6.0 BIOLOGICAL RESOURCES

6.1 INTRODUCTION AND METHODS

This chapter provides an overview of methods used to evaluate biological resources in the project area, summarizes applicable laws and regulations, describes the biological resources, and identifies impacts to plant and animal species and habitats that could result from construction and operation of the proposed project. Evaluation of botanical and wildlife resources began with review of pertinent literature and databases, and was followed by field surveys. Absent avoidance and mitigation measures, the construction, operation, and maintenance of the transmission line could result in potentially significant impacts to botanical resources, wildlife, and sensitive habitats such as streams and wetlands. However, these impacts will be mitigated to less-than-significant levels through avoidance of sensitive resources and implementation of mitigation, restoration, and erosion control measures described in section 6.4 and in Appendix A.

6.1.1 Overview of Survey Methods

Field surveys for biological resources were conducted from August 2002 through July 2004. Teams of biologists first conducted reconnaissance-level surveys to identify and map vegetation types and wetlands, and to determine the potential for special-status plant and wildlife species to occur within the project area (see section 6.3.4 for definition of special-status species). The survey corridor for these reconnaissance-level surveys was 200 feet wide centered on the existing transmission line. Based on the results of reconnaissance surveys, agency-approved protocol surveys for special-status plant and wildlife species were performed from October 2002 through July 2004. The purpose of the protocol surveys was to document occupied and potential habitats for special-status species. Survey areas for protocol surveys were established following each specific protocol. Methods employed for these surveys are discussed in detail below.

In addition, all sites where construction activities are proposed were examined in January, February, June, and July 2004 to determine appropriate erosion control and restoration measures. Pole locations, pull sites, staging areas, access roads and drainage crossings were examined in the field to determine existing conditions and develop recommendations for erosion control and restoration. These recommendations are presented in the Erosion Control and Restoration Plan included in Appendix A.

6.1.2 Vegetation and Wetlands Methods

Reconnaissance-level surveys for vegetation and special-status plants were conducted in August 2002 by teams of two botanists who visually examined the route segment survey corridors on foot and from vehicles. Vehicles were used to access segments along roads, within vineyards and in other areas accessible by vehicle. The purpose of these surveys was to identify vegetation and land cover

types, to identify areas with the potential to support special-status plants, and to locate wetland habitats (including waterways) within and near the survey corridor. In addition, existing populations of non-native invasive plants (weeds) were described for each segment. Weed species noted included those listed by the California Department of Food and Agriculture (CDFA 2003) and those designated as harmful to wildlands by the California Invasive Plant Council (Cal-EPPC 1999). Vegetation types, land cover types, and potential wetlands were recorded on aerial photographs and described in field notes. Natural vegetation types were assigned primarily according to the system of Holland (1986). Plant nomenclature follows *The Jepson Manual* (Hickman 1993). Wetland habitats described in this report were identified according to dominant vegetation and were not evaluated for hydric soils or hydrologic criteria; therefore, these habitats are referred to as "potential" wetlands. Because these habitats will be avoided by the project, further investigation was not warranted.

One site, at pole 107, was assessed in July 2004 for all three wetland parameters (vegetation, soils and hydrology) according to the U.S. Army Corps of Engineers (Corps) (1987) methodology. This assessment was warranted because proposed construction activities would directly affect this site. Sampling points were established along a 30-foot transect along the transmission line bracketing the existing pole location. The sample points were chosen to represent the plant communities around the pole and within the proposed construction area. At each sample point, data were recorded on dominant plant species, soil characteristics, and presence or absence of wetland hydrologic indicators. Soil pits were dug to a depth of 16 inches. Soil color was evaluated using Munsell® soil color charts and soil types in the survey area were identified from the *Soil Survey of Sonoma County, California* (USDA 1972). Wetland indicator status of dominant plant species was based on the U.S. Fish & Wildlife Service (USFWS) wetlands plant list (Reed 1988).

Other aquatic resources including watercourses and ponds along the proposed route were initially identified on aerial photographs. Those that could be affected by the project or could harbor special-status species were investigated further in field studies (see below). Watercourses that could be affected by the project were assessed for the presence of a defined channel, bed, or banks to identify waters that may be subject to Corps and/or California Department of Fish and Game (CDFG) jurisdiction.

6.1.3 Wildlife Habitat Assessment Methods

Reconnaissance-level surveys were conducted in August 2002 to characterize wildlife habitat types and evaluate the potential for occurrence of special-status wildlife species in the project area. Before beginning, aerial photographs were reviewed and a target list of special-status wildlife species was generated (see section 6.1.4.2). Habitat assessment surveys were then conducted by walking the proposed route along segments 1 and 2, and by driving and walking along segment 17. A team of terrestrial biologists visually examined and recorded general habitat conditions in field notes and on

aerial photographs, and noted specific habitat features associated with special-status species that could potentially occur in the project area. A species was determined to have potential to occur if its documented geographic range includes the project area or vicinity, and if suitable habitat for the species was identified within or near the project area. Species that were determined to have potential to occur in the vicinity were ranked as having high, moderate or low potential to occur within the project area based on observed habitat conditions. Species incidentally observed during the surveys were also recorded. Photographs and GPS recordings were taken at sites which had potential to support special-status wildlife species.

6.1.4 Special-status Species Survey Methods

6.1.4.1 Special-status Plant Surveys

Protocol-level rare plant surveys were conducted from March through June 2003 (GANDA 2004a). The purpose of these surveys was to locate all populations of special-status plants within the project area, to precisely record and map their locations using GPS technology, and to estimate the size, number of individuals, phenology, and microhabitat characteristics of each rare plant population. Protocol-level surveys were floristic in nature and were conducted according to the rare plant survey guidelines approved by the California Native Plant Society (CNPS) (Tibor 2001), CDFG (2000), and USFWS (1996a).

A list of special-status plants with potential to occur in the project area was compiled by searching the California Natural Diversity Database (CNDDB) (CDFG 2002a) and the CNPS Inventory (Tibor 2001), and by reviewing unpublished species lists from sites near the project area with habitats similar to those of the project area (Howald 2000, 2002). A species was determined to have potential to occur if its known or expected geographic range includes the project area or vicinity, and if its known or expected habitat is represented within or near the project area. Information on flowering time, status, habitat preferences, geographic distribution, elevational range, and known locations in the project vicinity was gathered prior to the protocol-level field surveys. This information was compiled from the sources listed above and other sources, including *The Jepson Manual* (Hickman 1993), *A Flora of Sonoma County* (Best et al. 1996), and the CalFlora database (2002, 2003).

The CNPS (Tibor 2001), CDFG (2000) and USFWS (1996a) guidelines state that, prior to conducting surveys, known populations of the special-status plants with potential to occur in the project area should be observed in the field. While it was not feasible to visit reference populations of all the potentially occurring special-status species, local populations were observed of Napa false indigo (*Amorpha californica* ssp. *napensis*), Brewer's milkvetch (*Astragalus breweri*), Baker's blennosperma (*Blennosperma bakeri*), dwarf downingia (*Downingia pusilla*), fragrant fritillary (*Fritillaria liliacea*), broad-lobed linanthus (*Linanthus latisectus*), and Lobb's aquatic buttercup (*Ranunculus lobbii*) prior to

and during the survey period to check flowering condition. Drawings, photographs, and written descriptions of all potentially occurring special-status plants were reviewed prior to and during the survey period.

Protocol-level field surveys were conducted by one or two botanists on March 19, 21, and 28, April 2, May 15, and June 24, 2003. This range of survey dates was selected to encompass the blooming times of all of the special-status plants potentially occurring within the project area. The surveys were performed by walking meandering transects and visually observing a 200-foot wide survey corridor centered on the existing transmission line in segments 1, 2, and 17. All areas identified as suitable habitat for special-status plants within these segments were visited two or three times during the blooming season. Features with a high potential for supporting special-status plants, such as rock outcrops and seasonal wetlands, were carefully examined both within and adjacent to the study corridor. Special-status plant populations found during protocol-level surveys were mapped in the field using a Trimble GeoExplorer III GPS, which provides 1-2 meter accuracy after post-processing of field-collected data. Population size, flowering condition, and habitat characteristics were recorded in the field. Population size was determined by visual estimates, using standard estimation techniques (Elzinga et al. n.d.).

During protocol-level surveys all plants were identified to the level needed to determine qualification as special-status plants; almost all were identified to species level. A list of all vascular plant taxa encountered within the project area was recorded in the field. Collections were made of specimens that could not be readily identified in the field. Final determinations were made by keying specimens using standard references such as *The Jepson Manual* (Hickman 1993), *A California Flora* (Munz and Keck 1968), and *A Flora of Sonoma County* (Best et al. 1996). Voucher specimens were made or photographs were taken to document the presence of the special-status plants found during the surveys. Voucher specimens will be donated to the Jepson Herbarium, Valley Life Sciences Building, University of California, Berkeley.

6.1.4.2 Special-status Wildlife Surveys

A target list of special-status wildlife species was compiled by searching the CNDDB (CDFG 2002a) and by reviewing the USFWS species list for the project area, California Wildlife Habitat Relationships (CWHR) System (CDFG 2002b), and other literature on local and regional wildlife distribution in the project region. The CNDDB search area included all proposed and alternative project segments plus a five-mile buffer. The USFWS species list was provided by the USFWS Sacramento Fish and Wildlife Office on August 2, 2002 (Reference no. 1-1-02-SP-2795) and was updated via the internet (USFWS 2004a). The USFWS list includes all federally listed, proposed and candidate species and federal "species of concern" that the agency considers could be affected by

projects in the U.S. Geological Survey (USGS) 7.5-minute quadrangles that encompass the project area: Glen Ellen, Petaluma River, Sonoma, and Sears Point.

In addition to the general habitat evaluations performed during the reconnaissance surveys, focused habitat assessments were performed for the California red-legged frog (CRLF) (*Rana aurora draytonii*), California tiger salamander (CTS) (*Ambystoma californiense*), and western burrowing owl (*Athene cunicularia hypugaea*) to evaluate habitat suitability and to determine if and where protocol-level surveys might be warranted. A description of these surveys follows.

California red-legged frog (CRLF)

Site assessment surveys for CRLF were conducted from August 15 to October 10, 2002, September 25 and 26, 2003, and June 17 to 18, 2004 (GANDA 2004b). Aquatic habitats within one mile of the proposed route were inventoried using topographic maps and aerial photographs. Aquatic habitat types that could support CRLF were identified and potential dispersal barriers (e.g., major roads) between aquatic sites and the project area were noted. Based on the results of the map inventory, detailed field assessments were performed at aquatic sites where CRLF or their habitat could potentially be affected by project activities. At each site assessed, data were recorded on habitat type, habitat conditions, percentage cover of vegetation, and signs of disturbance such as cattle grazing. Habitat suitability criteria for CRLF were recorded, including width and depth of water bodies, bank gradient, water flow, substrate, percent of floating and emergent vegetation, percent of shade, and presence of potential predators such as bullfrogs (*Rana catesbeiana*) and predatory fish. Most of the sites assessed in the field were located within approximately 0.4 mile of the proposed route.

Following the site assessments, protocol surveys for CRLF were conducted according to USFWS (1997) guidance from October 21 to 31, 2002, May 1 to June 30, 2003, October 20 to 30, 2003, and June 17 to July 20, 2004 (GANDA 2004b). These consisted of two daytime and two nighttime surveys conducted at those sites identified in the assessment as suitable habitat for CRLF and which could be affected by the project. Protocol surveys were not performed at sites that will not be affected because of their distance from the project area or isolation by barriers such as major roads. Fifteen sites were surveyed, including eleven ponds and four creek reaches. The ponds surveyed consisted mostly of artificial stock ponds and small reservoirs. The creek reaches included upper Felder Creek and its tributary (crossed by the route between poles 54 and 55), Felder Creek north of the route (between pole 68 and 77), and Carriger and Sonoma creeks upstream and downstream of the transmission line crossing. Daytime surveys were conducted by visually scanning all aquatic habitats and shoreline areas with binoculars. Nighttime surveys were conducted using binoculars and a six-volt flashlight. Both visual and auditory detection methods were used. In cases where surveyors could not see the water, the vegetation was parted where possible to uncover hidden

pools. Care was used while walking in and around water bodies to avoid disturbing sediment, vegetation, and amphibian larvae. A detailed account of these surveys is provided in the CRLF survey report (GANDA 2004b).

California tiger salamander (CTS)

Site assessment and nocturnal terrestrial surveys for CTS were conducted along the western half of segment 1 (GANDA 2004c). The CTS survey area extended from the northeastern boundary of the Lakeville substation to the Petaluma River watershed boundary on Sonoma Mountain, at approximately pole 35. Although the project area is outside of the currently recognized range of the Sonoma County CTS (USFWS and CDFG 2003), the western slope of Sonoma Mountain could be within the historic range of the species. The surveys were conducted according to the CDFG (1997) survey protocol for CTS.

The site assessment included documenting habitat conditions and determining habitat suitability for CTS at all mapped ponds (ephemeral and permanent) within 0.6 mile of the proposed route, and at upland habitats adjacent to these ponds. At each site, habitat type, topography, plant communities, presence and types of water bodies, mammal burrows, current land use, and any signs of disturbance were noted. Suitable underground retreats such as rodent burrows and deep soil cracks were recorded. Natural and artificial ponds that lacked fish were classified as suitable aquatic habitat.

Based on the results of the site assessment, nocturnal terrestrial surveys were conducted according to the CDFG (1997) protocol from December 13, 2002, to March 19, 2003. The survey area encompassed terrestrial habitat within 1,600 feet of the five aquatic sites determined during the site assessment phase to have suitable breeding habitat. Five night surveys were performed at each site, one during each of the months of December, January, and February, and two additional surveys during storm systems in February and March. Mammal burrows and other suitable underground refuges were identified in daylight and flagged prior to the night surveys. The surveys were conducted when rain had occurred during the day and continued after dark, and air temperatures ranged from 46 to 61°F. Teams of two biologists conducted either randomized walk or transect surveys around suitable breeding ponds. Transects were spaced 16-50 feet apart, and six-volt flashlights were used to scan both sides of each transect for CTS. Mammal burrows and other suitable refuge sites were carefully inspected by looking down the tunnel as far as possible.

Western burrowing owl

Habitat assessment and walking transect surveys were performed for western burrowing owl (GANDA 2004d) according to the guidelines prepared by the California Burrowing Owl Consortium (CBOC) (1993). These guidelines specify three survey phases: Phase I assesses whether suitable

burrowing owl habitat (i.e., grasslands with burrows) is present; Phase II is a walking-transect survey through suitable habitat to identify burrows that could potentially be used by burrowing owl; and Phase III determines presence of burrowing owl through additional focused surveys.

A Phase I habitat assessment was conducted in September 2002 along the proposed route. A Phase II burrow survey was conducted on July 2, 2003, in segment 1, where marginally suitable burrowing owl habitat was identified. The Phase II survey corridor extended from the Lakeville substation to approximately pole 69 at the eastern end of segment 1 and was 1,200 feet wide, which included the 200-foot wide study corridor and an additional 500-foot buffer on each side. Linear transects were walked within the survey area to search for owls, occupied burrows, sign (pellets, feathers, whitewash, etc.), nesting sites, and other habitat indicators such as ground squirrels and burrows. Transects were spaced 100 feet apart or less to account for variation in terrain, vegetation density, and ground surface visibility. Because no burrowing owls, nesting burrows, or sign of burrowing owl were detected during the Phase II survey, a Phase III survey was not warranted.

6.2 REGULATORY FRAMEWORK

6.2.1 Federal Regulations

6.2.1.1 Federal Regulation of Waters of the United States, Including Wetlands (Clean Water Act Sections 404 and 401)

The U.S. Army Corps of Engineers (Corps or ACOE) and the Environmental Protection Agency (EPA) regulate the discharge of dredged or fill material into Waters of the United States, including wetlands, under Section 404 of the Clean Water Act (CWA). Projects that would result in the placement of dredged or fill material into Waters of the U.S. require a Section 404 permit from the Corps. Some classes of fill activities may be authorized under general permits if specific conditions are met.

Utility line construction activities that result in the placement of fill into Waters of the U.S. may be authorized under Section 404 Nationwide Permit 12 (at the discretion of the Corps). Nationwide Permit 12 also notes that overhead utility lines constructed over navigable waters of the United States[1] require a Rivers and Harbors Act Section 10 permit. Nationwide permits do not authorize activities that are likely to jeopardize the existence of a threatened or endangered species (listed or proposed for listing under the federal Endangered Species Act) or that may affect properties listed or eligible for listing in the National Register of Historic Places (56 FR 59134, November 22, 1991). In addition to conditions outlined under each nationwide permit, project-specific conditions may be required by the Corps as part of the Section 404 permitting process.

[1] The general definition of navigable waters of the United States includes those waters of the United States that are subject to the ebb and flow of the tide shoreward to the mean high water mark, and/or are presently used or have been used in the past, or may be susceptible to use to transport interstate or foreign commerce. The Corps will be contacted to verify whether it considers this portion of Sonoma Creek to be within this definition.

Section 401 of the CWA requires the issuance of a water quality certification or waiver thereof for all Section 404 nationwide or individual permits issued by the Corps. The EPA has deferred water quality certification authority to the Regional Water Quality Control Board (RWQCB).

The federal government also supports a policy of minimizing "the destruction, loss, or degradation of wetlands." Executive Order 11990 (May 24, 1977) requires that each federal agency take action to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands.

6.2.1.2 Federal Policies on Riparian Communities in California

Riparian communities have a variety of functions, including providing high-quality habitat for resident and migrant wildlife, streambank stabilization, and runoff water filtration. Throughout the United States, riparian habitats have declined substantially in extent and quality compared with their historical distribution and condition. These declines have increased concerns about dependent plant and wildlife species, leading federal agencies to adopt policies to arrest further loss. USFWS mitigation policy identifies California's riparian habitats as belonging to resource Category 2, for which no net loss of existing habitat value is recommended (46 FR 7644, January 23, 1981).

6.2.1.3 Federal Endangered Species Act

The USFWS and National Oceanic and Atmospheric Administration (NOAA) Fisheries oversee the federal Endangered Species Act (ESA). Sections 9 and 4(d) of the ESA prohibit the "take[2]" of any fish or wildlife species listed as endangered or threatened, including the destruction of habitat that could hinder species recovery. The Section 9 take prohibition of the ESA applies only to wildlife and fish species. Section 9 also prohibits the removal, possession, damage, or destruction of any endangered plant from federal land. Section 9 further prohibits acts to remove, cut, dig up, damage, or destroy an endangered plant species in non-federal areas in knowing violation of any state law or in the course of criminal trespass. Candidate species and species that are proposed for listing receive no protection under the ESA. The USFWS has jurisdiction over plants, wildlife, and resident fish; NOAA Fisheries has jurisdiction over anadromous fish, marine fish, and marine mammals.

Section 7 of the Act mandates that all federal agencies consult with the USFWS and/or NOAA Fisheries to ensure that federal agencies' actions do not jeopardize the continued existence of a listed species or adversely modify critical habitat for listed species.

[2] Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct.

Section 10 of the ESA allows for take that is incidental to an otherwise lawful activity carried out by non-federal entities. An "incidental take" permit must be obtained from the USFWS or NOAA Fisheries prior to any public or private action that is likely to result in take of any individual of an endangered or threatened species. The permit requires preparation and implementation of a habitat conservation plan that would offset the take of listed species that may occur by providing for the overall preservation of the affected species through specific mitigation measures.

6.2.1.4 Federal Migratory Bird Treaty Act

The Migratory Bird Treaty Act states that without a permit issued by the U.S. Department of the Interior, it is unlawful to pursue, hunt, take, capture, or kill any migratory bird.

6.2.1.5 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act makes it illegal to import, export, take (which includes molest or disturb), sell, purchase, or barter any bald eagle (*Haliaeetus leucocephalus*) or golden eagle (*Aquila chrysaetos*) or part thereof.

6.2.1.6 Federal Regulations on Interstate Transport of the Sudden Oak Death Pathogen

Federal regulations restricting the interstate movement of regulated and restricted articles have been established to control the movement of *Phytophthora ramorum*, the organism that causes Sudden Oak Death (SOD), from infested counties in California. Regulated articles include nursery stock and soil and may only be moved interstate from a quarantined area if accompanied by a certificate. Restricted articles include bark chips, forest stock, or mulch from certain vegetation, and any other article that an inspector determines poses a risk of spreading *Phytophthora ramorum*. Restricted articles may only be moved interstate from a quarantined area by the U.S. Department of Agriculture for experimental or scientific purposes. State and federal regulations have recently been revised so that they are nearly identical with the following exceptions: 1) federal regulations apply to interstate transport, whereas state regulations (see 6.2.2) apply to intrastate transport; and 2) federal regulations limit the transport of soil, as well as plant parts and products from hosts and potential carriers.

