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March 31, 2010

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Mr. Craig Hoffman
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California Energy Commission
1516 Ninth Street, MS 15
Sacramento, CA 95814-5512

Subject: Mariposa Energy Project (09-AFC-03)
Data Response Set 1D, Responses to CEC Staff
Data Request 56

Dear Mr. Hoffman:

Attached please find 13 hard copies and one electronic copy on CD-ROM of the Mariposa Energy Project's Data Response Set 1D. This data response is supplementary to the responses provided in the November 30, 2009, document Mariposa Energy Project (MEP) (09-AFC-03) Data Response Sets 1A and 1B, Responses to CEC Staff Data Requests 1 through 68. This supplemental response provides additional information that was not yet available for the November 30 filing.

If you have any questions about this matter, please contact me at (916) 286-0348.

Sincerely,

CH2M HILL

Doug Urry
AFC Project Manager

Attachment

cc: B. Buchynsky, Mariposa Energy, LLC.

APPLICATION FOR CERTIFICATION
DATA RESPONSES, SET 1D
TRANSMISSION LINE RECONDUCTORING ANALYSIS
(RESPONSE TO DATA REQUEST 56)

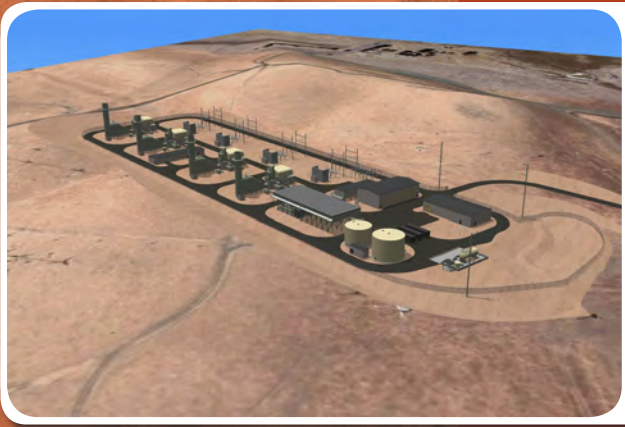
SUBMITTED TO THE

California Energy Commission

FOR THE

Mariposa Energy Project

(09-AFC-03)



SUBMITTED BY

Mariposa Energy, LLC

TECHNICAL ASSISTANCE BY

CH2MHILL

MARCH 2010

EY012009005SAC

Data Responses, Set 1D

Transmission Line Reconductoring Analysis

(Response to Data Request 56)

In support of the

Application for Certification

for the

Mariposa Energy Project

(09-AFC-03)

Submitted to the

California Energy Commission

March 2010

Prepared by

Mariposa Energy, LLC

With technical assistance by

CH2MHILL

Sacramento, CA

Contents

Section **Page**

1. Introduction and Purpose 1-1

2. Project Description 2-1
2.1 Project Location 2-1
2.2 Construction Methods 2-1
2.3 Typical Mitigation Measures 2-3

3. Environmental Impacts and Mitigation Measures 3-1
3.1 Air Quality 3-1
3.2 Biological Resources 3-1
3.2.1 Impact Minimization Measures 3-3
3.2.2 Conclusions 3-4
3.3 Cultural Resources 3-4
3.4 Geologic Resources and Hazards 3-5
3.4.1 Construction Phase Impacts 3-6
3.5 Hazardous Materials Management 3-7
3.6 Land Use 3-7
3.7 Noise and Vibration 3-8
3.8 Paleontology 3-8
3.9 Public Health 3-9
3.10 Socioeconomics 3-9
3.11 Soils 3-9
3.12 Traffic and Transportation 3-15
3.13 Visual Resources 3-16
3.14 Waste Management 3-16
3.15 Water Resources 3-17
3.16 Worker Safety and Fire Protection 3-17

4. References 4-1

Appendixes

A Supplemental Biological Resources Evaluation
B Supplemental Cultural Resources Assessment

Tables

3-1 Special-status Animals with Moderate or High Potential to Occur within the Project Corridor

3-2 Soil Mapping Unit Descriptions and Characteristics

Figures

1-1 Transmission Line Reconductoring Corridor
1-2 Transmission Line Reconductoring Corridor
1-3 Transmission Line Reconductoring Corridor
1-4 Transmission Line Reconductoring Corridor
1-5 Transmission Line Reconductoring Corridor
1-6 Transmission Line Reconductoring Corridor
1-7 Transmission Line Reconductoring Corridor
1-8 Transmission Line Reconductoring Corridor
1-9 Transmission Line Reconductoring Corridor
1-10 Transmission Line Reconductoring Corridor
1-11 Transmission Line Reconductoring Corridor
1-12 Transmission Line Reconductoring Corridor
1-13 Transmission Line Reconductoring Corridor
1-14 Transmission Line Reconductoring Corridor
1-15 Transmission Line Reconductoring Corridor
1-16 Transmission Line Reconductoring Corridor
1-17 Transmission Line Reconductoring Corridor
1-18 Transmission Line Reconductoring Corridor
1-19 Transmission Line Reconductoring Corridor
1-20 Transmission Line Reconductoring Corridor

3-1 Special-status Species Recorded within Five Miles
3-2 Special-status Species Recorded within 100 Feet
3-3 Special-status Species Recorded within 100 Feet
3-4 Geology within 2 Miles of the Site
3-5 General Plan Designations
3-6 General Plan Designations
3-7 Soil Types
3-8 Soil Types

SECTION 1

Introduction and Purpose

Prior to preparing and filing the Application for Certification (AFC) for the Mariposa Energy Project (MEP) (09-AFC-03) with the California Energy Commission (CEC), Diamond Generating Corporation, parent company of Mariposa Energy, LLC, submitted an Interconnection request to the California Independent System Operator (CAISO) for interconnecting to the CAISO-controlled grid. CAISO and Pacific Gas and Electric Company (PG&E) subsequently completed a Phase 1 Interconnection Study (CAISO, 2009) to determine the impact of the MEP on the CAISO Controlled Grid. Under the Federal Energy Regulatory Commission (FERC) -approved Large Generator Interconnection Procedures, interconnection requests are processed together in clusters. A total of 12 proposed projects were grouped together in Transition Cluster Group 1, including MEP.

The Group 1 Phase 1 Interconnection Study identified a large number of new potential overloads on the downstream transmission facilities due to the addition of the 12 projects. In order to eliminate the identified overloads, preferred mitigation options identified in the study include reconductoring of the overloaded lines with higher-size conductors and constructing a new 230 kV switching station with three switch bays.

The AFC included analysis of the potential environmental effects of the MEP up to the first point of interconnection with the electrical transmission system at the PG&E Kelso Substation. In Data Request 56, CEC Staff initially requested that Mariposa Energy perform environmental analysis for all of the proposed upgrades to comply with the California Environmental Quality Act (CEQA) requirements for modification of these downstream facilities as potential indirect impacts of the proposed Group 1 interconnection projects. Mariposa Energy proposed (and Staff concurred) that this general environmental analysis should be performed for those upgrades for which MEP has significant cost responsibility, which include the following:

- Reconductor 3.3 miles of the Kelso-USWP RLF section of the Kelso-Tesla 230 kV line with 1113 Kcmil ACSS or equivalent.
- Reconductor 4.7 miles of the USWP RLF-Tesla section of the Kelso-Tesla 230 kV line with 1113 Kcmil ACSS or equivalent.

These two transmission line segments are shown in Figures 1-1 through 1-20.

The reconductoring project (Project) would involve replacing the conductors on one or more transmission line segments with new conductors that would increase current-carrying capacity of the segment without increasing the weight or size of the cable. At this time, it is anticipated that reconductoring would not involve modifying any transmission line towers.

This analysis describes the process of reconductoring and the types of environmental impacts that might occur as a result of reconductoring. This study discusses some specific aspects of the Project, such as its location. Project-specific details regarding the locations of the pull and tensioning sites and staging areas, and the specific techniques that would be

used for each span, however, would not be available until the reconductoring project is designed. The Project, if implemented, could be accomplished with no significant environmental impacts, if appropriate mitigation measures are applied.

SECTION 2

Project Description

This section identifies the specific transmission line segments that may be reconductored and provides an overview of the reconductoring process on a general level. A basic description of the work involved in reconductoring a transmission line segment, as well as specific designs (if known) for the reconductoring project.

2.1 Project Location

Construction of the MEP may require PG&E to reconductor two segments within their transmission system, as shown in Figures 1-1 through 1-20. The two segments are the Kelso–Tesla 230-kV line (Kelso–USWP RLF), which is referred to as Segment A (shown on Figures 1-1 through 1-8), and is approximately 3.3 miles long, and the Kelso–Tesla 230-kV line (USWP RLF–Tesla), which is referred to as Segment B (shown on Figures 1-9 through 1-20), and is approximately 4.7 miles long. The total length of the lines to be reconductored is approximately 8 miles. The lines would be reconductored with 1113 ACSS or equivalent.

The Kelso-Tesla transmission line consists of a single 230-kV circuit with three conductors mounted on the existing lattice towers in the existing right-of-way. Segment A begins at the Kelso Substation, then travels west for approximately 200 feet to Bruns Road, continuing south for approximately 4,000 feet to Christensen Road, and then continues west along Christensen Road for approximately 6,000 feet. The line continues approximately 8,000 feet south to the USWP RLF Substation. Segment A then meets with Segment B, which continues cross country for 4.7 miles southeast to the Tesla Substation, crossing Interstate 580 (I-580) (shown in Figure 1-14). The Project includes a total of 39 existing towers. Tower modifications and excavation work near the towers are not anticipated at this time.

The area surrounding the Project corridor is primarily undeveloped, with few industrial structures located within 500 feet of the transmission line. The nearest residences are located approximately 1,500 feet from the Project. The entire study area has been significantly disturbed by vegetation-management practices beneath the existing transmission line, construction of access roads, and onsite cattle grazing.

2.2 Construction Methods

In general, reconductoring is accomplished by disconnecting the old conductor and using it like a rope to pull the new conductor through the temporary pulleys, called “travelers” or “sheave blocks,” that are mounted on each tower, until it reaches the other end. Workers would access each tower by truck, then climb the tower or use a truck-mounted aerial bucket to access the tower in order to place the temporary pulleys on each tower and route the conductor through the travelers. If the old conductor is not in good enough condition to be used to pull in the new line, it would be used to pull a carrier cable, or “sock line,”

through the pulleys to the end of the segment to be replaced; the sock line would then be used to pull in the new conductors.

The work would involve setting up two work crews on each end of the segment that is being replaced. Each crew would consist of two tractor/trailer units, which either feed out the new line or wind in the old line on spools mounted on the trailers, and two or three utility trucks carrying tools, other materials, and workers, for a total of six to eight trucks and about 20 workers. One crew would set up at a "pull site" near a tower at one end of the pull, and the other at a "tensioning site" near a tower at the other end of the pull. The tensioning crew would employ a special tensioner truck, which is essentially a large drum winch that is used to put back tension on the conductor being pulled. Each pull generally is limited to 2 to 3 miles.

The tensioning site crew would either climb or use a truck-mounted aerial bucket to access the tower, disconnect the old conductors, and attach them through the tensioner truck to the new conductor on spools on the large trucks. The pull site crew would also climb their tower, disconnect the conductors, and attach them to the spools in the large trucks below the tower. During this time, other crews would set up temporary structures across roads and other potentially inhabited areas to protect those areas in the unlikely event that a conductor breaks and falls to the ground.

Once all protective structures are in place and the pull and tensioning sites are ready, the pull crew would carefully wind the old conductors onto spools on the trucks, pulling the new conductors through the pulleys on the towers along the segment being replaced. The tensioning crew would keep the conductors taught, preventing them from sagging to the ground or other objects in the right-of-way. Once the new conductors are in place, the crews would access each tower, disconnect the new lines from the pulleys and install them permanently to the insulator strings.

The crews usually pull the new conductors through one or more miles of transmission towers at a time, depending on the length of conductor on the reels, and availability of suitable set-up locations. Because the potential for environmental impact is generally nonexistent between the pull and tensioning sites, this analysis focuses on examining potential effects at the pulling and tensioning sites, as well as other locations that could be disturbed by truck movement. Activities between the pull and tensioning sites are generally restricted to:

- Accessing the towers (either by climbing or using a truck-mounted aerial bucket) to place the pulleys and to remove the conductor from the pulleys and refasten it once stringing is completed; and
- Work on the tower structure to repair or replace spars that are damaged, or to replace insulators.

Although determining precisely where the pull and tensioning sites would be located is not possible, they would generally be sited at "angle" towers, which are located where the line makes a change in direction of more than 10 degrees. Pulling the old conductors and reeling out the new conductors is easier at these locations because the pulling and tensioning equipment can be arranged in line with the transmission line. Conversely, the crews try to avoid pulling the line through one or more angle towers because the conductors cannot be

efficiently pulled through such an angle. Pulling and tensioning can also take place at "dead-end" sites, which are towers where the transmission line is physically connected to the tower rather than merely passing through the insulator clamps. In general, they are located where one spool of conductor is spliced to the next spool. Dead-end sites are generally located at angle towers, but also can be located at towers that are in-line with the route, rather than at an angle to the route. Dead-end towers have significant structural strength and resist the forces of pulling.

The work crews would likely have a great deal of flexibility in choosing the locations of the pull and tension sites, as it may be possible to pull through the angles on some of these towers (less than 30 degrees). Because of the flexibility in locating work sites, crews can generally select sites that either avoid creating impacts altogether, or create less-than-significant impacts with certain mitigation measures enacted.

Throughout the reconductoring project, temporary staging areas would be required for equipment and materials storage. The reconductoring project would require two or three staging yards, each about one acre in size, located near each end of the transmission line segments. Although it is not known at this time where the stage areas would be located, it is likely they would be located at existing storage areas near or at the substations during the construction period.

2.3 Typical Mitigation Measures

Reasonable measures would be taken to reduce impacts to the environment. Vegetation clearing and trimming would be kept to the minimum necessary for safe construction, operation, and maintenance of the line. Dragging and whipping of conductors and sock lines would be avoided to further minimize vegetation and ground disturbance. Use of materials labeled as potential pollutants would be minimized to the extent practicable. Where possible, use of potential pollutants that could ooze, drip, flake, or crumble would be avoided in and around wetland areas.

SECTION 3

Environmental Impacts and Mitigation Measures

An analysis of each of the environmental areas included in the MEP AFC is presented below. Additionally, applicable laws, ordinances, regulations, and standards (LORS) have been reviewed to determine the Project's consistency with applicable LORS.

3.1 Air Quality

The Project would require replacement of approximately 8 miles of transmission line. However, because the reconductoring activities would not require additional grading or the replacement of the existing transmission poles, the reconductoring activities are not expected to significantly increase the criteria pollutants associated with the number of workers, the number of pieces of equipment, or the number of deliveries required for construction of MEP. Therefore, the reconductoring activities are not expected to result in air quality impacts greater than those analyzed in the AFC, and would comply with applicable LORS.

3.2 Biological Resources

The northern end of the Project corridor is at the Kelso Substation, approximately 1 mile northeast of the Bethany Reservoir and Department of Water Resources (DWR) South Bay Pumping Plant. The southern end of the Project is at the Tesla Substation, approximately 10 miles east of Livermore and 8 miles west of Tracy. The entire Project is within annual grassland habitat, interspersed with aquatic features, and developments including an abandoned golf course near Altamont Pass Road. A large wind farm is located along the Project corridor between Bethany Reservoir and I-580.

Near the Kelso Substation at the north end of the Project, agricultural land use is prevalent, but the majority of the alignment runs through grazed annual grassland, undeveloped except for the Altamont Pass Wind Resource Area and a few small rural housing areas. Cattle grazing is common throughout the entire Project corridor.

As described in the Supplemental Biological Resources Evaluation provided as Appendix A, a review of aerial photographs as seen in Google Earth™ and a field survey were conducted along the length of the Project corridor. Additionally, research of known and potential species occurrences was conducted using online databases of special-status plant and wildlife species. The species considered were obtained from a search of the California Natural Diversity Database (CNDDB), the species list provided by the Sacramento Fish and Wildlife office of the U.S. Fish and Wildlife Service (USFWS), and a search of the California Native Plant Society online database.

Vegetation community types identified during a reconnaissance-level survey include annual grassland, potential waters of the U.S. (including wetlands), disturbed ruderal, and low-density rural housing and industrial developments. Additionally, freshwater seasonal wetlands are found in many of the roadside ditches and irrigation ditches within the Project corridor. More detail regarding each of these community types is provided in Appendix A.

Grasslands and ruderal habitats can support a variety of small mammals and provide important foraging and nesting habitat for raptors and other bird species. Birds commonly found foraging in grasslands include red-tailed hawk (*Buteo jamaicensis*), Swainson's hawk (*Buteo swainsoni*), loggerhead shrike (*Lanius ludovicianus*), golden eagle (*Aquila chrysaetos*), northern harrier (*Circus cyaneus*), white-tailed kite (*Elanus leucurus*), and California horned lark (*Eremophila alpestris actia*). Grasslands and ruderal habitats within the project vicinity provide foraging area for other bird species with a low likelihood of occurrence. Ground nesting birds include western meadowlark (*Sturnella neglecta*) and the western burrowing owl (*Athene cunicularia*), a species that nests in small mammal burrows. Common mammals include black-tailed jackrabbit (*Lepus californicus*), California ground squirrel (*Spermophilus beecheyi*), Botta's pocket gopher (*Thomomys bottae*), and California vole (*Microtus Californiacus*). The San Joaquin pocket mouse (*Perognathus inornatus inornatus*) inhabits grasslands in the project vicinity. Finally, rodent burrows in grassland and ruderal habitats provide essential upland refuge sites (e.g., hibernacula) for amphibians and reptiles, including the California tiger salamander (*Ambystoma californiense*). Additional detail regarding these mammals and bird species is provided in Appendix A.

Sixteen special-status animals (as shown in Table 3-1) have a moderate or high potential to occur within the Project corridor. A summary of special-status plants and wildlife researched for this analysis is provided in Appendix A.

TABLE 3-1
Special-status Animals with Moderate or High Potential to Occur within the Project Corridor

Vernal pool fairy shrimp (*Branchinecta lynchi*)	Swainson's hawk (*Buteo swainsoni*)
Mid-valley fairy shrimp (*Branchinecta mesovallensis*)	Northern harrier (*Circus cyaneus*)
California linderiella (*Linderiella californiensis*)	Western burrowing owl (*Athene cunicularia*)
Curved-foot hygrotus diving beetle (*Hygrotus curvipes*)	Loggerhead shrike (*Lanius ludovicianus*)
California red-legged frog (*Rana aurora draytonii*)	California horned lark (*Eremophila alpestris actia*)
California tiger salamander (*Ambystoma californiense*)	Tricolored blackbird (*Agelaius tricolor*)
Western pond turtle (*Actinemys marmorata*)	San Joaquin kit fox (*Vulpes macrotis mutica*)
Golden eagle (*Aquila chrysaetos*)	American badger (*Taxidea taxus*)

Figure 3-1 shows known CNDDB occurrences of special-status species within 5 miles of the Project corridor. Figures 3-3 and 3-3 show the known CNDDB occurrences of special-status species within 100 feet of the Project. Most of these species are associated with upland grassland habitats, and a few with wetland habitats. The Project corridor also falls within the proposed revised critical habitat for the California red-legged frog (Critical Habitat Unit CCS-2). The Project also falls within designated critical habitat for several anadromous fish

species, but none of these species occurs in any of the waters in the Project vicinity. The special-status plant species known or that could potentially occur within the Project area are associated with vernal pool or valley foothill grassland habitats. Surveys for special status plants would need to be conducted during the appropriate growing seasons.

The Project corridor has the potential to support special-status species habitats and other areas of potential biological sensitivity. The following special-status species therefore likely pose the most significant potential constraints on the proposed project:

- Vernal pool fairy shrimp
- Western burrowing owl
- California red-legged frog
- California tiger salamander
- San Joaquin kit fox
- Rare plants

Reconductoring construction activities would be temporary and of short duration, and the Project site would be restored to preconstruction conditions; therefore, the Project would not result in any permanent habitat loss. Typically during reconductoring, temporary effects include the work activities at existing towers, staging and storage of equipment and supplies in staging areas, and overland travel to access segments of the transmission line lacking established roads. Any type of ground disturbance related to the Project would likely require formal consultation with the USFWS and California Department of Fish and Game (CDFG) regarding the special-status species, as described in detail in Appendix A.

3.2.1 Impact Minimization Measures

Similar to the mitigation measures provided in the AFC, avoidance and minimization measures (AMM) must be incorporated into the Project design and schedule if a determination is made that special-status species could be adversely affected during project implementation. AMMs would also apply to mitigate project effects on wildlife habitat and movement corridors and to natural communities, including wetlands and riparian corridors. Typically, consultation with the regulating agencies includes negotiations regarding alternatives and methods to avoid and/or minimize any adverse effects on special-status species, should those species or their habitats be found within the project area. Therefore, the Project may be required to implement the following types of mitigation measures:

- Preconstruction nesting bird surveys
- Special-status species preconstruction surveys
- Onsite biological monitor
- Equipment fueling, maintenance and staging controls
- Minimal ground disturbance and revegetation
- Establish environmentally sensitive areas (ESAs)
- Sediment control
- Worker environmental awareness training
- Construction activities conducted during dry summer months
- Trash and debris control
- Pet control

Additional detail for each of these mitigation measures is provided in Appendix A.

3.2.2 Conclusions

The potential impacts to sensitive biological resources from the proposed reconductored project may be reduced through careful planning of the construction schedule and placement of temporary work areas. Protocol-level surveys are recommended to identify sensitive habitats and special-status species; the discrete work areas along the transmission line corridor may then be specifically sited to avoid local sensitive biological resources to the extent practicable. The nature of the proposed project corridor would allow most of the work to occur using existing power line access roads. No permanent effects on any sensitive species have been identified at this time.

Potential biological impacts or constraints are expected to be encountered during the construction period, when species such as the San Joaquin kit fox, California red-legged frog, and California tiger salamander could be affected by Project construction. Although state or federally listed species could occur along the Project corridor, careful planning and implementation of AMMs would mitigate potential impacts to these resources.

3.3 Cultural Resources

As described in the Cultural Resources Study provided as Appendix B, the Project would use the existing steel lattice towers of the Kelso-Tesla transmission line stretching approximately 8 miles, generally north to south, in the northeast corner of Alameda County, California. The route commences approximately 2 miles north of Bethany Reservoir the Kelso Substation and proceeds south overland to a point approximately 3 miles south of the I-580 freeway to terminate at the existing Tesla Substation.

An archaeological pedestrian field survey of the Project route was performed over the period of January 18–20, 2010 by a survey crew. A project area corridor 200 feet (60 meters) wide, 100 feet (30 meters) on either side perpendicular to the centerline, was examined by pedestrian survey and evaluated for the presence of significant cultural resources. The results of this evaluation are presented in Appendix B.

In November 2009, a literature search was commission from the staff of the Northwest Information Center (Alameda County), using a research area defined by a one-quarter mile buffer zone around the transmission line project area. The record search indicated that one previously recorded resource exists in the immediate survey corridor, with three more outside the project area but within the buffer. Additional information regarding each of these resources is provided in Appendix B.

