alternative Segment

Potential impacts associated with the Brushy Peak Alternative would be the same as the Proposed Phase 2 route described in C.3.6.1, except this alternative may have the following additional impact:

Impact 3-1: Temporary or permanent construction impacts to two Seasonal Wetlands may occur along the Brushy Peak Alternative. Implementation of Mitigation Measure B-1 would require delineation and avoidance of the wetlands. If impacts are unavoidable, Mitigation Measure B-1 requires restoration for temporary impacts or 2:1 replacement for permanent impacts.

Potential impacts to biological resources would be similar to those for the proposed North Area route, Phase 2. Figure C.3-1A shows potential special status species habitats along the North Area route and the Brushy Peak alternative alignment. Potential impacts resulting from this alternative alignment segment can be reduced to a less than significant level (**Class II**) by implementing Mitigation Measures B-1 through B-9.

Unavoidable Significant Impacts. No unavoidable significant impacts to biological resources would result if the Brushy Peak Variant Alternative were implemented.

C.3.6.3 Stanislaus Corridor

Most of the impacts associated with the Stanislaus Corridor are considered not significant (**Class III**) and are similar to those described in Sections C.3.3.1, C.3.4.1 and C.3.6.1. **Class II** potential impacts associated with the Stanislaus Corridor are given below and are described with accompanying mitigation measures in Section C.3.3.1. Implementation of these mitigation measures would reduce these **Class II** impacts to a less than significant level.

Impact 3-1: Temporary or permanent construction impacts to Seasonal Wetland drainages, Alkali-Freshwater Marsh, Central Coast Cottonwood-Sycamore Riparian Forest and Central Coast Riparian Scrub communities may occur along the Stanislaus Corridor (Table C.3-18). Implementation of Mitigation Measure B-1 requires delineation and avoidance of these potential wetlands and waters. However, if impacts are unavoidable, Mitigation Measure B-1 requires restoration for temporary impacts or 2:1 replacement for permanent impacts.

Impact 3-2: Impacts to Heritage Trees in Blue Oak Woodland and Central Coast Cottonwood-Sycamore Riparian Forest communities from trimming or removal may occur along the Stanislaus Corridor during construction (Table C.3-18). Implementation of Mitigation Measure B-2 (Section C.3.3.2) would require identification and avoidance of Heritage Trees. If impacts are unavoidable, Mitigation Measure B-2 would also mitigate for impacts through the development of a Tree Replacement Plan, to be approved by the governing jurisdiction (Alameda County, the City of Livermore and/or the Livermore Area Recreation and Parks District) prior to construction activities.

Impact 3-5: Direct mortality or direct disturbance of wildlife during construction and maintenance may occur. Implementation of Mitigation Measure B-3 would reduce mortality or disturbance to wildlife, including large and small mammals and nesting birds, to a less than significant level.

Impact 3-6: Impacts to Seasonal Wetlands from overland travel may occur during construction and maintenance (Table C.3-18). Implementation of Mitigation Measure B-4 requires avoidance of overland travel impacts to this sensitive habitat. Impacts to Non-Native Annual Grassland and Agricultural Areas from overland travel may also occur during construction and maintenanc; however, this impact is considered a less than significant (**Class III**) impact and would not require implementation of Mitigation Measure B-4.

Impact 3-8: Temporary and permanent loss of special status plant species and their habitats (Section C.3.1.1.4) may occur during construction of the Stanislaus Corridor. Implementation of Mitigation Measure B-6 will require identification and delineation of any special status plant populations prior to construction. Identified populations are to be avoided during construction.

Impact 3-9: Overland travel disturbance of special status plant species and their habitats (Section C.3.1.1.4) may occur during construction and maintenance of the Stanislaus Corridor. Implementation of Mitigation Measure B-7 will require identification and delineation of special status plant populations

prior to initiation of construction and maintenance activities, and associated overland travel. Identified populations are to be avoided during construction and maintenance.

Impact 3-32: Impacts to the California red-legged frog or its critical habitat may occur during construction and maintenance of the Stanislaus Corridor. Potential habitat is present along the entire route due to its close proximity to perennial stock ponds and creeks. This area is within USFWS designated critical habitat for the species. Implementation of Mitigation Measure B-9 would reduce impacts to the California red-legged frog through avoidance of suitable habitat as identified by a qualified biologist, monitoring of activities within 50 feet of suitable habitat, and replacement of removed critical habitat.