6.2.2 State and Local Regulations

6.2.2.1 State Regulation of Waters

The CDFG regulates activities that would interfere with the natural flow of, or substantially alter, the channel, bed, or bank of a lake, river, or stream. Section 1602 of the California Fish and Game Code (CFGC) requires notification of the CDFG for lake or stream alteration activities. If, after notification is complete, the CDFG determines that the activity may substantially adversely affect an

existing fish and wildlife resource, the CDFG has authority to issue a streambed alteration agreement under Section 1603 of the CFGC. Requirements to protect the integrity of biological resources and water quality are often conditions of streambed alteration agreements. These may include avoidance or minimization of heavy equipment use within stream zones, limitations on work periods to avoid impacts to wildlife and fisheries resources, and measures to restore degraded sites or compensate for permanent habitat losses.

6.2.2.2 Storm Water Pollution Prevention Plan

The RWQCB implements water quality regulations under the federal CWA and the State Porter-Cologne Act. These regulations require compliance with the National Pollutant Discharge Elimination System (NPDES), including compliance with the California Storm Water NPDES General Construction Permit for discharges of storm water runoff associated with construction activity. General Construction Permits for projects that disturb one or more acres of land require development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). (For additional detail on these requirements, see Chapter 10, Hydrology and Water Quality.)

6.2.2.3 California Endangered Species Act

California implemented its own Endangered Species Act (CESA) in 1984. The state act prohibits the take of state-listed endangered and threatened species; however, habitat destruction is not included in the state's definition of take. Section 2090 of CESA requires state agencies to comply with endangered species protection and recovery and to promote conservation of these species. The CDFG administers the act and authorizes take through Section 2081 agreements (except for designated "fully protected species").

Regarding listed rare and endangered plant species, CESA defers to the California Native Plant Protection Act (NPPA) of 1977, which prohibits importing of rare and endangered plants into California, and the taking and selling of rare and endangered plants. The CESA includes an additional listing category for threatened plants which are not regulated under the NPPA. In this case, plants listed as rare or endangered under the NPPA are not protected under CESA but can be protected under CEQA. In addition, plants that are not state-listed but meet the state standards for listing, are also protected under CEQA (Guidelines, Section 15380) (see 6.4.1). In practice, this is generally interpreted to mean that all species on lists 1B and 2 of the CNPS Inventory (Tibor 2001) potentially qualify for protection under CEQA, and some species on lists 3 and 4 of the CNPS Inventory may qualify for protection under CEQA. List 3 includes plants for which more information is needed on taxonomy or distribution. Some of these are rare and endangered enough to qualify for protection under CEQA. List 4 includes plants of limited distribution that may qualify for protection if their abundance and distribution characteristics are found to meet the state standards for listing.

6.2.2.4 California Fish and Game Code Bird Protections

Section 3503 of the CFGC prohibits destruction of the nests or eggs of most native resident and migratory bird species. Section 3503.5 of the CFGC specifically prohibits the taking of raptors or destruction of their nests or eggs.

6.2.2.5 Native and Heritage Tree Ordinances

Sonoma County has several county and city ordinances that protect trees. The Valley Oak Habitat Combining District provides for the protection and enhancement of valley oaks and valley oak woodlands. Under the ordinance, large valley oak trees with a diameter at breast height (dbh) greater than 20 inches or smaller valley oak trees that have a cumulative dbh greater than 60 inches shall not be removed unless appropriate mitigation measures are implemented. These measures include retaining large oaks on protected lands, planting replacement valley oaks and paying compensation.

The Sonoma County Heritage or Landmark Tree Ordinance (Sonoma County Code, Chapter 26D) seeks to protect trees that qualify for heritage or landmark status, which can be conferred by the Sonoma County Board of Supervisors to nominated trees, with landowner approval. "Heritage tree" means "a tree or a group of trees with historical interest or significance." "Landmark tree" means "a tree or a group of trees with outstanding characteristics in terms of size, age, rarity, shape, or location." Heritage and landmark trees can be removed or damaged only under certain limited conditions, for example, if the tree is dead or diseased. A permit must be obtained to remove or damage a heritage or landmark tree. A number of exemptions apply, including "any utility company licensed by the California Public Utilities Commission is exempt from the requirement of obtaining a permit so that they or their agents may maintain the required clearance around power lines" (Ordinance No. 3651, Chapter 5, 1986).

The City of Sonoma protects trees through a Tree Ordinance (City of Sonoma, Municipal Code, Chapter 12.08). This ordinance prohibits actions such as pruning, trimming, relocating, removing, or killing any tree on public property without a permit from the director of public works. Applications for new developments that propose to remove trees must be reviewed by the Planning Commission, the Architectural Review Commission and the Tree Committee. A tree inventory is required, and replacement is required for any trees that are removed. No permit is required to trim branches or roots that are interfering with public utility lines.

Copies of the County and City of Sonoma ordinances and the Valley Oak Habitat Combining District articles that protect trees are provided in Appendix B.

6.2.2.6 State and Local Regulations on the Transport of the SOD Pathogen

The CDFA Plant Quarantine Manual, Section 3700, describes state restrictions that apply to the movement of plants, plant parts, and plant products (e.g., bark chips, mulch, firewood, and wreaths) of species that are hosts or possible carriers of the pest that causes oak mortality disease. The regulated area includes the entire counties of: Alameda, Contra Costa, Humboldt, Lake, Marin, Mendocino, Monterey, Napa, San Mateo, Santa Clara, Santa Cruz, Solano, and Sonoma. SOD has been found within all 13 of these counties. Plants and plant parts of hosts and possible carriers can be transported freely within and between the 13 infested counties, but cannot be transported to non-infested counties or, under federal regulations, to non-infested states.

Within Sonoma County, SOD regulations are under the jurisdiction of the County Agricultural Commissioner's office. No special regulations, beyond those of the State, are imposed by Sonoma County. The Sonoma County Agricultural Commissioner's office requests voluntary assistance from all sectors in combating the spread of the SOD pest within Sonoma County (C. Morgan, pers. comm. 2004).

6.2.2.7 Sonoma County General Plan Policy for Riparian Corridors

The 1998 Sonoma County General Plan (Part 4, Section 3.2) sets forth certain goals and objectives for the protection of riparian corridors (Sonoma County 1998). Objective OS-5c directs the County to establish streamside conservation areas (SCAs) for designated riparian corridors. For flatland riparian corridors, the SCA extends 100 feet from the top of the higher bank as determined by the Sonoma County Water Agency. For upland riparian corridors, the SCA width is 50 feet from the top of the higher bank. Objective OS-5e allows for certain land uses within SCAs, including road crossings and utility line crossings. Objective OS-5f prohibits installation of structures, roads and utility lines within any SCAs except as allowed by OS-5e. These prohibitions can be waived if no significant disturbance of riparian habitat would occur or if the use involves only the maintenance, restoration or minor expansion of an existing structure.

6.3 EXISTING CONDITIONS

The project region includes the southeastern Petaluma Valley, the south end of the Sonoma Mountains and part of the southern Sonoma Valley. The predominant vegetation and land cover types in this region are grasslands, planted pasturelands, oak woodlands, vineyards, and riparian forests. Native grasslands and woodlands dominate the upper slopes of Sonoma Mountain. The lower slopes of Sonoma Mountain and the flat valley lands are dominated by grazed grasslands, planted pasturelands, and vineyards. Wetlands consist mainly of isolated vernal pools and vernal marshes, and irrigation ponds. Major drainages east of the crest of Sonoma Mountain include Rodgers Creek, Felder Creek, and Carriger Creek, all tributary to Sonoma Creek. Drainages west

of the crest of Sonoma Mountain are unnamed intermittent streams that are all tributary to the Petaluma River.

6.3.1 Vegetation and Habitat Types

6.3.1.1 Substations

There is no vegetation within the fenced boundaries of the Sonoma Substation. The vegetation in the area of the Lakeville Substation where new facilities will be constructed consists of non-native weedy grasses and forbs characteristic of ruderal areas. This vegetation does not qualify as natural vegetation as described by Holland (1986). The vegetation within the remainder of the substation site was not surveyed or classified for this project.

6.3.1.2 Transmission Line

Ten vegetation types are represented within the transmission line corridor, including six upland types and four wetland and riparian types. Nine of the ten are natural vegetation types. Vineyards and other agricultural lands constitute the tenth type. The natural vegetation types are named and characterized below based primarily on Holland (1986). Sawyer and Keeler-Wolf (1995) equivalents are given when possible.

The ten vegetation types found within the project area include:

Upland Types

- Coast Live Oak Forest and Woodland
- Mixed Evergreen Forest
- Non-native Grassland
- Oregon Oak Woodland
- Upland Redwood Forest
- Vineyards and Other Agricultural Lands

Wetland and Riparian Types

- Coastal and Valley Freshwater Marsh
- North Coast Riparian Forest
- Northern Vernal Pool
- Vernal Marsh

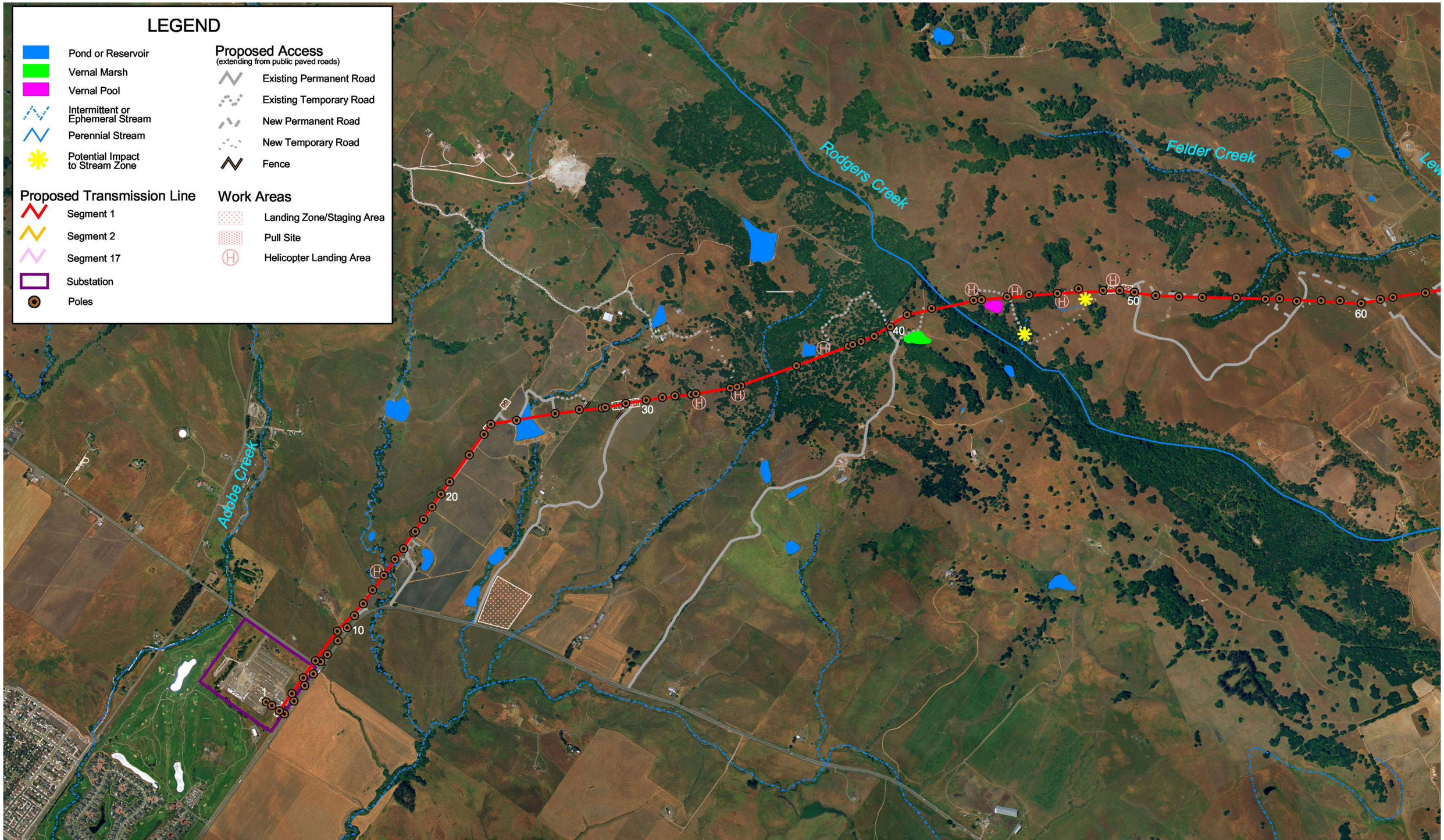
The vegetation descriptions below include characteristics specific to the project area and are based mainly on field studies conducted for this project.

6.3.1.3 Upland Vegetation Types

Coast Live Oak Forest and Woodland. Coast Live Oak Forest is an upland vegetation type consisting of dense stands of coast live oak (*Quercus agrifolia*) that often form a closed canopy (Holland 1986). Oak woodland is similar, but the trees are more widely spaced and the canopy is open. This type is found on slopes and in valley bottoms of the Coast Ranges, from Sonoma County to Santa Barbara County. The understory typically consists of a sparse to dense growth of shrubs, often including blue elderberry (*Sambucus mexicana*), toyon (*Heteromeles arbutifolia*) and poison oak (*Toxicodendron diversilobum*), as well as many species of annual and perennial forbs and grasses. Holland (1986) describes Coast Live Oak Forest and Coast Live Oak Woodland as separate, but intergrading types. The Coast Live Oak series of Sawyer and Keeler-Wolf (1995) encompasses both Holland types.

Coast Live Oak Forest and Woodland is widespread within the project area, where it is found mainly on ridges and slopes with a northern or eastern exposure, and on the upper slopes of some steep-walled canyons with ephemeral drainages. California bay (*Umbellularia californica*) is a frequent associate. The understory can be open in heavily shaded sites, or it can be dominated by introduced weedy annual grasses, or weedy annual forbs such as Italian thistle (*Carduus pycnocephalus*) and milk thistle (*Silybum marianum*). The weedy understory type is observed primarily in areas currently used for livestock grazing. Cattle use the understory of these forests and woodlands for bedding down and resting during the hotter periods of the day. Coast Live Oak Woodland is found in segment 1.

Mixed Evergreen Forest. As described by Holland (1986), Mixed Evergreen Forest is dominated by broad-leaved trees that form a closed canopy. Oaks, madrone (*Arbutus menziesii*), and Douglas fir (*Pseudotsuga menziesii*) are characteristic species. Mixed Evergreen Forest occurs on slopes with moist, well-drained, coarse soils, within the summer fog zone. Holland notes that Mixed Evergreen Forest is a transition type, both geographically and biologically, between dense coastal conifer forests (especially redwood forest) and open interior oak woodlands. It extends more or less continuously from Santa Cruz County to the Oregon border, in the outer Coast Ranges. It occurs sporadically from Santa Cruz County south to Santa Barbara County.



Source: AirPhotoUSA (April, 2002) / PG&E / EDAW, Inc. 2004

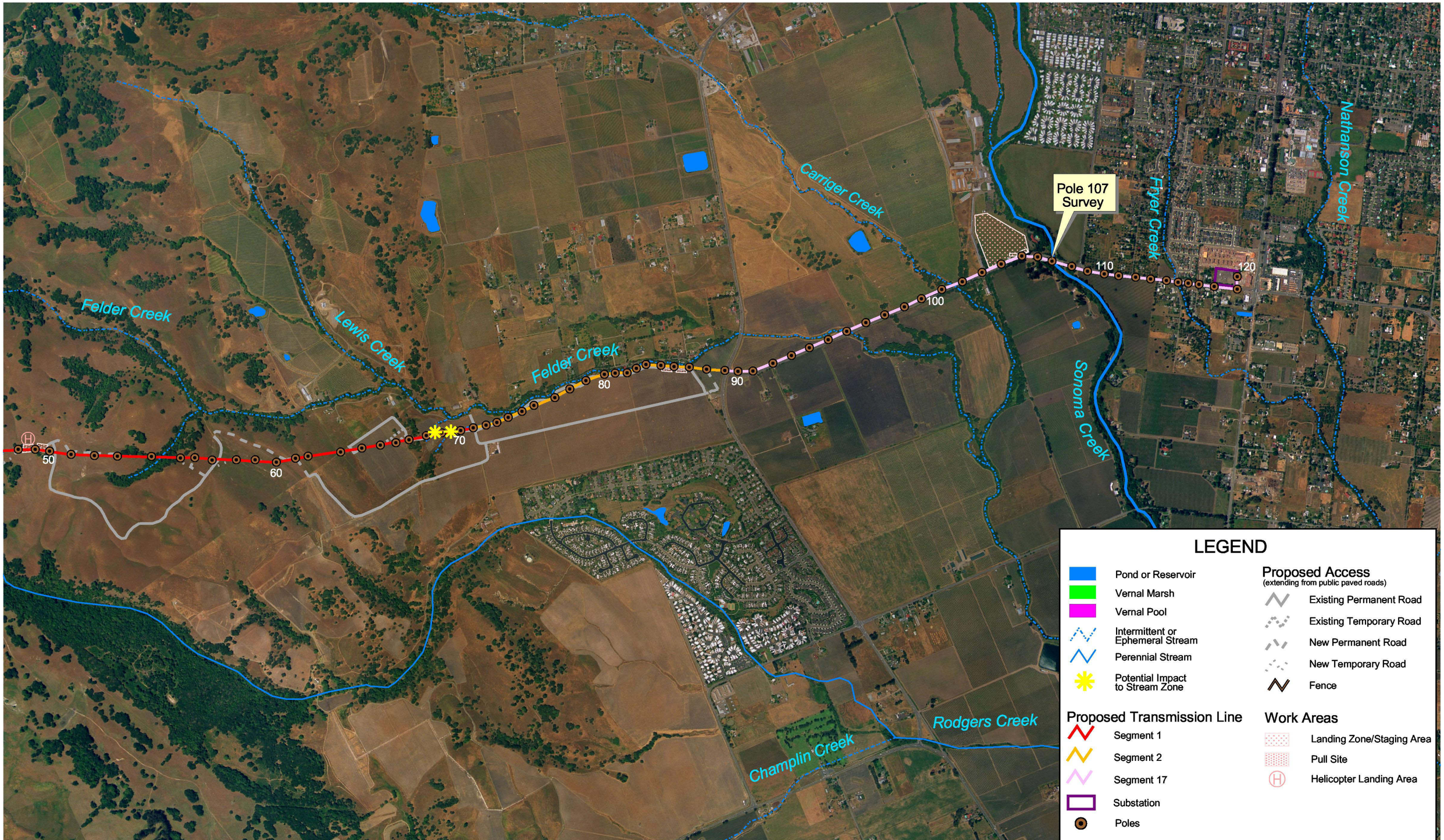
Lakeville-Sonoma 115kV Transmission Line Project

1000 0 1000 2000 3000 4000 5000 6000 7000 Feet

Scale 1 : 18,000

EDAW Pacific Gas and Electric Company GANDA

Figure 6-1a
Wetlands and Aquatic Resources (West)
September 2004



Source: AirPhotoUSA (April, 2002) / PG&E / EDAW, Inc. 2004

Lakeville-Sonoma 115kV Transmission Line Project

1000 0 1000 2000 3000 4000 5000 6000 7000 Feet

Scale 1 : 18,000

EDAW PG&E Pacific Gas and Electric Company GANDA

Figure 6-1b
Wetlands and Aquatic Resources (East)
September 2004

Within the project area, Mixed Evergreen Forest is found on the upper west-facing slopes of Sonoma Mountain, in segment 1. This area is frequently fog-enshrouded in summer due to the seasonal weather pattern that draws moisture from the coast into the interior on a daily basis. The dominant trees include California black oak (*Quercus kelloggii*), coast live oak, madrone, Douglas fir, and Oregon oak (*Quercus garryana*). The understory contains a diverse array of native shrubs, forbs, and grasses. Mixed Evergreen Forest within the project area is not currently grazed by livestock and retains a predominance of native plant species.

Non-native Grassland. Holland (1986) describes Non-native Grassland as consisting of a dense to sparse cover of introduced annual grasses, mainly less than three feet in height, often including a diverse assemblage of native annual forbs (wildflowers). The comparable type in Sawyer and Keeler-Wolf (1995) is the California Annual Grassland series. Both authors note that the species composition of annual grasses and forbs varies considerably among stands.

Within the project area, Non-native Grassland (photo 1, below) is characterized by dense stands of introduced annual and native perennial grasses, and a large variety of native and introduced annual and perennial forbs and geophytes (bulb plants). Considerable variation in species composition, vegetation height, soil moisture conditions, and disturbance levels related to land use exists within grasslands of the project area. Non-native Grassland is widespread within segment 1 and small patches are found within segment 2.

Photo 1. Good quality Non-Native Grassland with Live Oak Woodland in distance, between poles 59 and 60, facing west toward pole 59 in foreground. (February 2004)

Most non-native grasslands in the project area have a long history of livestock grazing, although a few areas were not actively grazed during the 2003 surveys. These currently ungrazed grasslands are dominated by introduced annual grasses such as slender wild oat (*Avena barbata*), brome grasses (*Bromus hordeaceus, B. diandrus* and others), Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*) and other barleys (*Hordeum* spp.), Italian ryegrass (*Lolium multiflorum*), introduced weedy forbs such as Italian thistle, milk thistle and yellow and purple starthistles (*Centaurea solstitialis* and *C. calcitrapa*), and native forbs such as tarweeds (*Hemizonia congesta, H. fitchii*), and summer lupine (*Lupinus formosus*). Coyote brush (*Baccharis pilularis*) is sometimes present in these sites. Small stands of native perennial grasses, especially purple needlegrass (*Nassella pulchra*) are occasionally found in this type of grassland. Native forbs are present in low diversity and numbers.