Resources in Project Area (200-foot corridor, 100 feet from centerline)

- P-01-010947/P-07-002956: Pittsburg-Tesla Transmission Line [Historic]

Resources in Project Buffer (0.5 mile corridor, 0.25 miles from centerline)

- P-01-000163: Ranch complex and related debris [Historic]
- P-01-010499: Vaca Dixon-Tesla and Table Mountain-Tesla transmission lines [Historic]
- P-01-010614: Midway Road segment [Historic]

The literature search and pedestrian survey revealed no significant prehistoric or historic resources located within the immediate Project area of potential effect. The Project would not have an adverse effect on significant historical or archaeological sites (i.e. those eligible for listing in the National Register of Historic Places or California Register of Historic Resources). Further, there are no known cemeteries or other subsurface cultural elements in the project area that might be disturbed by Project construction.

It is highly unlikely, due to the lack of any significant cultural resources in the Project area and the minimal degree of disturbance likely to result from the reconductoring of the transmission line, that disturbance to significant cultural resources would result. Nevertheless, although significant archaeological and historical sites were not found during the survey, it is theoretically possible that minor ground disturbance related to construction could encounter buried archaeological elements. For this reason, the Project should include measures to mitigate any potential resultant adverse impacts if buried cultural resources are discovered. The following mitigation measures are adequate to protect cultural resources along the Project route:

- Implementation of a construction worker cultural resources training program
- Procedures for halting construction in the event of inadvertent discovery of surface or subsurface archaeological deposits or subsurface human remains
- Procedures for evaluation of any inadvertent archaeological discovery
- Procedures to mitigate adverse impacts on any inadvertent archaeological discovery determined to be significant

With the use of appropriate mitigation measures, the Project would not result in potential significant impacts and would comply with applicable LORS. Therefore, any potential cultural resource impacts would be less than significant.

3.4 Geologic Resources and Hazards

The project area is located in northeastern Alameda County, California, near the western edge of the San Joaquin Valley and near the border of the Coast Ranges and the Great Valley geomorphic provinces. The Coast Ranges are a series of valleys and mountains along the west coast of California that extend from Oregon to the Santa Ynez River near Santa Barbara. The Great Valley is a 400-mile-long, northwest-southeast-trending structural basin that extends along the center of the state from the Klamath Range in the north to the Tehachapi Mountains in the south. The Project transmission line corridor is underlain by Quaternary alluvial and bedrock deposits.

The geology of the Project area is complex, largely a result of the interaction of the strike-slip tectonics of the San Joaquin fault system and the compressional tectonics of the Coast Ranges. The Coast Ranges are composed of several parallel longitudinal ranges that trend northwest. These ranges have resulted from the folding and faulting of intra-basin sediments during Miocene to Pleistocene periods. The Diablo Range, west of the Project area, is an assemblage of anticlinal folds composed largely of Cretaceous-Jurassic age Franciscan Formation marine sedimentary rocks. Few streams flow easterly from the

Diablo Range and drainage tends to be rapid and intermittent. These conditions favor the formation of alluvial fans (Norris and Webb, 1990).

The local geology is alluvial fan deposits of Holocene age underlain by semi-consolidated to consolidated deposits of Cretaceous to Pleistocene age. Figure 3-4 identifies the geology within a 2-mile radius of the transmission line. The structure and stratigraphy of the local area are discussed further in Section 5.4, Geologic Hazards and Resources, of the AFC.

The Project area has experienced seismic activity with strong ground motion during past earthquakes, and it is likely that strong earthquakes causing seismic shaking will occur in the future. The significant geologic hazard in the Project area is strong ground shaking from an earthquake. Ground shaking from a magnitude 6.0 earthquake or greater could occur from earthquakes within a 100-mile radius of the Project area (Blake, 2004).

A probabilistic site hazard analysis was conducted for the project site based on information obtained from the U.S. Geological Survey (USGS) seismic hazard website. As presented in the geotechnical report for the MEP, an analysis was performed for a 2,475-year recurrence interval or 2 percent probability of exceedance in 50 years. The 2 percent probability of exceedance in 50 years is considered the maximum credible earthquake (MCE) by the California Building Code (CBC) (California Building Standards Commission, 2007). The USGS website indicates that the Peak Bedrock Acceleration (PBA) is 0.60g for a 2,475-year reoccurrence interval. The design basis earthquake (DBE) ground motion is calculated as two-thirds of the MCE or 0.4g, according to the 2007 CBC.

Ground rupture is caused when an earthquake event along a fault creates rupture at the surface. No active faults were found to cross the Project area. Because no known active faults cross the Project area, the likelihood of ground rupture is considered low.

During strong ground shaking, loose, saturated, cohesionless soils can experience a temporary loss of shear strength. This phenomenon is known as liquefaction. Liquefaction of soils is dependent on grain size distribution, relative density of the soils, degree of saturation, and intensity and duration of the earthquake. The potential hazard associated with liquefaction is seismically induced settlement. The Project area is underlain by relatively shallow bedrock and the potential for direct impact from liquefaction at the site is considered low to nonexistent.

Subsidence can be caused by natural phenomena during tectonic movement, consolidation, hydrocompaction, or rapid sedimentation. Subsidence also can result from human activities, such as withdrawal of water or hydrocarbons in the subsurface soils. No known subsidence problems exist in the Project area.

3.4.1 Construction Phase Impacts

Reconductoring the existing transmission towers and stringing the conductors would not require grading or other substantial disturbance to surface soils or geology. Reconductoring the transmission line is not expected to negatively impact mineral resources since there are no known mineral resources associated with these sites. No large-scale erosion is anticipated. The pads for the transmission line towers are founded on piles or piers in unconsolidated deposits of fine sand, silt, and silty clay (Qyfo and Qyf). The tower pads

were designed and constructed to withstand strong ground motion of a design earthquake. The transmission line would not cross the projected trace of any active faults.

The project facilities would be constructed to the requirements of the CBC. Because construction and operation of the project would not cause significant impacts to geological resources, it would not cause cumulative impacts to geological resources. Reconductoring would be designed to meet seismic requirements of the 2007 CBC. No other mitigation measures would be necessary.

3.5 Hazardous Materials Management

Hazardous materials use during reconductoring activities would be limited to fuels and lubricants associated with the equipment. Potential impacts would be limited to small fuel or oil spills. Equipment refueling would most likely be performed away from the Project area; any hazardous material use would be performed away from water bodies to prevent contamination of water in the event of a spill. Therefore, any potential environmental effects would be limited to small areas of contaminated soil. In the unlikely event of a spill, the contaminated soil would be placed into barrels or trucks for offsite disposal as a hazardous waste. The Project would not result in hazardous material use beyond activities documented in the AFC for MEP construction, and would not result in any potential impacts greater than those analyzed in the AFC. Therefore, any potential hazardous materials management impacts would be less than significant and the Project would comply with applicable LORS.

3.6 Land Use

The Project would use an existing electrical transmission line route that currently runs through unincorporated areas of Alameda County as shown in Figures 1-1 through 1-20. As shown in Figures 3-5 and 3-6, the existing transmission line crosses through the following general plan designations: Industrial, Large Parcel Agricultural, Major Public, and Parklands (Alameda County, 1994). The Project is consistent with all applicable land use plans (including city general plans and city zoning ordinances). Because the proposed electrical transmission line towers and route are pre-existing, additional long-term impacts to the current surrounding land uses would not be created. Any impacts to land use would be isolated and short-term while construction crews reconductor the existing transmission lines. The Project would require the temporary stockpiling of materials and equipment along the existing right-of-way or in staging areas adjacent to the existing substations.

Reconductoring activities would require access to the transmission line right-of-way by construction vehicles and equipment. Existing land uses would be protected and impacts to land use would be temporary because equipment travel and reconductoring activities would be limited to the pre-existing utility easement and access routes.

The Project would not result in potential impacts or benefits beyond those analyzed in the AFC and would comply with applicable LORS. Therefore, any potential land use impacts would be less than significant.

3.7 Noise and Vibration

The surrounding land uses along the Project route include open grazing and agricultural land, and some industrial facilities (pump stations and wind farms). The primary source of noise in the area is traffic on local roads, and near Segment B, I-580.

Due to the remoteness of the Project, no sensitive receptors (schools, churches, and daycares) are located within 1 mile of the transmission line.

Noise would be produced temporarily along the transmission line rights-of-way during reconductoring by construction-type activities. Reconductoring work at each of the pull and tensioning sites would be short term (approximately one week at each site). Noise levels would be similar to heavy trucks at maximum engine speed. Because the transmission line right-of-way is generally located in agricultural-dominated areas with few residences and sensitive receptors, project impacts are expected to be insignificant. The nearest resident is located approximately 1,500 feet from the transmission line corridor. After the transmission lines are reconductored, there would be no change in existing noise levels in the Project area as a result of operation of the transmission line.

Reconductoring activities are anticipated to take place between 7 a.m. and 5 p.m. on week days, and standard noise-reduction devices would be used to reduce equipment noise. Temporary increases in noise levels above existing ambient levels during reconductoring may be noticeable beyond areas immediately adjacent to the rights-of-way; however, they would be temporary and no additional mitigation measures are proposed. The reconductored transmission line route would not result in potential impacts greater than those analyzed in the AFC and would be consistent with applicable LORS. Therefore, any potential noise and vibration impacts would be less than significant.

3.8 Paleontology

Potentially fossiliferous rock units occur in the Project area. However, because the reconductoring activities would take place aboveground, it is unlikely that these activities would encounter paleontological resources. No grading or earthwork activities are expected to be required for the Project. Even if minor earthwork or grading were performed, shallow excavations are not expected to encounter significant paleontological resources at depths less than 5 feet below the surface. Operation of the electrical transmission lines would not cause any ground disturbance, and therefore would not affect paleontological resources.

If paleontological resources are encountered during Project-related ground disturbance, the potential cumulative effect on paleontological resources would be low with the implementation of mitigation measures similar to those identified in the AFC, including worker awareness training and protocols. When properly implemented, these mitigation measures would effectively recover the scientific value of significant fossils encountered during transmission line reconductoring.

Because the reconductoring route has been subjected to previous ground disturbance activities during installation of the existing transmission line, and new ground disturbances are not anticipated, the Project would not result in potential significant impacts and would

comply with applicable LORS. Any potential paleontological resource impacts would be less than significant with application of the proposed mitigation measures.

3.9 Public Health

The Project would require replacement of approximately 8 miles of transmission line. However, because the reconductoring activities would not require additional grading or the replacement of the existing transmission poles, the reconductoring activities are not expected to significantly increase the toxic air contaminant emissions estimates associated with the number of workers, the number of pieces of equipment, or the number of deliveries required for the MEP. Therefore, the Project is not expected to result in impacts greater than those analyzed in the AFC, and would comply with applicable LORS.

3.10 Socioeconomics

The construction workforce for the Project would not change substantially from that presented in the AFC. Construction of the Project would not result in a substantial change in local purchases of materials or local construction labor. The Project would not result in potential impacts or benefits substantially greater than those analyzed in the AFC and would comply with applicable LORS. Therefore, any potential socioeconomic impacts would be less than significant.

3.11 Soils

Table 3-2 provides the detailed soil map unit characteristics for the additional soil units crossed by the Project and also identifies the soil mapping units. Soil classification of the Project is provided in Figure 3-7 and 3-8.

TABLE 3-2
Soil Mapping Unit Descriptions and Characteristics

Map Unit	Description	
AaC	**Altamont clay, 3 to 15 percent slopes**	
	Parent Material:	Interbedded fine-grained sandstone and shale
	Typical Profile:	0 to 28 inches: clay 28 to 37 inches: clay 37 to 50 inches: silty clay 50 inches +: shattered shale and fine-grained sandstone
	Shrink-swell Capacity:	High
	Depth and Drainage:	Moderately deep to deep; well drained
	Permeability:	Slow
	Runoff:	Medium
	Farmland Class:	Not a Prime or Important Farmland
	Storie Index:	Grade 3 – Fairly well suited
	Capability Class:	IIIe-5
	Taxonomic Class:	Fine, smectitic, thermic Aridic Haploxererts

TABLE 3-2
Soil Mapping Unit Descriptions and Characteristics

Map Unit	Description	
AaD	**Altamont clay, 15 to 30 percent slopes**	
	Parent Material:	Interbedded fine-grained sandstone and shale
	Typical Profile:	0 to 28 inches: clay 28 to 37 inches: clay 37 to 50 inches: silty clay 50 inches +: shattered shale and fine-grained sandstone
	Shrink-swell Capacity:	High
	Depth and Drainage:	Moderately deep to deep; well drained
	Permeability:	Slow
	Runoff:	Medium
	Farmland Class:	Not a Prime or Important Farmland
	Storie Index:	Grade 4 – Poorly suited
	Capability Class:	IVe-5
	Taxonomic Class:	Fine, smectitic, thermic Aridic Haploxererts
AmF2	**Altamont clay, moderately deep, 45 to 75 percent slopes, eroded**	
	Parent Material:	Interbedded fine-grained sandstone and shale
	Typical Profile:	0 to 28 inches: clay 28 to 37 inches: clay 37 to 50 inches: silty clay 50 inches +: shattered shale and fine-grained sandstone
	Shrink-swell Capacity:	High
	Depth and Drainage:	Moderately deep to deep; well drained
	Permeability:	Slow
	Runoff:	Medium
	Farmland Class:	Not a Prime or Important Farmland
	Storie Index:	Grade 6 – Not suited to agriculture
	Capability Class:	VIIe-5
	Taxonomic Class:	Fine, smectitic, thermic Aridic Haploxererts
ArD	**Altamont rocky clay, moderately deep, 45 to 75 percent slopes**	
	Parent Material:	Interbedded fine-grained sandstone and shale
	Typical Profile:	0 to 28 inches: clay 28 to 37 inches: clay 37 to 50 inches: silty clay 50 inches +: shattered shale and fine-grained sandstone
	Shrink-swell Capacity:	High
	Depth and Drainage:	Moderately deep to deep; well drained
	Permeability:	Slow
	Runoff:	Medium
	Farmland Class:	Not a Prime or Important Farmland
	Storie Index:	Grade 5 – Very poor
	Capability Class:	VIe-5
	Taxonomic Class:	Fine, smectitic, thermic Aridic Haploxererts

TABLE 3-2
Soil Mapping Unit Descriptions and Characteristics

Map Unit	Description	
CdB	**Clear Lake clay, drained, 3 to 7 percent slopes**	
	Parent Material:	Fine-textured alluvium derived from sedimentary rock
	Typical Profile:	0 to 36 inches: clay 36 to 48 inches: clay 48 to 65 inches: silty clay
	Shrink-swell Capacity:	High
	Depth and Drainage:	Very deep; moderately well drained and imperfectly drained
	Permeability:	Slow
	Runoff:	Very slow
	Farmland Class:	Prime Farmland
	Storie Index:	Grade 5 – Very poorly suited
	Capability Class:	IIIe-5
	Taxonomic Class:	Fine, smectitic, thermic Xeric Endoaquerts
DbD	**Diablo clay, 15 to 30 percent slopes**	
	Parent Material:	Soft, calcareous interbedded shale and fine-grained sandstone
	Typical Profile:	0 to 15: clay 15 to 32: silty clay 32 to 50: silty clay loam 50 inches +: shattered shale and sandstone
	Shrink-swell Capacity:	High
	Depth and Drainage:	Moderately deep; well drained
	Permeability:	Slow
	Runoff:	Medium
	Farmland Class:	Not a Prime or Important Farmland
	Storie Index:	Grade 4 – Poorly suited
	Capability Class:	IVe-5
	Taxonomic Class:	Fine, smectitic, thermic Aridic Haploxererts
LaC	**Linne clay loam, 3 to 15 percent slopes:**	
	A portion of the water supply pipeline crosses this soil unit.	
	Parent Material:	Residuum weathered from sandstone and shale
	Typical Profile:	0 to 36 inches: clay loam 36 to 40 inches: weathered bedrock
	Shrink-swell Capacity:	Moderate
	Depth and Drainage:	20 to 40 inches to paralithic bedrock; well drained
	Permeability:	Moderately slow
	Runoff:	Medium to very rapid
	Farmland Class:	Farmland of Statewide Importance
	Storie Index:	Grade 3, Fair
	Capability Class:	3e irrigated; 4e nonirrigated
	Taxonomic Class:	Fine-loamy, mixed, superactive, thermic Calcic Pachic Haploxerolls

TABLE 3-2
Soil Mapping Unit Descriptions and Characteristics

Map Unit	Description
LaD	**Linne clay loam, 15 to 30 percent slopes:**
	Portions of the water supply pipeline and site access road cross this soil unit.
	Parent Material: Residuum weathered from sandstone and shale
	Typical Profile: 0 to 36 inches: clay loam 36 to 40 inches: weathered bedrock
	Shrink-swell Capacity: Moderate
	Depth and Drainage: 20 to 40 inches to paralithic bedrock; well drained
	Permeability: Moderately slow
	Runoff: Medium to very rapid
	Farmland Class: None
	Storie Index: Grade 3, Fair
	Capability Class: 4e
	Taxonomic Class: Fine-loamy, mixed, superactive, thermic Calcic Pachic Haploxerolls
LaE2	**Linne clay loam, 30 to 45 percent slopes, eroded**
	Parent Material: Soft, calcareous interbedded shale and fine-grained sandstone
	Typical Profile: 0 to 19 inches: clay loam 19 to 36 inches: clay loam 36 inches +: sandstone
	Shrink-swell Capacity: Not given
	Depth and Drainage: Shallow to deep; well drained
	Permeability: Moderately slow
	Runoff: Medium
	Farmland Class: Not a Prime or Important Farmland
	Storie Index: Grade 5 – Very poorly suited
	Capability Class: VIe-5
	Taxonomic Class: Fine-loamy, mixed, superactive, thermic Calcic Pachic Haploxerolls
LbDcc	**Linne clay loam, 5 to 15 percent slopes:**
	A portion of the water supply pipeline crosses this soil unit.
	Parent Material: Residuum weathered from calcareous shale and/or sandstone
	Typical Profile: 0 to 29 inches: clay loam 29 to 33 inches: weathered bedrock
	Shrink-swell Capacity: Moderate
	Depth and Drainage: 20 to 40 inches to paralithic bedrock; well drained
	Permeability: Moderately slow
	Runoff: Medium to very rapid
	Farmland Class: Farmland of Statewide Importance
	Storie Index: Grade 3, Fair
	Capability Class: 3e irrigated; 4e nonirrigated
	Taxonomic Class: Fine-loamy, mixed, superactive, thermic Calcic Pachic Haploxerolls

TABLE 3-2
Soil Mapping Unit Descriptions and Characteristics

Map Unit	Description	
Pd	**Pescadero Clay**	
	Parent Material:	Alluvium derived from sandstone and shale
	Typical Profile:	0 to 3 inches: silty clay loam 13 to 67 inches: silty clay to silty clay loam
	Shrink-swell Capacity:	Moderate to high
	Depth and Drainage:	Not given; poorly drained
	Permeability:	Very slow
	Runoff:	Very slow
	Farmland Class:	Not a Prime or Important Farmland
	Storie Index:	Grade 5 – Very poorly suited
	Capability Class:	VIw-2
	Taxonomic Class:	Fine, smectitic, thermic Aquic Natrixeralfs
RdA	**Rincon clay loam, 0 to 3 percent slopes**	
	Parent Material:	Alluvium derived sandstone and shale
	Typical Profile:	0 to 16 inches: clay loam 16 to 52 inches: clay 52 to 60 inches: clay loam
	Shrink-swell Capacity:	High
	Depth and Drainage:	Deep; well drained
	Permeability:	Slow
	Runoff:	Slow
	Farmland Class:	Prime Farmland
	Storie Index:	Grade 2 - Good
	Capability Class:	IIs-3
	Taxonomic Class:	Fine, smectitic, thermic Mollic Haploxeralfs
RdB	**Rincon clay loam, 3 to 7 percent slopes:**	
	Most of the project site falls within this soil unit.	
	Parent Material:	Alluvium derived from sandstone and shale
	Typical Profile:	0 to 16 inches: clay loam 16 to 52 inches: sandy clay 52 to 60 inches: stratified sandy loam to clay loam
	Shrink-swell Capacity:	High
	Depth and Drainage:	Very deep; well drained
	Permeability:	Slow
	Runoff:	Slow to rapid
	Farmland Class:	Prime Farmland if irrigated
	Storie Index:	Grade 1, Excellent
	Capability Class:	2e irrigated; 4e nonirrigated
	Taxonomic Class:	Fine, smectitic, thermic, Mollic Haploxeralfs

TABLE 3-2
Soil Mapping Unit Descriptions and Characteristics

Map Unit	Description
Sa	**San Ysidro loam, 0 to 2 percent slopes:** Portions of the project site, site access road, natural gas pipeline, electrical transmission line, and water supply pipeline cross this soil unit. Parent Material: Alluvium from sedimentary rocks Typical Profile: 0 to 16 inches: loam 16 to 34 inches: clay 34 to 60 inches: silty clay loam Shrink-swell Capacity: High Depth and Drainage: Very deep; moderately well drained Permeability: Very slow Runoff: Slow to medium Farmland Class: None Storie Index: Grade 1, Excellent Capability Class: 4s Taxonomic Class: Fine, smectitic, thermic, Typic Palexeralfs
Sa/Sccc	**San Ysidro loam, 0 to 2 percent slopes:** Portions of the water supply line and water supply line laydown area fall within this soil unit. Parent Material: Alluvium derived from sedimentary rock Typical profile: 0 to 15 inches: loam 15 to 54 inches: clay 54 to 80 inches: silty clay loam Shrink-swell capacity: High Depth and drainage: Very deep; moderately well drained Permeability: Very slow Runoff: Slow to medium Farmland Class: None Storie Index: Grade 1, Excellent Capability class: 4s Taxonomic class: Fine, smectitic, thermic, Typic Palexeralfs
Sf/Sfaa	**Solano fine sandy loam, 0 to 2 percent slopes:** Portions of the water supply pipeline, electrical transmission line, and transmission line laydown area fall within this soil unit. Parent Material: Alluvium derived from sandstone and shale Typical profile: 0 to 6 inches: fine sandy loam 6 to 60 inches: clay loam Shrink-swell capacity: Moderate Depth and drainage: Very deep; somewhat poorly drained Permeability: Very slow Runoff: Very slow or slow Farmland Class: None Storie Index: Grade 2, Good Capability class: 3w irrigated; 4w nonirrigated Taxonomic class: Fine-loamy, mixed, superactive, thermic Typic Natrixeralfs

The Project could result in soil disturbance and compaction by construction vehicles and activities at the pull and tension sites. Because most of the pull sites would be at exposed soil locations, soil disturbance and compaction by construction vehicles and activities would

result in short-term increased water and wind erosion rates until disturbed areas are stabilized. Increased soil compaction may decrease the ability of vegetation to reestablish following disturbance, which may result in increased erosion. However, disturbed areas along the route would be allowed to revegetate following construction activities.