Potential impacts to biological resources that would result from the rebuilding of the Stanislaus Corridor would be similar to those for the Proposed Phase 2 route (North Area). Figure C.3-1A shows potential special status species habitats along the North Area Phase 2 route and the Stanislaus Corridor Alternative alignment. While Alkali Meadow is absent along this alternative alignment, potential impacts to special status plant species would be similar to the North Area Phase 2 route due to the potential occurrence of big tarplant (*Blepharizonia plumosa* ssp. *plumosa*) in suitable habitat near the Tesla Substation. Since towers already exist within the Stanislaus Corridor and would be replaced with fewer new towers, human presence within the Corridor during operations would not increase and, therefore, potential impacts to special status wildlife species due to increased human presence would be less than the North Area route (Phase 2).

Unavoidable Significant Impacts. No unavoidable significant impacts to biological resources would result if the Stanislaus corridor Variant Alternative were implemented.

C.3.7 MITIGATION MONITORING PROGRAM

Mitigation for significant impacts to vegetation resources will include avoidance, minimization, restoration, and compensation. Specific mitigation for affected resources will be developed in consultation with the California Public Utilities Commission, Bureau of Land Management, the California Department of Fish and Game, the U.S. Fish and Wildlife Service, and associated resource management agencies and individuals, utilizing the general mitigation guidelines adopted by those agencies. Emphasis will be placed on avoidance as the primary means of mitigating potential impacts to natural plant communities, wetlands, and special status species. Factors considered in evaluating priority for avoidance include:

- Regulatory status (state and federal legal protection)
- Known distribution
- Resource concentration/dispersal
- Potential for natural recovery or restoration.

Vegetation resources that have high sensitivities to impacts were identified and given the highest priority for avoidance. Other forms of mitigation were adopted where avoidance was not possible.

Off-site compensation will be used to mitigate for loss and for the recovery lag time inherent in restoration and natural recovery of plant communities and habitats. Table C.3-21 summarizes the mitigation monitoring program for the impacts discussed in Sections C.3.3 through C.3.7.

Biological resource monitoring must be conducted by individuals with specific qualifications relevant to the resources that will be monitored. Types of qualifications that will be considered for selecting monitors include:

- Emphasis of undergraduate/graduate degree(s)
- Related experience
- Special skills such as statistical analysis, experimental design, species identification, vegetation sampling, dependent upon the assignment

Depending on the monitoring objective, individuals will have suitable experience in soil science, botany, ecology, restoration, wildlife observation, and wetland delineation. The objective will be to utilize monitors who can collect and analyze the data required to document mitigation success, problems, and, if necessary, suggest remedial action. Specific qualifications of biological resource monitors will be discussed with the regulatory agencies prior to construction.

The Lead Agency (CPUC) will ensure that the Applicant provides the required funding and personnel to prepare and implement the mitigation measures, including monitoring plans, monitoring, report writing, and documentation.

Table C.3-21 Mitigation Monitoring Program

Impact (Class)	Mitigation Measures	Location	Responsible Agency	Monitoring/ Reporting Action	Effectiveness Criteria	Timing
Proposed Project and Alternatives						
CONSTRUCTION AND MAINTENANCE IMPACTS						
1. Temporary and permanent loss of wetland plant communities (**Class II**)	**B-1** Avoidance, restoration, and offsite compensation	All wetland habitats in the proposed and alternate routes	CDFG, CPUC	Biological monitor present; photodocumentation; report submitted for review and approval within 30 days of construction	Planting survival rate designated in restoration plan (percent cover, height, species composition)	Restoration plan - 60 days prior to construction. Annual report to be submitted during 5-year monitoring period
2. Temporary and permanent loss of upland plant communities (**Class II**)	**B-2** Avoidance, restoration, and offsite compensation	All upland areas with potential heritage trees in the proposed and alternate routes	CDFG, CPUC	Biological monitor present; photodocumentation; report submitted for review and approval within 30 days of construction	Planting survival rate designated in restoration plan (percent cover, height, species composition)	Restoration plan - 60 days prior to construction. Annual report to be submitted during 5-year monitoring period
5. Direct Mortality and Direct Disturbance to Wildlife (**Class II**)	**B-3** Avoidance, vehicle restrictions, litter removal, and biological monitoring	All undeveloped portions of proposed and alternate routes	CDFG, CPUC	Biological monitor present; report to be submitted for review within 30 days of construction	No activity outside of designated areas	Throughout project construction
6. Overland travel disturbance of plant communities (**Class II**)	**B-4** Mapping, avoidance, and biological monitoring .	All undeveloped portions of proposed and alternate routes	CDFG, CPUC	Biological monitor present; report to be submitted for review within 30 days of construction	No activity outside of designated areas	Throughout project construction
7. Indirect impacts to wildlife from increased human presence and access (**Class II**)	**B-5** Avoidance of construction and operation activities during critical seasons	All undeveloped portions of proposed and alternate routes	CDFG, CPUC	Specific monitoring/reporting determined by CDFG; documentation also provided to CPUC for review.	Prevent unauthorized access	Periodic maintenance
IMPACTS TO SPECIAL STATUS SPECIES AND HABITATS						
8. Temporary and permanent loss of special status plant species and their habitats (**Class II**)	**B-6** Pre-construction surveys, avoidance, education	All undeveloped areas of proposed and alternate routes	USFWS CDFG, CPUC	Biological monitor present; photodocumentation; report within 90 days of construction/periodic maintenance	No loss of special status plants	Throughout project construction and periodic maintenance