Sites that appear to have had lower levels of historic grazing and sites that are currently grazed at moderate levels support native perennial grasses in addition to non-native grasses and weedy forbs. Examples of native perennial grasses include purple needlegrass, meadow barley (*Hordeum brachyantherum*), blue wildrye (*Elymus glaucus*), melic grasses (*Melica* spp.), and occasionally, California oat grass (*Danthonia californica*). These sites, especially areas with higher soil moisture levels, can support a great diversity of native annual and perennial forbs (e.g., *Layia chrysanthemoides*, *Lupinus* spp., *Linanthus* spp., *Navarretia* spp., *Sanicula* spp., and many others) and geophytes (*Calochortus* spp., *Brodiaea* spp., *Triteleia* spp.). Examples include grasslands on the upper west- and east-facing slopes of Sonoma Mountain in segment 1.

Moist swales, vernal pools, vernal marshes, and other seasonal wetlands are found within a grassland matrix within segment 1. Moist swales of the project area are shallow, low-gradient, usually grass-lined depressions that are not expected to qualify as jurisdictional wetlands under Section 404 of the Clean Water Act. Vernal pools and other wetlands are discussed as separate vegetation types in section 6.3.1.4.

Oregon Oak Woodland. Holland (1986) describes Oregon Oak Woodland as varying from forests composed of pure stands with closed canopies, to mixed stands with other broad-leaved trees and conifers, to open savannah consisting of widely spaced individual trees. The equivalent type in Sawyer and Keeler-Wolf (1995) is the Oregon oak series. This type generally occurs in sites beyond the reach of summer fog. Oregon oak is shade-intolerant (Sawyer and Keeler-Wolf 1995) and may be replaced over time by conifers and hardwood trees on drained sites with moist soils. Oregon Oak Woodland is found within the Coast Ranges from Santa Cruz County north into Oregon.

Within the project area Oregon Oak Woodland consists of open woodlands of pure Oregon oak and mixed woodlands dominated by Oregon oak, but also including blue oak (*Quercus douglasii*) and coast live oak. The understory is composed of non-native annual grasses, usually grazed. Oregon oak woodland occurs in segment 1.

Upland Redwood Forest. The Holland (1986) type called Redwood Forest is dominated by coast redwood (*Sequoia sempervirens*) and occurs more or less continuously along the coast from the Oregon border to the southern end of Monterey County. Redwood Forest can occur on all aspects, from alluvial stream terraces to steep slopes subject to erosion (Sawyer and Keeler-Wolf 1995). The Redwood series is the equivalent type in Sawyer and Keeler-Wolf (1995). Redwood Forest within the project area corresponds to the Holland subtype called upland redwood forest, which is usually found on shallow, well-drained soils, often on slopes subject to erosion. Other tree species are often present and may be co-dominant. In the project area, upland redwood forest occurs near the inland range limit for the species, and includes Douglas fir and madrone as associates. The understory is heavily shaded, with a sparse growth of sword fern (*Polystichum munitum*) and shade-tolerant native annual and perennial forbs.

Upland redwood forest is found immediately adjacent to the survey corridor of segment 1. Small native groves of redwoods are found south of the proposed route, near the vernal marsh that is west of the Rodgers Creek crossing on the upper west side of Sonoma Mountain, and on the nearby east-facing slopes of the Rodgers Creek drainage (photo 2).

Photo 2. Upland Redwood Forest, next to Vernal Marsh, looking southwest. (February 2004)

Vineyards and Other Agricultural Lands. Vineyards and other agricultural lands are not natural vegetation, so they are not included in the systems of Holland (1986) or Sawyer and Keeler-Wolf (1995). Vineyards of wine grapes are common within the project area, occurring within or adjacent to all segments. Native plants sometimes persist within vineyards. In the flatlands of the Santa Rosa

Plain in Sonoma County, special-status plants have occasionally been found within vineyards that contain seasonal wetlands and are not extensively tilled. The vineyards within the project area occur on slopes and on flatlands (photo 3). During reconnaissance and protocol surveys, vineyards were evaluated for their likelihood of supporting special-status plants. None of the vineyards examined was considered likely to support special-status plants.

Photo 3. Landscape view of existing line north of pole 66 looking east toward Arnold Road. Felder Creek on left in background. (February 2004)

6.3.1.4 Wetland and Riparian Vegetation Types

Coastal and Valley Freshwater Marsh. As described by Holland (1986), this wetland vegetation type occurs in areas that are permanently flooded with slow-moving or quiet freshwater (not brackish, alkaline, or saline). Dominant plants include tall, rooted aquatic monocots, such as cattails (*Typha* spp.), bulrushes (*Scirpus* spp.), rushes (*Juncus* spp.), and aquatic grasses. Floating and emergent unrooted aquatic plants (e.g., *Polygonum* spp., *Potamogeton* spp.) are common associates. Freshwater Marsh has no single equivalent in the system of Sawyer and Keeler-Wolf (1995); this vegetation type would encompass several series, including: bulrush-cattail, cattail, duckweed, mosquito fern, pondweeds with floating leaves, and others.

Within the project area, Coastal and Valley Freshwater Marsh vegetation was found in artificial ponds and small reservoirs used mainly for vineyard irrigation. Several reservoirs are located in segment 1. The vegetation within these features varies from very sparse to moderately developed.

North Coast Riparian Forest. Riparian forest is a streambank habitat consisting of dense stands of tall deciduous and evergreen trees that form a closed canopy, usually with 100 percent cover. This forest typically has a structurally complex understory of smaller trees, shrubs, vines, and annual and perennial forbs and grasses. Riparian forest within the project area fits within Holland's (1986) general type, North Coast Riparian Forest, but does not correspond to any of the described subtypes. The series-based system used by Sawyer and Keeler-Wolf (1995), which relies on one or two dominant species to characterize and name a type, does not accommodate vegetation composed of a mixture of co-dominant species, like that found in most of the riparian forest throughout the project area (photos 4 and 5, below).

Photo 4. Riparian Forest along Felder Creek in middleground. Looking northeast from vicinity of pole 63, toward Mayacamas Mountains in background. (February 2004)

Photo 5. Spanned crossing at Rodgers Creek between poles 42 and 43 exhibiting dense Riparian Forest (looking west). (February 2004)

Riparian forest within the project area consists mainly of two subtypes, Mixed Riparian Forest and Oak-Bay Riparian Forest. The Mixed Riparian Forest subtype occurs along lower gradient, usually perennial streams, and consists of a mixture of deciduous and evergreen tree species, none of which dominates by area. Mixed Riparian Forest also occurs along intermittent streams with well developed beds and banks. Typical species include: coast live oak, valley oak (*Quercus lobata*), California buckeye (*Aesculus californicus*), Fremont cottonwood (*Populus fremontii*), Oregon ash (*Fraxinus latifolia*), California bay, white alder (*Alnus rhombifolia*), red willow (*Salix laevigata*), and walnuts (*Juglans hindsii* and others). The native understory often includes California wild grape (*Vitis californica*) and poison oak. Examples of this subtype are found at the Rodgers Creek crossing in segment 1 and the Sonoma Creek crossing in segment 17. This subtype occurs in a less robust form, with fewer species, and smaller trees with a less complete canopy along several intermittent streams within the project area, for example, the Carriger Creek crossing in segment 17.

The Oak-Bay Riparian Forest subtype has a closed to broken canopy dominated by coast live oak and California bay, with a fairly open understory that includes poison oak. This subtype is found along smaller perennial streams and intermittent streams, for example, at the Felder Creek crossing in segment 2.

Northern Vernal Pool. Vernal pools within the project area are a northern California type that do not fit within any of the subcategories of Northern Vernal Pools described by Holland (1986) or Sawyer and Keeler-Wolf (1995). As with all vernal pools, they occupy shallow depressions that hold water during the rainy season due to a clay or hardpan substrate that impedes water percolation.

Vernal pools in the project region are found in sites with a volcanic bedrock overlain by clay soil. Many of the characteristic plants are endemic annual forbs that germinate under water, then grow to maturity, flower, and set seed as the pool dries. Examples include: goldfields (*Lasthenia* spp.), downingias (*Downingia* spp.), popcorn flowers (*Plagiobothrys* spp.), meadowfoams (*Limnanthes* spp.), and button-celeries (*Eryngium* spp.). One large vernal pool (photo 6) was found in the project area along segment 1 between, and just to the south of, poles 43 and 44. This vernal pool contained bracted popcorn flower (*Plagiobothrys bracteatus*), Jepson's button-celery (*Eryngium aristulatum*), flowering quillwort (*Lilaea scilloides*), and the special-status plant Lobb's aquatic buttercup (*Ranunculus lobbii*).

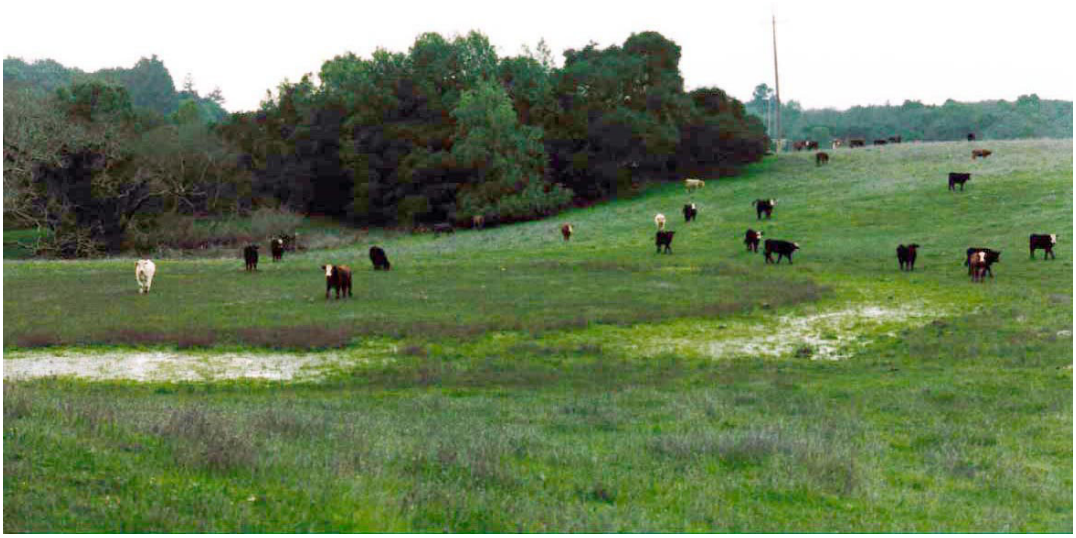


Photo 6. Vernal pool between, and just to the south of, poles 43 and 44. (February 2004)

Vernal Marsh. Vernal marshes are described by Holland (1986) as wetlands somewhat similar to vernal pools in species composition. They differ in hydrology, with vernal marshes retaining some standing water well into the summer and often throughout the year. The central area, with deeper water, often supports plants characteristic of freshwater marshes, while the gradually sloping shoreline, which dries completely during the summer, supports vernal pool species. Vernal marshes are not included in the Sawyer and Keeler-Wolf (1995) system.

One vernal marsh is located adjacent to the segment 1 survey corridor, on the upper west-facing slope of Sonoma Mountain, just west of the route's intersection with Rodgers Creek. This wetland appears to have been formed from a natural vernal pool whose size was enhanced by the construction of a low berm along the eastern edge of the wetland. The well-developed appearance of the vegetation suggests that this enhancement occurred many years ago, probably at a time when

the area was used for livestock grazing. This area was not grazed during surveys in 2002 and 2003. Common species identified on the shores of this vernal marsh during field surveys include: Jepson's button-celery, flowering quillwort, bracted popcorn flower, and pygmy-weed (*Crassula aquatica*). Common tule (*Scirpus acutus*), lance-leaved water plantain (*Alisma lanceolatum*), and floating pondweed (*Potamogeton* sp.), species characteristic of freshwater marshes, were common in the permanent standing water of this vernal marsh.

6.3.2 Wetland and Aquatic Resources

Wetlands are areas that are inundated or saturated with water for a sufficient duration to support hydrophytic (wetland) vegetation and hydric soils which are characteristic of areas with prolonged saturation. Potential wetlands found within the project area and vicinity include freshwater marshes and seasonal wetlands (northern vernal pool and vernal marsh). In general, seasonal wetlands are inundated for shorter periods and to shallower depths than freshwater marshes. Characteristics and dominant vegetation of wetland plant communities in the project area, including a northern vernal pool and a vernal marsh, are described above in section 6.3.1.4. Locations of potential wetlands and other aquatic features in the project area are shown in Figures 6-1a and b. The wetland areas mapped in the figures are approximate and are based on the extent of dominant wetland vegetation.

The pole 107 site, which was evaluated for wetland parameters, is located in the riparian vegetation zone above the west bank of Sonoma Creek. The existing pole is situated above the ordinary high water mark but is within the floodplain of Sonoma Creek. Vegetation around the pole consists mostly of Himalayan blackberry (*Rubus discolor*), California blackberry (*R. ursinus*), and creeping snowberry (*Symphoricarpos mollis*). Survey results indicated that this site is not a wetland because it does not meet the Corps (1987) criteria for hydric soils or wetland hydrology.

Aquatic resources in the project area include perennial creeks, ephemeral creeks, and artificial ponds. The proposed route intersects several perennial creeks and ephemeral drainages. On the west slope of Sonoma Mountain, the route crosses three small, ephemeral tributaries that drain toward the Petaluma River. A large artificial pond, formed by an earthen dam in one of these drainages, is spanned by the transmission line just east of pole 25. A smaller, rectangular stock pond is located immediately north of the line between poles 36 and 37.

The more substantial drainages in the project area are located within the Sonoma Creek watershed on the east slope of the Sonoma Mountains. Major perennial and intermittent creeks along the proposed route include Rodgers Creek, Felder Creek, Carriger Creek, and Sonoma Creek. The existing and proposed transmission line spans Rodgers Creek in the central part of segment 1 between poles 42 and 43. The proposed route crosses a tributary to Felder Creek in segment 1 between poles 54 and 55, runs adjacent to the south bank of Felder Creek for approximately 3,500

feet in segment 2 between poles 74 and 87, and crosses Felder Creek along Leveroni Road in segment 17 between poles 96 and 97. At the eastern end of the project area along Leveroni Road, segment 17 spans Carriger Creek between poles 101 and 102, and spans Sonoma Creek betweenpoles 106 and 108. Fryer Creek, a small intermittent tributary, passes through a culvert under Leveroni Road just west of the Sonoma Substation.

Four small, ephemeral drainages, located along the eastern portion of segment 1, will be crossed by access roads for project purposes (see Figure 6-1a). One of these drainages is crossed by an existing road south of pole 44. Another ephemeral drainage is intersected by a proposed temporary access road south of pole 47. Two additional drainages are crossed by an existing vineyard road between poles 68-69 and 69-70.

6.3.3 Wildlife Habitats

The transmission line route traverses mostly undeveloped land along the southern slopes of Sonoma Mountain and vineyard lands on the west side of Sonoma Valley. The diverse terrain, vegetation types, and aquatic features provide valuable habitat for a variety of terrestrial and aquatic wildlife.

Wildlife habitats described in this section correspond to the vegetation types discussed in the Vegetation section above, but are modified somewhat to correspond to the CWHR system (CDFG 2002b). While vegetation types are defined by plant species composition, wildlife habitats can include other important physical environmental characteristics such as rock outcrops and open water. In some cases, a wildlife habitat type may include more that one vegetation type where these types provide similar habitat characteristics and support a similar assemblage of wildlife species. Wildlife habitat types are listed in Table 6-1 and are further described below.

Table 6-1
Wildlife habitats and corresponding vegetation types.

Wildlife Habitat	Vegetation Type(s)
Coastal oak woodland	Coast Live Oak Forest and Woodland; Oregon Oak Woodland
Coastal mixed conifer forest	Mixed Evergreen Forest; Upland Redwood Forest
Annual grassland	Non-native Grassland
Valley foothill riparian	North Coast Riparian Forest
Fresh emergent wetland	Coastal and Valley Freshwater Marsh
Seasonal wetland	Northern Vernal Pool, Vernal Marsh
Vineyards/irrigated row crops	Vineyards and Other Agricultural Lands
Open water	No equivalent (not vegetated)

Coastal Oak Woodland. Oak woodlands provide important nesting and perching habitat for raptors and other birds, an abundant food source in acorns, and cover for larger mammals. Common birds and mammals that utilize this habitat type include red-shouldered hawk (*Buteo lineatus*), California quail (*Callipepla californica*), nuthatches (*Sitta* spp.), western scrub jay (*Aphelocoma californica*), acorn woodpecker (*Melanerpes formicivorus*), gray squirrel (*Sciuris griseus*), and mule deer (*Odocoileus hemionus*). Leaf litter deposited below the trees creates microhabitats for a number of small vertebrates including newts (*Taricha* spp.), western fence lizard (*Sceloporus occidentalis*), and rodents such as deer mouse (*Peromyscus maniculatus*).

Coastal Mixed Conifer Forest. Coastal mixed conifer forests provide food and cover for mammals such as mule deer, raccoons (*Procyon lotor*), deer mice, and gray squirrels. In the project area, patches of conifers are often interspersed with oak woodlands and support a similar assemblage of wildlife species. Within this mixed forest habitat, tall trees such as redwood and Douglas fir provide perch and nest sites for raptors such as red-shouldered hawk, Cooper's hawk (*Accipiter cooperi*), and great horned owl (*Bubo virginianus*). The forest canopy also provides habitat for a number of smaller birds including acorn woodpecker and many songbirds.

Annual Grassland. Annual grasslands support a variety of small mammals and provide important foraging habitat for raptors and other birds and mammals. Birds commonly found in annual grasslands include red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), turkey vulture (*Cathartes aura*), western meadowlark (*Sturnella neglecta*), and Brewer's blackbird (*Euphagus cyanocephalus*). California ground squirrel (*Spermophilus beechyi*) and Botta's pocket gopher (*Thomomys bottae*) are dominant mammals of this habitat type, and burrows of these rodents provide essential refuge sites for some amphibians and reptiles.

Valley Foothill Riparian. Riparian communities provide high habitat value for wildlife and support a wide variety of native wildlife. These communities offer diverse microhabitats created by the layering of trees, shrubs, herbs, and aquatic vegetation, as well as access to stream zones for water and foraging. Riparian zones provide important nesting habitat for birds, offer cover and refuge sites for amphibians, reptiles and small mammals, and serve as important movement corridors for wildlife. They also enhance the value of adjacent upland habitats by providing water, foraging resources, and thermal refuges. Bird species found in riparian scrub and woodland habitats include Cooper's hawk, great horned owl, Wilson's warbler (*Wilsonia pusilla*), song sparrow (*Melospiza melodia*), and many other songbirds. Common mammals found in these habitats include opossum (*Didelphis virginianus*), raccoon, mule deer, and deer mouse.

Fresh Emergent Wetland. Freshwater marshes are among the most productive wildlife habitats in California. They provide forage, cover, and water for a diversity of wildlife and are essential habitats for amphibians and reptiles such as Pacific treefrog (*Pseudacris regilla*) and garter snakes (*Thamnophis*

spp.). Common birds found in these habitats include water birds such as American coot (*Fulica americana*), mallard (*Anas platyrhynchos*), and cinnamon teal (*Anas cyanoptera*), wading birds such as great blue heron (*Ardea erodias*) and great egret (*Ardea alba*), and songbirds such as red-winged blackbird (*Agelaius phoeniceus*). Many species rely on coastal freshwater marshes for their entire life cycles, while others may use them as temporary or seasonal refuges or as migratory stopover areas. In addition, freshwater marshes are often breeding grounds for insects that attract large numbers of foraging bats.

Seasonal Wetland. Vernal pools and other seasonal wetlands support a unique assemblage of species adapted to the seasonal regime of inundation and desiccation. Species composition depends in part on the period of inundation during the wet season. When filled or saturated, these habitats support a variety of aquatic invertebrates and provide breeding sites for amphibians such as Pacific treefrog and western toad (*Bufo boreas*). In winter and spring, seasonal wetlands also provide foraging habitat for resident and migratory birds such as killdeer (*Charadrius vociferus*), snowy egret (*Egretta thula*), and greater yellowlegs (*Tringa melanoleuca*). Because they are often isolated from other water bodies and provide unique habitat conditions, vernal pools and other seasonal wetlands can be essential habitats for locally endemic and rare species.

Vineyards/Irrigated Row Crops. Vineyards and other row crops are generally planted in areas that once supported productive and diverse biological communities. The conversion of native vegetation to cultivated crops has greatly reduced the wildlife species diversity and habitat value. However, some common and agricultural "pest" species forage in vineyard habitats, and cultivated vegetation can provide benefits such as cover, shade and moisture for these and other species during hot summer months. Typical species found in vineyards include red-tailed hawk, common crow (*Corvus brachyrhynchos*), Brewer's blackbird, house finch (*Carpodacus mexicanus*), California ground squirrel, and western harvest mouse (*Reithrodontomys megalotis*).