During construction, implementation of the mitigation measures addressed in the AFC, including the preparation of Stormwater Pollution Prevention Plan and implementation of erosion and dust control best management practices (BMPs) would limit impacts to the soil resources associated with construction of the transmission system to acceptable levels. Overall, the construction impacts to soils along the Project corridor would not be significant.

Therefore, with implementation of the appropriate BMPs, the additional potential soil impacts would be less than significant. The Project is not expected to result in impacts greater than those analyzed in the AFC, and would comply with the applicable LORS.

3.12 Traffic and Transportation

The existing 230 kV transmission line corridor runs through rolling hills between the Kelso Substation and the Tesla Substation, and primarily traverses grazing land, agricultural lands, and wind farms. Portions of the transmission line parallel Christensen Road (for approximately 0.8 mile) and Bruns Road (for approximately 0.55 mile). Additionally, the route also crosses Altamont Pass Road, Patterson Pass Road, Grant Line Road, and I-580.

Typical conductor-stringing crews require up to 20 workers, which include foremen, equipment operators, general laborers, environmental monitors and inspectors. Each cable stringing operation requires three to five pieces of equipment and support vehicles. Construction at individual pull and tensioning sites would usually last approximately one week so that nearby roads would only be impacted temporarily. Where necessary, signing or a flagman would be utilized to mitigate potential impacts during ingress and egress from work sites.

Reconductoring the Kelso–Tesla 230 kV transmission line would not have a significant impact on traffic and transportation resources. The construction of the Project may temporarily affect Bruns and Christensen Roads, as well as the road crossings described earlier, however, these traffic impacts would be site specific, temporary, and similar in level to the discussion presented in the AFC. At most, the reconductoring would employ 15 to 20 workers. During reconductoring activities, workers would first meet at PG&E's substation facilities, then travel together in crew trucks and park adjacent to the construction corridor.

To mitigate potential impacts, a traffic control plan would be prepared in accordance with the California Department of Transportation Manual on Uniform Traffic Control Devices and the Work Area Traffic Control Handbook. Implementation of the traffic control plan for the affected area for the short duration of construction in that area is adequate to minimize the traffic impacts to a less-than-significant level. Any potential traffic and transportation impacts associated with the Project would be mitigated below the level of significance and would comply with applicable LORS. As a result, any potential traffic and transportation impacts would be less than significant.

3.13 Visual Resources

The Kelso–Tesla 230 kV transmission line is within an existing 230 kV corridor and crosses through primarily undeveloped land within the jurisdiction of Alameda County. The line runs through rolling hills between the Kelso Substation and the Tesla Substation. Few residences are located adjacent to the transmission line right-of-way. The Project primarily traverses grazing land, agricultural lands, and wind farms, occasionally paralleling Christensen and Bruns roads and traversing Altamont Pass Road, Patterson Pass Road, Grant Line Road, I-580, the California Aqueduct, and a western arm of the Bethany Reservoir. All work would take place within the existing right-of-way and substations and, where possible, work would be conducted using existing access roads adjacent to the existing transmission line corridor.

The Project is expected to last approximately six to eight weeks and would require temporary staging areas for equipment and materials storage. The staging yards would likely be located within or immediately adjacent to the Kelso, USWP-RLF, and the Tesla substations. Equipment may also be stored within the right-of-way adjacent to reconductoring activities. At this time, the exact number of required pull stations is unknown, but it is assumed they would be located at turning poles whenever possible. Tower modifications and excavation work near the towers are not anticipated at this time.

Construction equipment and activities would be visible to motorists on Christensen Road, Bruns Road, Altamont Pass Road, Patterson Pass Road, Grant Line Road, I-580 and other local roadways, as well as to residents living near the existing corridor. Due to the short duration project construction, any adverse visual impacts that would occur during construction would not be significant. The construction areas and the right-of-way would be restored to their pre-project conditions.

Reconductoring involves the replacement of existing electrical transmission line with new conductors. Once construction is complete, this change to the transmission line would be undetectable to most viewers of the line, including motorists and residents living near the area.

The Project would not have any significant impacts on visual resources; therefore no mitigation measures are necessary. The Project would comply with applicable LORS. Therefore, any potential visual resource impacts would be less than significant.

3.14 Waste Management

Construction of the Project would not result in impacts greater than those analyzed in the AFC. Construction of the Project would not result in a significant increase in waste. The Project would not result in potential impacts greater than those analyzed in the AFC and would comply with applicable LORS. Therefore, any potential waste management impacts would be less than significant.

3.15 Water Resources

The Project would have limited impacts to the water resources in the area. The Project is located within an existing transmission line right-of-way and would cross the California Aqueduct south of the MEP (shown on Figure 1-5), and a western arm of the Bethany Reservoir (shown on Figure 1-6). Because the reconductoring work would be on existing transmission towers, no additional foundations or earth work are anticipated, therefore groundwater resources would not be impacted. During construction, water would be needed for dust control at some of the pull and tensioning locations. Water requirements would likely be less than one water truck per day. Water will be obtained from Byron Bethany Irrigation District Canal 45.

It is anticipated that the applicable mitigation measures described in the AFC will be adequate and appropriate for the reconductoring project. These measures would include incorporation of applicable erosion control and stormwater BMPs, including standard items for erosion prevention and water quality assurance, such as filter fabric or hay bale filtration. Portable toilets would be supplied by a licensed contractor for collection and disposal of sanitary wastes during the construction period.

Water for dust suppression would be minimal and is not anticipated to create impacts on either groundwater or stormwater. Dust suppression would be temporary and construction related. With the incorporation of applicable mitigation measures addressed in the AFC, the Project would not result in potential impacts greater than those analyzed in the AFC and would comply with applicable LORS. As a result, any potential water resource impacts would be less than significant.

3.16 Worker Safety and Fire Protection

Implementation of worker safety plans and protocols would be the same for the Project as those described in the AFC. The Project would not require any additional worker safety and fire protection training. The Project would not result in potential impacts greater than those analyzed in the AFC and would comply with applicable LORS. Therefore, any potential worker safety and fire protection impacts would be less than significant.

SECTION 4

References

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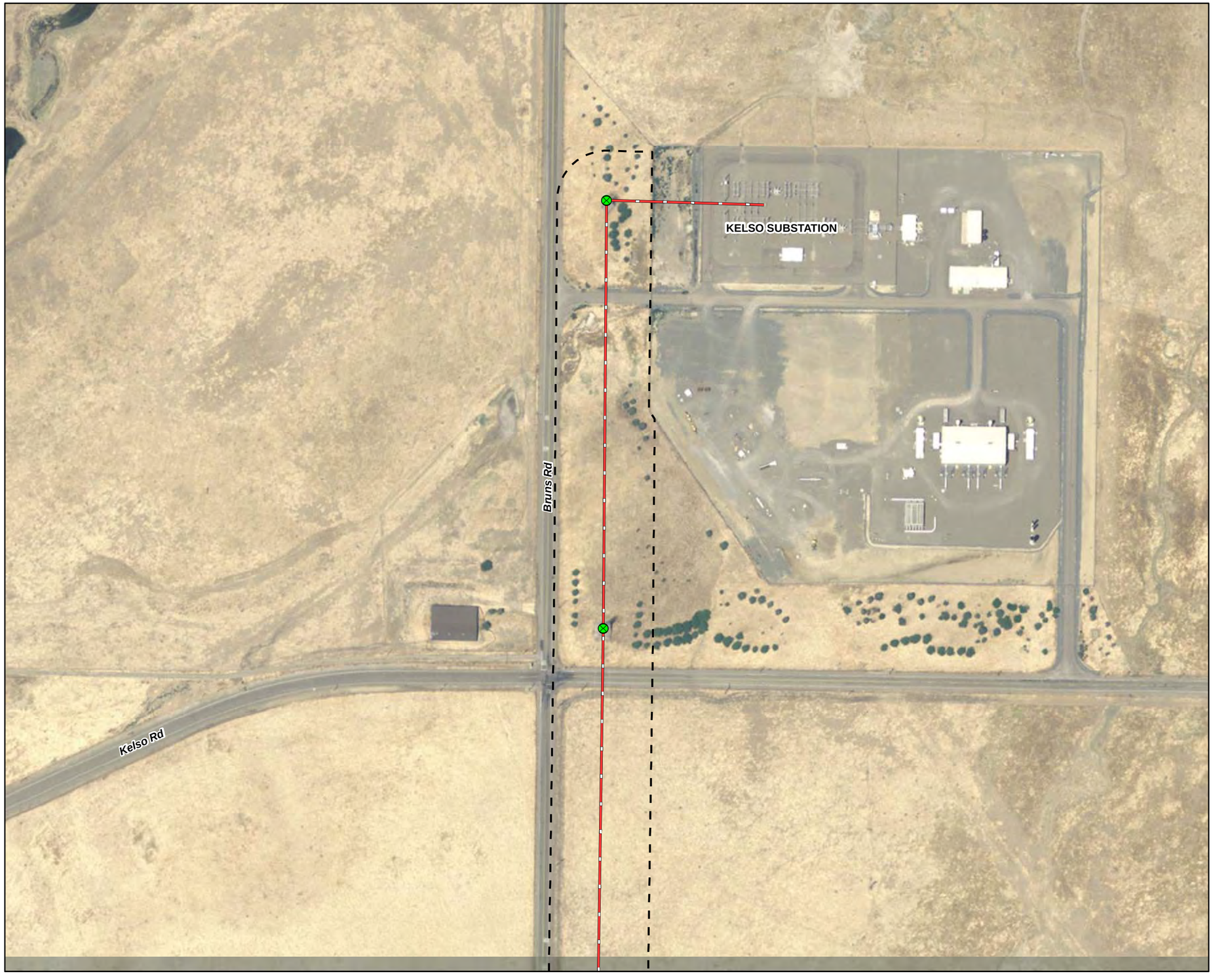
Figures



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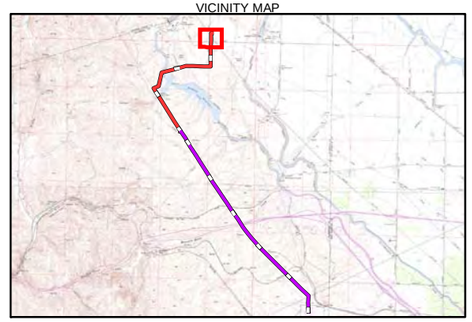

LEGEND

- EXISTING TOWER LOCATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- POWER LINE 200 FOOT CORRIDOR

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

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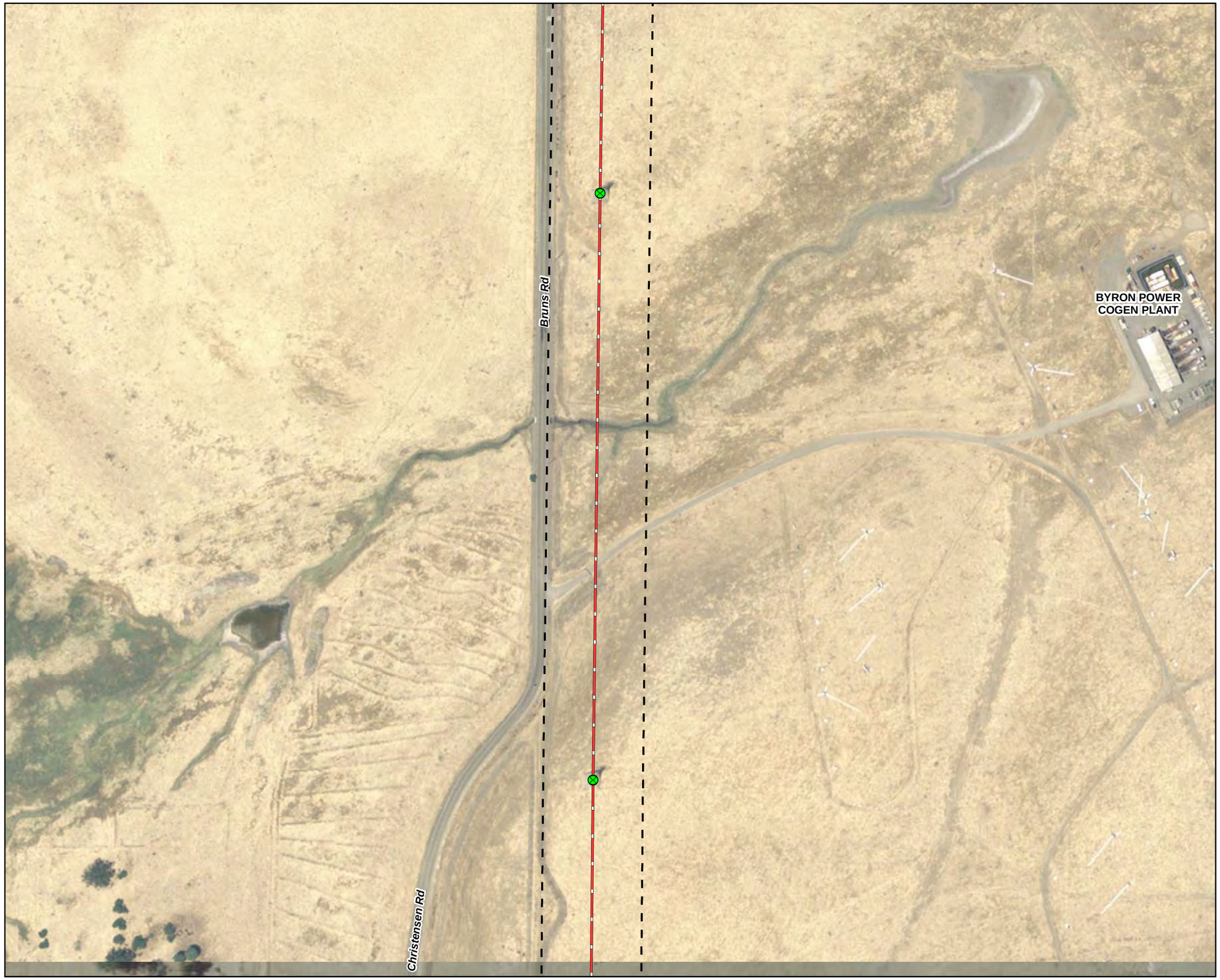
Feet

FIGURE 1-1
TRANSMISSION RECONDUCTORING CORRIDOR
MARIPOSA ENERGY PROJECT
ALAMEDA COUNTY, CALIFORNIA

CH2MHILL



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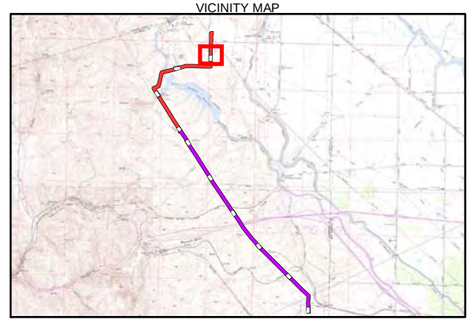

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- EXISTING TOWER LOCATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- POWER LINE 200 FOOT CORRIDOR

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

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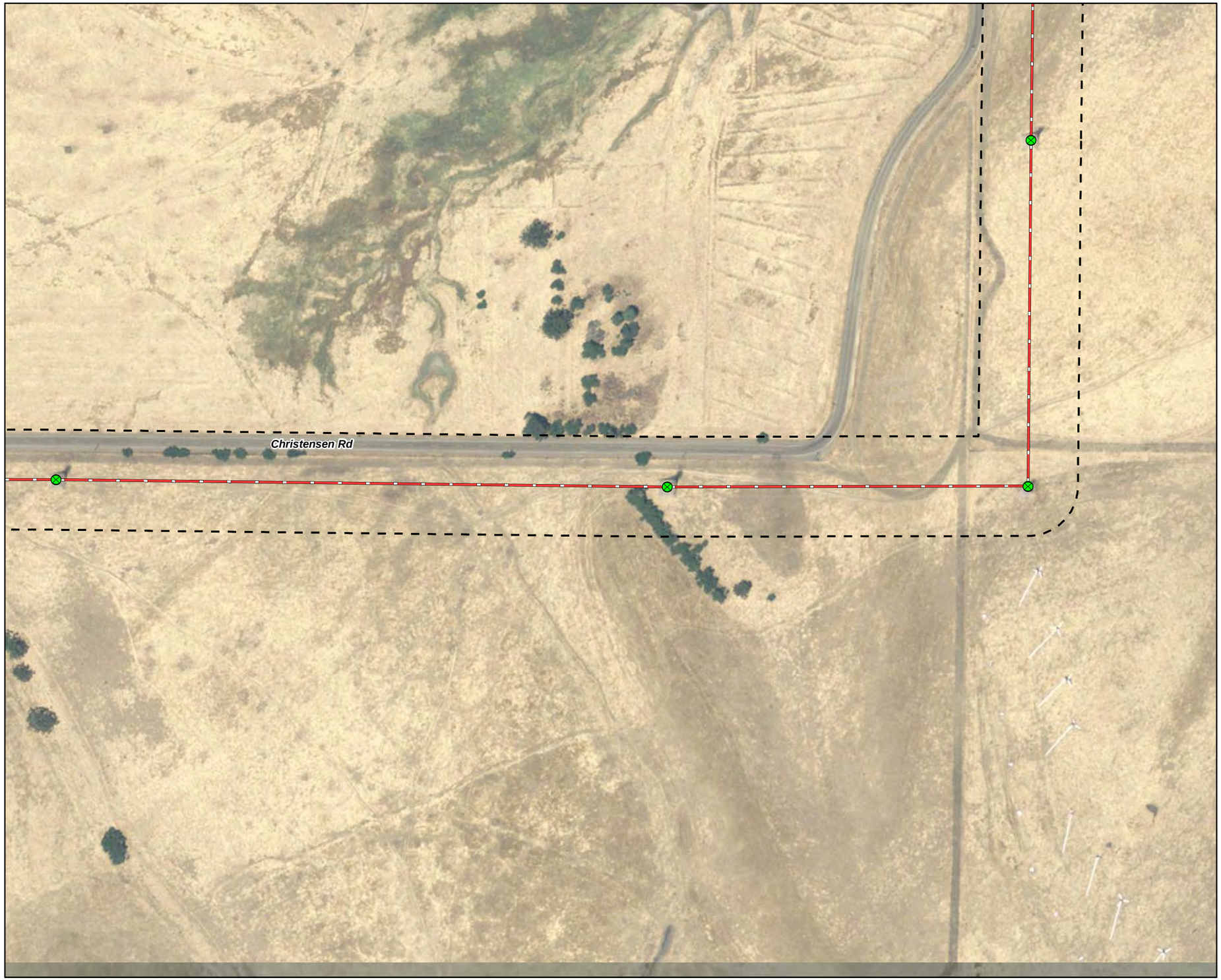
FIGURE 1-2
TRANSMISSION RECONDUCTORING CORRIDOR
MARIPOSA ENERGY PROJECT
ALAMEDA COUNTY, CALIFORNIA



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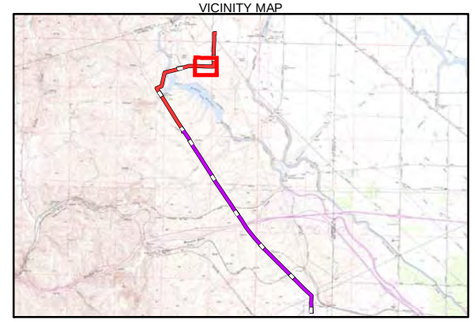

LEGEND

- EXISTING TOWER LOCATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- POWER LINE 200 FOOT CORRIDOR

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

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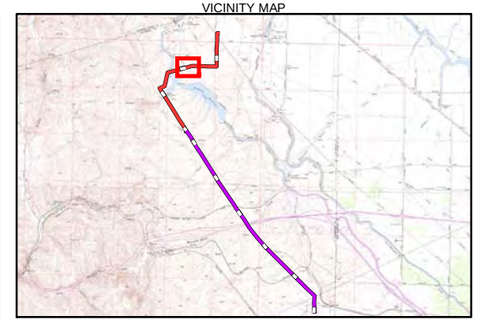
FIGURE 1-3
TRANSMISSION RECONDUCTORING CORRIDOR
MARIPOSA ENERGY PROJECT
ALAMEDA COUNTY, CALIFORNIA

VICINITY MAP



LEGEND

- EXISTING TOWER LOCATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- POWER LINE 200 FOOT CORRIDOR

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

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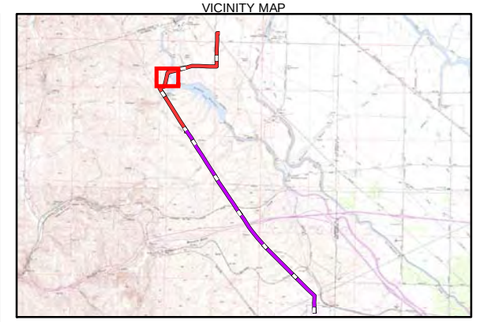
FIGURE 1-4
TRANSMISSION RECONDUCTORING CORRIDOR
MARIPOSA ENERGY PROJECT
ALAMEDA COUNTY, CALIFORNIA

VICINITY MAP



LEGEND

- EXISTING TOWER LOCATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- POWER LINE 200 FOOT CORRIDOR

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

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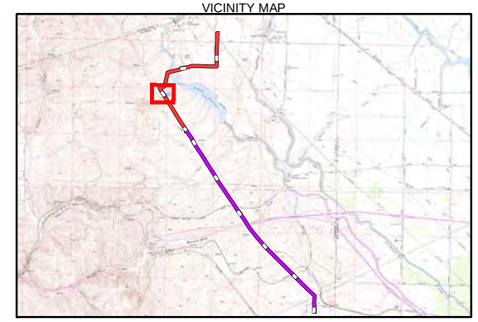
FIGURE 1-5
TRANSMISSION RECONDUCTORING CORRIDOR
MARIPOSA ENERGY PROJECT
ALAMEDA COUNTY, CALIFORNIA