Impact (Class)	Mitigation Measures	Location	Responsible Agency	Monitoring/ Reporting Action	Effectiveness Criteria	Timing
9. Overland travel disturbance of special status plant species and their habitats (**Class II)**	**B-7** Pre-construction and pre-maintenance surveys, habitat avoidance, education	All undeveloped areas of proposed and alternate routes	USFWS, CPUC CDFG	Biological monitor present; photodocumentation; report within 90 days of construction/periodic maintenance	No loss of special status plants	Throughout project construction and periodic maintenance
30. Impacts to designated Alameda whipsnake critical habitat (**Class II)**	**B-8** Pre-construction and pre-maintenance delineation of critical habitat; consultation with USFWS will lead to development of avoidance and minimization measures	Proposed South Area route and Alternative D2 (Dublin-San Ramon)	USFWS, CPUC CDFG	Biological monitor present; photodocumentation; report within 90 days of construction/periodic maintenance	No loss of designated Alameda whipsnake critical habitat	Throughout project construction and periodic maintenance
32. Impacts to proposed designated California red-legged frog critical habitat (**Class II)**	**B-9** Pre-construction and pre-maintenance delineation of critical habitat; consultation with USFWS will lead to development of avoidance and minimization measures	All undeveloped areas of proposed and alternate routes	USFWS, CPUC, CDFG	Biological monitor present; photodocumentation; report within 90 days of construction/periodic maintenance	No loss of proposed designated California red-legged frog critical habitat	Throughout project construction and periodic maintenance
45. Impacts to salt marsh harvest mouse (**Class II)**	**B-10** Where habitat avoidance is not possible, applicant will consult with CDFG and USFWS to develop mitigation and minimization measures.	Between Mileposts SP21.71 and 22.54 at north end of San Ramon-Pittsburg route (San Ramon-Dublin alternative)	USFWS, CPUC, CDFG	Biological monitor present; photodocumentation; report within 90 days of construction/periodic maintenance	No loss of salt marsh harvest mouse or suitable habitat	Throughout project construction and periodic maintenance

Impact (Class)	Mitigation Measures	Location	Responsible Agency	Monitoring/ Reporting Action	Effectiveness Criteria	Timing
46. Impacts to California clapper rail and California black rail (**Class II)**	**B-11** Where habitat avoidance is not possible, applicant will consult with CDFG and USFWS to develop mitigation and minimization measures.	Between Mileposts SP21.71 and 22.54 at north end of San Ramon-Pittsburg route (San Ramon-Dublin alternative)	USFWS, CPUC, CDFG	Biological monitor present; photodocumentation; report within 90 days of construction/periodic maintenance	No loss of habitat and no disturbance during the breeding season	Throughout project construction and periodic maintenance
47. Hydrologic impacts to special status plants(**Class II)**	**B-12** Pre-construction groundwater flow studies; if flow restricted, alternate underground design required; study results reviewed by USFWS and CDFG	L1 Alternative Alignment	USFWS, CPUC, CDFG	Biological monitor present; photodocumentation; report within 90 days of construction/periodic maintenance	No interruption of groundwater flows to the Springtown Wetlands Preserve	Studies conducted prior to construction; monitoring conducted throughout project construction

C.3.8 REFERENCES

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