Open Water. Open water areas are permanently inundated with standing or flowing water. They include the unvegetated open areas of streams and ponds in the project area. Permanent and intermittent streams provide habitat for a variety of aquatic invertebrates, fish such as California roach (*Lavinia symmetricus*), steelhead (*Oncorhynchus mykiss*), and sunfish (*Lepomis* spp.), amphibian larvae, and reptiles such as garter snakes and western pond turtle (*Clemmys marmorata*). Ponds in the project may contain introduced fish such as mosquitofish (*Gambusia* sp.) and sunfish, introduced bullfrogs, and native Pacific treefrogs and pond turtles. Common waterfowl that frequent open water areas include mallard, northern pintail (*Anas acuta*), and common merganser (*Mergus merganser*). The American coot and a variety of other birds use open water habitats for feeding, drinking, and bathing. These areas also provide a source of drinking water for terrestrial animals such as mule deer, coyote (*Canis latrans)*, opossum, raccoon, and other mammals.

6.3.4 Special-status Species

For this PEA, special-status species are defined as species that meet one or more of the following criteria:

- Listed, proposed for listing, or candidates for listing as threatened or endangered under the federal Endangered Species Act (50 CFR 17.11 for wildlife, 50 CFR 17.12 for plants, 67 FR 40658 for candidates, and various notices in the Federal Register for proposed species);
- Listed, or proposed for listing by the State of California as rare, threatened or endangered under the California Endangered Species Act (California Administrative Code, Title 14, Section 670.5);
- Included on List 1B, 2, 3, or 4[3] of the CNPS *Inventory of Rare and Endangered Plants of California* (Tibor 2001);
- Included on the CDFG Special Vascular Plants, Bryophytes, and Lichens List (CDFG 2003a);
- Designated as Species of Special Concern by the CDFG;
- Identified as "species of concern" or "species of local concern" by the U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office;
- Protected by the Migratory Bird Treaty Act (MBTA) (U.S.C. 703-712; CH. 128; July 13, 1918; 40 Stat. 755, as amended); and
- Species that otherwise meet the definition of rare, threatened or endangered, as described in the CEQA Guidelines, Section 15380.

Special-status plant and wildlife species with potential to occur in the project area are discussed in the following sections.

6.3.4.1 Plants

All vascular plant taxa identified during protocol-level surveys are listed in the special-status plant survey report prepared for this project (GANDA 2004a). The characteristics of 25 species of special-status plants with the potential to occur in the project area are summarized in Table 6-2. Twelve of these are state- or federally listed, or are included on List 1B of the CNPS Inventory (Tibor 2001). The remaining 13 are included on List 3 or List 4 of the CNPS Inventory (Tibor 2001).

[3] List 1B includes plant species considered rare, threatened, or endangered in California and elsewhere. List 2 includes species considered rare, threatened, or endangered in California, but more common elsewhere. List 3 species are those for which more information is needed to determine whether they qualify as List 1B or List 2 species. List 4 species are considered not endangered at present, but are subject to re-categorization if their status changes.

Table 6-2
Special-Status Plant Species with Potential to Occur in the Project Area

Common name *Scientific name*[1]	Listing Status Fed./State/CNPS[2]	Flowering Period	Habitat Preferences[3]	Potential for Occurrence[4]
Napa false indigo *Amorpha californica* var. *napensis*	SLC/ – / 1B	Apr-Jul	Shaded, moist, mixed evergreen forest and oak woodlands, 150-2000 m.	Moderate. Known occurrences 2 to 10 miles from project area (Best et al. 1996, Howald 2000).
Bent-flowered fiddleneck *Amsinckia lunaris*	SLC/ – / 1B	Mar-June	Coastal bluff scrub, cismontane woodland, valley and foothill grassland, 3-500 m.	Low. Few known occurrences are widely scattered; one is within 15 miles of project area (Best et al. 1996).
Brewer's milk-vetch *Astragalus breweri*	– / – / 4	Apr-Jun	Grassland, oak woodland, soil often serpentine-influenced, 90-730 m.	Moderate. Known occurrences 5 miles from project area (Best et al. 1996).
Clara Hunt's milk-vetch *Astragalus clarianus*	FE/ CT / 1B	Mar-Apr	Dry, open, oak woodlands; thin, rocky serpentine or volcanic soil, 75-275 m.	Low. Only 5 occurrences known, closest is > 10 mi from project area (Best et al. 1996).
Baker's blennosperma *Blennosperma bakeri*	FE/ CE / 1B	Mar-Apr	Vernal pools within grassland, clay soil, 10-110 m.	High. Known occurrences within 1 mile of project area (Best et al. 1996, CDFG 2002a).
Narrow-anthered California brodiaea *Brodiaea californica* var. *leptalea*	SLC/ – / 1B	May-Jul	Broad-leaved upland forest, chaparral, lower montane conifer forest, 110-915 m.	Moderate. Nearest occurrences are approx. 10 miles from project area (Best et al. 1996).
Dwarf downingia *Downingia pusilla*	– / – / 1B	Mar-May	Vernal pools within grassland, clay soil, 1-445 m.	High. Known occurrences 2 to 10 miles from project area (Best et al. 1996, CDFG 2002a, Howald 2002).
Marsh horsetail *Equisetum palustre*	– / – / 3	None	Marshes and swamps, 45-1000 m.	Very low. Nearest occurrence > 10 mi from project area; Napa County occurrence only second confirmed in CA (Tibor 2001).
Fragrant fritillary *Fritillaria liliacea*	SC/ – / 1B	Feb-Mar	Vernally wet coastal and valley grassland, oak woodland, clay soil, 3-410 m.	High. Known occurrence within 2 miles of project area (Howald 2002).
Hayfield tarplant *Hemizonia congesta* ssp. *leucocephala*	– / – / 3	Apr-Oct	Annual grassland, coastal scrub, 25-365 m.	Moderate. Known from Sonoma County in vicinity of project area (Best et al. 1996).

Table 6-2
Special-Status Plant Species with Potential to Occur in the Project Area

Common name *Scientific name*[1]	Listing Status Fed./State/CNPS[2]	Flowering Period	Habitat Preferences[3]	Potential for Occurrence[4]
Northern California black walnut *Juglans hindsii*	SC/ – / 1B	Apr-May	Riparian woodland and scrub, 0-440 m.	High. Natural distribution poorly known (CDFG 2002a, Tibor 2001); widely planted by Native Americans. Found within project area during protocol surveys for this project; these plants likely not native.
Contra Costa goldfields *Lasthenia conjugens*	FE / - / 1B	Mar-Jun	Cismontane woodland, alkaline playas, grasslands, vernal pools, 0-470 m.	Low. New location found in 2003 within 2 miles of project area (CDFG 2004). Vernal pools of the type suitable for this species not observed within project area.
Legenere *Legenere limosa*	SC/ – / 1B	Apr-Jun	Vernal pools, 1-880 m.	High. Occurs on east side of Sonoma Mountain, about 5 miles from project area (Best et al. 1996).
Woolly-headed lessingia *Lessingia hololeuca*	– / – / 3	Jun-Oct	Broad-leaved forest, coastal scrub, lower montane conifer forest, serpentinite clay soil, 15-305 m.	Moderate. Collections from Petaluma area are old (Best et al. 1996).
Redwood lily *Lilium rubescens*	– / – / 4	Jun-Aug	Redwood and mixed evergreen forest, shaded, sometimes on serpentine, 30-1715 m.	Low. Nearest known location 5 miles from project area (Best et al. 1996). Increasingly rare in southern part of range.
Bristly linanthus *Linanthus acicularis*	– / – / 4	Apr-Jul	Chaparral openings, grassland, and oak woodland. 55-1500 m.	Low. Nearest location 5 miles from project area (Best et al. 1996).
Broad-lobed linanthus *Linanthus latisectus*	– / – / 4	Apr-Jun	Mixed evergreen forest, oak woodlands, 170-1500 m.	Moderate. Nearest locations > 10 miles from project area (CalFlora 2002, Tibor 2001).
Mt. Diablo cottonweed *Micropus amphibolus*	– / – / 3	Mar-May	Mixed evergreen forest, oak woodland, chaparral, grassland, 45-825 m.	Moderate. Nearest location in Mayacamas Mountains, < 10 miles from project area (CDFG 2002a).
Cotula navarretia *Navarretia cotulifolia*	– / – / 4	Apr-Jun	Grassland, chaparral and woodland, adobe soil, 4-1830 m.	Low. Known occurrences > 10 miles from project area (Best et al. 1996). Found during protocol surveys for this project.
Baker's navarretia *Navarretia leucocephala* ssp. *bakeri*	SC/ – / 1B	May-Jul	Locally in vernal pools of Santa Rosa Plain and adjacent hills, 15-1740 m.	Moderate. Nearest occurrence in Annadel State Park, > 10 miles from project area (Best et al. 1996).

Table 6-2
Special-Status Plant Species with Potential to Occur in the Project Area

Common name *Scientific name*[1]	Listing Status Fed./State/CNPS[2]	Flowering Period	Habitat Preferences[3]	Potential for Occurrence[4]
Gairdner's yampah *Perideridia gairdneri* ssp. *gairdneri*	SC/ – / 4	Jun-Oct	Mixed evergreen forest, chaparral, moist grassland, adobe flats, 0-365 m.	Moderate. Known from within 10 miles of project area (Best et al. 1996).
Lobb's aquatic buttercup *Ranunculus lobbii*	– / – / 4	Feb-May	Vernal pools, seasonal wetlands within grasslands and woodlands, 14-470 m.	High. Nearest known location about 2 miles from project area (Best et al. 1996). Found during field surveys for this project.
Victor's gooseberry *Ribes victoris*	– / – / 4	Mar-Apr	Mixed evergreen forest, chaparral, 100-750 m.	High. Nearest location about 2 miles from project area (Best et al. 1996).
Showy indian clover *Trifolium amoenum*	FE/ – / 1B	Apr-Jun	Coastal bluff scrub, grassland, sometimes serpentinite. 5-415 m. Presumed extinct in Alameda, Mendocino, Napa, Santa Clara and Solano counties.	Very low. Presumed extinct until recently rediscovered in Sonoma & Marin counties (CDFG 2002a, Tibor 2001); nearest location > 10 miles from project area.
Dark-mouthed triteleia *Triteleia lugens*	– / – / 4	Apr-Jun	Mixed evergreen forest, chaparral, lower montane conifer forest, 100-1000 m.	Low. Nearest location > 10 miles from project area (Best et al. 1996).

1. Scientific names, common names, and habitat notes from Hickman (1993) and Tibor (2001).

2. Plant status definitions are as follows:

U.S. Fish and Wildlife Service designations:

- *FE Endangered: Any species that is in danger of extinction throughout all or a significant portion of its range.*
- *FT Threatened: Any species likely to become endangered within the foreseeable future.*
- *SC Species of concern: Other species of concern to the USFWS.*
- *SLC Species of local concern: Species of local or regional concern or conservation significance.*

California Department of Fish and Game designations:

- *CE Endangered: Any species that is in danger of extinction throughout all or a significant portion of its range.*
- *CT Threatened: Any species likely to become endangered within the foreseeable future.*

California Native Plant Society designations:

- *1B Plants rare, threatened or endangered in California and elsewhere.*
- *2 Plants rare, threatened or endangered in California, but more common elsewhere.*
- *3 Plants for which more information is needed – a review list.*
- *4 Plants of limited distribution – a watch list.*

3. Habitat preferences derived from Tibor (2001) and Hickman (1993).

4. Project area contains potential habitat for all species included in table. Potential for occurrence derived from evaluation of information from California Natural Diversity Data Base (2002a, 2004), the California Native Plant Society's Inventory of Rare and Endangered Plants in California (Tibor 2001), A Flora of Sonoma County (Best et al. 1996), the CalFlora database (2002, 2003), and other sources (Howald 2000, Howald 2002).

One special-status plant from the project region, Napa false indigo (*Amorpha californica* var. *napensis*), was recently upgraded from List 4 to List 1B.

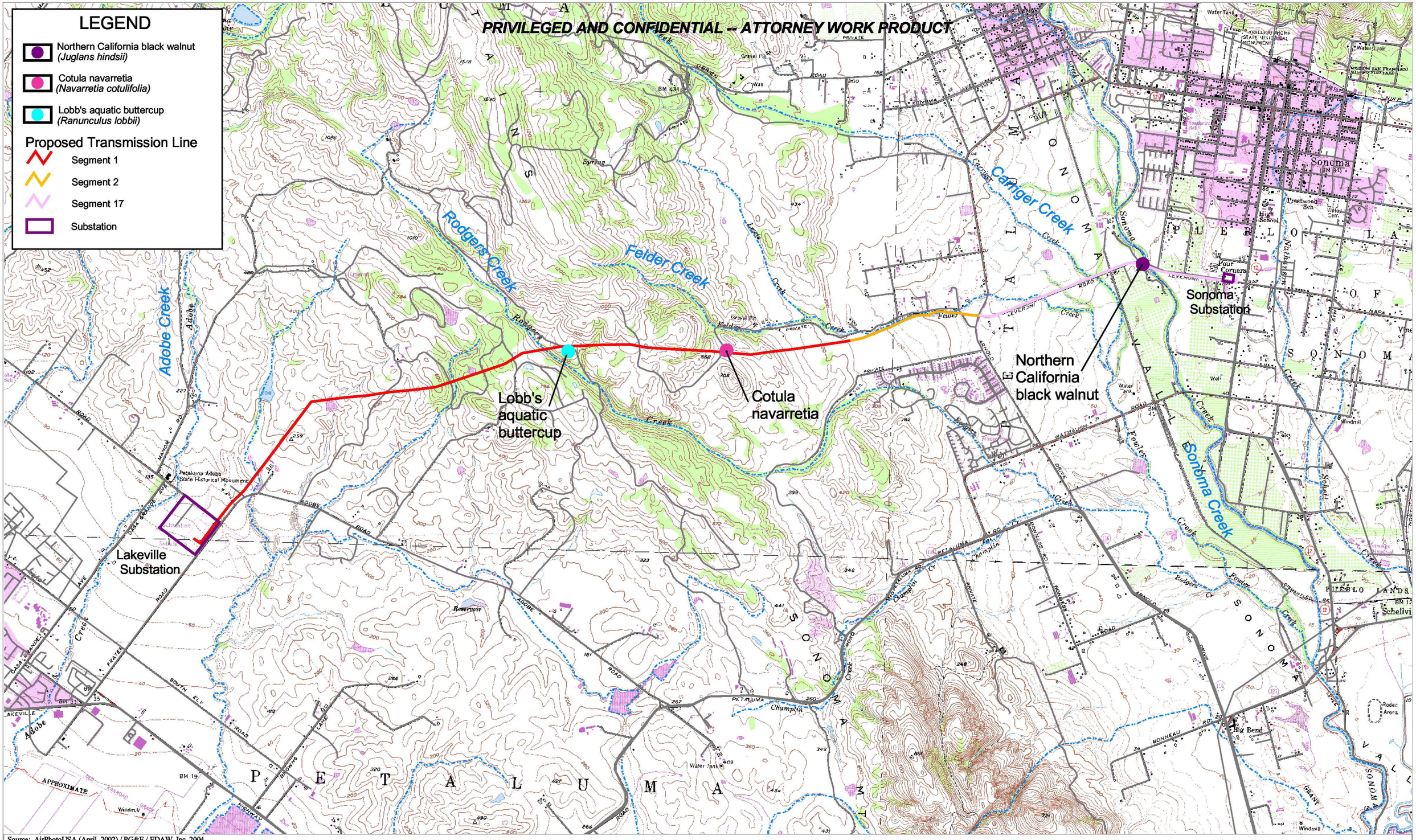
During field surveys conducted for the proposed project, one plant on the CNPS Inventory's List 1B, Northern California black walnut (*Juglans hindsii*), was found in one location. Two species on the CNPS Inventory's List 4, cotula navarretia (*Navarretia cotulifolia*), and Lobb's aquatic buttercup (*Ranunculus lobbii*) were found in one location each. Details of these occurrences are provided below. Locations of these occurrences are shown in Figure 6-2.

Northern California black walnut (*Juglans hindsii*) – Federal Species of Concern, CNPS 1B. Northern California black walnut is a tall, spreading, deciduous tree in the Walnut Family (*Juglandaceae*). It has large pinnately-compound leaves and green flowers and produces edible walnuts. It is found in riparian forest and woodland habitat in Napa, Sonoma and Contra Costa counties. The limits of its native distribution are uncertain because it is reputed to have been planted widely by Native Americans and early settlers. According to Tibor (2001), only two native stands are extant, one of which is located in southeastern Napa County. Its flowering time is April to May.

Northern California black walnut was found in three locations in the project vicinity during surveys conducted for this project (GANDA 2004a). Two of the occurrences are located over 0.5 mile south of the proposed route. One occurrence was found at the Sonoma Creek crossing in segment 17 (see Figure 6-2). This occurrence is composed of one large tree within the survey corridor near the stream crossing site, and several small to medium-sized trees and saplings within the riparian zone, in the vicinity of poles 107 and 108. The large tree will not be disturbed during replacement of pole 107. These trees occur with several other riparian trees, including valley oak, California bay, coast live oak and white alder. In this location, the North Coast Riparian Forest is well developed and dominated by native species.

Northern California black walnut is a fairly common tree within the riparian vegetation of the middle reaches of Sonoma Creek. It is not possible to determine with certainty whether any of these trees, including those found within the project area, are naturally occurring trees. Best and others (1996) note that it is debatable whether this species is native to Sonoma County.

The nuts were widely traded by Native Americans, so large trees appearing to be native and growing in natural habitat may be the result of early trade in nuts between local tribes and those of Napa, eastern Contra Costa, or Sacramento counties, where the tree is known to be native. However, walnuts are also transported by birds and other wildlife, leaving open the possibility that trees within the project area could have resulted from natural dispersal from native groves in eastern Napa County. It appears unlikely that the trees within the project area are native; however, in the absence of studies beyond the scope of this project, this cannot be determined with certainty.



Lakeville-Sonoma 115kV Transmission Line Project

1 0 1 2 Miles

Scale 1 : 35,000

EDAW

Pacific Gas and Electric Company

GANDA

Figure 6-2
Results of Special-status Plant Surveys
July 2004

Cotula navarretia (*Navarretia cotulifolia*) – CNPS 4. Cotula navarretia is an annual forb with cream-colored flowers in the Polemoniaceae (Phlox Family). It is found in chaparral, cismontane woodlands, and especially in moist grasslands, sometimes with serpentine influence, from San Benito County to Mendocino, Colusa and Butte counties (Tibor 2001). The CNPS Inventory (Tibor 2001) places cotula navarretia on List 4.

During surveys conducted for this project, one population of cotula navarretia was found within the project area, in segment 1, on the lower east-facing slope of Sonoma Mountain, in grazed Non-native Grassland with adobe soil between poles 58 and 59 (see Figure 6-2) (GANDA 2004a). About 20,000 individuals in dense, interconnected colonies were found within the 200 foot-wide survey corridor in June 2003. The small valley where the plants were found has dark gray "adobe" clay soil and parts are dominated by native grasses and forbs indicative of good habitat quality, including California oat grass, blue larkspur (*Delphinium variegatum*), short-leaved hesperevax (*Hesperevax sparsiflora*), and goldfields (*Lasthenia californica*). This population is important because it is the only known location for this species in the Sonoma Valley area and in all of southern Sonoma County. In Sonoma County, only one other extant location for this species is known (Best et al. 1996). In June 2004 the survey area was expanded to include the entire small valley in the vicinity of poles 57 to 60. The cotula navarretia population was found to extend to the north and south beyond the original survey corridor. All the plants observed were located north of the ephemeral drainage that flows northwest to southeast in the valley bottom, and northwest of the fence line that runs along the southwest margin of the valley. In June 2004 the estimated size of the entire population of cotula navarretia was approximately 40,000 individuals.

Lobb's aquatic buttercup (*Ranunculus lobbii*) – CNPS 4. Lobb's aquatic buttercup is an aquatic annual herb in the Buttercup Family (*Ranunculaceae*) with floating and submerged leaves, and small, white, floating flowers. Lobb's aquatic buttercup is endemic to vernal pools and other seasonal wetlands in coastal areas from Santa Clara County to Mendocino County and in Oregon. It is included on List 4 of the CNPS Inventory (Tibor 2001).

One population of Lobb's aquatic buttercup was found within the project area, in a large vernal pool in grazed Non-native Grassland in segment 1, about 0.1 mile east of the point where the route crosses Rodgers Creek, between poles 43 and 44 (GANDA 2004a). The growth form of this species makes it difficult to estimate numbers of individuals. The plants covered a crescent-shaped portion of the vernal pool approximately 80 feet by 20 feet in size, about one-fourth of the total area covered by the vernal pool. The pool showed substantial trampling impacts by cattle that were grazing in the area at the time of the protocol-level surveys.