VICINITY MAP



LEGEND

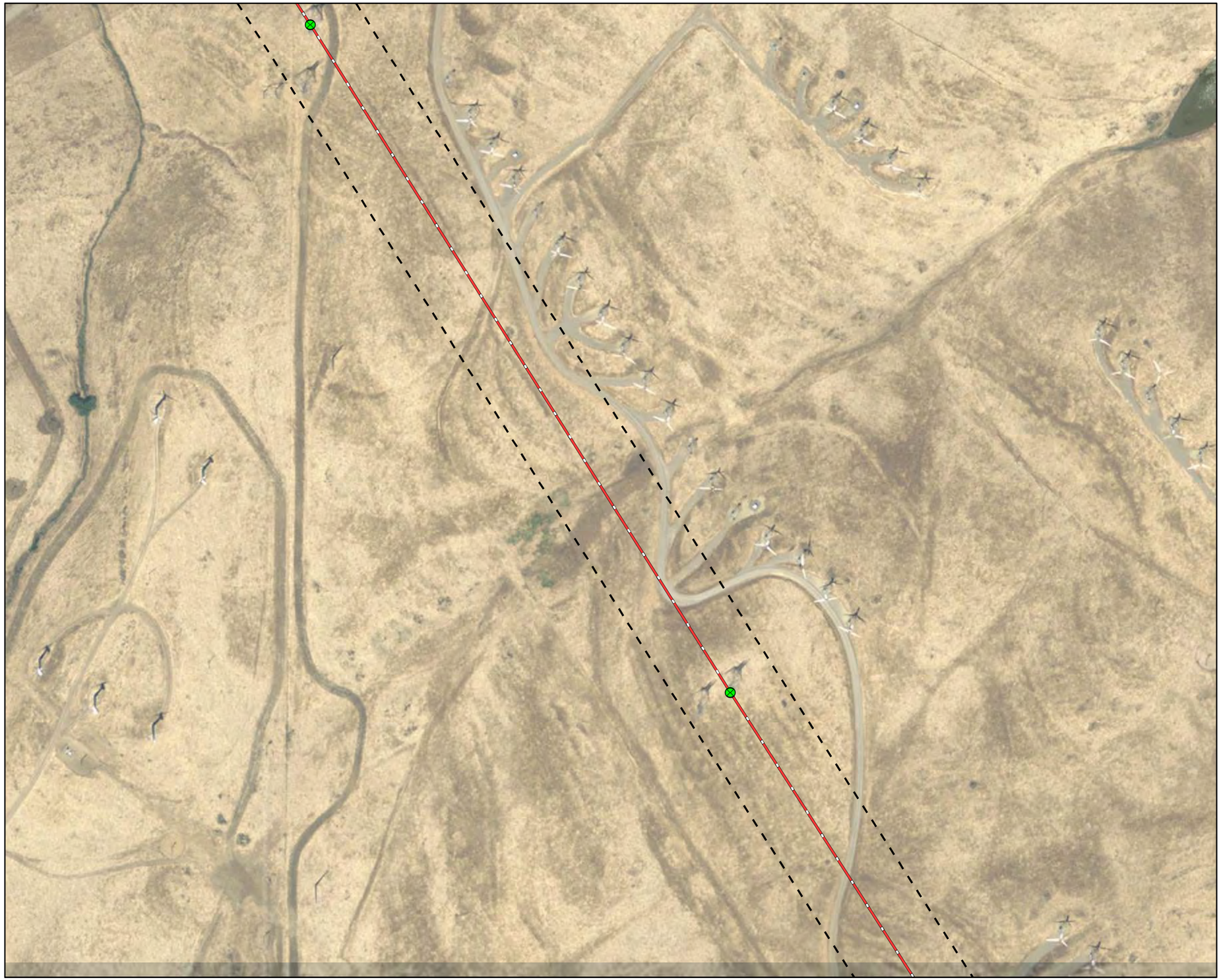
- EXISTING TOWER LOCATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- POWER LINE 200 FOOT CORRIDOR

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

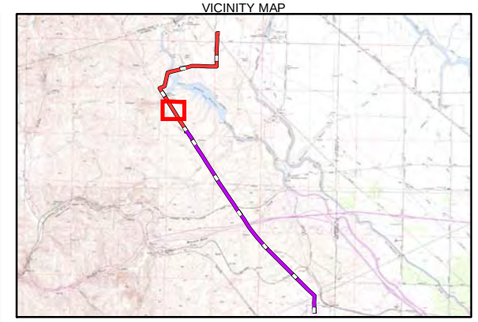
N

0 100 200
Feet

FIGURE 1-6
TRANSMISSION RECONDUCTORING CORRIDOR
MARIPOSA ENERGY PROJECT
ALAMEDA COUNTY, CALIFORNIA



VICINITY MAP



LEGEND

- EXISTING TOWER LOCATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- POWER LINE 200 FOOT CORRIDOR

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

N

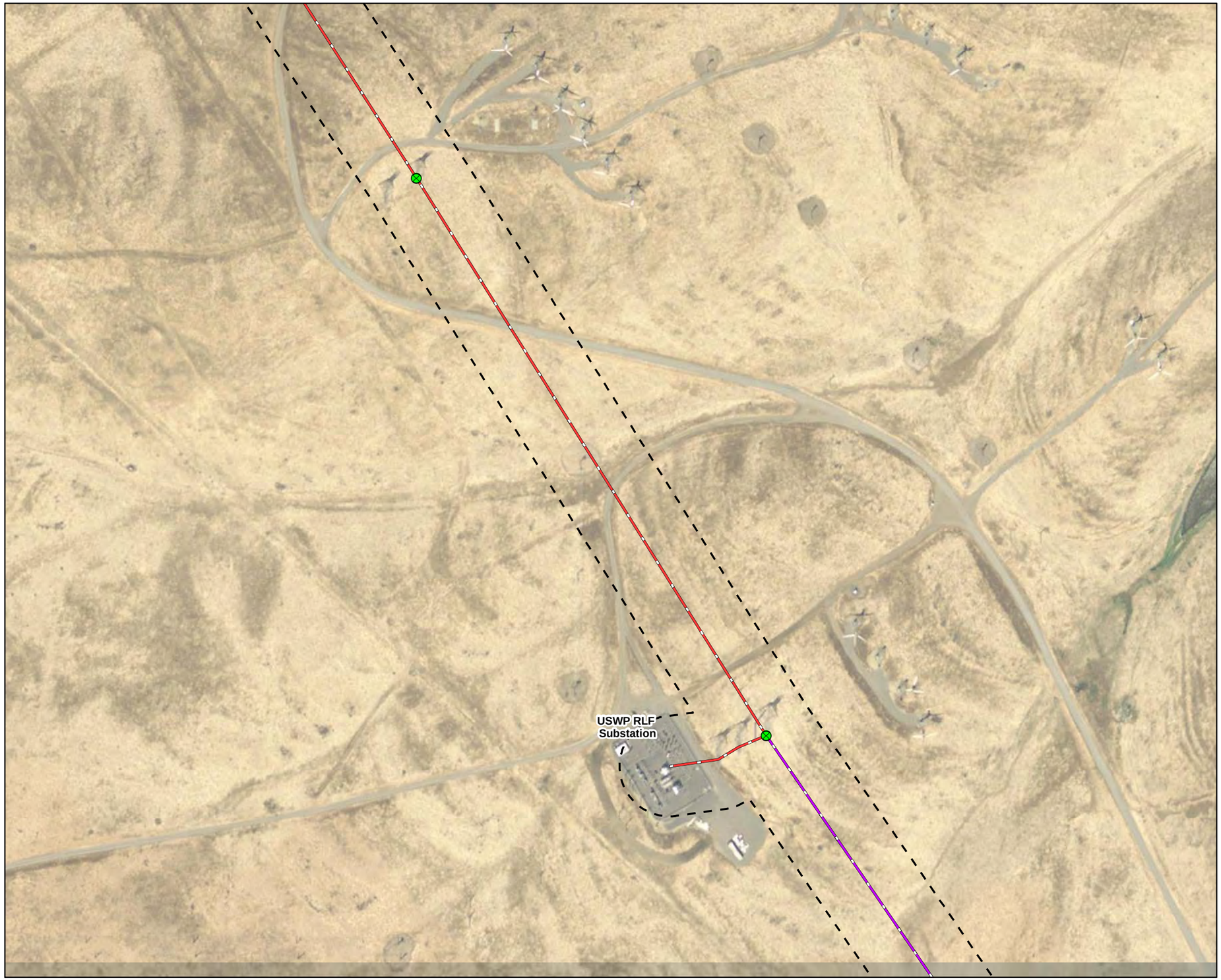
0 100 200

Feet

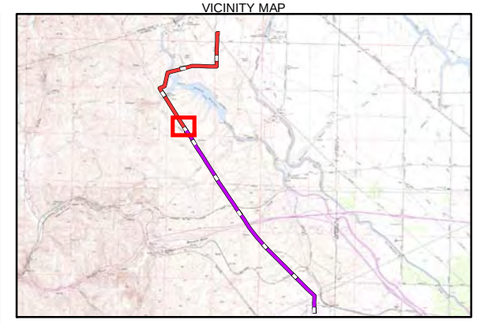
FIGURE 1-7
TRANSMISSION RECONDUCTORING CORRIDOR
MARIPOSA ENERGY PROJECT
ALAMEDA COUNTY, CALIFORNIA

SAC\\ZION\SACGIS\PROJ\DIAMOND_376670\MAPFILES\EXISTINGTLINE\EXISTINGTLINE_CORRIDOR.MXD MHASKELL 1/11/2010 15:26:15

CH2MHILL



VICINITY MAP



LEGEND

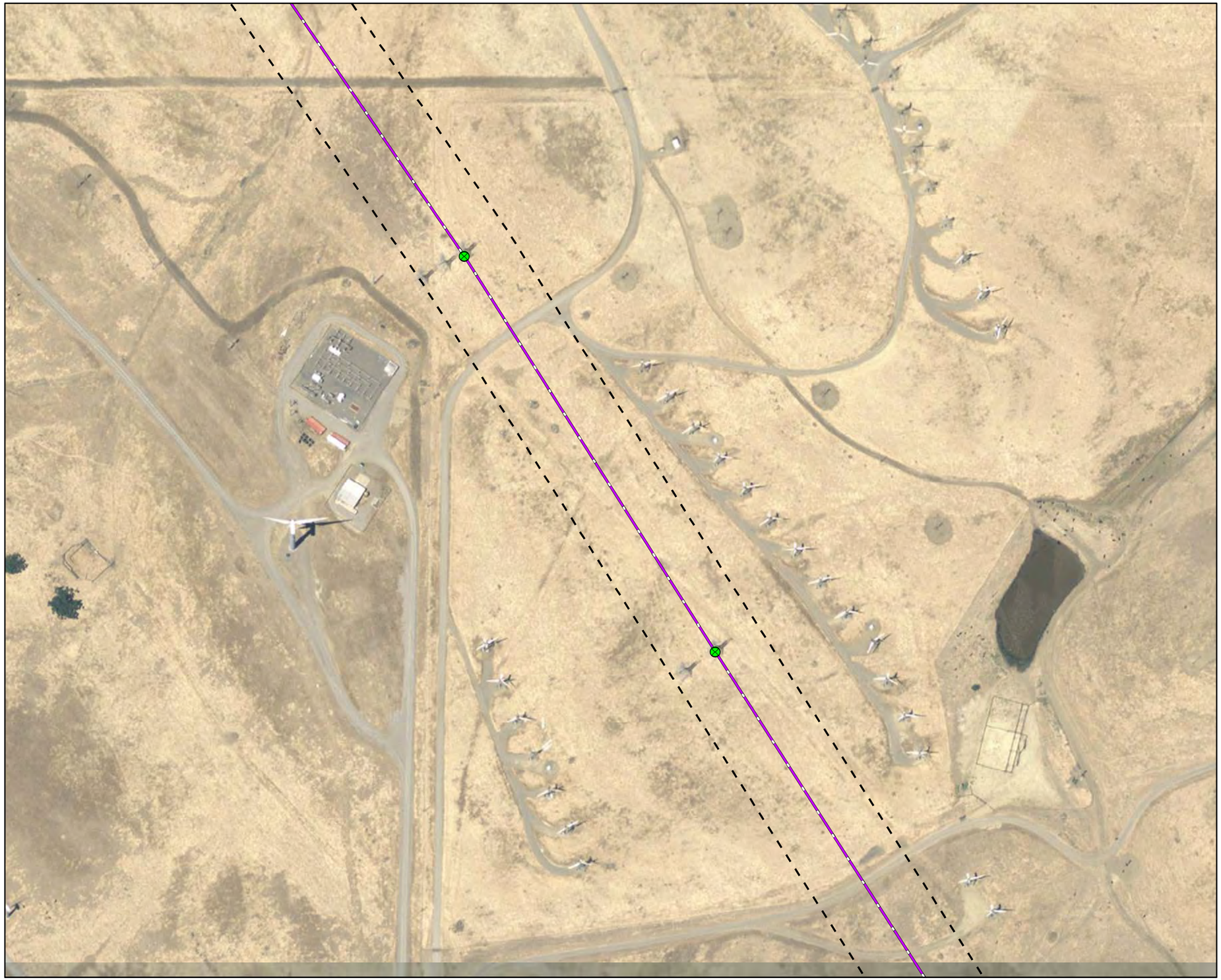
- EXISTING TOWER LOCATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- POWER LINE 200 FOOT CORRIDOR

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

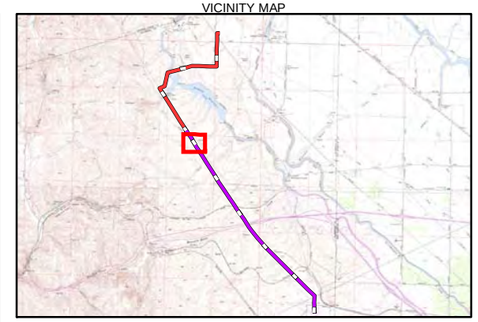
N

0 100 200
Feet

FIGURE 1-8
TRANSMISSION RECONDUCTORING CORRIDOR
MARIPOSA ENERGY PROJECT
ALAMEDA COUNTY, CALIFORNIA



VICINITY MAP



LEGEND

- EXISTING TOWER LOCATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- POWER LINE 200 FOOT CORRIDOR

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

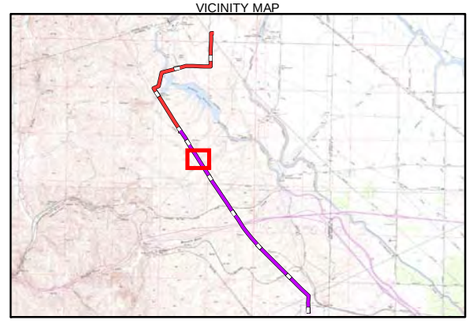
N

0 100 200

Feet

FIGURE 1-9
TRANSMISSION RECONDUCTORING CORRIDOR
MARIPOSA ENERGY PROJECT
ALAMEDA COUNTY, CALIFORNIA

VICINITY MAP



LEGEND

- EXISTING TOWER LOCATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- POWER LINE 200 FOOT CORRIDOR

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

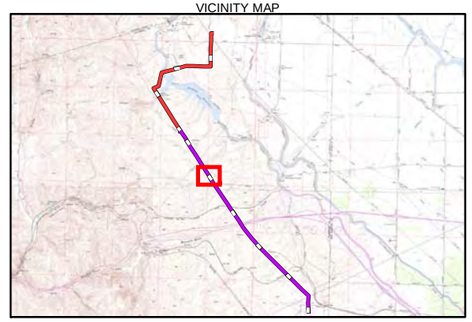
N

0 100 200

Feet

FIGURE 1-10
TRANSMISSION RECONDUCTORING CORRIDOR
MARIPOSA ENERGY PROJECT
ALAMEDA COUNTY, CALIFORNIA

VICINITY MAP



LEGEND

- EXISTING TOWER LOCATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- POWER LINE 200 FOOT CORRIDOR

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

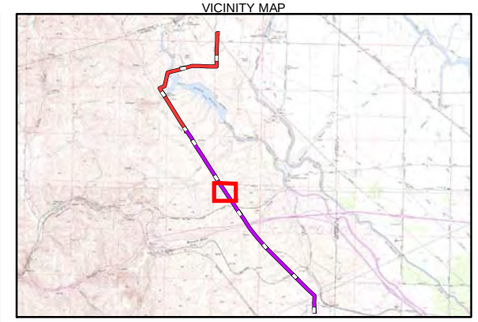
N

0 100 200

Feet

FIGURE 1-11
TRANSMISSION RECONDUCTORING CORRIDOR
MARIPOSA ENERGY PROJECT
ALAMEDA COUNTY, CALIFORNIA

VICINITY MAP



LEGEND

- EXISTING TOWER LOCATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- POWER LINE 200 FOOT CORRIDOR

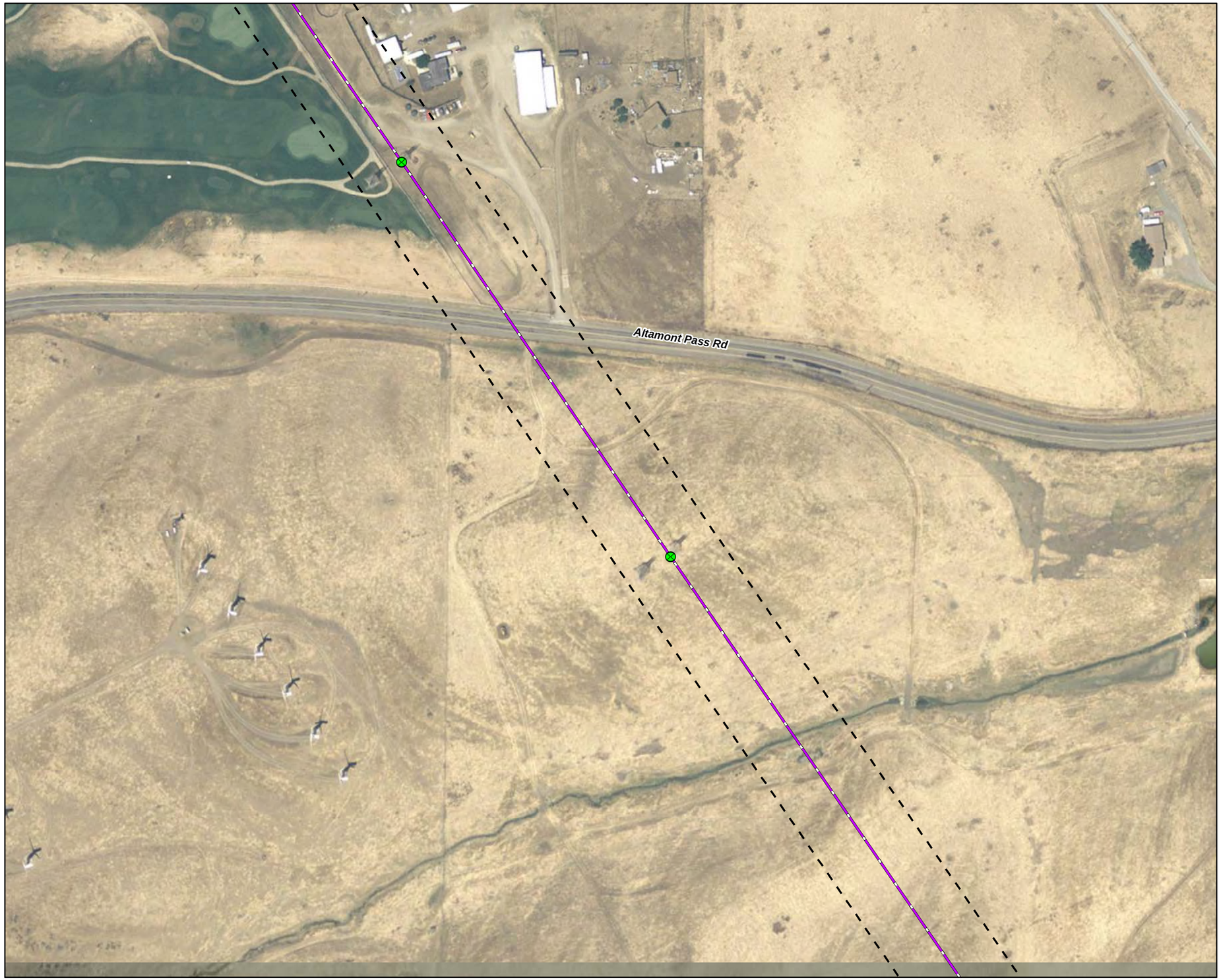
This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

N

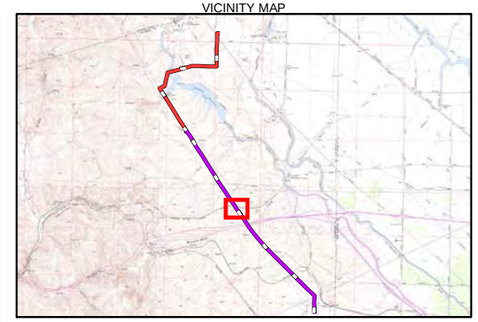
0 100 200

Feet

FIGURE 1-12
TRANSMISSION RECONDUCTORING CORRIDOR
MARIPOSA ENERGY PROJECT
ALAMEDA COUNTY, CALIFORNIA



VICINITY MAP



LEGEND

- EXISTING TOWER LOCATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- POWER LINE 200 FOOT CORRIDOR

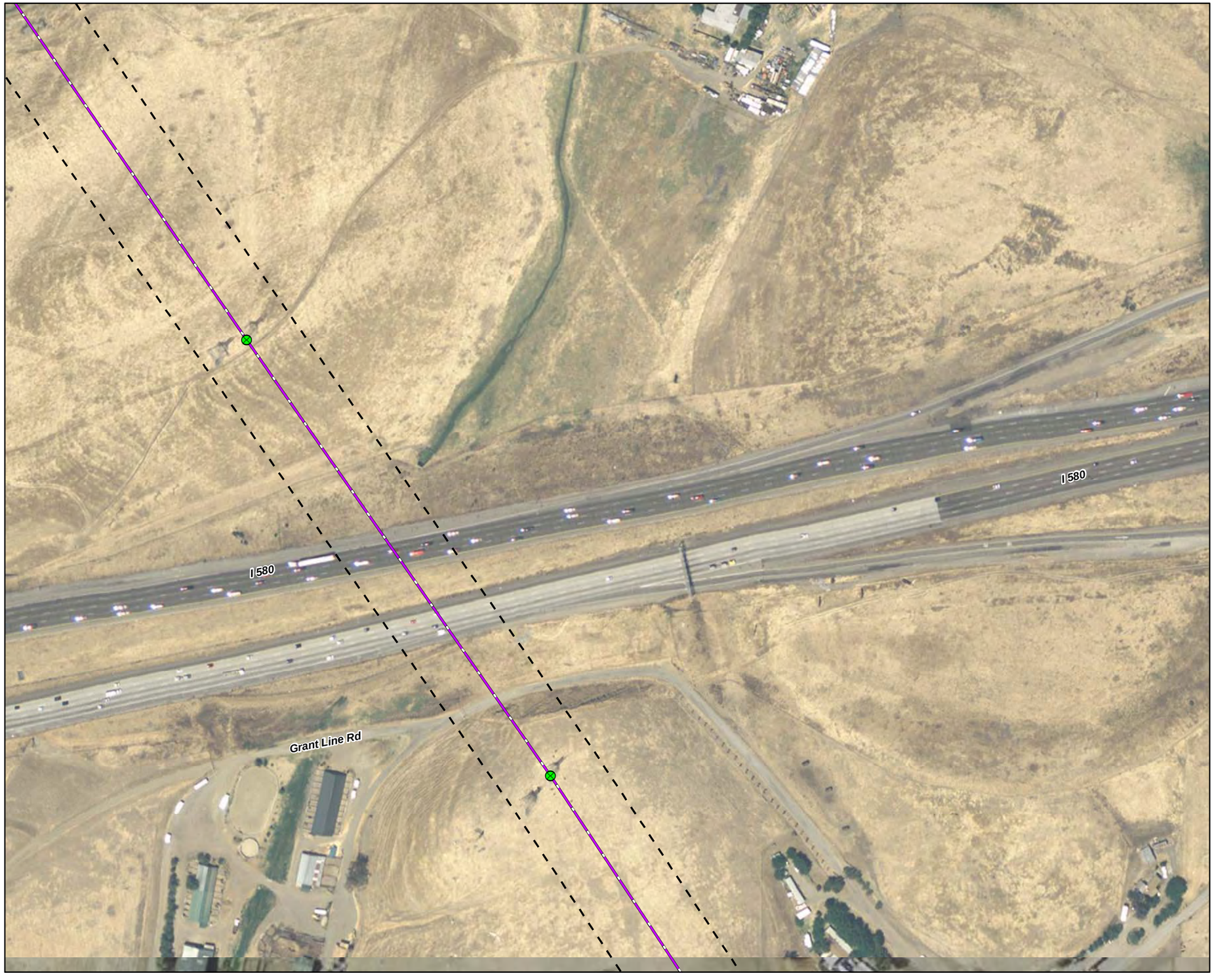
This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

N

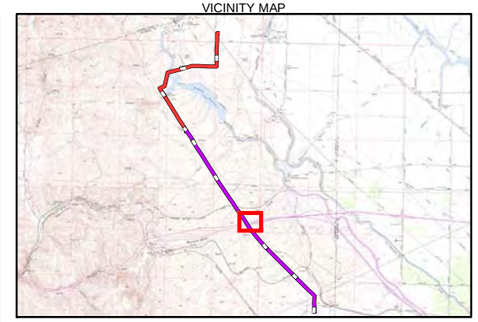
0 100 200

Feet

FIGURE 1-13
TRANSMISSION RECONDUCTORING CORRIDOR
MARIPOSA ENERGY PROJECT
ALAMEDA COUNTY, CALIFORNIA



VICINITY MAP



LEGEND

- EXISTING TOWER LOCATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- POWER LINE 200 FOOT CORRIDOR

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

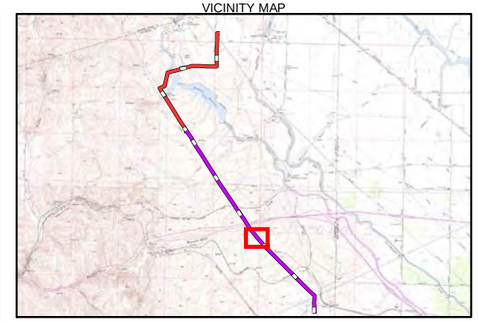
N

0 100 200

Feet

FIGURE 1-14
TRANSMISSION RECONDUCTORING CORRIDOR
MARIPOSA ENERGY PROJECT
ALAMEDA COUNTY, CALIFORNIA

VICINITY MAP



LEGEND

- EXISTING TOWER LOCATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- POWER LINE 200 FOOT CORRIDOR

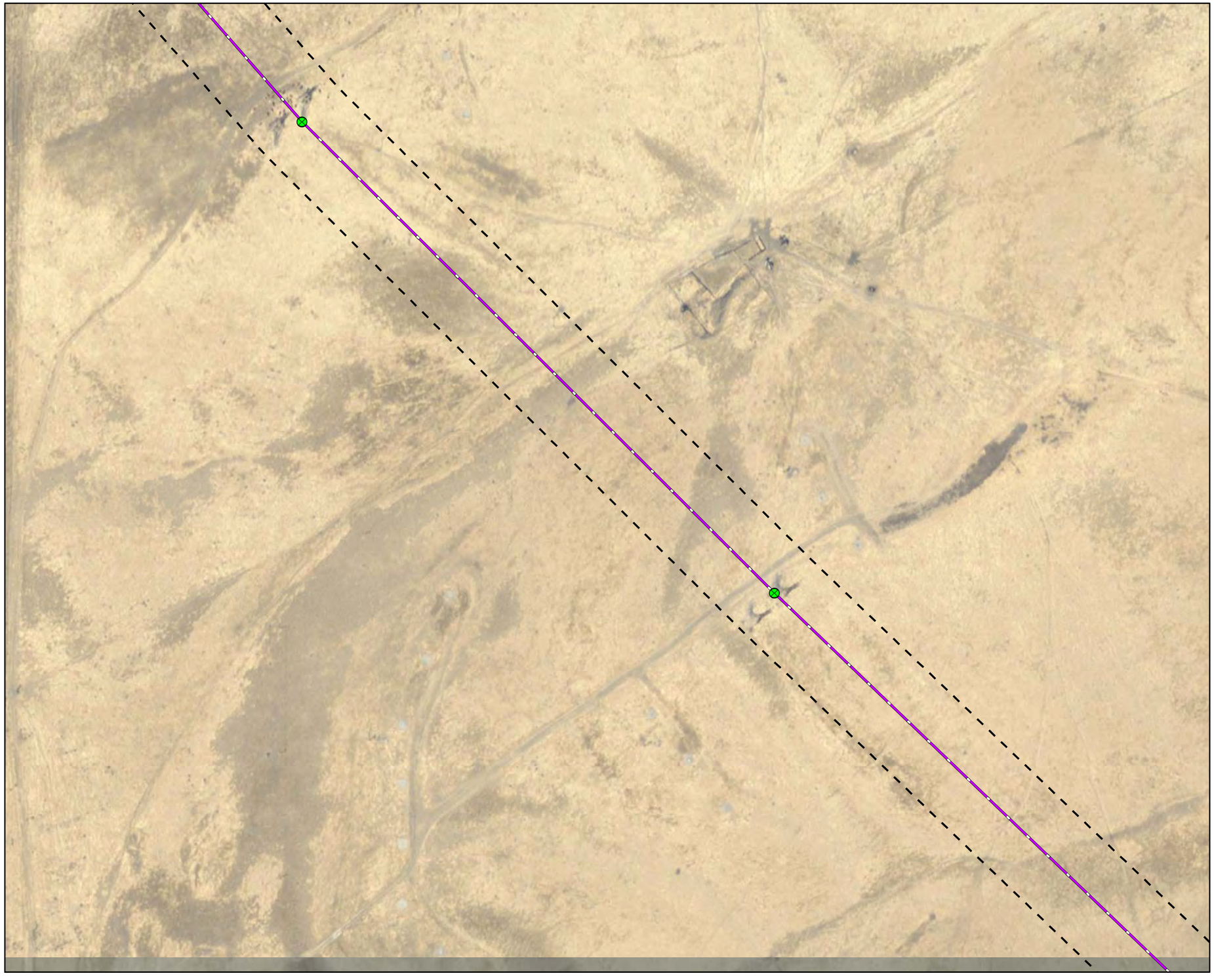
This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

N

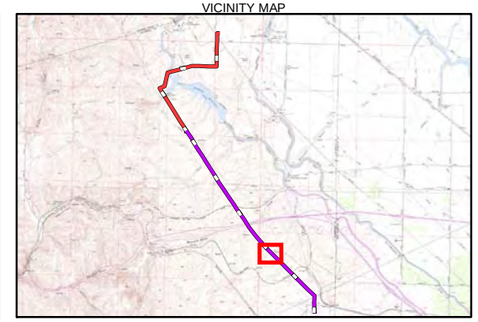
0 100 200

Feet

FIGURE 1-15
TRANSMISSION RECONDUCTORING CORRIDOR
MARIPOSA ENERGY PROJECT
ALAMEDA COUNTY, CALIFORNIA



VICINITY MAP



LEGEND

- EXISTING TOWER LOCATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- POWER LINE 200 FOOT CORRIDOR

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

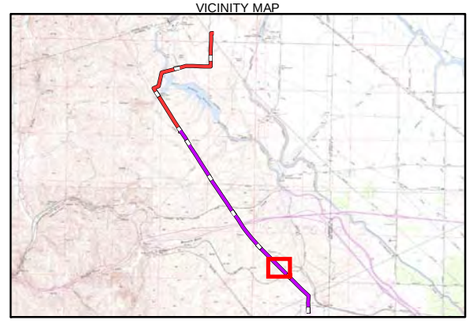
N

0 100 200

Feet

FIGURE 1-16
TRANSMISSION RECONDUCTORING CORRIDOR
MARIPOSA ENERGY PROJECT
ALAMEDA COUNTY, CALIFORNIA

VICINITY MAP



LEGEND

- EXISTING TOWER LOCATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- POWER LINE 200 FOOT CORRIDOR

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

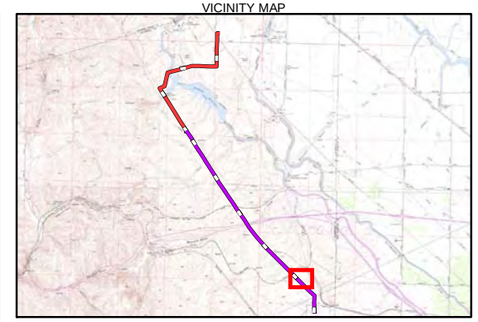
N

0 100 200

Feet

FIGURE 1-17
TRANSMISSION RECONDUCTORING CORRIDOR
MARIPOSA ENERGY PROJECT
ALAMEDA COUNTY, CALIFORNIA

VICINITY MAP



LEGEND

- EXISTING TOWER LOCATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- POWER LINE 200 FOOT CORRIDOR

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

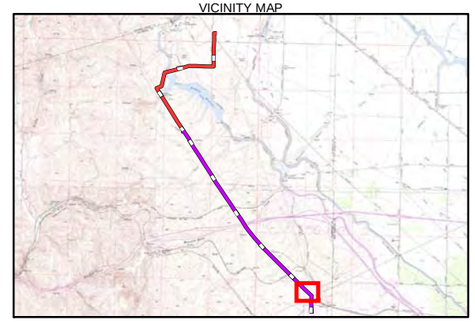
N

0 100 200

Feet

FIGURE 1-18
TRANSMISSION RECONDUCTORING CORRIDOR
MARIPOSA ENERGY PROJECT
ALAMEDA COUNTY, CALIFORNIA

VICINITY MAP



LEGEND

- EXISTING TOWER LOCATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- POWER LINE 200 FOOT CORRIDOR

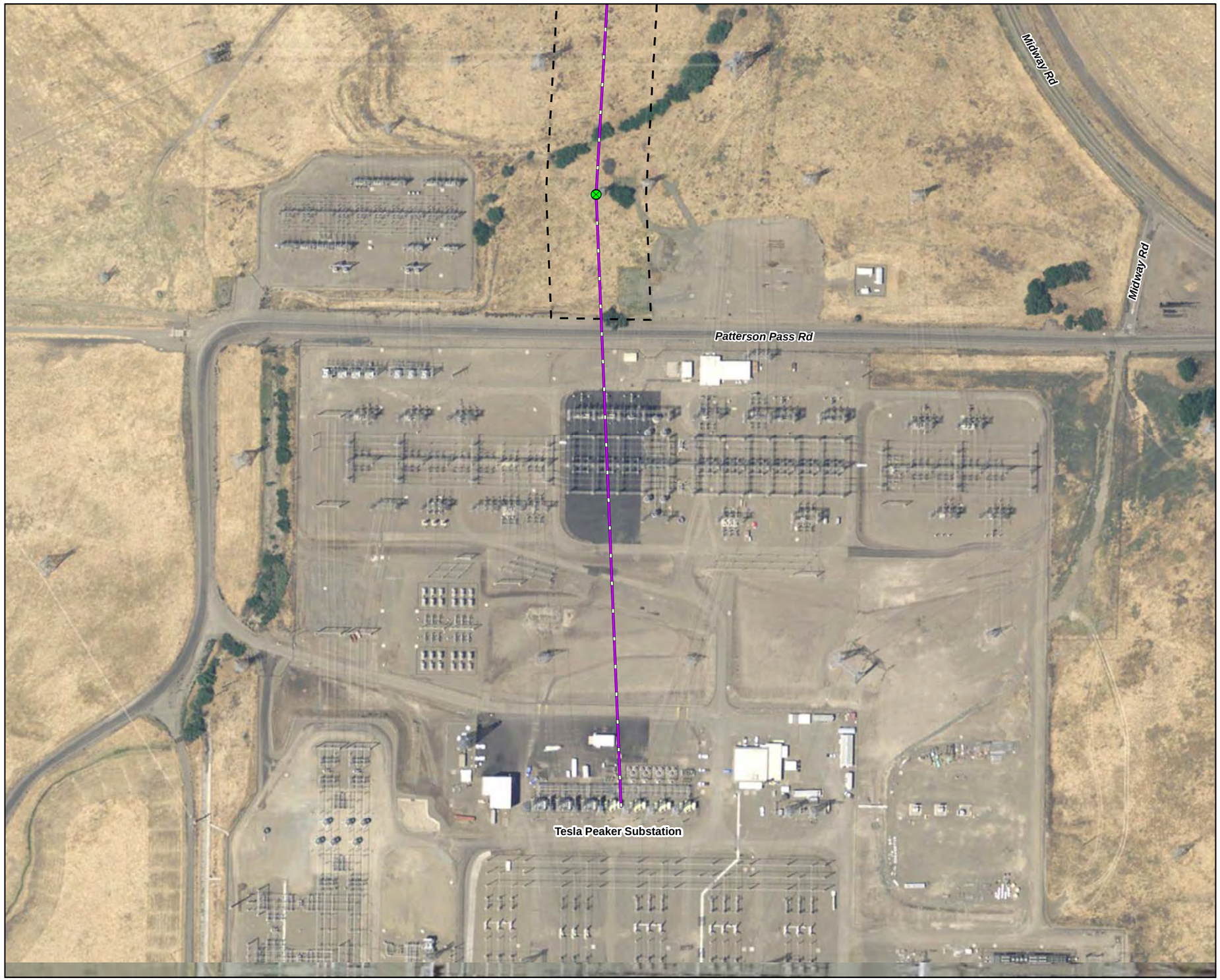
This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

N

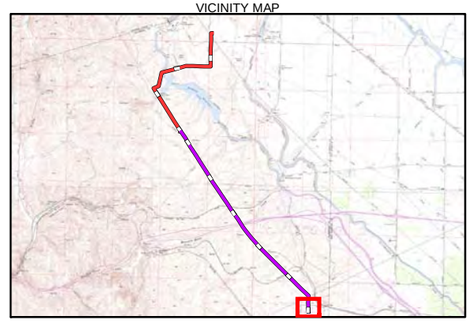
0 100 200

Feet

FIGURE 1-19
TRANSMISSION RECONDUCTORING CORRIDOR
MARIPOSA ENERGY PROJECT
ALAMEDA COUNTY, CALIFORNIA



VICINITY MAP



LEGEND

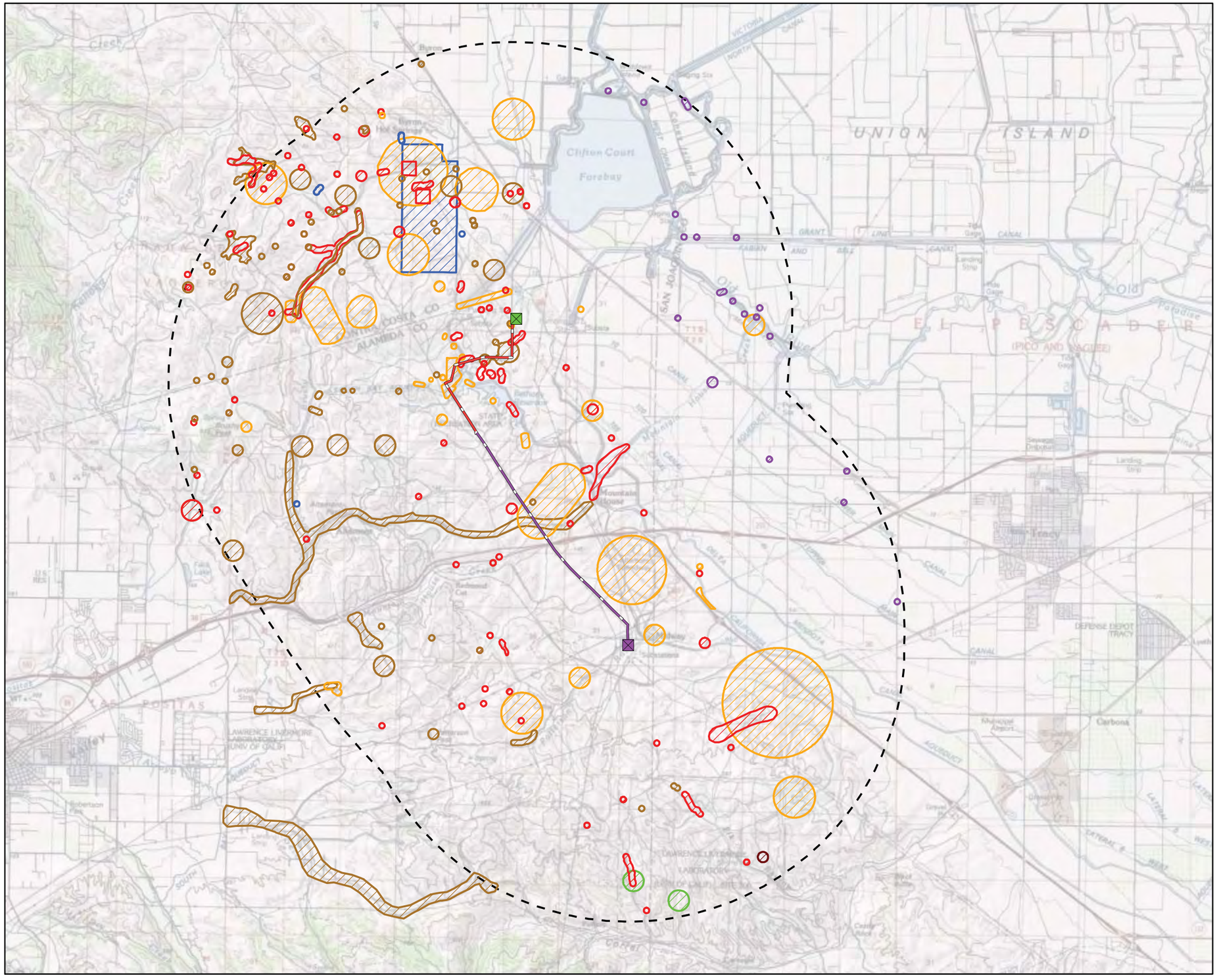
- EXISTING TOWER LOCATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- POWER LINE 200 FOOT CORRIDOR

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

N

0 100 200
Feet

FIGURE 1-20
TRANSMISSION RECONDUCTORING CORRIDOR
MARIPOSA ENERGY PROJECT
ALAMEDA COUNTY, CALIFORNIA



LEGEND

- KELSO SUBSTATION
- TESLA PEAKER SUBSTATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- FIVE MILE BUFFER

SPECIAL STATUS SPECIES

ANIMALS

- CALIFORNIA RED-LEGGED FROG
- CALIFORNIA TIGER SALAMANDER
- SAN JOAQUIN KIT FOX
- SWAINSON'S HAWK
- VALLEY ELDERBERRY LONGHORN BEETLE
- VERNAL POOL FAIRY SHRIMP

PLANT

- LARGE-FLOWERED FIDDLENECK

Note:

1. Source - California Dept. of Fish and Game, Californa Natural Diversity Database (CNDDB) January, 2010. Species listed here are either Threatened or Endangered according to Federal and State agencies.

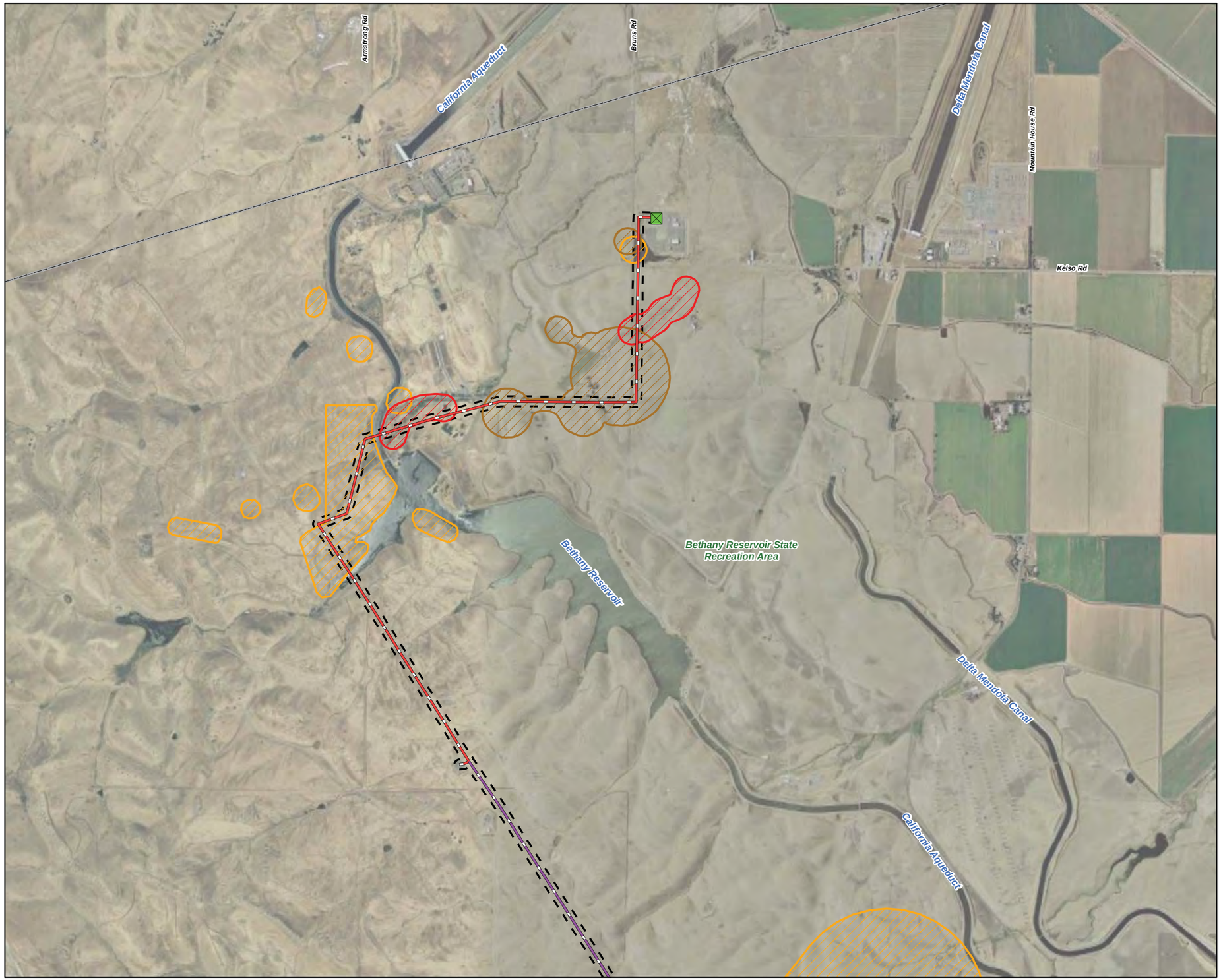
This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

N

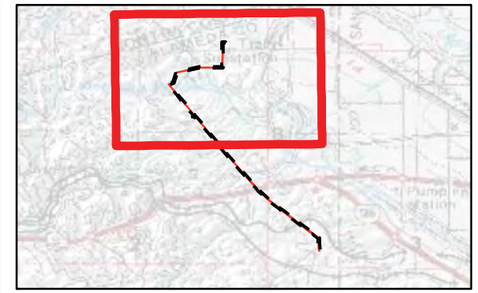
0 4,750 9,500

Feet

FIGURE 3-1
SPECIAL STATUS SPECIES RECORDED WITHIN FIVE MILES
MARIPOSA ENERGY PROJECT
ALAMEDA COUNTY, CALIFORNIA



VICINITY MAP



LEGEND

- KELSO SUBSTATION
- TESLA PEAKER SUBSTATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- 100-FOOT BUFFER

SPECIAL STATUS SPECIES

ANIMALS

- California red-legged frog
- California tiger salamander
- San Joaquin kit fox

Note:

1. Source - California Dept. of Fish and Game, Californa Natural Diversity Database (CNDDB) January, 2010. Species listed here are either Threatened or Endangered according to Federal and State agencies.