Several additional locations for Lobb's aquatic buttercup are known in Sonoma County, where it is an occasional component of the vernal pools of the Santa Rosa Plain. *A Flora of Sonoma County* (Best et al. 1996) lists 17 locations for this species, including the CDFG Todd Road Ecological Reserve, the Laguna de Santa Rosa, Fairfield Osborn Preserve (approximately two miles north of the project area), and Sonoma County Regional Park, near Glen Ellen. This species has not been seen at the Sonoma County Regional Park in the last five years, however, and many other populations on the Santa Rosa Plain have been extirpated by development within the last 15 years. The CalFlora (2003) database lists ten specimen-based records for Lobb's aquatic buttercup in Sonoma County. The trend for this species in Sonoma County can be characterized as declining, because much of its vernal pool habitat has been lost in the last 15 years (CH2M Hill 1995) and losses are continuing.

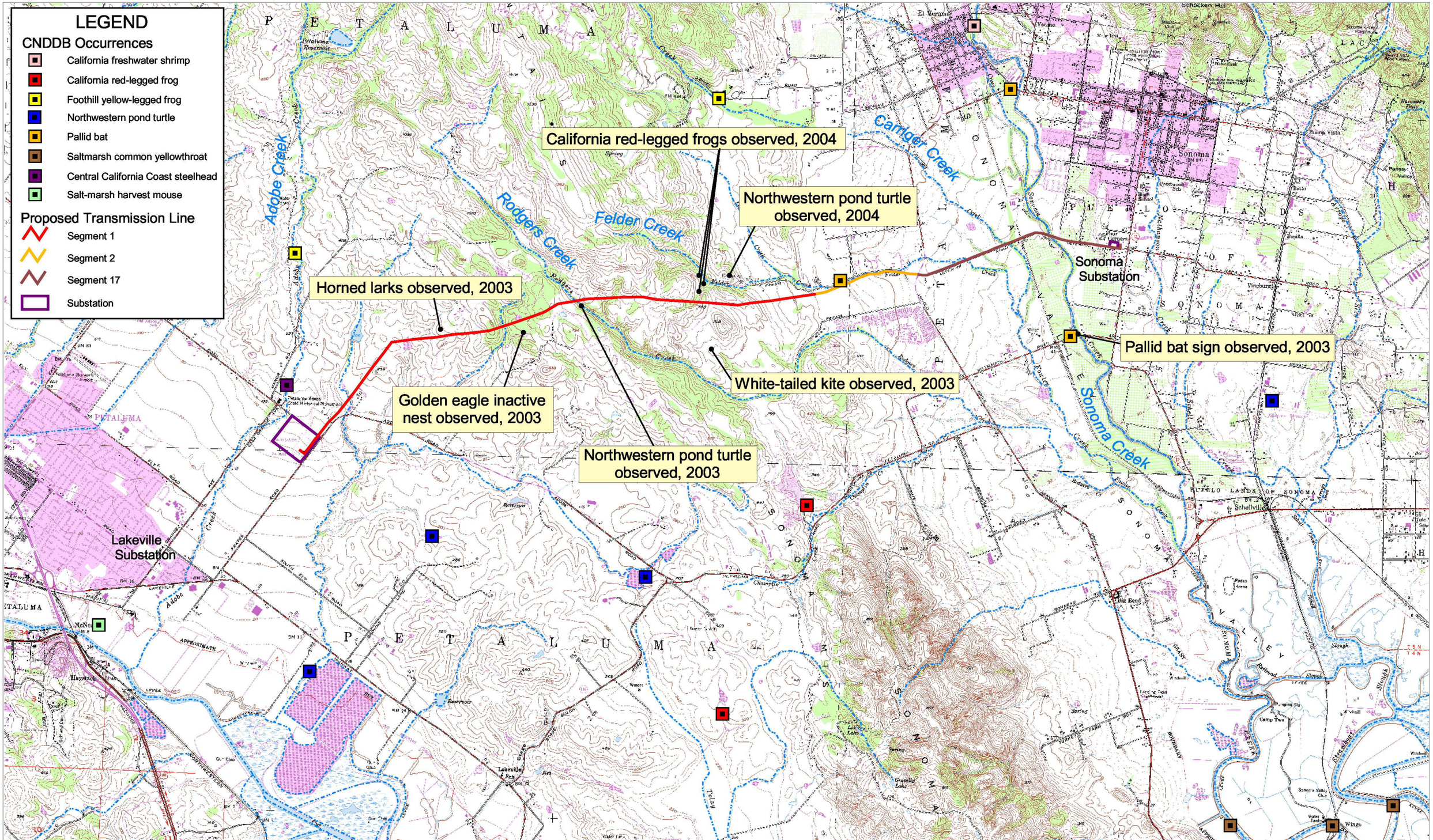
6.3.4.2 Wildlife

Table 6-3 lists 28 special-status animal species with potential to occur in the project area. This list includes two federally endangered, two federally threatened, two California fully protected, and 22 other special-status species. Of the species included in Table 6-3, those that have been documented in the project vicinity or were determined to have moderate or high potential to occur in the project area are described further below. Detailed accounts are also given for species that were the subject of protocol-level surveys. Figure 6-3 shows locations of special-status wildlife species in the project vicinity that are reported in the CNDDB or were observed during field surveys.

Threatened and Endangered Species

California freshwater shrimp (*Syncaris pacifica*) – Federal Endangered, California Endangered. This species is endemic to perennial lowland streams in Marin, Sonoma, and Napa counties. It is also found in intermittent streams with perennial pools, and prefers areas with undercut banks, exposed roots, overhanging woody debris, or overhanging vegetation. It is currently known from only 17 streams, all generally low-gradient streams below 400 feet elevation.

Within the project area, California freshwater shrimp has been documented in Sonoma Creek (CDFG 2004) and has been observed in this creek as far south as Watmaugh Road (B. Cox, pers. comm. 2004). It is likely present where Sonoma Creek intersects the proposed route along segment 17.



Source: AirPhotoUSA (April, 2002) / PG&E / EDAW, Inc. 2004

Lakeville-Sonoma 115kV Transmission Line Project

1 0 1 2 Miles

Scale 1 : 45,000

EDAW Pacific Gas and Electric Company GANDA

Figure 6-3
Special-status Wildlife CNDDB Records and Field Observations
September 2004

Table 6-3
Special-Status Wildlife Species with Potential to Occur in the Project Area

Common Name *Scientific Name*	Status[1] Fed./State	Habitat Requirements	Potential for Occurrence	Surveys Performed/ Survey Results
Crustaceans				
California linderiella *Linderiella occidentalis*	FSC / –	Moderately clear vernal pools and lakes.	Moderate potential to occur in ephemeral pools near segment 1. No CNDDB records of this species within five miles of the project area.	No
California freshwater shrimp *Syncaris pacifica*	FE / SE	Low-gradient streams with pools, undercut banks, exposed roots or overhanging vegetation in Sonoma, Marin, and Napa counties.	High potential to occur in Sonoma Creek along or near segment 17. Reported to occur in Sonoma Creek as far south as Watmaugh Road.	No
Insects				
Ricksecker's water scavenger beetle *Hydrochara ricksecker*i	FSC / –	Known only to occur in pond habitats scattered around the San Francisco Bay area, including Sonoma County.	Low potential to occur in the ponds along segment 1. No CNDDB occurrences of this species within five miles of the project area.	No
Sonoma arctic skipper *Carterocephalus palaemon* ssp. *magnus*	FSC / –	Streamsides, openings in heavily forested woods, and moist meadows.	Low potential along the streams that cross segments 1 and 17.	No
Fish				
River lamprey *Lampetra ayresi*	FSC / –	Anadromous; spawns and rears in freshwater streams from San Francisco Bay to Alaska.	High potential in streams crossing segment 17; moderate potential in segments 1 and 2. Documented in Sonoma Creek.	No
Pacific lamprey *Lampetra tridentata*	FSC / –	Anadromous; spawns and rears in freshwater streams from Southern California to Alaska.	High potential in streams crossing segment 17; moderate potential in segments 1 and 2. Documented in Sonoma Creek.	No
Steelhead – Central California Coast ESU *Oncorhynchus mykiss*	FT / –	Anadromous; spawns and rears in drainages of California coastal streams from Santa Cruz to Mendocino County.	High potential in streams in the project area. Known to migrate through Rodgers, Felder, Carriger, Fowler, and Sonoma creeks in segments 1, 2 and 17. Pools in Felder and Rodgers creeks could provide rearing habitat for juveniles.	No

Table 6-3
Special-Status Wildlife Species with Potential to Occur in the Project Area

Common Name *Scientific Name*	Status[1] Fed./State	Habitat Requirements	Potential for Occurrence	Surveys Performed/ Survey Results
Chinook salmon – Central Valley fall-run/late-fall-run ESU (unconfirmed) *Oncorhynchus tshawytscha*	FC / CSC	Anadromous; Central Valley runs spawn mainly in the Sacramento River mainstem and tributaries, and in smaller numbers (fall-run only) in the San Joaquin River basin. Recent scattered occurrences in some drainages to the Bay.	Recently observed in Sonoma Creek, Carriger Creek, and upper Fryer Creek near segment 17. Likely to migrate through these creeks across the project corridor.	No
Amphibians				
California tiger salamander – *Ambystoma californiense*	FT / CSC	Breeds in ephemeral pools and ponds, estivates most of the year in rodent burrows or soil crevices in grassland and oak savanna habitats.	Not present based on focused surveys and current range. The western end of segment 1 is > 5 miles southeast of the current range boundary of the Sonoma County DPS (USFWS and CDFG 2003).	Nocturnal terrestrial surveys conducted in upland habitat along segment 1. No individuals detected.
California red-legged frog *Rana aurora draytonii*	FT / CSC	Breeds in ponds and pools in slow-moving streams with emergent vegetation; adjacent upland habitats often used outside the breeding season.	Present in upper Felder Creek and tributary north of poles 55-57, and potentially present downstream in Felder Creek between poles 69 and 87 in the wet season. Closest CNDDB record is 1.7 miles south of segment 1.	Site assessment and protocol surveys conducted along segments 1, 2, and 17. Six adults found in upper Felder Creek and tributary in June 2004.
Foothill yellow-legged frog *Rana boylii*	FSC / CSC	Streams zones with gravelly or rocky substrates in forest, woodland, and chaparral habitats.	Moderate potential in major creeks in the project area. Closest CNDDB record is in Adobe Creek one mile northwest of segment 1.	No

Table 6-3
Special-Status Wildlife Species with Potential to Occur in the Project Area

Common Name *Scientific Name*	Status[1] Fed./State	Habitat Requirements	Potential for Occurrence	Surveys Performed/ Survey Results
Reptiles				
Northwestern pond turtle *Clemmys marmorata marmorata*	FSC / CSC	Permanent and seasonal ponds, lakes, and slow-moving parts of streams. Lays eggs in dry slopes with soils rich in clay and silt.	High potential to occur in ponds along segment 1 and in Rodgers Creek and other major creeks in project area.	Observed in a pond approx. 1,200 feet south of pole 44 and in a vineyard pond approx. 1,700 feet north of pole 61.
Birds				
Cooper's hawk *Accipiter cooperi*	– / CSC	Mature forest, open woodlands, wood edges, and river groves. Typically breeds in dense stands of live oak, riparian deciduous or other forest habitats near water.	Moderate potential to occur in riparian corridors and oak woodlands along segments 1 and 17.	No
Golden eagle *Aquila chrysaetos*	BGEPA / CSC, CFP	Found in open country, rolling foothills and mountain areas. Nests most commonly on cliff ledges, and frequently in large trees in open areas.	High potential to occur in segment 1. Suitable nesting habitat present in large trees near Rodgers Creek and adjacent to extensive grassland areas that provide suitable foraging habitat.	Possible golden eagle nest seen in eucalyptus stand approx. 1,100 feet south of pole 36 and reported to nest in the area by a local resident.
Ferruginous hawk *Buteo regalis*	FSC / –	Dry open country such as grasslands, also forages in agricultural fields. Winters in grasslands, sagebrush flats, desert scrub, and low foothills.	Moderate potential to forage during the winter in grassland and agricultural fields along segments 1, 2, and 17. The project area is not within the species' nesting range.	No
Northern harrier *Circus cyaneus*	– / CSC	Wet and dry open country where there is good ground cover, such as wetlands, grasslands, and meadows. Nests on the ground.	Moderate potential to forage in grasslands in segment 1. Unlikely to nest within the project area because of the lack of adequate ground cover.	No

Table 6-3
Special-Status Wildlife Species with Potential to Occur in the Project Area

Common Name *Scientific Name*	Status[1] Fed./State	Habitat Requirements	Potential for Occurrence	Surveys Performed/ Survey Results
White-tailed kite *Elanus leucurus*	FSC / CFP	Nests in dense oak, willow or other large tree stands and forages over open grasslands. A coast live oak tree is often chosen as a nest site.	High. Observed in flight over segment 1, and high potential to occur where oaks are interspersed with grasslands.	Observed during field surveys.
Western burrowing owl *Athene cunicularia hypugaea*	FSC / CSC	Nests in burrows and forages in low-growing grasslands and other open, semi-arid habitats that support small burrowing mammals.	Not present within the project area based on 2003 protocol surveys. No CNDDB records in the project vicinity.	Protocol surveys conducted during spring and summer of 2003. No individuals or sign detected.
Rufous hummingbird *Selasphorus rufus*	FSC / –	Lowland stream bottoms, brushlands and mountain ridges with nectar-producing flowers. Breeds in the Pacific Northwest north of the project area.	Moderate potential to migrate through segments 2 and 17. Residential areas and vineyards provide possible foraging habitat. The project site is not within the nesting range of this species.	No
Allen's hummingbird *Selasphorus sasin*	FSC / –	Wooded or brushy canyons, riparian habitats, and gardens. Breeds in a variety of semi-open woodlands including wooded suburbs and city parks.	Moderate potential to occur in riparian habitats in segments 1, 2, and 17, and also where perennial flowers, residential areas, and vineyards provide suitable nesting and foraging habitat.	No
Lewis' woodpecker *Melanerpes lewis*	FSC / –	Uncommon local winter resident in open oak savannas, broken deciduous and coniferous habitats	Low potential to occur in the open areas of segment 1 where oaks, deciduous trees, and snags may provide suitable habitat.	No
Loggerhead shrike *Lanius ludovicianus*	FSC / CSC	Semi-open country such as grasslands and open woodlands with lookout posts; wires, trees, scrub. Breeds in any kind of semi-open terrain such as grasslands with a few scattered trees.	Moderate potential to occur in the semi-open country along segments 1, 2, and 17.	No
California horned lark *Eremophila alpestris actia*	– / CSC	Grasslands and other semi-open habitats that lack trees or brushy areas. Nests on the ground, usually near grass clumps or earth clods.	High potential to occur in grasslands along segments 1.	Observed along segment 1 during field surveys.

Table 6-3
Special-Status Wildlife Species with Potential to Occur in the Project Area

Common Name *Scientific Name*	Status[1] Fed./State	Habitat Requirements	Potential for Occurrence	Surveys Performed/ Survey Results
Oak titmouse *Baeolophus inornatus*	SLC / –	Oak woodland and areas bordering streamside trees or pines; also found in well-wooded suburbs. Usually nests in a tree cavity, fencepost, or utility pole.	Moderate potential to occur in oak woodlands in segments 1, 2, and 17.	No
Salt marsh common yellowthroat *Geothlypis trichas sinuosa*	FSC / CSC	Emergent freshwater and brackish marshes; low, dense vegetation near water. Nests in shrubs 1-2 feet above ground.	Low potential to occur; project area lacks suitable dense emergent wetland habitat with adjacent shrubs for nest sites. Closest CNDDB records are approx. 3 miles south of segment 17 at lower Sonoma Creek.	No
Mammals				
Pallid bat *Antrozous pallidus*	– / CSC	Open, dry, habitats such as grasslands, shrub, and woodlands with rocky areas for roosting. Roosts in cliff crevices of rock faces, bridges, and occasionally hollow trees and buildings.	High potential to occur along segment 2, and moderate potential along segments 1 and 17. Recent CNDDB records along segment 2.	Pallid bat sign observed under the Watmaugh Road bridge over Sonoma Creek during 2003 field surveys.
Long-eared myotis bat *Myotis evotis*	FSC / –	Found in a variety of habitats including brush, woodland, and conifer forests. Roosts in buildings, caves, snags, and spaces under tree bark.	Moderate potential along segments 1, 2, and 17. Occurs throughout California but records are sparse.	No
Yuma myotis bat *Myotis yumanensis*	FSC / –	Found in a variety of habitats, prefers open woodlands near open water for foraging. Roosts under bridges, in buildings, caves, and crevices.	Moderate potential to occur along segments 1, 2, and 17.	No

Table 6-3
Special-Status Wildlife Species with Potential to Occur in the Project Area

Common Name *Scientific Name*	Status[1] Fed./State	Habitat Requirements	Potential for Occurrence	Surveys Performed/ Survey Results

[1]Status designations:

Federal

BGEPA Protected under the federal Bald and Golden Eagle Protection Act

DPS Distinct Vertebrate Population Segment

ESU Evolutionarily Significant Unit

FC Candidate for listing as Threatened or Endangered under the federal Endangered Species Act

FE Listed as Endangered under the federal Endangered Species Act

FT Listed as Threatened under the federal Endangered Species Act

Federal (continued)

FSC USFWS "species of concern"

SLC USFWS Sacramento Fish and Wildlife Office "species of local concern"

State of California

SE Listed as Endangered under the California Endangered Species Act

ST Listed as Threatened under the California Endangered Species Act

CFP California Fish and Game Code Fully Protected Species

CSC California Department of Fish and Game Species of Special Concern

Central California Coast steelhead (*Oncorhynchus mykiss*) – Federal Threatened. Steelhead trout have a complex and variable life history. Although they are generally anadromous, juveniles spend a wide range of time in fresh water, and some individuals may remain in fresh water throughout their life cycle. Adults generally begin returning to streams with the first heavy rains of fall, with peak migration occurring during winter to early spring. Most spawning takes place from January through April, depending on the timing of immigration. Steelhead usually spawn in high-gradient, upper reaches of tributaries. After hatching, juveniles usually stay in fresh water for one to two years. They can occupy a variety of in-stream habitats that provide adequate cover, food supply, and cold water temperatures. Outmigration usually occurs between February and June and requires sufficiently high flows and cool water temperatures.

The Central California Coast Evolutionarily Significant Unit (ESU) of steelhead includes all naturally-spawned populations in coastal drainages from the Russian River basin south to Santa Cruz County, and in the San Francisco/San Pablo Bay basin as far east as the Napa River. Critical habitat was previously designated for this ESU in all occupied stream reaches within its geographic range, including the project area (National Marine Fisheries Service 1999). However, this designation was rescinded by a federal court decision in 2002. Critical habitat may be re-issued for Central California Coast steelhead following completion of a new critical habitat analysis by NOAA Fisheries.

Within the project area and vicinity, steelhead are reported to occur in Rodgers, Felder, Carriger, Fowler, and Sonoma creeks along segments 1, 2 and 17 (B. Cox, pers. comm. 2004). Adults migrate through the lower reaches of these creeks and spawn in the upper reaches mostly north of the project area. Cold spring-fed pools in the upper reaches of these streams can also contain juvenile steelhead during the warm months of the year (B. Cox, pers. comm. 2004). Steelhead might also occur in Fryer Creek along segment 17. Fryer Creek is tributary to Nathanson Creek, which is known to support steelhead, but their presence in Fryer Creek has not been established (W. Pier, pers. comm. 2004). The lower reaches of these streams that cross the project corridor generally become too warm and dry for steelhead, but some pools that remain in well-shaded locations could provide suitable rearing habitat for juveniles. During reconnaissance surveys in September 2003, cool, shaded pools (approximately 50-52°F) were observed in Felder Creek adjacent to the proposed route, between poles 74 and 87. These pools could provide rearing habitat for a small number of juveniles. Aside from these pools, steelhead are expected to pass through streams in the project area on their migrations to and from upstream spawning and rearing habitats, and are not likely to spend much time within the project area.

California tiger salamander (*Ambystoma californiense*) – Federal Threatened, California Species of Special Concern. California tiger salamanders breed in temporary pools and seasonal or permanent ponds. Adults spend most of their lives in rodent burrows or deep soil crevices in upland habitats such as grassland and oak savanna. CTS may move as far as 1.2 miles between

breeding ponds and upland refuge sites (USFWS and CDFG 2003). Adult salamanders migrate from upland habitats to breeding ponds during or shortly after rains in late fall and early winter. Following breeding, the adults return to upland habitats. The aquatic larvae hatch and develop in the ponds during winter and spring, transform to terrestrial juveniles, and disperse into upland habitat during mid-spring to early summer.

The Sonoma County population of CTS is designated as a Distinct Population Segment (DPS) by the USFWS (2003b). It occurs only within the Santa Rosa Plain (Jennings and Hayes 1994, Seymour and Westphal 1995). Other CTS populations within the greater San Francisco Bay Area are considered to be part of the Central California DPS. On August 4, 2004, the USFWS listed the Central California DPS as threatened and downlisted the Sonoma County population from endangered to threatened (USFWS 2004c).