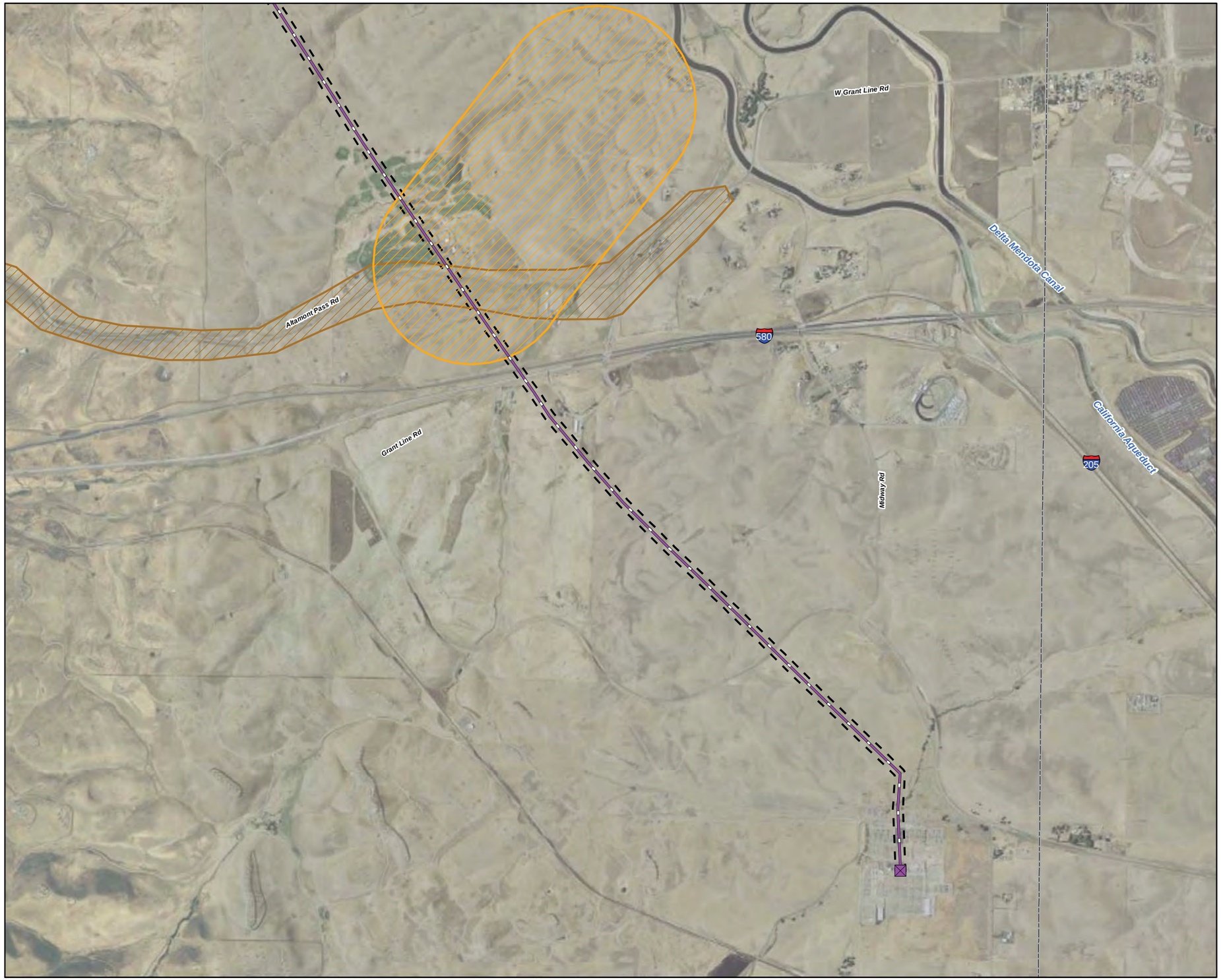
This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

N

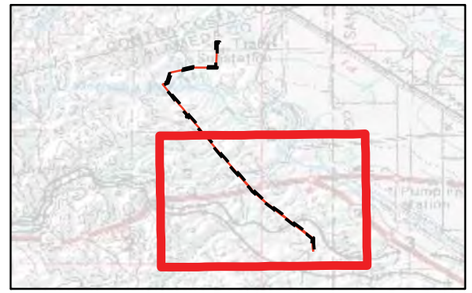
0 1,000 2,000

Feet

FIGURE 3-2
SPECIAL STATUS SPECIES RECORDED WITHIN 100 FEET
MARIPOSA ENERGY PROJECT
ALAMEDA COUNTY, CALIFORNIA



VICINITY MAP



LEGEND

- KELSO SUBSTATION
- TESLA PEAKER SUBSTATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- 100-FOOT BUFFER

SPECIAL STATUS SPECIES

ANIMALS

- California red-legged frog
- California tiger salamander
- San Joaquin kit fox

Note:

1. Source - California Dept. of Fish and Game, Californa Natural Diversity Database (CNDDB) January, 2010. Species listed here are either Threatened or Endangered according to Federal and State agencies.

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

N

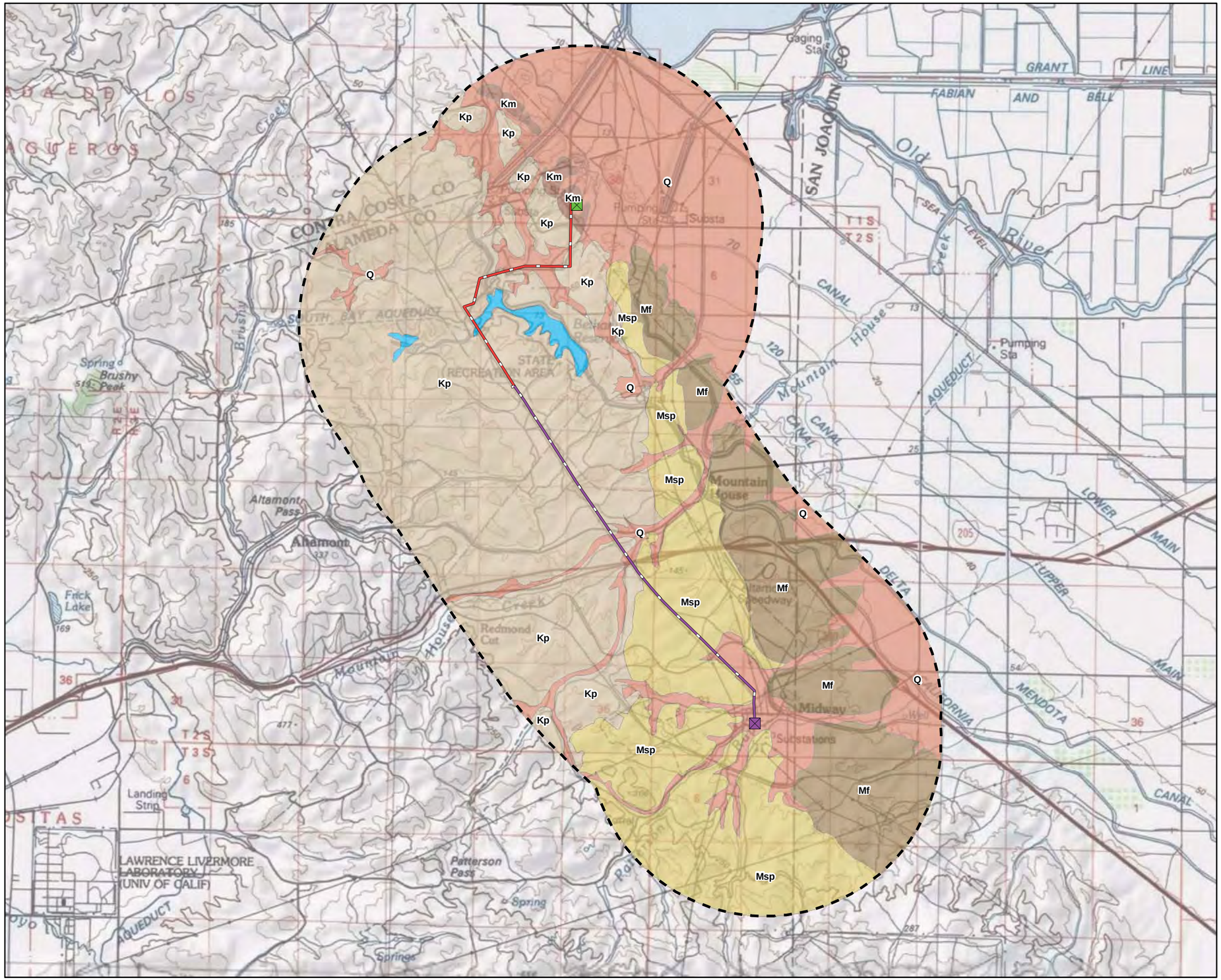
0 1,000 2,000

Feet

FIGURE 3-3
SPECIAL STATUS SPECIES RECORDED WITHIN 100 FEET

MARIPOSA ENERGY PROJECT

ALAMEDA COUNTY, CALIFORNIA



LEGEND

- KELSO SUBSTATION
- TESLA PEAKER SUBSTATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B

GEOLOGY TYPES

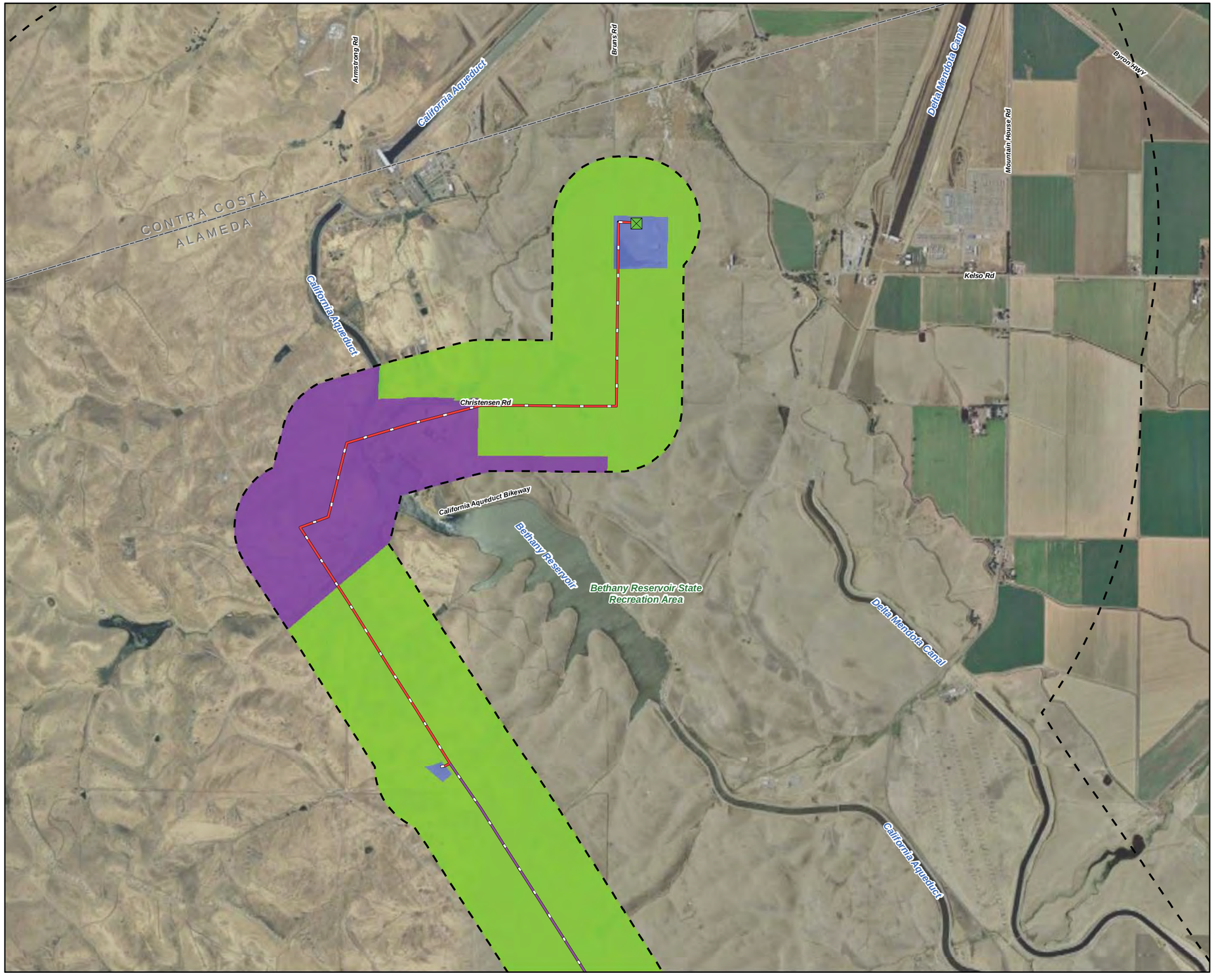
- ALLUVIUM (Q)
- SAN PABLO GROUP (Msp)
- FONGLOMERATE (Mf)
- PANOCHE FORMATION (Kp)
- MORENO FORMATION (Km)
- WATER

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

N

0 3,000 6,000
Feet

FIGURE 3-4
GEOLOGY WITHIN TWO MILES OF SITE
MARIPOSA ENERGY CENTER PROJECT
ALAMEDA COUNTY, CALIFORNIA



LEGEND

- KELSO SUBSTATION
- TESLA PEAKER SUBSTATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- * BUFFER

GENERAL PLAN DESIGNATIONS

- HIGHWAY CORRIDOR
- INDUSTRIAL
- LARGE PARCEL AGRICULTURE
- MAJOR PUBLIC
- PARKLANDS

Notes:
1. * 1/4 mile around Pipeline Corridor.
2. Source: East County Area Plan - Land Use Diagram, Alameda County Agency, May 2002.

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

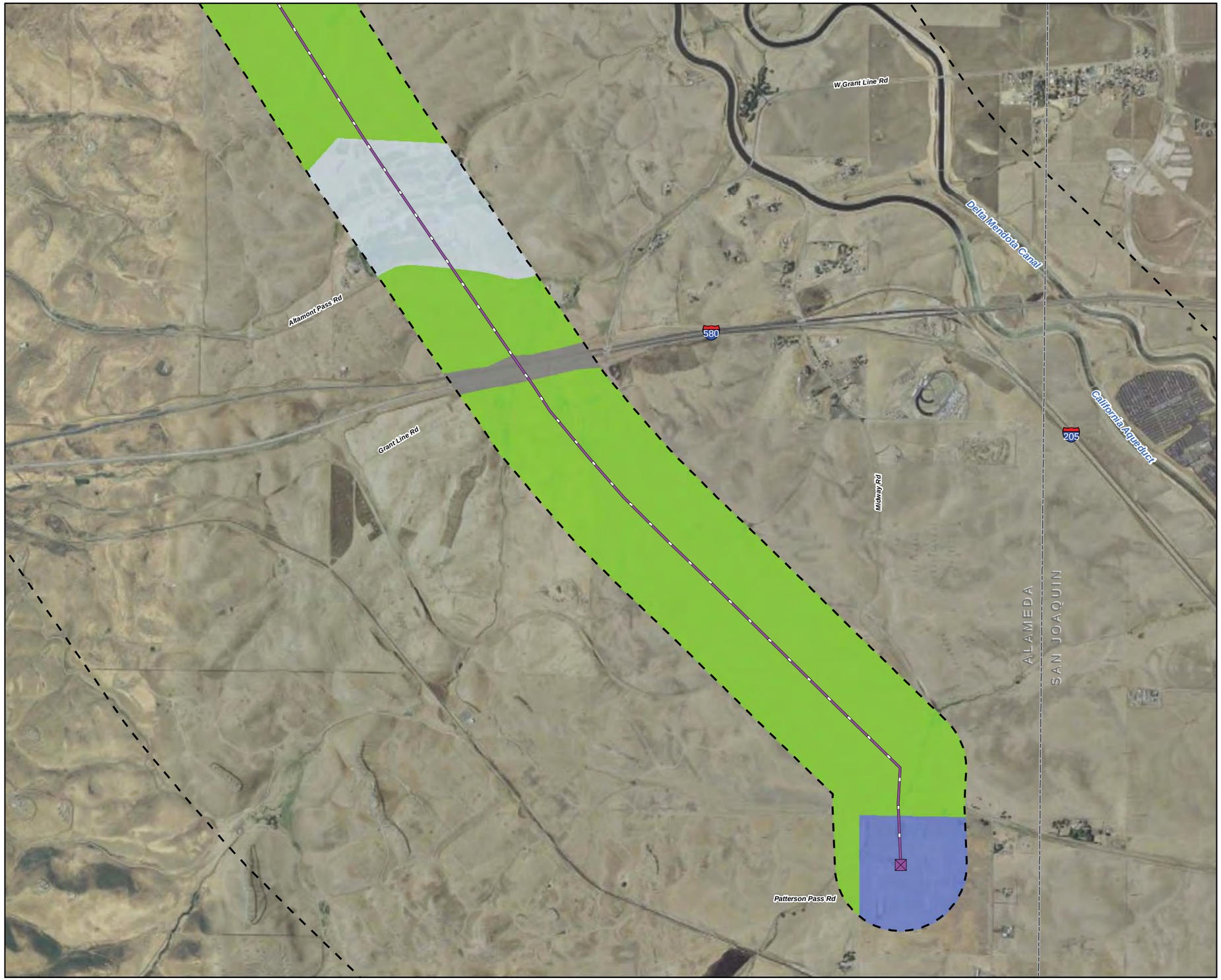
N

0 1,000 2,000
Feet

FIGURE 3-5
GENERAL PLAN DESIGNATIONS
MARIPOSA ENERGY PROJECT
ALAMEDA COUNTY, CALIFORNIA

\\ZION\SACGIS\PROJ\DIAMOND_376670\MAPFILES\EXISTINGTLINE\TLINE_GENERALPLAN.MXD KSWANSO3 3/19/2010 13:05:12

CH2MHILL



LEGEND

- KELSO SUBSTATION
- TESLA PEAKER SUBSTATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- * BUFFER

GENERAL PLAN DESIGNATIONS

- HIGHWAY CORRIDOR
- INDUSTRIAL
- LARGE PARCEL AGRICULTURE
- MAJOR PUBLIC
- PARKLANDS

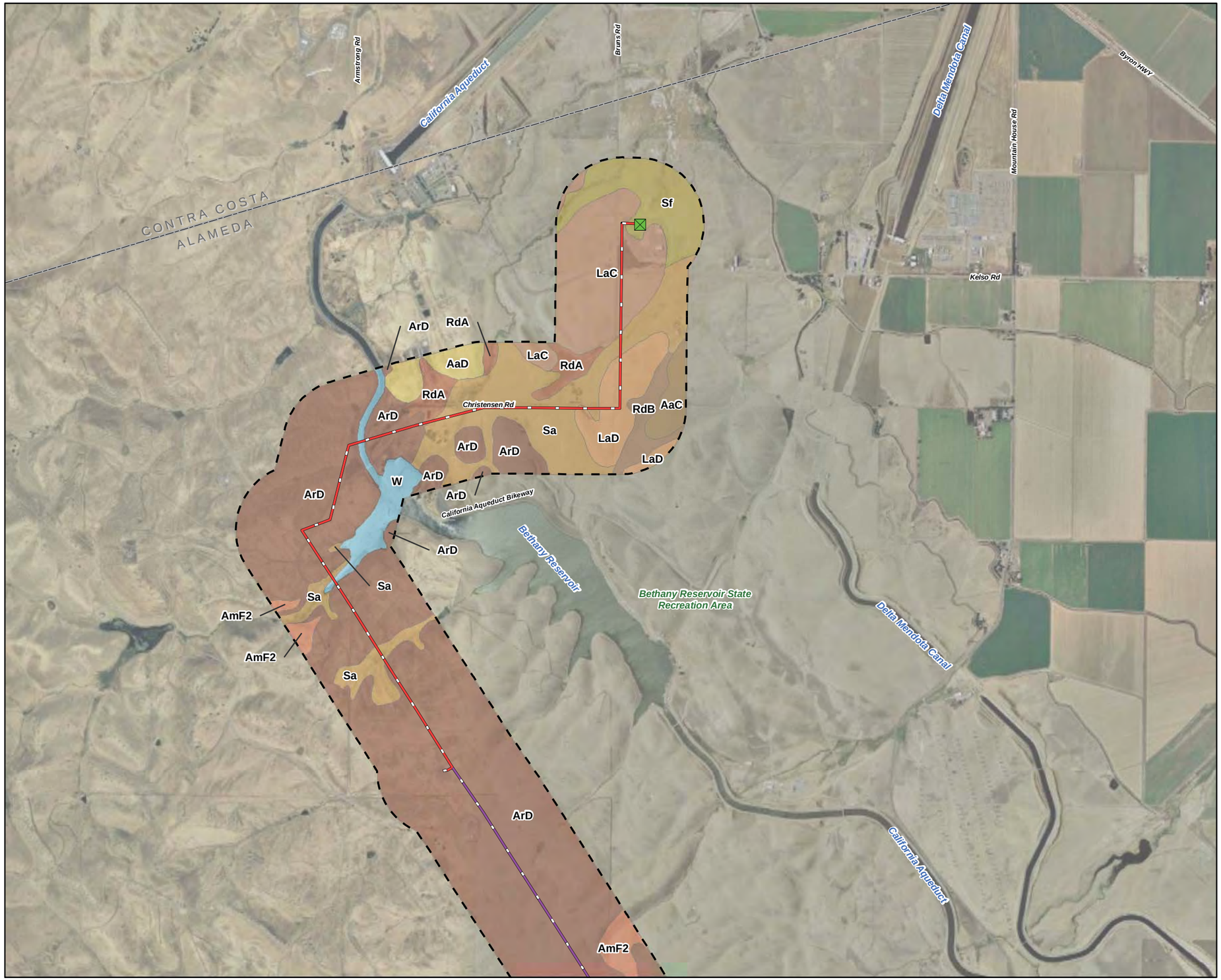
Notes:
1. * 1/4 mile around Pipeline Corridor.
2. Source: East County Area Plan - Land Use Diagram, Alameda County Agency, May 2002.