The closest recent records of Sonoma County CTS are in southern Cotati, approximately five miles northwest of the Lakeville Substation (CDFG 2004). The USFWS and CDFG (2003) currently consider the potential range of the Sonoma County CTS to extend as far south as Lichau Creek between Petaluma and Cotati. This range excludes all of the project area. However, a historical record from near Petaluma (Borland 1897, cited in Storer 1925) suggests that their range may once have extended farther south, possibly including the southwestern slopes of Sonoma Mountain. Therefore, the western portion of segment 1 might overlap the historic range of the Sonoma County CTS. By contrast, the closest record of Central California CTS is approximately 25 miles east of the project area (CDFG 2004). The eastern two-thirds of the project area lies between the ranges of the Sonoma County and Central California CTS, and the species is considered absent from these intervening areas (USFWS 2003b).

During habitat assessment and focused surveys for CTS in the western portion of segment 1 (GANDA 2004c), suitable aquatic habitat was identified at five ponds within 0.6 mile (1 km) of the project corridor, and suitable upland habitat (rodent burrows in grasslands) was observed in the vicinity of some of these ponds. No CTS were observed at or around any of these five areas visited during nocturnal surveys. This result included no sightings at entrances of burrows, under woody debris, in vegetation, or along the banks of the suitable aquatic sites. Based on the survey results and current range information, it is concluded that the species is absent from the project area.

California red-legged frog (*Rana aurora draytonii*) – Federal Threatened, California Species of Special Concern. California red-legged frogs occur primarily in ponds or pools of streams that retain water long enough for breeding and development of young. The adults often prefer dense, emergent or shoreline riparian vegetation closely associated with deep, still or slow-moving water (Jennings and Hayes 1994), but may also be found in unvegetated streamside areas that provide shade and shelter. Other key habitat features include good water quality and absence of introduced

predators such as bullfrogs and predatory fishes. CRLF can estivate in small mammal burrows and moist leaf litter within 300 feet of aquatic habitat (Jennings and Hayes 1994). They can also disperse through upland habitats for distances of one mile or more in the wet season (USFWS 2002b).

During CRLF habitat assessment surveys (GANDA 2004b), suitable aquatic habitat for this species was identified at 26 sites within one mile of the proposed route. Protocol surveys were subsequently conducted at 15 of these suitable habitat sites where it was determined that CRLF individuals or their habitat could potentially be affected by project activities. CRLF adults were found at the upper portion of Felder Creek and a small tributary to this creek in June 2004. Six adult frogs were observed at three locations along the creek and tributary (Fig 6-3). The closest location to the project area is approximately 300 feet north of pole 55. The nearest CNDDB record of CRLF is near Highway 116 approximately 1.7 miles south of segments 1 and 2 (CDFG 2004).

The project area is not within any designated or proposed critical habitat for CRLF. Critical habitat for this species was previously designated by the USFWS (2001); however, most of this designation was vacated by a U.S. District Court ruling in 2002. The USFWS (2004b) recently re-issued proposed critical habitat designations for CRLF. The closest proposed critical habitat to the project area is Unit 10, Stage Gulch and Lower Petaluma River, which extends as far north as southeastern Petaluma, approximately one mile south of the Lakeville Substation.

Proposed and Candidate Species

Chinook salmon (*Oncorhynchus tshawytscha*), Central Valley fall-run/late-fall-run – Federal Candidate, California Species of Special Concern. Chinook salmon employ a variety of life history strategies that take advantage of the diversity of river systems and regional conditions to which they are adapted. They are strictly anadromous, with adults living most of their lives in the ocean and re-entering freshwater once to spawn. Distinct runs of chinook salmon have characteristic timing of freshwater immigration and spawning, as well as differences in rearing times and emigration of juveniles. Four runs (winter-run, spring-run, fall-run, and late-fall-run) migrate through the San Francisco/San Pablo Bay to spawn in the mainstem or tributaries of major Central Valley rivers (Moyle 2002). The fall-run/late fall-run ESU is a federal candidate for listing as threatened and a California Species of Special Concern. Fall-run chinook spawn in the mainstem and major tributaries of both the Sacramento and San Joaquin rivers. This is the most abundant run in California and has also been heavily supplemented by hatchery releases (Moyle 2002). Recently, fall-run chinook salmon, presumably of hatchery origin, have appeared in scattered drainages to the Bay and have established small spawning runs in some locations (Moyle 2002).

Chinook salmon of undetermined origin were identified recently in Sonoma Creek, Carriger Creek, and Fryer Creek in the vicinity of segment 17. In Fryer Creek, chinook were first observed in

December 2001 spawning in the flood control channel from just north of Leveroni Road (north of pole 115) to about one mile upstream (W. Pier, pers. comm. 2004). The ESU identity and corresponding status of these salmon is currently unknown, but may be resolved by pending genetic testing (W. Pier, pers. comm. 2004). For the purposes of this analysis, it is assumed that they are most likely fall-run fish, based on current information on the distribution and management (i.e., hatchery releases) of chinook salmon in California.

Species of Concern

California linderiella (*Linderiella occidentalis*) – Federal Species of Concern. This species of fairy shrimp inhabits clear to tea-colored water in seasonal ponds which range from a few square feet to many acres in size. The female deposits her eggs on the pond floor, where they remain viable after the pond dries. The eggs can withstand long, dry periods and will hatch only under the correct conditions after the pond has again filled with water. Such ponds are typically located in grasslands or in sedimentary rock depressions. The California linderiella tolerates water temperatures from 41° to 85°F, making it the most heat-tolerant fairy shrimp in California (USFWS n.d.). There are no CNDDB records of California linderiella within at least five miles of the project area (CDFG 2004), but ephemeral pools scattered in the low foothills in the vicinity of segment 1 could provide suitable habitat. It has moderate potential to occur in this area.

River lamprey (*Lampetra ayresi*) – Federal Species of Concern. The river lamprey is anadromous. They are born in freshwater streams, migrate out to the ocean, and return to freshwater as mature adults to spawn in gravelly riffles of streams. After hatching, the larvae inhabit muddy stream bottoms, backwaters, and low gradient areas (Moyle 2002). Within the project area, the river lamprey has been documented in Sonoma Creek (Wang 1986), and may also be present in other major creeks. It has high potential to occur in Sonoma Creek along segment 17. It also has moderate potential to occur in Rodgers, Felder, Carriger, and Fowler creeks along segments 1, 2, and 17.

Pacific lamprey (*Lampetra tridentata*) – Federal Species of Concern. Similar to the river lamprey, the Pacific lamprey is anadromous. Adults spawn in gravelly or rocky stream areas and the larvae inhabit muddy bottoms, backwaters, and low gradient areas (Moyle 2002). Within the project area, this species has been documented in Sonoma Creek (Wang 1986), but may also be present in the other major creeks that pass through the project corridor. It has high potential to occur in Sonoma Creek along segment17, and moderate potential to occur in Rodgers, Felder, Carriger, and Fowler creeks along segments 1, 2, and 17.

Foothill yellow-legged frog (*Rana boylii*) – Federal Species of Concern, California Species of Special Concern. This frog is found in or near streams with rocky or gravelly bottoms, shallow

runs or riffles, and deep pools. It prefers areas with mixed sun and shade and requires cobble-sized or larger substrates for egg laying (CDFG 2002b). Smaller tributaries and ephemeral streams may be used for overwintering and for post-breeding refuge from summer heat. There are two CNDDB records of foothill yellow-legged frogs in the vicinity of the project area. The closest record is from 1997 in Adobe Creek, approximately one mile northwest of the western end of segment 1. The other record is from 2003 in Carriger Creek, approximately 1.7 miles north of the eastern end of segment 1 and three miles upstream of the Carriger Creek crossing in segment 17 (CDFG 2004). The foothill yellow-legged frog has moderate potential to occur in the project area in Rodgers, Felder, and Carriger creeks along segment 1, 2 and 17. However, these streams are either well shaded by riparian vegetation or lack suitable rocky substrates where they cross the project corridor. The species is more likely to occur upstream from the project area where habitat conditions are more suitable.

Northwestern pond turtle (*Clemmys marmorata marmorata*) – Federal Species of Concern, California Species of Special Concern. Pond turtles require still or slow-moving temporary and permanent waters such as ponds, freshwater marshes, and pools in perennial streams. Freshwater ponds and streams, such as those found in the project area provide suitable habitat for this species. Pond turtles may remain active all year and sometimes move overland for distances of more than 300 feet to find a suitable nest site (Jennings and Hayes 1994). They generally lay their eggs in open areas that are on dry slopes with soils rich in silt and clay.

Northwestern pond turtles were observed at two locations near the project route. This species was observed during surveys for CRLF in 2003 in a pond west of Rodgers Creek, approximately 1,200 feet south of pole 44, and in 2004 in a vineyard pond approximately 1,700 feet north of pole 61(GANDA 2004b). There are also three CNDDB records of this species within three miles of the project area; the nearest occurrence is 1.6 miles south of segment 1 (CDFG 2004). There is a high potential for northwestern pond turtles to be present in Rodgers Creek along segment 1 and a moderate potential to occur in other perennial and intermittent creeks along segments 2 and 17.

White-tailed kite (*Elanus leucurus*) – Federal Species of Concern, California Fully Protected Species. White-tailed kites inhabit open lowland valleys and low, rolling foothills. They forage in grasslands, marshes, riparian edges, and cultivated fields where prey species, mainly California ground squirrels (*Spermophilus beecheyi*) and black-tailed jackrabbits (*Lepus californicus*), are relatively abundant. They typically nest on the tops of trees in close proximity to good foraging locations. They often favor coast live oaks, which are present throughout much of the project area. Suitable nesting habitat for this species is present in the grasslands and oak stands along segment 1 and suitable foraging habitat exists throughout the project area. White-tailed kites were observed in flight over the eastern portion of segment 1 during field surveys in July 2003.

Cooper's hawk (*Accipiter cooperi*) – California Species of Special Concern. Cooper's hawks breed in oak woodlands, coniferous forests, and riparian groves. Nest stands typically have dense canopy cover and relatively open understories. In California, they frequently nest in stands of live oaks and typically use the most mature trees in a stand. This species is also increasingly found in suburbs and even cities where some tall trees exist for nest sites. Cooper's hawk has moderate potential to occur in mixed oak and riparian woodlands along segment 1 and in the riparian corridor of Sonoma Creek along segment 17.

Golden eagle (*Aquila chrysaetos*) - California Species of Special Concern, California Fully-Protected Species. Golden eagles typically inhabit open mountain areas, foothills, grasslands, and other open country. They are an uncommon permanent and migrant species in Sonoma County and throughout most of California (CDFG 2002b). Their nests are commonly built on cliff ledges and are also frequently found in large trees in open areas. They prey mainly on small mammals ranging in size from ground squirrels to jackrabbits (Kaufman 1996). Within the project area, there is a high potential for golden eagles to occur in segment 1. In this segment, large trees near Rodgers Creek and adjacent to expanses of grassland could provide suitable nesting sites, and grasslands throughout the area provide suitable foraging habitat. A large raptor nest consistent in size and structure with that of a golden eagle was observed in January 2003 in a eucalyptus stand approximately 1,100 feet south of pole 36. A local resident has also reported golden eagles nesting in this area (S. Schroll pers. comm. 2002).

Western burrowing owl (*Athene cunicularia hypugaea*) – Federal Species of Concern, California Species of Special Concern. Burrowing owls inhabit open grasslands, prairies, and farmland where they feed mostly on small mammals and insects. They favor areas of flat open ground with very short grass or bare soil. For breeding, they require burrows typically left behind by California ground squirrels or other small mammals (Kaufman 1996). Breeding burrowing owls have been nearly extirpated from Sonoma County since 1987 (Burridge 1995).

During habitat assessment (Phase I) surveys, marginally suitable habitat for burrowing owl was identified in open grassland areas along segment 1, although very few burrows were observed within this segment (GANDA 2004d). During a subsequent Phase II survey along segment 1, burrowing owls, nesting burrows, or burrowing owl sign were not detected. The few burrows that were observed had no sign of recent use, and no California ground squirrels were observed that could provide burrows for the owls. Based on these survey results, the species is concluded to be absent from the project area.

Allen's hummingbird (*Selasphorus sasin*) – Federal Species of Concern. This hummingbird typically nests in trees in a variety of semi-open habitats including open oak woodlands, streamside groves, well-wooded suburbs, and city parks. Allen's hummingbird migrates to Mexico for the

winter. The riparian woodlands and other stands of trees along segments 1, 2, and 17 provide suitable nesting habitat for this species. It also has moderate potential to occur in residential areas and vineyards along segments 2 and 17.

Loggerhead shrike (*Lanius ludoviciana*) – Federal Species of Concern, California Species of Special Concern. The loggerhead shrike frequents open habitats with sparse trees and shrubs. It commonly uses fences, trees, power lines, and utility poles as lookout posts for scanning broad open areas where suitable prey abounds. It usually builds nests on tree branches or in shrubs obscured by dense vegetation. Suitable foraging habitat for this species exists throughout the project area, and it has moderate potential to nest in dense vegetation along segments 1, 2, and 17.

California horned lark (*Eremophila alpestris actia*) – California Species of Special Concern. California horned larks occur in grasslands and other semi-open habitats that lack trees or brushy areas. They build their nests on the ground, usually near grass clumps or earth clods, and feed on seeds and insects (Kaufman 1996). The grasslands within segment 1 provide suitable foraging and nesting habitat for this species. Horned larks were observed along segment 1 in the vicinity of poles 28 and 29 during a field survey in February 2004.

Oak titmouse (*Baeolophus inornatus*) – Species of Local Concern. This species is found primarily in sparse oak woodlands, typically roosting in the cavities of trees or snags, and nesting in natural cavities, abandoned woodpecker holes, and birdhouses. The oak titmouse is considered a "species of local concern" by the USFWS for the Glen Ellen and Sonoma USGS 7.5 minute quadrangles (USFWS 2004a). Within the project area, very few snags and no woodpecker holes were observed during field surveys. However, the riparian and oak woodlands bordering Rodgers, Felder, Carriger, Fowler, and Sonoma creeks could provide suitable foraging and nesting habitat for this species. It has moderate potential to occur in these habitats in segments 1, 2, and 17.

Pallid bat (*Antrozous pallidus*) – California Species of Special Concern. Pallid bats occur throughout California at low elevations. They can be found in a variety of habitats, including grasslands, shrublands, woodlands, and forests. They roost in deep crevices, rock faces, buildings, and under bridges and are yearlong residents in most of their range (CDFG 2002b). According to the CNDDB, pallid bats have been reported in the project area and vicinity. Along segment 2 at Felder Road, a pallid bat was captured and released in 2000 (CDFG 2004). Pallid bats and an unidentified bat species were also documented (based on fecal pellets and prey remains) in 1999 approximately 0.8 mile south of the project area under the Watmaugh Road bridge over Sonoma Creek (CDFG 2004). Based on these observations and recent CNDDB records, there is a high potential for this species to occur in the project area along segment 2 and a moderate potential to occur along segments 1 and 17.

Long-eared myotis (*Myotis evotis*) – Federal Species of Concern. The long-eared myotis bat has been found in a variety of habitats including nearly all brush, woodland, and forest habitats; however its preferred habitats are coniferous woodlands and forests. It roosts alone or in very small groups in buildings, caves, spaces under bark, and in snags. Although the species occurs throughout California, occurrence records are sparse. This species has moderate potential to occur in oak woodland and conifer forest habitats along segments 1, 2, and 17.

Yuma myotis (*Myotis yumanensis*) – Federal Species of Concern. This bat species is found throughout most of California in a variety of habitats from sea level to 11,000 feet elevation. Its preferred habitat types are forests and woodlands near open water for foraging. It typically roosts in buildings, mines, caves, and crevices, under bridges, and in abandoned swallow nests (CDFG 2002b). There is moderate potential for it to be present along segments 1, 2, and 17.

Table 6-4 lists the 14 special-status species of plants and animals that were observed during the surveys or have been previously reported in the project area. This list includes three CNPS-listed plants and eleven special-status animals, including three that are federally listed (California freshwater shrimp, steelhead, and California red-legged frog), one (presumed) federal candidate (chinook salmon), two California fully protected species (golden eagle and white-tailed kite), and five other species of concern. The list also includes a category for "other raptors" which applies to non-special-status raptor species that are protected under the Migratory Bird Treaty Act and California Fish and Game Code.

Table 6-4
Special-Status Species Observed or Documented within the Project Area.[1]

Species	Segment		
	1	2	17
Cotula navarretia (*Navarretia cotulifolia*)	X		
Lobb's aquatic buttercup (*Ranunculus lobbii*)	X		
Northern California black walnut (*Juglans hindsii*)			X
California freshwater shrimp (*Syncaris pacifica*)			X
Steelhead (*Oncorhynchus mykiss*)	X	X	X
Chinook salmon (*Oncorhynchus tshawytscha*)			X
River lamprey (*Lampetra ayresi*)			X
Pacific lamprey (*Lampetra tridentata*)			X
California red-legged frog (*Rana aurora draytonii*)	X		
Northwestern pond turtle (*Clemmys marmorata marmorata*)	X		
White-tailed kite (*Elanus leucurus*)	X		
Golden eagle (*Aquila chrysaetos*)[2]	X		
Other raptors	X	X	X
California horned lark (*Eremophila alpestris actia*)	X		
Pallid bat (*Antrozous pallidus*)		X	

[1] As observed by GANDA biologists during field visits in 2003 and 2004 (see sections 6.1.2-6.1.4) or documented in the CNDDB (CDFG 2004).

[2] Nesting in the area reported by local resident (S. Schroll pers. comm. 2002)

6.4 POTENTIAL IMPACTS AND MITIGATION MEASURES

This section analyzes the potential for biological impacts to result from:

- construction of substation improvements;
- construction of new access roads and improvement of existing roads;
- installation of stream crossing structures on access roads;
- vegetation clearing and grading of landing zones, staging areas, and conductor pull sites;
- operation of project vehicles, helicopters, and heavy equipment;
- installation of new transmission poles and removal of existing poles;
- installation of new conductors; and
- long-term operation and maintenance of the new transmission line.

The potential for biological impacts depends primarily on the proximity and quality of natural vegetation and wildlife habitats, the presence of special-status plant or animal species, and the effectiveness of measures instituted to protect these habitats and species from project effects. Potential impacts to biological resources are separated into direct and indirect impacts (both short- and long-term) that could result from construction activities and those that could occur as a result of substation and transmission line operation and maintenance. Recommended measures to avoid and mitigate construction impacts are described in section 6.4.2. Recommended measures to avoid and mitigate impacts associated with long-term operation and maintenance of the expanded substations and the transmission line are described in section 6.4.3.

6.4.1 Significance Criteria

Significance criteria for impacts to biological resources are based on Section 15382 and Appendix G of the State CEQA Guidelines (CCR Title 14, Sections 15000 et seq.). A project is considered to have a potentially significant impact to biological resources if it would:

- have a substantial adverse effect, either directly or through habitat modification, on any species identified as endangered, threatened, proposed, candidate, sensitive, or special-status by the USFWS, CDFG, or in local or regional plans, policies, or regulations;
- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified by the USFWS, CDFG, or in local or regional plans, policies, or regulations;
- have a substantial adverse effect on federally protected wetlands or Waters of the U.S. as defined by Section 404 of the Clean Water Act through direct removal, filling, hydrological interruption, or other means;
- interfere substantially with the movement of any native resident or migratory fish or wildlife species, with established native resident or migratory wildlife corridors, or with the use of native wildlife nursery sites;
- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other governmental habitat conservation plan.

Significant impacts to biological resources are not limited to projects affecting only state- or federally listed endangered and threatened species. A species that is not listed will also be considered rare or endangered if it can be shown to meet one or more of 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; or
- it is likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

Based on these guidelines, this analysis includes non-listed species identified on federal or state "watch lists" such as CNPS lists 3 and 4.

In addition, activities that result in the introduction or spread of a noxious weed or substantially increase the dispersal and spread of existing populations of noxious weeds such that an existing plant community or wildlife habitat is substantially degraded could result in a potentially significant impact to biological resources.

6.4.2 Construction Impacts and Mitigation Measures

This section describes potential construction impacts to biological resources and mitigation measures that would reduce all impacts to a less than significant level.

As part of PG&E's standard construction practice, the following measures will be incorporated into the project and will be implemented to avoid or minimize impacts to biological resources:

- An ongoing environmental education program for construction crews will be conducted before beginning the site work and during construction activities. Sessions will include information about the Federal and State Endangered Species Acts, the consequences of noncompliance with these acts, identification of special-status species and wetland habitats (including waterways), and review of mitigation requirements.
- Vehicles will be restricted to established roadways and identified access routes.
- A biological monitor will be on site during any construction activity near sensitive habitat to ensure implementation of, and compliance with, mitigation measures. The monitor will have the authority to stop activities and determine alternative work practices in consultation with construction personnel, if construction activities are likely to impact special-status species or other sensitive biological resources.
- If special-status species are located prior to or during work activities, construction personnel will contact the biological monitor. If the monitor determines that project activities may adversely affect the species, the monitor will consult with USFWS, NOAA Fisheries, and/or CDFG regarding appropriate avoidance and mitigation measures.

- Photo documentation of preconstruction habitat conditions will occur at all construction locations within sensitive habitat prior to the start of work, as well as immediately after construction activities.
- Trash, dumping, firearms, open fires, hunting, and pets will be prohibited in the project area.

Additional measures to avoid, minimize, and mitigate specific potential impacts to biological resources are described below under the corresponding potential impact.

6.4.2.1 Substation Impacts

No significant impacts to vegetation, special-status plants or wildlife will occur from expansion of the Lakeville and Sonoma substations. Vegetation at the Lakeville Substation consists of non-native weedy grasses and forbs characteristic of ruderal areas with no potential for the occurrence of special-status plants. Expansion of the Sonoma Substation will occur within the paved area inside the existing substation fence. No habitat for special-status wildlife species exists at either of these sites.

6.4.2.2 Transmission Line Impacts

Impact 6.1. Clearing of Upland and Riparian Vegetation Types.

Removal of existing wood poles, installation of the new transmission line and poles, and the establishment of new permanent access roads will result in permanent loss of a small amount of Non-native Grassland and other types of predominantly upland vegetation. The California Public Resources Code requires that the base of a wood pole or structure in a wildland area with particular (non-exempt) equipment must be cleared to bare ground for a distance of 10 feet in each direction from its outer circumference and to a height of 8 feet during fire season (see Chapter 2 Project Description: ROW Requirements and Preparation). Vegetation clearing is not required around the base of TSP poles. Assuming a maximum of 415 square feet of newly-cleared area for each wood pole, 7 square feet for the footprint of each TSP pole, and an average new road width of 15 feet, and that these areas will be maintained in an open, unvegetated state, the approximate maximum area of various vegetation types eliminated as a result of pole and access road construction would be:

- 2.66 acres of Non-native Grassland;
- 0.29 acre of Oak Woodland;
- 0.29 acre of Mixed Evergreen Forest;
- 0.03 acre of Riparian Forest; and
- 0.08 acre of ruderal and landscape vegetation.

The acreage of these types that will be lost represents a negligible fraction of the amount of each type found in the surrounding area and would not substantially reduce habitat for native plants or wildlife. The impact to riparian vegetation will be minimal and will be consistent with the Sonoma County General Plan objectives for riparian corridors. Objective OS-5f allows construction prohibitions within streamside conservation areas to be waived if no significant disturbance of riparian habitat will occur, or if the use involves minor expansion of an existing structure. Within the Felder Creek riparian corridor, new poles will be set back farther from the creek than the existing poles, which will minimize the impact to riparian vegetation. In the Sonoma Creek corridor, pole 107 will be replaced with a new pole set back farther from the creek and the proposed new access route to pole 107 will affect less than 0.03 acre of riparian vegetation. Therefore, this impact is less than significant. No mitigation is required.

Impact 6.2. Removal and Trimming of Protected Trees.

A few trees will likely be removed or trimmed to install new poles in areas where the proposed route passes through dense oak woodland and mixed evergreen forest in segment 1 (e.g., near poles 34, 36, 37, 38, and 39). Some roadside oaks will likely be removed or trimmed during pole replacement along Leveroni Road in segment 17. All drainages with riparian forest will be spanned,

eliminating the need for tree removal, but some trees might be trimmed to protect the transmission lines and to reduce fire danger. Tree trimming or removal also will likely be required along some access roads and at some staging areas (e.g., near poles 34 and 35) and at a few pull sites.

Valley oaks located at Sonoma Creek, which the proposed line will span, in segment 17, and along Felder Creek adjacent to the route in segment 1, likely will not be removed during construction, although some may require trimming. County-protected heritage and landmark trees will be avoided during construction. The proposed route does not cross any public lands within the City of Sonoma, so no impacts to city-protected trees will result from construction activities.

In addition, young trees have recently been planted in the vicinity of towers 7-10. There is the potential for these plantings to eventually grow up into the tower line. Implementation of Mitigation 6.2, Pre-construction Tree Survey, will reduce any potential impacts to protected trees to a level that is less than significant. This survey will also consider the plantings in the vicinity of towers 7-10.

Mitigation Measure 6.2. Pre-construction Tree Survey. Prior to construction, a tree survey will be completed that will identify and map any protected valley oak, heritage and landmark trees within the project area. These trees will be avoided if possible. Required permits will be obtained if protected trees must be removed or trimmed. Any trees removed will be replaced or compensation will be provided, as stipulated in county regulations. These measures will reduce impacts to a less than significant level. Plantings in the vicinity of towers 7-10 will be assessed and if necessary, replaced with suitable plantings as appropriate for ROWs.

Impact 6.3. Disturbance to Wetlands and Aquatic Resources.

Two high-value wetland plant communities, a vernal marsh and a vernal pool, could be adversely affected by construction activities. The vernal marsh is located in segment 1 south of poles 40 and 41. The vernal pool is located in segment 1 along the transmission line alignment, between and just to the south of poles 43 and 44. Significant impacts to these wetlands could result from erosion and sedimentation caused by improvements to adjacent existing ranch roads that will be used for construction access or from fuel spills. While the vernal pool could also be damaged by overland movement of vehicles and construction equipment, PG&E will use an access road on the other side of the hill to avoid the vernal pool. Most water courses and ponds along the project route will be spanned or avoided and will not be affected by the project. However, project activities adjacent to Felder and Sonoma creeks could adversely affect these aquatic habitats in the project area. Pole replacement and conductor installation adjacent to Felder Creek (poles 75-87) could affect the creek bank or result in sedimentation. Similarly, replacement of pole 107 adjacent to Sonoma Creek and construction of a new access road to this pole could result in erosion and sediment transport to the creek. Water quality could also be affected by discharge of oil, gas or other chemical pollutants into these watercourses from vehicles and equipment. Proposed road crossings of four minor drainages

could directly affect creek beds or banks that may be subject to Corps, State Water Resources Control Board, and/or CDFG jurisdiction.

Project construction will require preparation and implementation of a SWPPP with Best Management Practices (BMPs) to protect water quality. Potential impacts to wetlands and aquatic resources will be less than significant through the implementation of the SWPPP and the additional actions specified by Mitigation Measures 6.3a (Wetlands and Aquatic Resources Protection Measures) and 6.3b (Erosion Control and Restoration Plan).

Mitigation Measure 6.3a. Wetlands and Aquatic Resources Protection Measures. Potential impacts to wetlands and other aquatic resources will be less than significant with implementation of the following measures:

- For the vernal pools between poles 43 and 44, a qualified professional biologist will establish an exclusion zone of the maximum practicable distance, not less than 50 or greater than 100 feet**,** from the wetland edge. The exclusion zone will be staked and flagged or delineated with temporary fencing. For work at pole 107 and its access road near Sonoma Creek, temporary exclusion fencing and silt fencing will be installed at the downslope edge of the work footprint and not less than 25 feet from the top of the bank of Sonoma Creek. Staking and flagging or fencing will be completed prior to any construction activities and will remain in place during all construction activities.
- Restrict construction personnel and equipment from entering the fenced protected area (exclusion zone and wetland habitat) for any purpose.
- For the vernal marsh near poles 40 and 41, silt fencing will be installed between the access road and the marsh as close as practicable to the edge of the road improvements footprint to prevent sedimentation impacts to the marsh (see Mitigation Measure 6.3b). Installation of the silt fence will be monitored by a qualified biologist and will be completed prior to road improvement work in this area.
- To the extent practicable, conduct ground-disturbing activities such as access road construction, site grading, and foundation installation during the dry season (June 1 to October 15). The dry season window may begin as early as May 1 if ground conditions at the work sites and access routes are determined to be sufficiently dry by a qualified biologist.
- If it is not feasible to limit work to the dry season, use appropriate erosion control measures for the local site, which might include one or more of: tacked straw, erosion control fabrics, silt fencing, and graded bedding on roads (see Mitigation Measure 6.3b). Do not use hydromulch unless specified for a specific location by a professional erosion control/revegetation specialist.

- Prior to construction of access road crossings of ephemeral drainages, seek technical assistance from and notify as appropriate the CDFG, Corps, and RWQCB and obtain any approvals or agreements required by these agencies to protect these watercourses.
- Monitor the protected areas, using a trained professional biologist, during all work activities in the vicinity of wetlands and sensitive aquatic and riparian habitats including Sonoma Creek, Felder Creek, and other watercourses that may be affected by the project. The monitor will verify that environmental fencing, erosion and sediment control measures, and other protection measures are properly installed and are effective. If problems are found, the monitor will recommend remedial measures. The monitor will have the authority to stop activities that are likely to adversely affect sensitive aquatic habitats and recommend alternative work practices in consultation with construction personnel.
- After construction is complete, conduct follow-up monitoring to ensure that installations made during construction to control erosion and sedimentation, and to achieve any other protection measures, remain in place. If construction is completed in the dry season, this follow-up monitoring should begin during the subsequent September to verify that measures are in place before the wet season begins. Wet season monitoring should commence immediately after the first major rainfall event and should comply with the scheduling and procedures that are specified in the SWPP, or until the monitor feels that there is no longer potential for erosion and sedimentation impacts. In accordance with the SWPPP, monitoring should be conducted at least once during the subsequent dry season, to check for erosion, sedimentation and other potential impacts to wetlands, and to verify that measures continue to be effective; if problems are found, the monitor will recommend remedial measures.
- Mitigate any direct or indirect impacts (e.g., fuel spills, sedimentation and erosion impacts) through appropriate spill cleanup, sediment, and erosion control measures.

Mitigation Measure 6.3b. Erosion Control and Restoration Plan. Erosion control and revegetation measures will be implemented during and following the construction phase, as described in the Project Description (Chapter 2) and in the Erosion Control and Restoration Plan written for this project (Appendix A). The Erosion Control and Restoration Plan includes recommendations for each project element that will reduce or eliminate the possibility of erosion and sedimentation impacts to wetlands and streams. Implementation of this plan will reduce impacts to wetlands and aquatic resources to a less than significant level.

Impact 6.4. Impacts to Special-status Plants.

Three occurrences of special-status plants could be adversely affected by proposed construction activities. These include Lobb's aquatic buttercup, cotula navarretia, and Northern California black

walnut. Direct and indirect impacts to Lobb's aquatic buttercup and its wetland habitat could result from replacement of poles 43 and 44, and construction of a new permanent road segment and improvement of an existing road to access these poles. The proposed pole installation and road footprints will avoid the vernal pool habitat of Lobb's aquatic buttercup, but ground disturbance and other activities adjacent to the pool could affect this species' habitat conditions, for example, by reducing water quality in the pool as a result of sedimentation or fuel spills.

Direct and indirect impacts to cotula navarretia and its habitat are unlikely but possible from activities associated with the removal of poles 58 and 59, and construction of a new permanent access road. The proposed route of the new permanent access road from the vicinity of pole 60 to the vicinity of pole 57 has been rerouted to the ridge north of the small valley to avoid direct impacts to cotula navarretia. At the west end of the ridge, a cut will be required on the steep slope below the ridge to connect the new road segment to the existing ranch road. Erosion from the cut could affect potential habitat for cotula navarretia on the lower slope, although this is unlikely. No direct impacts are expected based on the plant's distribution in June 2004.

A few small saplings of Northern California black walnut on the banks of Sonoma Creek in segment 17 will likely be removed during replacement of pole 107. Loss of these trees is considered to be a less than significant impact because their native status is unconfirmed.

The Public Resources Code also requires that the base of a pole or structure in a wildland area with particular (non-exempt) equipment must be cleared to bare ground for a minimum distance of 10 feet in each direction from its outer circumference and to a height of 8 feet during fire season. In addition, vegetation may be removed from pole installation work areas, if needed (see Project Description in Chapter 2: Pole Installation). Pole installation work areas are 80 feet by 80 feet for tubular steel poles (TSPs). A few small saplings of Northern California walnut trees are located within 80 feet of pole 107. Much larger Northern California black walnut trees are located in the vicinity, but not within 80 feet of the work area for pole 107. Impacts from the required clearing will be limited to removal or trimming of shrubs and trees, including, possibly, large walnut trees that are common within the Riparian Forest of Sonoma Creek. Trimming of these trees is a less than significant impact.

Impacts to special-status plants can be reduced to a less than significant level by implementing Mitigation Measure 6.4, Special-status Plant Avoidance Measures, and Mitigation Measure 6.3b, Erosion Control and Restoration Plan.

Mitigation Measure 6.4. Special-status Plant Avoidance Measures. Impacts to special-status plants will be less than significant through implementation of the following measures:

- Develop access routes to poles 43, 44, 58 and 59 that avoid, to the extent feasible, direct impacts to special-status plants and their habitats.
- Habitat occupied by Lobb's aquatic buttercup and cotula navarretia, and any additional special-status plant populations that might be found prior to or during the construction period, will be protected as appropriate[4] by establishing an exclusion zone around the perimeter of the habitat where feasible. The exclusion zone will be staked and flagged in the field prior to construction by a trained professional botanist. New poles and temporary use areas (i.e., staging areas, cable pulls, access roads, etc.) will be located outside of this exclusion zone.
- During all phases of construction, the outer edge of the exclusion zone will be marked in the field with temporary fencing.
- Restrict construction personnel and equipment from entering the fenced protected area (exclusion zone and plant habitat) for any purpose.
- Restrict construction activities to the dry season (June 1 to October 15), or, if this is not feasible, use appropriate erosion control measures (see Mitigation Measure 6.3b).
- Monitor the known locations for Lobb's aquatic buttercup and cotula navarretia, and any additional special-status plant populations that might be found prior to or during the construction period, using a trained professional botanist. Monitor while construction is taking place in the vicinity of the special-status plant populations and for one year following construction to assess the effectiveness of protection measures.
- Mitigate any direct or indirect impacts (e.g., weed invasion, erosion impacts) through appropriate weed control and erosion control measures.

Impact 6.5. Introduction or Spread of Invasive Plants.

Construction activities that cause ground disturbance have the potential to spread weeds that are already locally established into areas that do not presently contain them. New weed species could also be transported into the project area (at all locations where on-the-ground project activities take place) in the form of weed seed or other propagules carried on vehicles and construction equipment. New weed populations could become established in sites disturbed during construction, especially along roads, in staging areas and other temporary use areas, and in locations where poles will be removed and replaced.

For example, in segment 1, yellow starthistle (*Centaurea solstitialis*), purple starthistle (*Centaurea calcitrapa*), Harding grass (*Phalaris aquatica*), milk thistle (*Silybum marianum*), bull thistle (*Cirsium*

[4] This measure is not intended to apply to Northern California black walnut for the reasons previously discussed. Other exceptions may arise and will be determined based on the judgment of a trained professional botanist.

vulgare), medusahead (*Taeniatherum caput-medusae*), and Italian thistle (*Carduus pycnocephalus*) could be spread from existing locations of these species. In segment 2, wild fennel (*Foeniculum vulgare*) and thickets of Himalayan blackberry occur and have the potential to spread. At the Sonoma Creek crossing site in segment 17, stands of giant reed (*Arundo donax*) and wild fennel grow on the creekbanks, but will not likely be spread by project activities.

The implementation of Mitigation Measure 6.5 (Control of Invasive Plants) during construction will minimize the spread of weeds. Specific weed control measures will be implemented to reduce potential impacts to a less than significant level.

Mitigation Measure 6.5. Control of Invasive Plants. During construction, management practices will be implemented that reduce the likelihood of spreading already established weeds into new areas or increasing their abundance, and of introducing new weed species to the project area. These management practices will include using construction equipment that has been cleaned of soil and plant parts, including seeds, before entering the project area, using weed-free straw for erosion control (see Erosion Control and Restoration Plan, Appendix A) and doing a post-construction survey for new weeds in areas that were disturbed during construction. If weed populations not previously found adjacent to project-disturbed areas are found following construction, these will be controlled using the most effective and least environmentally harmful methods. Weed control methods are described in the Erosion Control and Restoration Plan (Appendix A). Implementing management practices described above will reduce potential adverse impacts from non-native invasive plants to a less than significant level.

Impact 6.6. Spread of the Sudden Oak Death Pathogen.

Trees affected by the SOD pathogen have been found within one mile of the project area (Oak Mortality Task Force 2004), and in many locations in Sonoma County. During field surveys for the proposed project, trees were observed near pole 42 that appear to be affected by the SOD pathogen. In addition, many individuals of host and potential carrier species (coast live oak, black oak, California bay, bigleaf maple, madrone, California buckeye, and common manzanita) grow within the project area, and it is possible that some of these are infested without showing signs of the disease. The potential for a significant impact exists if infested plants are removed or trimmed during construction and the parts are transported to a non-infested county or state. Leaving materials on-site (without burning them), or moving them only within the 13-county infested area, are actions that do not violate state or federal regulations, and would not constitute significant impacts. However, moving plant material within Sonoma County would be inconsistent with the Sonoma County Agricultural Commissioner's request for voluntary assistance in combating the spread of the SOD pathogen within Sonoma County (see section 6.2.2, State and Local Regulations on the Transport of the SOD Pathogen). Implementation of Mitigation Measure 6.6 (Control and

Prevention of the Spread of the SOD Pathogen) is consistent with the Sonoma County Agricultural Commissioner's request.

Mitigation Measure 6.6. Control and Prevention of the Spread of the SOD Pathogen. Significant impacts associated with the spread of the SOD pathogen will be avoided by complying with applicable laws and regulations during the performance of vegetation trimming, clearing, and removal activities and by following PG&E Vegetation Management Sudden Oak Death Protocols (Appendix J).

Impact 6.7. Impacts to California Freshwater Shrimp.

Project construction activities adjacent to Sonoma Creek could have short-term effects on aquatic habitat of the California freshwater shrimp. The proposed transmission line will span over Sonoma Creek adjacent to Leveroni Road between poles 107 and 108. Pole 108, located above the top of the creek bank, will be accessed from Leveroni Road, and there is adequate setback to avoid impacts to the creek. However, pole 107 is located within the riparian vegetation zone on the west side of Sonoma Creek. Installation of a new pole at this location will involve operation of equipment, ground disturbance, and clearing of vegetation within the riparian zone to accommodate the pole footprint, work area and access route. Installation of the pole foundation and construction of the access road will be done during the dry season which will greatly reduce the potential for sedimentation and discharge of pollutants into Sonoma Creek. Overhanging and submerged riparian vegetation along Sonoma Creek, which is an important habitat component for this species, will not be affected because the pole is set back well above the creek channel. In addition, the new pole will be set back farther from the creek than the existing pole, and silt fencing will be installed between the work area and Sonoma Creek (see Mitigation Measure 6.3a) to protect the creek during pole and wire installation in the wet season. These measures will minimize potential adverse effects on water quality and aquatic habitat for California freshwater shrimp in Sonoma Creek.

While potential impacts to Sonoma Creek and its riparian zone will be minimized by measures incorporated into the project design and by seasonal timing of certain project activities, there is still some potential for temporary effects on habitat of the California freshwater shrimp. Because this species is federally endangered, this impact could be significant. Implementation of the SWPPP, Mitigation Measure 6.3a (Wetlands and Aquatic Resources Protection Measures), which specifies a biological monitor for all construction activities in the vicinity of Sonoma Creek, and Mitigation Measure 6.3b (Erosion Control and Revegetation Plan), will minimize adverse effects on this species' habitat and will reduce this impact to a less than significant level.

Impact 6.8. Impacts to Special-status Fish.

Construction activities in or adjacent to streams inhabited by steelhead, chinook salmon, river lamprey, or Pacific lamprey could affect individuals of these species. Depending on the timing of

work activities, migrating adults or juveniles could be affected in the vicinity of work areas. The proposed transmission line will span all creeks with potential to support these species, and new poles will be located outside the creeks and associated riparian zones. The proposed route crosses lower Felder, Carriger, Sonoma, and Fryer creeks along Leveroni Road, and there will be no change to existing stream conditions at these locations. Some trimming of vegetation could occur under the transmission line where it crosses Rodgers Creek (between poles 42 and 43) and upper Felder Creek (between poles 54 and 55). Any such trimming will be confined to a narrow swath directly beneath the line, and vegetation will be retained along the creek banks. Therefore, there will be no appreciable effect on stream shading, vegetative cover, or other stream habitat conditions. No access roads will cross creeks with potential to harbor steelhead or other special-status fish species.

If work activities were to cause sedimentation or other adverse affects on water quality in streams that harbor special-status fish, this impact could be significant. Potential temporary impacts to water quality in these streams will be minimized by implementation of the SWPPP and Mitigation Measures 6.3a (Wetlands and Aquatic Resources Protection Measures) and 6.3b (Erosion Control and Restoration Plan), and will reduce this potential impact to a less than significant level.

Impact 6.9. Impacts to California Red-legged Frog.