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

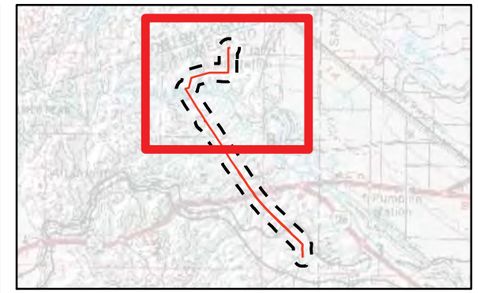
N

0 1,000 2,000
Feet

FIGURE 3-6
GENERAL PLAN DESIGNATIONS
MARIPOSA ENERGY PROJECT
ALAMEDA COUNTY, CALIFORNIA



VICINITY MAP



LEGEND

- KELSO SUBSTATION
- TESLA PEAKER SUBSTATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- * BUFFER

SOIL TYPES

- ALTAMONT CLAY, 3 TO 15 PERCENT SLOPES (AaC)
- ALTAMONT CLAY, 15 TO 30 PERCENT SLOPES (AaD)
- ALTAMONT CLAY, MODERATELY DEEP, 45 TO 75 PERCENT SLOPES, ERODED (AmF2)
- ALTAMONT ROCKY CLAY, MODERATELY DEEP, 7 TO 30 PERCENT SLOPES (ArD)
- CLEAR LAKE CLAY, DRAINED, 3 TO 7 PERCENT SLOPES (CdB)
- DIABLO CLAY, 15 TO 30 PERCENT SLOPES (DbD)
- LINNE CLAY LOAM, 3 TO 15 PERCENT SLOPES (LaC)
- LINNE CLAY LOAM, 15 TO 30 PERCENT SLOPES (LaD)
- LINNE CLAY LOAM, 30 TO 45 PERCENT SLOPES, ERODED (LaE2)
- PESCADERO CLAY (Pd)
- RINCON CLAY LOAM, 0 TO 3 PERCENT SLOPES (RdA)
- RINCON CLAY LOAM, 3 TO 7 PERCENT SLOPES (RdB)
- SAN YSIDRO LOAM (Sa)
- SOLANO FINE SANDY LOAM (Sf)
- SYCAMORE SILT LOAM (So)
- WATER (W)

Notes:
1. * 1/4 mile around Pipeline Corridor.
2. Source: U.S. Department of Agriculture, Natural resources Conservation Service, Soil Survey Geographic (SSURGO) Database for Alamenda County, California, 2005.

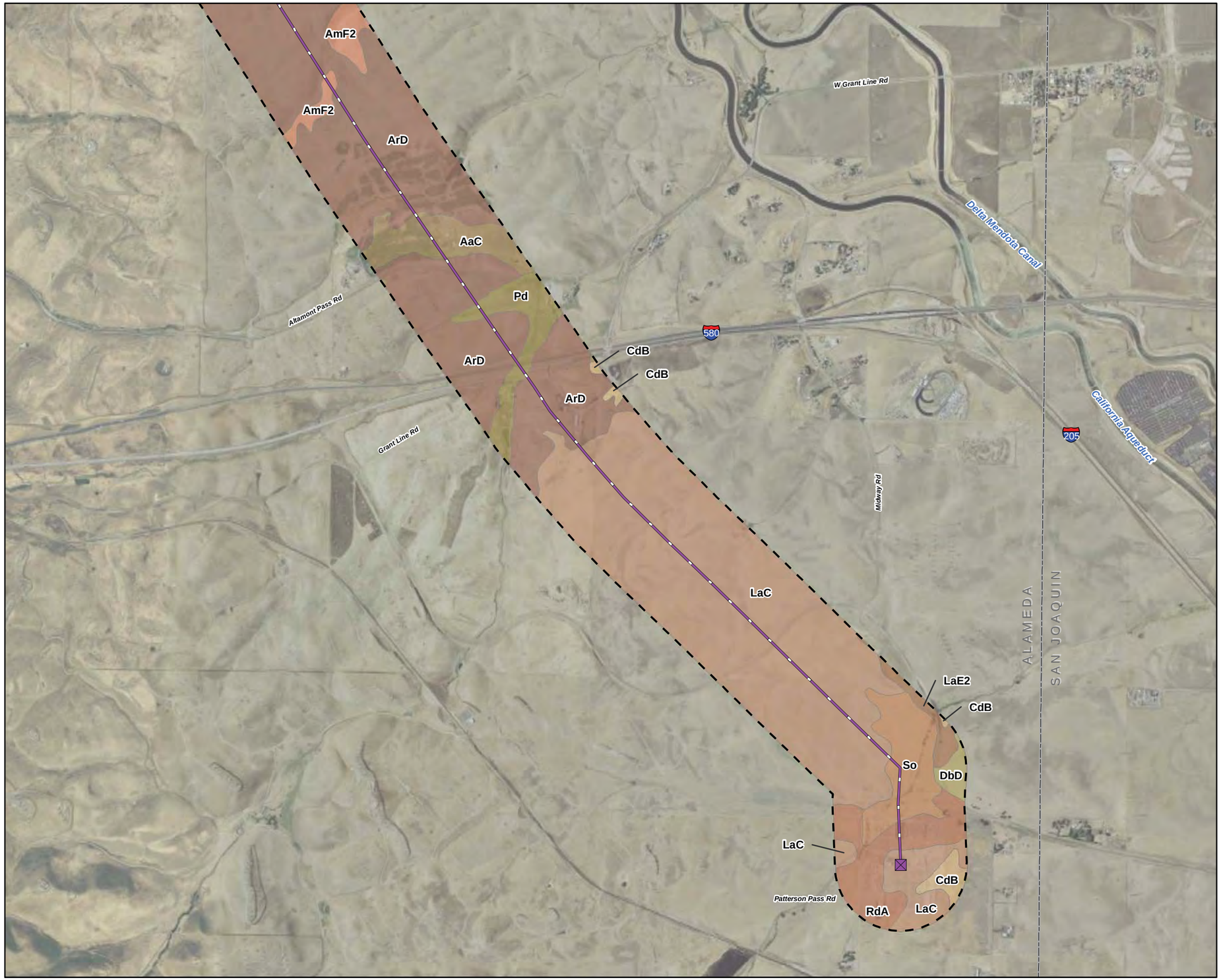
This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

N

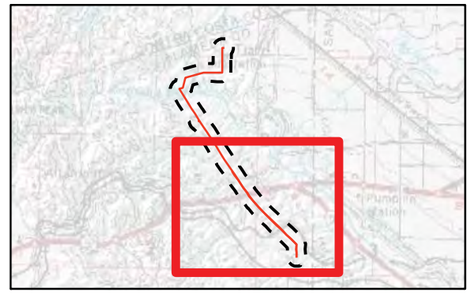
0 1,000 2,000
Feet

FIGURE 3-7
SOIL TYPES
MARIPOSA ENERGY PROJECT
ALAMEDA COUNTY, CALIFORNIA

CH2MHILL



VICINITY MAP



LEGEND

- KELSO SUBSTATION
- TESLA PEAKER SUBSTATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- * BUFFER

SOIL TYPES

- ALTAMONT CLAY, 3 TO 15 PERCENT SLOPES (AaC)
- ALTAMONT CLAY, 15 TO 30 PERCENT SLOPES (AaD)
- ALTAMONT CLAY, MODERATELY DEEP, 45 TO 75 PERCENT SLOPES, ERODED (AmF2)
- ALTAMONT ROCKY CLAY, MODERATELY DEEP, 7 TO 30 PERCENT SLOPES (ArD)
- CLEAR LAKE CLAY, DRAINED, 3 TO 7 PERCENT SLOPES (CdB)
- DIABLO CLAY, 15 TO 30 PERCENT SLOPES (DbD)
- LINNE CLAY LOAM, 3 TO 15 PERCENT SLOPES (LaC)
- LINNE CLAY LOAM, 15 TO 30 PERCENT SLOPES (LaD)
- LINNE CLAY LOAM, 30 TO 45 PERCENT SLOPES, ERODED (LaE2)
- PESCADERO CLAY (Pd)
- RINCON CLAY LOAM, 0 TO 3 PERCENT SLOPES (RdA)
- RINCON CLAY LOAM, 3 TO 7 PERCENT SLOPES (RdB)
- SAN YSIDRO LOAM (Sa)
- SOLANO FINE SANDY LOAM (Sf)
- SYCAMORE SILT LOAM (So)
- WATER (W)

Notes:
1. * 1/4 mile around Pipeline Corridor.
2. Source: U.S. Department of Agriculture, Natural resources Conservation Service, Soil Survey Geographic (SSURGO) Database for Alamenda County, California, 2005.

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

N

0 1,000 2,000
Feet

FIGURE 3-8
SOIL TYPES
MARIPOSA ENERGY PROJECT
ALAMEDA COUNTY, CALIFORNIA

Appendix A
Supplemental Biological Resources Evaluation

Supplemental Biological Resources Evaluation

Kelso-Tesla 230 kV Reconductoring Project

Prepared for

Mariposa Energy, LLC

January 2010

CH2MHILL
33 New Montgomery Street, Suite 2000
San Francisco, CA 94105

Contents

Section **Page**

Acronyms and Abbreviations ..... **v**

1. Introduction **1-1**

2. Project Description **2-1**

3. Regulatory Framework **3-1**
- 3.1 Laws, Ordinances, Regulations and Standards 3-1
  - 3.1.1 Federal LORS 3-1
  - 3.1.2 State LORS 3-2
  - 3.1.3 Local LORS and Other Jurisdictions 3-3
- 3.2 Standards of Significance 3-3

4. Biological Resources **4-1**
- 4.1 Environmental Setting 4-1
- 4.2 Vegetation Communities 4-2
  - 4.2.1 Upland Vegetation Types 4-2
  - 4.2.2 Waters of the U.S. (including wetlands) 4-3
  - 4.2.3 Wildlife Habitat 4-4
  - 4.2.4 Waters of the U.S. (including wetlands) 4-5
- 4.3 Special-Status Species 4-6
- 4.4 Limitations and Additional Studies Recommended 4-11

5. Summary of Biological Resources Evaluation **5-1**
- 5.1 Constraints Review 5-1
- 5.2 Involved Agencies and Agency Contacts 5-2
- 5.3 Permits Required and Anticipated Permit Schedule 5-2

6. Proposed Avoidance and Minimization Measures **6-1**

7. Conclusion **7-1**

8. References **8-1**

Appendixes

A Plants and Wildlife Observed during the Reconnaissance Survey
B Special-status Species Evaluated for this Analysis
C Summary of LORS

Tables

1 Agencies and Agency Contacts
2 Permitting Timelines

Figures

1 Vicinity Map
2A Vegetation Communities within the Transmission Corridor
2B Vegetation Communities within the Transmission Corridor
2C Vegetation Communities within the Transmission Corridor
2D Vegetation Communities within the Transmission Corridor
2E Vegetation Communities within the Transmission Corridor
2F Vegetation Communities within the Transmission Corridor
2G Vegetation Communities within the Transmission Corridor
2H Vegetation Communities within the Transmission Corridor
2I Vegetation Communities within the Transmission Corridor
2J Vegetation Communities within the Transmission Corridor
2K Vegetation Communities within the Transmission Corridor
2L Vegetation Communities within the Transmission Corridor
2M Vegetation Communities within the Transmission Corridor
2N Vegetation Communities within the Transmission Corridor
2O Vegetation Communities within the Transmission Corridor
2P Vegetation Communities within the Transmission Corridor
2Q Vegetation Communities within the Transmission Corridor
2R Vegetation Communities within the Transmission Corridor
2S Vegetation Communities within the Transmission Corridor
2T Vegetation Communities within the Transmission Corridor
3 Special-status Species Recorded within Five Miles
4A Special-status Species Recorded within Project Area
4B Special-status Species Recorded within Project Area

Acronyms and Abbreviations

AMMs	Avoidance and Minimization Measures
BA	Biological Assessment
BMPs	Best Management Practices
BO	Biological Opinion
CDFG	California Department of Fish and Game
CE	California Endangered Species
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CR	California State Rare Species
CSC	California Species of Concern
CT	California Threatened Species
CWA	Clean Water Act
EACCS	East Alameda County Conservation Strategy
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
ESA	Environmentally Sensitive Areas
FE	Federally Endangered Species
FT	Federally Threatened Species
HCP	Habitat Conservation Plan
I-580	Interstate 580
LORS	Laws, Ordinances, Regulations, & Standards
NEPA	National Environmental Protection Act
PG&E	Pacific Gas & Electric
RWQCB	Regional Water Quality Control Board

SWRCB	State Water Resources Control Board
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
WDR	Waste Discharge Requirements

SECTION 1

Introduction

As requested by Mariposa Energy, LLC (Mariposa Energy), CH2M HILL conducted a supplemental biological resources evaluation for the proposed reconductoring of the Kelso-Tesla 230-kV high-voltage electric power transmission line (Project) related to the Mariposa Energy Project (MEP). This supplemental biological resources evaluation discusses the potential impacts and mitigation regarding sensitive biological resources. This report consists of the following elements:

1. Review of special-status plants and wildlife known to occur, or that could potentially occur, in the project corridor
2. Location of any known occurrences of special-status species within the project vicinity.
3. Location of potentially sensitive habitats, including wetlands, perennial and intermittent drainages, and riparian areas.
4. Description of proposed avoidance and minimization measures for biological resources.

SECTION 2

Project Description

To handle the increase in energy load that will accompany several new power generating facilities expected in the region, the existing Pacific Gas & Electric (PG&E) Kelso -Tesla 230 kilovolt (kV) transmission line may be reconductored. This transmission line extends approximately 8 miles from the Kelso substation to the Tesla substation, both in northeastern Alameda County. The reconductor segment begins at PG&E's Kelso substation, runs south along Bruns Road to Christensen Road, runs west on Christensen Road across the California Aqueduct to join other existing north-south transmission lines, and then proceeds south to PG&E's Tesla substation. Reconductoring will not include the existing north-south transmission lines north of the junction with the line coming from the Kelso substation (Brentwood – Kelso). Figure 1 provides a site location and vicinity map.

This reconductoring project (Project) entails reconductoring of the 230-kV line on existing transmission towers and structures. Although some temporary ground disturbance is expected to accomplish this work, no new construction will occur, and therefore all project impacts will be temporary. PG&E work crews will use existing access roads and route along the transmission line corridor, thus no soil excavation for new roads, or for any other purpose will occur. Heavy machinery will be staged near each transmission tower within existing easements for a few days at the most.

SECTION 3

Regulatory Framework

This section describes the laws, ordinances, regulations, and standards (LORS) that apply to biological resource protection for the proposed Project. This section also describes the LORS that apply to the methods that were used to evaluate the potential presence of special-status species, and the potential adverse impacts on biological resources that could occur as a result of the Project.

3.1 Laws, Ordinances, Regulations and Standards

The following sections describe the primary LORS that apply to potential impacts on biological resources in the project area, and list the agencies responsible for enforcing the regulations. A summary of the LORS is provided in Appendix C.

3.1.1 Federal LORS

Federal Endangered Species Act (ESA) (16 U.S.C. § 1531 et seq.) section 9 prohibits the "take" of species listed as endangered or threatened under the Act. "Take" is defined by regulation as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct." "Harm" is further defined by the U.S. Fish and Wildlife Service (USFWS) to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. "Harass" is defined by USFWS as intentional or negligent actions that create the likelihood of injury to listed species by annoying them to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. "Incidental take" is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity.

Although "take" of a listed species is prohibited under ESA Section 9, incidental take authorization may be obtained pursuant to ESA Section 7 or Section 10. Species that are not listed are not protected by the ESA, even if they are candidates for listing; however, USFWS advises that a candidate species (as well as species of concern) could be elevated to listed status at any time, and applicants therefore should regard these species with special consideration.

Migratory Bird Treaty Act (16 U.S.C. § 703 – 711) protects all migratory birds, including nests and eggs.

Bald and Golden Eagle Protection Act (16 U.S.C. § 668) specifically protects bald and golden eagles from harm or trade in parts of these species.

Section 404 of the Clean Water Act (CWA) prohibits the discharge of dredged or fill material into "waters of the United States", including wetlands, without a permit from the United States Army Corps of Engineers (USACE). The definition of waters of the United States includes rivers, streams, estuaries, the territorial seas, ponds, lakes and wetlands. Wetlands are defined as those areas "that are inundated or saturated by surface or ground

water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" [33 Code of Federal Regulations (CFR) 328.3 7b]. Under Section 10 of the Rivers and Harbors Act of 1899, the USACE has the authority to regulate the navigable capacity of any of the waters of the United States. Under this Act, it is not lawful to excavate or fill, or in any manner to alter or modify the course, location, condition, or capacity of…any navigable water of the United States…"

All Section 404 CWA permit actions require water quality certification or a waiver pursuant to Section 401 of the CWA. This authority has been delegated by the United States Environmental Protection Agency (EPA) to the California State Waters Resources Control Board (SWRCB), who delegates regional authority to the Regional Water Quality Control Board (RWQCB).

3.1.2 State LORS

California Endangered Species Act (CESA) (Fish and Game Code Section 2050 et seq.) states that species listed as threatened or endangered in California cannot be "taken" or harmed unless such "take" is authorized pursuant to an incidental take permit. "Take" currently is defined as to do or attempt to do the following: hunt, pursue, catch, capture, or kill a member of a listed species.

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

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

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

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

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

Fish and Game Code Sections 1900 et seq., the California Native Plant Protection Act, protects rare plants listed as threatened, endangered, and rare.

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

California Fish and Game Code Sections 1601 – 1607 prohibit alteration of any stream or lake, including intermittent and seasonal channels and many artificial channels, without a Streambed Alteration Agreement from CDFG. This applies to any channel modifications

that would be required to meet drainage, transportation, or flood control objectives of a project.

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

Section 13263 of the Porter-Cologne Water Quality Control Act authorizes the RWQCB to regulate discharges of waste and fill material to waters of the State, including "isolated" waters and wetlands, through the issuance of water quality certifications or waste discharge requirements (WDR). The RWQCB typically issues WDRs for projects undergoing an Individual Section 404/10 process pursuant to USACE and USFWS requirements. Since WDRs must be approved by the elected Board, public outreach is also a component of WDR permitting activity.

3.1.3 Local LORS and Other Jurisdictions

East Alameda County Conservation Strategy (EACCS), which is still in development, provides a blueprint for conservation in East Alameda County. The goal of the EACCS is to protect, enhance, and restore natural resources in East Alameda County while streamlining the permitting process for future infrastructure and development projects. According to the EACCS, the Project is within the wind resource area. The Project is not within any designated open space area.

3.2 Standards of Significance

Impacts on biological resources are considered significant under CEQA if one or more of the following conditions could result from implementation of the Project:

- Substantial effect, reduction in numbers, restricted range or loss of habitat for a population of a state or federally listed threatened or endangered species.
- Substantial effect, reduction in numbers, restricted range, or loss of habitat for a population of special-status species, including fully protected, candidate proposed for listing, CSC, and certain California Native Plant Society (CNPS) list designations.
- Substantial interference with the movement of any resident or migratory fish or wildlife species.
- Substantial reduction of habitat for native fish, wildlife, or plants.
- Substantial disturbance of wetlands, marshes, riparian woodlands, and other wildlife habitat.
- Removal of trees designated as heritage or significant under County or local ordinances.
- Conflict with local habitat conservation plan or other approved local, regional, or state plan.

SECTION 4

Biological Resources

The information discussed in the following sections is based on a review of aerial photographs as seen in Google Earth and field observations made during a January 15, 2010 site visit. In addition, research of known and potential species occurrences was conducted using online databases of special-status plant and wildlife species. The species considered were obtained from a search of the California Natural Diversity Database (CNDDB), the species list provided by the Sacramento Fish and Wildlife office of the U.S. Fish and Wildlife Service, and a search of the CNPS online database.

Specific work areas have not been identified by PG&E, but a reconductoring project typically will affect existing tower sites, and will also require temporary staging areas, pull sites, shooflies, or other temporary work areas. Line crews will use existing access roads and routes along the transmission corridor. Often times no additional grading or vegetation clearing is required

Site surveys for sensitive biological resources should occur along the length of the project, including floristic surveys during the flowering season for rare plants. Rather than conducting protocol-level surveys for State or Federally listed species including California red-legged frog (*Rana draytonii*), California tiger salamander (*Ambystoma californiense*), and San Joaquin kit fox (*Vulpes macrotis mutica*), the PG&E could presume presence of these species throughout the project area and conduct the work in consultation with CDFG and/or USFWS. These listed species are all well documented in the project area at levels sufficient to assume their presence and thus require avoidance and minimization measures along the entire project.

There are also several locations where potential Waters of the U.S. (including wetlands) occur. Because these areas have not been surveyed or assessed formally by CH2M HILL, a formal wetland delineation using the USACE Wetland Delineation Manual (Environmental Laboratory, 1987) and Arid West Supplement should be performed along the entire Project.

4.1 Environmental Setting

The Tesla Substation at the southern end of the project area is located approximately ten miles east of Livermore and eight miles west of Tracy. The northern end of the Project corridor is at the Kelso substation, approximately one mile northeast of the Bethany Reservoir and Department of Water Resources (DWR) South Bay Pumping Plant. The entire Project is within annual grassland habitat, interspersed with aquatic features, and developments including an abandoned golf course near Altamont Pass Road. Along the Project corridor between Bethany Reservoir and Interstate 580 (I-580) is a wind farm of many wind turbines.

The Project is located on the western side of California's central valley. The region has a hot Mediterranean climate and an annual rainfall of 12 to 15 inches per year. The elevation range is from 19 to 1,000 feet above sea level. The Project crosses I-580 and parallels

Interstate 5 and the California Aqueduct. Near the Kelso Substation at the north end of the Project, agricultural land use is prevalent, but the vast majority of the alignment runs through grazed annual grassland, undeveloped save for the Altamont Pass Wind Resource Area, and a few small rural housing areas. Cattle grazing is common throughout the entire Project corridor.

4.2 Vegetation Communities

Vegetation community types identified during a reconnaissance level survey include annual grassland, potential waters of the U.S. (including wetlands), disturbed ruderal, and low-density rural housing and industrial developments. The project corridor also crosses the California Aqueduct north of the Bethany Reservoir, and a western arm of the Bethany Reservoir. See Figures 2A through 2T for preliminary mapping of vegetation communities within 100 feet on either side of the transmission line.

4.2.1 Upland Vegetation Types

4.2.1.1 California Annual Grassland

California annual grassland is the dominant vegetative community along the project corridor. In this vegetation type, grasses and forbs are the prevalent ground cover and there is less than 10% canopy cover from trees and shrubs. The dominant species are mostly nonnative grasses such as soft chess (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), red brome (*Bromus madritensis* ssp. *rubens*), wild oats (*Avena fatua*), barley (*Hordeum murinum*), and rat-tail fescue (*Vulpia myuros*). Introduced forbs are also commonly observed, such as filarees (*Erodium cicutarium* and *E. botrys*), wild radish (*Raphanus sativa*), black mustard (*Brassica nigra*), Italian thistle (*Carduus pycnocephalus*), yellow star-thistle (*Centaurea solstitialis*), Great valley gumweed (*Grindelia camporum*), and horehound (*Marrubium vulgare*). Native wildflowers typically found in this vegetation type include lupine (*Lupinus* ssp.), fiddleneck (*Amsinkia* spp.), popcornflower (*Plagiobothrys* spp.), California poppy (*Eschscholzia californica*), owl's clover (*Triphysaria* spp.) and clarkia (*Clarkia* spp.). This vegetation type is generally less disturbed in the vicinity of the Project in the area south of I-580. The wind farm has resulted in some disturbance, although the turbines were installed in the 1970s and the vegetation has since reverted to pre-disturbance composition, but still dominated by naturalized non-native grasses.