Construction activities in the vicinity of Felder Creek could affect individuals or habitat of the California red-legged frog. The transmission line spans a tributary to Felder Creek approximately 300 feet from one location where CRLF were observed, and most of segment 2 and the eastern end of segment 1 (poles 69-87) are within 300 feet of Felder Creek, approximately one mile downstream from where CRLF were found. Pole replacement, pole removal, access road construction, and conductor installation could harm individual frogs if they are present in the work areas. Direct effects to the observed CRLF population in its aquatic habitat will be prevented by construction of a new access road in an upland area between poles 57 and 61, which will avoid use of an existing road that crosses upper Felder Creek. In addition, most project activities that could affect CRLF adjacent to Felder Creek will be performed during the dry season, including installation of most pole foundations and some structures, and construction/improvement of access roads. Because protocol surveys in 2004 determined CRLF to be absent in the reach of Felder Creek between poles 69 and 87, dry-season activities in this area are not expected to affect the species. New poles also will be set back farther from Felder Creek than the existing poles and outside of the riparian vegetation zone; this will likely prevent permanent loss of potential estivation or dispersal habitat.

These measures will substantially reduce the potential for impacts to CRLF. In order to further protect individual frogs in riparian and upland habitats adjacent to the creek, particularly during the wet season, further measures have been incorporated into the project to reduce any impacts to a less than significant level. Certain project activities such as conductor installation, topping of wood

poles, removal of poles 54 and 55, and installation of the pole 77 structure, are proposed to be conducted during the wet season and could harm CRLF, a federally threatened species. Implementation of Mitigation Measure 6.3a (Wetlands and Aquatic Resources Protection Measures), which specifies the presence of a biological monitor for all construction activities in the vicinity of Felder Creek, and implementation of Mitigation Measures 6.9a (California Red-legged Frog Consultation) and 6.9b (Preconstruction Survey for California Red-legged Frog) will reduce this potential impact to a less than significant level.

Mitigation Measure 6.9a. California Red-legged Frog Consultation. Prior to project initiation, PG&E will request technical assistance from the USFWS regarding the CRLF. PG&E's request will include information on the locations of CRLF in the project area, results of all CRLF surveys, a description of the proposed project activities and schedule, and a description of the measures outlined above and in Mitigation Measure 6.9b below that will be implemented to minimize potential effects on this species. If the USFWS concurs that these measures are sufficient and that the project is not likely to adversely affect CRLF, then PG&E may proceed without further authorization. In the event that the USFWS determines that the project is likely to adversely affect CRLF, then PG&E will consult further with USFWS to determine what additional measures will be required to protect CRLF. All protection measures agreed to in consultation with the USFWS will be implemented.

Mitigation Measure 6.9b. Pre-construction Survey and Avoidance Measures for California Red-legged Frog. Immediately prior to work activities during the wet season in the vicinity of Felder Creek, a qualified biologist will perform a preconstruction survey for CRLF. The survey area will consist of all proposed wet-season work sites within one mile of Felder Creek and will include all suitable aquatic and upland habitats within 300 feet of these proposed work sites.

If CRLF are found nearby but outside the proposed work area, they will not be disturbed. Temporary construction fencing will be installed to mark the limits of any nearby work area(s) and to limit construction personnel and equipment to the designated work area. The location of the fencing will be determined by the biologist in coordination with the construction supervisor. In addition, if recommended by the biologist, a temporary silt-fence barrier will be installed to prevent CRLF from entering the work area(s) during project activities.

If CRLF are found within a work area prior to construction, the biologist, with prior authorization from the USFWS, will relocate the frogs out of harm's way. Immediately thereafter, a temporary silt-fence barrier will be installed to prevent CRLF from re-entering the work area.

If a CRLF is encountered during construction, project activities will cease in the area where the frog is found until the biologist, with prior authorization from the USFWS, relocates the frog out of harm's way and/or takes other appropriate steps previously authorized by the USFWS to protect the

animal. Work may resume once the biologist has determined that construction activities will not harm any CRLF and barrier fencing has been installed to prevent the animal from re-entering the work area. The USFWS will be contacted within 24 hours of the finding and informed of actions taken.

Impact 6.10. Impacts to Northwestern Pond Turtle.

Construction activities in the vicinity of streams or ponds occupied by northwestern pond turtle could harm individual turtles or temporarily affect their habitat. Pond turtles were observed in two ponds near segment 1, and could also be present in Rodgers Creek and other perennial water bodies in the project area. The occupied ponds are more than 1,000 feet from the transmission line route and will not be affected by project activities. The transmission line will span over Rodgers Creek, and other aquatic habitats where pond turtles could occur will be avoided. In addition, no construction activities will take place on or adjacent to the banks of Rodgers Creek where pond turtles could potentially nest. Implementation of the SWPPP and Mitigation Measure 6.3a (Wetlands and Aquatic Resources Protection Measures) will prevent any potential adverse effects on aquatic habitats that could support northwestern pond turtle. No additional mitigation is required.

Impact 6.11. Disturbance to Nesting Birds.

Project construction activities such as tree removal and trimming, grading of temporary work areas, improvement of access roads, operation of heavy equipment, installation and removal of poles, and conductor installation could disturb nesting birds, including raptors. If these activities occur near an active nest, they could result in nest abandonment or nest failure. If a helicopter is used for any phase of construction during the nesting season, helicopter operation, especially takeoff and landing, could also disturb nesting birds. Because raptors and most other nesting bird species are protected under the Federal Migratory Bird Treaty Act and the California Fish and Game Code, this impact is potentially significant.

Implementation of Mitigation Measure 6.11a (Limited Operating Period for Tree Removal and Trimming) and 6.11b (Pre-construction Nest Survey and Avoidance of Active Nests) will reduce this impact to a less than significant level.

Mitigation Measure 6.11a. Limited Operating Period for Tree Removal and Trimming. To the extent practicable, all tree removal and trimming required for the project, including for access road improvements, installation and removal of poles, and conductor installation, will be conducted during the non-nesting season, from September 1 to January 31. For any tree trimming or other potential nest-disturbing activities that will be conducted from February 1 to August 31, implement Mitigation Measure 6.11b.

Mitigation Measure 6.11b. Pre-construction Survey and Avoidance of Active Nests. Prior to any potential nest-disturbing activities during the period from February 1 to August 31, a qualified wildlife biologist will conduct a pre-construction survey for nesting birds. The survey will be conducted no more than one week prior to the start of work activities and will cover all affected areas including the transmission line route, staging areas, pull sites, and access road improvement areas where substantial ground disturbance or vegetation clearing is required. Additional pre-construction surveys will be conducted for each new phase of project implementation that occurs during the nesting season, for example, prior to road improvement and pole installation, and again prior to conductor installation. If any active nests are found, an appropriate nest exclusion zone will be established by the biologist. A buffer of 500 feet from the nest of a golden eagle, 300 feet from other raptor nests, and 50 to 100 feet from nests of non-raptors will serve as a guideline for exclusion zones, but may be modified on a site-specific basis as determined by the biologist.

To the extent practicable, no project vehicles, chain saws or heavy equipment will be operated within this exclusion zone until the nesting season is over or the biologist has determined that nesting is finished and the young have fledged. If it is not practicable to avoid work within an exclusion zone around an active nest, work activities modified to minimize disturbance of nesting birds may proceed within these zones. The biologist will monitor all work activities within these zones daily and assess their effect on the nesting birds. If the biologist determines that particular activities pose a high risk of disturbing an active nest, the biologist will recommend additional, feasible measures to minimize the risk of nest disturbance. If work activities are found to result in harm to nesting birds, destruction of an active nest, or nest abandonment prior to fledging, the biologist will report this to the CDFG and USFWS.

Impact 6.12. Disturbance to Bats.

Project construction activities at or adjacent to the Leveroni Road bridge over Sonoma Creek in segment 17 could disturb common or special-status bat species, including pallid bat and Yuma myotis, if they are present. Although bats have not been confirmed at this location, pallid bat and unidentified species have been documented approximately 0.8 mile downstream at the Watmaugh Road bridge. Noise and vibration associated with pole work could disturb and possibly displace roosting bats. This potential disturbance will be temporary and is not expected to cause direct harm to individual bats, because no work will be done on the bridge itself and there will be relatively little disturbance of the riparian habitat of Sonoma Creek. Some riparian vegetation will likely be removed or trimmed for replacement of pole 107, but these activities would be performed during the daytime when bats are roosting and not expected to be present in this vegetation. Replacement of pole 108 could temporarily disturb bats if they are roosting under the bridge; however, the new pole will be located approximately 15 feet farther from the creek and bridge than the existing pole, which will reduce the likelihood of this potential impact. The new transmission line will span the

creek and will therefore not affect any occupied or potential roosting habitat. This potential impact is less than significant. No mitigation is required.

6.4.3 Operation and Maintenance Impacts and Mitigation Measures

Impacts to biological resources that could result from operation and maintenance of the Lakeville and Sonoma substations and overhead transmission line are described in this section.

6.4.3.1 Substation Impacts

No significant impacts to vegetation or wildlife will occur from operation or maintenance of the Lakeville and Sonoma substations. No sensitive plant communities, special-status plants, or habitat for special-status wildlife exists at either of these sites.

6.4.3.2 Transmission Line Impacts

Impact 6.13. Operation and Maintenance Impacts to Special-status Species, Vegetation, and Wetlands.

Vegetation trimming and clearing is required in the vicinity of transmission lines and transmission poles during fire season. Clearing around wood poles will not affect special-status species populations or wetlands as long as maintenance crews avoid these areas. Tree trimming may affect some trees in riparian corridors. Tree ordinances of the County and City of Sonoma provide exemptions for tree trimming that is necessary to maintain public utilities (see section 6.2.2). These exemptions apply to tree trimming required during operation and maintenance of the proposed project. Impacts to special-status species or wetlands could occur if maintenance vehicles leave the established access roads and drive through streams, vernal pools or other wetlands. These impacts would be no more likely as a result of the proposed project than they are at present and, therefore, the project would result in no significant change to the existing environmental baseline. No mitigation is proposed.

Impact 6.14. Spread of the Sudden Oak Death Pathogen.

See Impact 6.6 for a discussion of this impact and apply Mitigation Measure 6.6.

Impact 6.15. Operation Impacts to Raptors and Other Birds.

Operation of the new transmission line could pose a collision or electrocution risk to birds, particularly larger species such as raptors. While there is potential for birds to collide with the new transmission line, the risk is relatively low and is not expected to be appreciably greater than with the existing line. There are no major bird migration routes in the project area, and the placement and configuration of the line are not substantially different from the existing line. A double-circuit

line is proposed to replace the existing single-circuit line, which would increase the number and cross-sectional area of conductors intersecting potential bird flight paths. However, the new line will have higher ground clearance and will likely have greater visibility than the existing line, which would tend to reduce collision risks. Overall, these effects are expected to offset each other and result in no additional collision risk to birds.

The extended wings of large birds could potentially span the distance between energized phase conductors or from energized components to grounded objects such as transmission line poles or other second points of contact. To prevent electrocutions due to wing contact with two phases, the Avian Power Line Interaction Committee (APLIC) recommends that a minimum of 60 inches of separation be maintained between conductor phases (APLIC 1996). The project's design would provide 120 inches of conductor phase separation where Gull cross arms are used and 102 inches where post insulators are used. This substantially exceeds the APLIC recommendation and should eliminate the possibility of electrocutions from this cause. In addition, distribution protection measures such as perch deterrents and line covers will be implemented where there is distribution under-build on the new poles.

Overall, implementation of these measures for the new double-circuit line is expected to result in fewer bird electrocutions than the existing single-circuit Lakeville-Sonoma 115 kV line. The reduced risk of electrocution will be a beneficial impact of the project and no additional impacts are expected due to collision. No further mitigation is required.

Impact 6.16. Maintenance Impacts to Nesting Birds.

Maintenance activities such as vegetation trimming and line repairs could affect nesting birds if these activities occur during the nesting season. PG&E operating standards specify that, unless an active nest presents an immediate safety or operating hazard, it shall be left undisturbed. For situations where an active nest presents an immediate hazard, before disturbing this nest, the PG&E Bird Protection Program Manager or Terrestrial Biology Supervisor will be contacted to obtain necessary permission from the USFWS Migratory Bird Permit Office. If nest removal or relocation is necessary before permission can be obtained, appropriate action will be taken to correct the safety or operating hazard and the PG&E Bird Protection Program Manager or Terrestrial Biology Supervisor will be notified within 72 hours. Implementation of these measures will reduce this impact to a less than significant level. No further mitigation is required.

6.5 REFERENCES

6.5.1 Literature Cited

APLIC (Avian Power Line Interaction Committee). 1996. Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 1996. Edison Electric Institute and the Raptor Research Foundation. Washington, D.C.

Best, C., J. T. Howell, W. Knight, I. Knight and M. Wells. 1996. *A Flora of Sonoma County*. California Native Plant Society. Sacramento, CA.

Burridge, B. (ed.) 1995. Sonoma County Breeding Bird Atlas. Madrone Audubon Society. Santa Rosa, CA.

CalFlora: Information on California plants for education, research, conservation. 2002 and 2003. Berkeley, CA. The CalFlora Database. Available at: http://www.calflora.org/

California Burrowing Owl Consortium (CBOC). 1993. Burrowing owl survey protocol and mitigation guidelines. The Santa Cruz Predatory Bird Research Group. University of California, Santa Cruz. April. Available at: http://www2.ucsc.edu/scpbrg/survey.htm

CDFG (California Department of Fish and Game). 1997. Survey protocol for California tiger salamander (*Ambystoma californiense*). Inland Fisheries - Informational Leaflet No. 44. Sacramento, CA. September.

CDFG. 2000. Guidelines for assessing the effects of proposed projects on rare, threatened, and endangered plants and natural communities. Sacramento, CA. Revised May 8.

CDFG. 2002a. Natural Diversity Database (RareFind 2; CNDDB). Electronic database. Sacramento, CA. August.

CDFG. 2002b. California Wildlife Habitat Relationships System. Electronic database, version 8.0. California Interagency Wildlife Task Group. Sacramento, CA.

CDFG. 2003a. Special Vascular Plants, Bryophytes, and Lichens List. Natural Diversity Database. October 2003. Quarterly publication, Mimeo. Sacramento, CA.

CDFG. 2004. Natural Diversity Database (RareFind 3; CNDDB). Electronic database. Sacramento, CA. August.

California Department of Food and Agriculture (CDFA). 2003. List of noxious weeds. Sacramento, CA.

California Exotic Pest Plant Council. 1999. Exotic pest plants of greatest ecological concern in California. Unpublished list. Sacramento, CA.

California Oak Mortality Task Force. 2004. About sudden oak death. Available at: www.suddenoakdeath.org

CH2M Hill. 1995. Phase I final report. Santa Rosa Plain vernal pool ecosystem preservation plan. Prepared for the Santa Rosa Plain Vernal Pool Task Force. Oakland, CA. June.

Elzinga, C.L., D.W. Salzer, and J.W. Willoughby. No date. Measuring and monitoring plant populations. Bureau of Land Management Technical Reference 1730-1. BLM/RS/ST-98/005+1730.

GANDA (Garcia and Associates). 2004a. Special-status plant surveys for the PG&E Lakeville-Sonoma 115 kV Transmission Line Project, proposed route and alternatives, Sonoma County, California, Preliminary draft. Prepared for PG&E. San Anselmo, CA. June.

GANDA. 2004b. California red-legged frog habitat assessment and protocol surveys for the Lakeville-Sonoma 115 kV Transmission Line Project, Revised final report. Prepared for PG&E. San Anselmo, CA. July.

GANDA. 2004c. California tiger salamander habitat assessment and nocturnal terrestrial surveys for the Lakeville-Sonoma 115 kV Transmission Line Project, Draft report. Prepared for PG&E. San Anselmo, CA. June.

GANDA. 2004d. Western burrowing owl surveys for the Lakeville-Sonoma 115 kV Transmission Line Project, Draft report. Prepared for PG&E. San Anselmo, CA. June.

Hickman, J. C. (ed.) 1993. *The Jepson Manual: Higher Plants of California*. University of California Press, Berkeley.

Holland, R.F. 1986. Preliminary descriptions of the terrestrial natural communities of California. California Department of Fish and Game. Unpublished report. Sacramento, CA.

Howald, A.M. 2000. Vascular plant list for Bartholomew Park, Sonoma, Sonoma County. Unpublished list.

Howald, A.M. 2002. Vascular plant list for the Van Hoosear Wildflower Preserve, Sonoma, Sonoma County. Unpublished list.

Jennings, M.R. and M.P. Hayes. 1994. Amphibian and reptile species of special concern in California. California Department of Fish and Game. Sacramento, CA.

Kaufman, K. 1996. *Lives of North American Birds*. Houghton Mifflin Company, New York.

Moyle, P.B. 2002. *Inland Fishes of California, Revised and Expanded*. University of California Press, Berkeley.

Munz, P.A. and D.D. Keck. 1968. *A California Flora*. University of California Press, Berkeley.

National Marine Fisheries Service (NMFS). 1999. Designated critical habitat: Proposed critical habitat for nine evolutionarily significant units of steelhead in Washington, Oregon, Idaho, and California. Federal Register 64 (24):5740-5754.

Reed. P.B. 1988. National List of Plant Species that Occur in Wetlands: California (Region 0). U.S. Fish and Wildlife Service Biological Report 88 (26.10).

Sawyer, J.O. and T. Keeler-Wolf. 1995. *A Manual of California Vegetation*. California Native Plant Society. Sacramento, CA.

Seymour, R. and M. Westphal. 1995. Final report on 1995 surveys for California tiger salamanders *Ambystoma californiense*. USFWS. Sacramento, CA.

Sonoma County. 1998. Sonoma County General Plan. Third Revision to Reflect Amendments and Corrections as of December 31, 1998. Permit and Resource Management Department. Available at: http://www.sonoma-county.org/prmd/docs/gp/98gp-01.htm

Storer, T.I. 1925. A synopsis of the amphibia of California. University of California Publications in Zoology 27:1-342.

Tibor, D.P. (ed.) 2001. *Inventory of Rare and Endangered Plants of California* (sixth edition). California Native Plant Society. Sacramento, CA.

U.S. Army Corps of Engineers. 1987. Corps of Engineers Wetlands Delineation Manual. Wetlands Research Program Technical Report Y-87-1. Environmental Laboratory, Vicksburg, MS. January.

USDA (U.S. Department of Agriculture). 1972. Soil Survey of Sonoma County, California. Soil Conservation Service. Sacramento, CA.

USFWS (U.S. Fish and Wildlife Service). 1996a. Guidelines for conducting and reporting botanical inventories for Federally listed, proposed, and candidate plants. September.

USFWS. 1996b. Endangered and threatened wildlife and plants; determination of threatened status for the California red-legged frog. Federal Register 61 (101) 25813-25833.

USFWS. 1997. Guidance on site assessment and field surveys for California red-legged frogs. Sacramento, CA. February.

USFWS. 2001. Endangered and threatened wildlife and plants; final determination of critical habitat for the California red-legged frog; Final rule. Federal Register 66 (49):14626-14674.

USFWS. 2002a. List of federal candidates for listing. Available at: http://ecos.fws.gov/tess_public/TESSWebpage.

USFWS. 2002b. Recovery plan for the California red-legged frog (*Rana aurora draytonii*). U.S. Fish and Wildlife Service, Portland OR.

USFWS. 2003a. List of federal species of concern. Sacramento Fish and Wildlife Office.

USFWS. 2003b. Endangered and threatened wildlife and plants; determination of endangered status for the Sonoma County Distinct Population Segment of the California tiger salamander; Final rule. Federal Register 68 (53):13497-13520. March 19.

USFWS. 2004a. Sacramento Fish and Wildlife Office, Endangered Species Program, endangered and threatened species list website. Available at: http://sacramento.fws.gov/es/spp_list.htm. List updated March 1.

USFWS. 2004b. Endangered and threatened wildlife and plants; proposed designation of critical habitat for the California red-legged frog (*Rana aurora draytonii*); Proposed rule. Federal Register 69 (71):19619-19642.

USFWS. 2004c. Endangered and threatened wildlife and plants; determination of threatened status for the California tiger salamander; and special rule exemption for existing routine ranching activities; final rule. Federal Register 69 (149): 47211-47248.

USFWS. No date. Sacramento Fish and Wildlife Office, Endangered Species Program, endangered species accounts website. Available at: http://sacramento.fws.gov/es/animal_spp_acct/linderiella.htm.

USFWS and CDFG 2003. Interim guidance on conducting site assessments and field surveys for determining presence or a negative finding of the California tiger salamander. Sacramento, CA. October.

Wang, J.C.S. 1986. Fishes of the Sacramento-San Joaquin estuary and adjacent waters, California: a guide to the early life histories. Technical Report 9. Prepared for the Interagency Ecological Study Program for the Sacramento-San Joaquin Estuary Berkeley Digital Library. Available at: http://elib.cs.berkeley.edu/kopec/tr9/

6.5.2 Personal Communications

Bill Cox, CDFG Fishery Biologist. Telephone conversation with Rob Gilman, Garcia and Associates. January 30, 2004.

Cree Morgan, Agricultural Biologist, Sonoma County Agricultural Commissioner's Office. Telephone conversation with Ann Howald, Garcia and Associates. January 22, 2004.

Will Pier, Biologist, The Sonoma Ecology Center, Watershed Station. Telephone conversation with Dan Clemens, Garcia and Associates. March 16, 2004.

Susannah Schroll, local resident. Telephone conversation with Cynthia Kayser, Garcia and Associates. December 18, 2002

This page intentionally left blank.