4.2.1.2 Ruderal

This vegetation type is characterized by weedy species that readily colonize disturbed soils in areas such as vacant lots and right-of-way strips. Species composition consists mostly of non-native, annual grasses and other herbs. Typical ruderal species include grasses such as ripgut brome and wild oat, and weedy herbs such as yellow star thistle (*Centaurea solstitialis*), Russian thistle (*Salsola tragus*), prickly lettuce (*Lactuca serriola),* and bull thistle (*Cirsium vulgare*).

Patches of ruderal vegetation occur along the project corridor, predominantly along Christensen road, on elevated berms and levees within agricultural developments, at the abandoned golf course, and along I-580 and the other roadways. Many of these areas are routinely disturbed during maintenance and agricultural activities, which may include

mowing, application of herbicides, and/or general agricultural practices within the respective rights-of-way. The ruderal habitat along the project corridor is low quality wildlife habitat because of the disturbed nature of this area. Nevertheless, raptors including red-tailed hawk (*Buteo jamaicensis*) and golden eagle (*Aquila chrysaetos)* may forage over these areas for small mammals. The western burrowing owl may nest in California ground squirrel burrows found along levees.

4.2.1.3 Non-Native Woodland

There are small patches of non-native woodland in the project corridor. These are small stands of non-native trees that are not connected with a larger woodland area. There is non-native woodland near the Kelso Substation and along Christensen Road and one small patch immediately north of the Tesla substation. These habitats are characterized by ornamental trees, including olive (*Olea europaea*), Bishop pine (*Pinus muricata*), and Peruvian pepper (*Schinus molle*).

4.2.1.4 Urban/Developed

There are only a few small areas of urban/developed land along the project corridor. PG&E's substations at the endpoints of the project are paved and graveled. I-580 is a major crossing for the alignment, and is paved. There is a small developed area in Altamont pass with residential and commercial areas. These areas are dominated by urban vegetation, consisting of ornamental trees, shrubs, lawn, and ruderal vegetation.

4.2.2 Waters of the U.S. (including wetlands)

4.2.2.1 Freshwater Marsh

Freshwater marshes occur where fresh water creates inundated or saturated soil conditions for most or all of the year. These marsh areas are typically composed of stands of perennial emergent plants such as cattail (*Typha* spp.), bulrush (*Scirpus* spp.), rush (*Juncus* spp.), and sedge (*Carex* spp.). Non-native emergents such as common reed (*Arundo donax*) may also be present. Certain upland areas that are permanent wetlands may remain wet all year long and host a different plant cohort. Marsh wetlands may occur on the golf course property along a drainage channel. In addition, there is a wetland supporting a dense stand of cattail just outside the project corridor along Christensen Road. This marsh wetland may provide breeding habitat for California red-legged frog.

Marsh wetlands support a variety of wildlife typically adapted to aquatic conditions. These habitats can support a variety of frogs, toads, and salamanders. During the spring and summer months, dense stands of emergent vegetation will support foraging and breeding habitat for resident and migratory birds.

4.2.2.2 Seasonal Wetlands

Freshwater seasonal wetlands occur in low-lying areas that remain saturated for a portion of the growing season. Soil conditions are generally dry from late summer through fall and vegetation can be highly variable. Common plant species include Italian ryegrass (*Lolium multiflorum*), nutsedge (*Cyperus* spp.), rush, cattail, and a variety of herbaceous plants.

Freshwater seasonal wetlands are found in many of the roadside ditches and irrigation ditches found within the project corridor (Figures 2A through 2T). Drainage features along the entire length of the project corridor may also support seasonal wetlands. Seasonal wetlands provide many of the same wildlife opportunities as freshwater marshes. Seasonal wetlands found within or adjacent to developed areas may be subject to routine disturbances, including mowing, use of herbicides, or scour/dredging during irrigation. Freshwater invertebrates including special-status fairy shrimp species may inhabit the seasonal wetlands found along the project corridor. California linderiella are known to exist in the vicinity of the Project near the Kelso Substation in a seasonally ponded depression.

4.2.2.3 Cottonwood-Willow Riparian

Mixed riparian forest occurs along the banks of perennial and seasonal drainages and other water bodies (e.g., marshes). This habitat community was once common along natural watercourses of the San Joaquin and Sacramento Valley, but these habitats have been largely cleared for agriculture, flood control, and urban expansion (Holland, 1986). Riparian forest includes a tree canopy over the associated water body, supporting characteristic species including willow (*Salix* spp.), walnut (*Juglan*s spp.), and Fremont cottonwood (*Populus fremontii*). Riparian woodland also includes valley oak (*Quercus lobata*) and non-native invasive species including salt cedar (*Tamarix* ramosissima). Riparian plant communities provide high habitat value for wildlife. They can provide important nesting habitat for birds, offer cover and refuge sites for amphibians, reptiles and small mammals, and serve as valuable movement corridors for wildlife.

Cottonwood-willow riparian occurs along Christensen Road just outside the project corridor. At this location, mature cottonwoods exist, with a midstory of dense willow thicket and an understory of cattail, coyote brush, and other grasses and forbs. Just north of the Tesla Substation a narrow band of riparian corridor exists along an ephemeral drainage. Riparian habitat in the project area is not contiguous with other wooded area and amid annual grassland. Nevertheless, these isolated patches of streamside habitat provide nesting opportunities for various song birds and raptors, breeding locations of frogs, salamanders and reptiles, and import cover and refuge sites for wildlife in general.

4.2.2.4 Open Water

The Project crosses the northernmost arm of the Bethany Reservoir, as well as the California Aqueduct. There are also numerous cattle stock ponds within and adjacent to the project area.

4.2.3 Wildlife Habitat

4.2.3.1 California Annual Grassland and Ruderal Habitat

Grasslands and ruderal habitats can support a variety of small mammals and provides important foraging and nesting habitat for raptors and other bird species. Birds commonly found foraging in grasslands include red-tailed hawk, Swainson's hawk, loggerhead shrike (*Lanius ludovicianus*), golden eagle, northern harrier (*Circus cyaneus*), white-tailed kite (*Elanus leucurus*), and California horned lark (*Eremophila alpestris actia*). Grasslands and ruderal habitats within the project vicinity provide foraging area for other bird species with a low likelihood of occurrence. Ground nesting birds include western meadowlark (*Sturnella*

neglecta) and the western burrowing owl, a species that nests in small mammal burrows. Common mammals include black-tailed jackrabbit (*Lepus californicus*), California ground squirrel, Botta's pocket gopher (*Thomomys bottae*), and California vole. The San Joaquin pocket mouse (*Perognathus inornatus inornatus*) inhabits grasslands in the near project vicinity. Finally, rodent burrows in grassland and ruderal habitats provide essential upland refuge sites (e.g., hibernacula) for amphibians and reptiles, including the California tiger salamander.

4.2.3.2 Non-Native Woodland

Eucalyptus (*Eucalyptus* spp.), Bishop pine, and Peruvian pepper, and olive trees along the Project can provide nesting habitat for raptors and other nesting birds including red-tailed hawk, Swainson's hawk, and white-tailed kite. Non-native woodlands are typically surrounded by annual grasslands which provide important foraging habitat for these bird species.

4.2.3.3 Urban/Developed

Landscaped vegetation can provide habitat for some wildlife species such as American goldfinch (*Carduelis tristis*), house finch (*Carpodacus mexicanus*), Brewer's blackbird (*Euphagus cyanocephalus*) and raccoon (*Procyon lotor*). Common reptiles, such as western fence lizard (*Sceloporus occidentalus*), may also use ruderal areas such as roadsides and elevated berms for thermal basking. Graveled areas will also provide nesting opportunities for ground nesting birds, including killdeer (*Charadrius vociferous*).

4.2.4 Waters of the U.S. (including wetlands)

4.2.4.1 Freshwater Marsh, Seasonal Wetland, and Open Water

Freshwater marshes and seasonal wetlands are highly productive wildlife habitats for amphibians, aquatic reptiles, waterfowl, wading birds, and some songbirds. Many wildlife species depend on freshwater marshes for their entire life cycles; others use them as temporary refuges or migratory stopover areas. Ducks, shorebirds, egrets, and herons feed, nest or rest here; hawks, owls, coyotes, and fox hunt the small mammals of the marshes; and aquatic herpetiles will feed or breed in these aquatic areas. In addition, vernal pools are host to many endemic and sensitive species of plants and animals. As described above, several sensitive species of crustaceans have been detected very close to the project area. Any wetlands found near any work areas will be surveyed for the presence of these crustaceans. Transmission poles are not located within wetlands, and therefore no work within wetlands is anticipated. However, tiny roadside puddles may occur, and these will be surveyed before work begins.

4.2.4.2 Cottonwood Willow Riparian

Creeks and the riparian habitat associated with them provide valuable habitat for waterfowl and shorebirds, including mallard (*Anas platyrhynchos*), great egret (*Ardea alba*), and yellow-headed blackbird (*Xanthocephalus xanthocephalus*) and offer cover and refuge sites for amphibians, reptiles, and small mammals. A site survey conducted in January 2010 identified no permanent waterways that cross the Project other than the Bethany Reservoir

and the California Aqueduct. All drainages that intersect the project area are seasonal drainages.

4.3 Special-Status Species

Special-status species are those species identified by resource agencies (and CNPS for plants] as Rare, Threatened, Endangered, or otherwise of concern because of declines in their populations, ranges, and/or habitats. For animals, this includes species that are:

- listed, proposed, or candidates for listing under the federal ESA;
- listed or candidates for listing under the California ESA;
- animals designated as "Fully Protected" under the California Fish and Game Code; and/or
- animals designated as "Species of Special Concern" by the CDFG.

Similarly, a plant is special-status if it meets one or more of the following criteria:

- Federally or State-listed, proposed, or candidate for listing, as rare, threatened or endangered (USFWS 2009; CDFG, 2009);
- Special Plant as defined by the CNDDB (CDFG, 2009); or
- Designated on lists 1-4 by the CNPS in its *Inventory of Rare and Endangered Plants of California* (CNPS, 2009).

(Note: presence of suitable habitat within the known range of a species may result in a moderate or high designation assuming an unrecorded population)

A species' potential to occur in the vicinity of the Project was determined by assessing whether its known or expected geographic range is found within or near the project corridor, and if its known or expected habitat includes the project corridor. The likelihood of occurrence (low, moderate, high) is based on habitat requirements (*e.g.,* substrate, hydrology, vegetation type, and disturbance factors) and range, applied by using the following general guidelines:

> **Low**: Habitat within the project corridor satisfies very few of the species' requirements and/or the range of the species overlaps with the vicinity of the project corridor, but not with the project corridor itself. The species' presence within the project corridor is unlikely.
>
> **Moderate**: Habitat within the project corridor meets some of the species' requirements and known locations for the species are found in the vicinity of the project corridor. Presence of the species within the project corridor is moderately likely.
>
> **High**: Habitat within the project corridor meets most or all of the species' requirements and known locations for the species are found within 10 miles of the project corridor. Presence of the species within the project corridor is highly likely.

Using these criteria, 16 special-status animals have a moderate or high potential to occur within the project corridor. A summary of special-status plants and wildlife researched for this analysis is included in Appendix B. Figure 3 shows known CNDDB occurrences of special-status species within five miles of the project corridor. Figures 4A and 4B show the known CNDDB occurrences of special-status species within 100 feet of the Project. Most of these species are associated upland grassland habitats, and a few with wetland habitats. Wildlife species discussed below have known populations near the project corridor, and thus considered most likely to represent biological constraints to the Project.

The project corridor also falls within the proposed revised critical habitat for the California red-legged frog (Critical Habitat Unit CCS-2). The Project also falls within designated critical habitat for several anadromous fish species, but none of these species occurs in any of the waters in the project vicinity.

The **vernal pool fairy shrimp** (*Branchinecta lynchi*) is a federally threatened species. This small aquatic crustacean relies on seasonally inundated pools for its lifecycle. Vernal pool fairy shrimp inhabit vernal pools, ephemeral alkali pools, seasonal drainages, stock ponds, vernal swales, and rock outcrops. Potentially suitable habitat is present within the project area. The likelihood of this species to occur within the project area is therefore high. Therefore, vernal pools, roadside pools, and other seasonally ponded depressions in the project area should be avoided during project construction. If avoidance is not feasible, focused surveys should be conducted to determine presence/absence of this species in the project area. Protocol level surveys should be coordinated with the USFWS.

The **mid-valley fairy shrimp** (*Branchinecta mesovallensis*) is not a state or federally listed species, but is a California species of concern. This small aquatic crustacean inhabits shallow vernal pools, swales, and various artificial ephemeral wetland habitats. Potentially suitable habitat is present within and adjacent to the project area. However, the project area is located on the edge of the known species range, as this species has been found in Contra Costa County, but not Alameda County. The likelihood of this species to occur within the project area is therefore moderate. Therefore, vernal pools, roadside pools, and other seasonally ponded depressions in the project area should be avoided during project construction. If avoidance is not feasible, focused surveys should be conducted to determine presence/absence of this species in the project area.

The **California linderiella** (*Linderiella californiensis*) is not a state or federally listed species, but is a California species of concern. This fairy shrimp is the most common fairy shrimp in California, and often co-occurs with vernal pool fairy shrimp. They may be found in any grassland supporting vernal pools. The likelihood of this species to occur within the project area is therefore high. Therefore, vernal pools, roadside pools, and other seasonally ponded depressions in the project area should be avoided during project construction. If avoidance is not feasible, focused surveys should be conducted to determine presence/absence of this species in the project area.

The **curved-foot hygrotus diving beetle** (*Hygrotus curvipes*) is not a state or federal species of concern, but a California species of concern. This species is known from aquatic sites in Alameda and Contra Costa County, and has occurred near an adjacent project in an irrigation ditch west of Christensen Road. The likelihood of this species to occur within the project area is therefore high. Therefore, vernal pools, roadside pools, and other seasonally

ponded depressions in the project area should be avoided during project construction. If avoidance is not feasible, focused surveys should be conducted to determine presence/absence of this species in the project area.

The **California red-legged frog** (*Rana aurora draytonii*) is a federally threatened species and a California species of concern. This species is the largest native frog in the western United States, and was once abundant in much of California. Adults need dense, shrubby, or emergent riparian vegetation closely associated with deep (greater than 2 feet) still or slow-moving water. Well-vegetated terrestrial areas within the riparian corridor may provide important sheltering habitat during winter. California red-legged frogs aestivate during summer or dry weather in small mammal burrows and moist leaf litter. They have been found up to 100 feet from water in adjacent dense riparian vegetation and can travel in excess of two miles overland during dispersal to adjacent breeding sites.

Most of the project corridor is within two miles of known red-legged frog occurrences. Potentially suitable habitat is present in the project area, and the likelihood of this species to occur within the project area is therefore high. Any ground disturbance activities associated with the project may result in take of California red-legged frog. Therefore, formal consultation with the USFWS regarding this species would be required. Conservation and compensation measures resulting from consultation will be incorporated into the proposed project.

The **California tiger salamander** (*Ambystoma californiense*) is a federally threatened species and a proposed state threatened species. It is a large, stocky, terrestrial salamander distinguished from other Ambystomids by having a dark body covered with pale yellow or white spots. The California tiger salamander is restricted to grasslands and low (typically below 2,000 feet) foothill regions where aquatic sites are available for breeding. They prefer natural ephemeral pools, including vernal pools, seasonal ponds, and readily available adjacent grassland plant communities. During its life cycle, this species will disperse into adjacent upland areas, where it will aestivate in small mammal burrows during the summer dry months.

The California tiger salamander is known to be present in the Kelso Substation area. There are also records of this species within a drainage that crosses the project about 2,000 feet north of I-580. There are several occurrences of the tiger salamander within one mile of the Project north of I-580. There is only one occurrence of this species within one mile of the Project south of I-580. There are other occurrences of the California tiger salamander south of I-580 within five miles of the project. Because this species is known in the general area, the likelihood for them to occur throughout the project area is considered high. Any ground disturbance activities associated with the Project may result in take of California tiger salamander. Therefore, formal consultation with the USFWS and CDFG regarding this species would be required. Conservation and compensation measures resulting from consultation will be incorporated into the proposed project.

The **western pond turtle** (*Actinemys marmorata*) is a California species of concern. This turtle inhabits permanent water sources such as ponds, streams, irrigation ditches, or pools. It requires basking sites near the water, using open banks, logs, rocks, or floating mats of vegetation. Females may nest up to 328 feet away from the permanent water source. This turtle is known from the general area, and may occur in the Project where permanent water

sources exist. The likelihood of this species to occur within the project area is therefore considered moderate. Site surveys of suitable water bodies in close proximately to work areas should occur to assess presence of this species.

The **golden eagle** (*Aquila chrysaetos*) is a state fully protected species. Golden eagles nest throughout much of the state. This bird inhabits open grasslands and savannahs, nesting in cliffs of all heights and in large trees in open areas. They are occasionally observed on the valley floor in agricultural areas and are sometimes seen hunting in fallow or disked rice fields. This species is considered relatively common in the project area vicinity, and suitable foraging habitat is present throughout the project corridor. However, no suitable nest sites were observed within or adjacent to the project area during the reconnaissance-level survey. Although the likelihood of nesting eagles within the project area is low, golden eagle is considered likely to occur. Therefore, preconstruction surveys should be conducted for nesting eagles. State and federal laws protect nests detected during the surveys.

The **Swainson's hawk** (*Buteo swainsoni*) is a state threatened species. This raptor often nests peripherally to riparian systems of the valley, as well as use lone trees or groves in agricultural fields. Swainson's hawk will also select nest sites in trees growing along road shoulders. The Swainson's hawk requires large, open grasslands with abundant prey in association with suitable nest sites. Suitable foraging areas also include lightly grazed pastures, alfalfa and other hay crops, and certain grain and row croplands. Unsuitable foraging habitat includes crops such as vineyards, orchards, certain row crops, rice, corn and cotton crops. There are known occurrences of this species within one mile of the Project, therefore preconstruction surveys should be conducted for nesting Swainson's hawk. State and federal laws protect nests detected during the surveys.

The **northern harrier** (*Circus cyaneus*) is a California species of concern. This raptor inhabits meadows, grasslands, open rangelands, desert sinks, and emergent wetlands, and prefers tall grasses and forbs for cover. The northern harrier nests on the ground in shrubby vegetation. This species was observed in the project area during the reconnaissance survey, and suitable foraging habitat is present within the project area. Therefore, preconstruction surveys should be conducted for northern harrier. State and federal laws protect nests detected during the surveys.

The **western burrowing owl** (*Athene cunicularia*) is a California species of concern. This small owl is diurnal and inhabits open, dry grassland. This species nests in old burrows of California ground squirrels or other small mammals, but has also been known to nest in storm drains or other manmade structures. Although this owl prefers to nest in burrows located in flat, bare terrain adjacent to agriculture and waterways, they often use burrows located on levees, berms, and other earthen structures. They will also occupy burrows located within active agricultural roads. Burrowing owls are year-long resident of dry California grasslands, and forage on insects, small mammals, birds, carrion, and reptiles. This species is known from the project area. The likelihood for this species to be present is therefore high. Therefore, preconstruction surveys should be conducted for western burrowing owl. State and federal laws protect nests detected during the surveys.

The **loggerhead shrike** (*Lanius ludovicianus*) is a California species of concern. This species is typically associated within open grassland habitats providing perch sites such as trees, shrubs, posts, fences, or utility lines. This small bird feeds mostly on large insects but will

also take other small birds, mammals, amphibians, reptiles, fish, and carrion. Loggerhead shrikes usually nest in native shrubs. This species has been detected in the project area; therefore preconstruction nesting surveys would be required to determine presence of any active nests. State and federal laws protect nests detected during the surveys.

The **California horned lark** (*Eremophila alpestris actia*) is a California species of concern. This passerine prefers a variety of open habitats, including short-grass prairie, mountain meadows, "bald" hills, coastal plains, fallow agricultural areas, and alkali flats. This species is a ground nester, building a cup-shaped grass-lined nest in a depression on open ground. There are occurrences of the horned lark within one mile of the Project, and suitable foraging and nesting habitat is present in the project area. The likelihood of this species to occur within the project area is therefore high, thus preconstruction nesting surveys would be required. State and federal laws protect nests detected during the surveys.

The **tricolored blackbird** (*Agelaius tricolor*) is a California species of concern. This passerine occupies dense stands of emergent vegetation near permanent water sources. Due to presence of nearby marsh wetlands, the likelihood of occurrence by this species is considered moderate. Therefore, preconstruction surveys should occur to determine if tricolored blackbird nest in the project area. State and federal laws protect nests detected during the surveys.

The **San Joaquin kit fox** (*Vulpes macrotis mutica*) is a federally endangered and state threatened species. The San Joaquin kit fox lives in grasslands or grassy open areas with scattered shrubs or scrub. This species dens in small animal burrows, using many dens in an area, and prefers open, level areas with loose-textured soils. They prey on small mammals, primarily kangaroo rats, ground squirrels, rabbits, birds and insects. This species ranges up to nine miles in search of prey, and usually has a home range between one and two square miles, although it may have a home range of twelve square miles.

There are numerous occurrences of this species in close proximity to the Project. Given the home range and the known traveling distance during foraging, the presence of this species throughout the Project is presumed. Any ground disturbance activities associated with the project may result in take of San Joaquin kit fox. Therefore, formal consultation with the USFWS regarding this species would be required. Conservation and compensation measures resulting from consultation will be incorporated into the proposed project.

The **American badger** (*Taxidea taxus*) is a California species of concern. The badger lives in open habitats with friable soils, including shrub and grassland communities. They dig burrows in the friable soils and use them for cover and breeding purposes. There are known occurrences of this species within one mile of the Project, and there is suitable foraging habitat present in the project area; therefore the likelihood of this species to be present within the project area is moderate. Preconstruction surveys should occur to determine the presence of American badger denning in the project area.

The **special-status plant species** known or that could potentially occur within the project area are associated with vernal pool or valley foothill grassland habitats. Therefore, a rare plant survey is recommended during the appropriate growing season to determine presence or absence of special-status species. A complete list of potentially occurring species in included in Appendix B.

4.4 Limitations and Additional Studies Recommended

The research performed thus far for the Project relied on a cursory review of available data, including aerial photographs, species databases, and the results of a reconnaissance level survey. At this time, specific locations of temporary and permanent impact areas have not been identified. The CNDDB is a voluntary database, and therefore, it does not represent a complete inventory of all known plant and wildlife populations in the state. Furthermore, the CNDDB does not track or record negative survey results.

The project corridor has the potential to support special-status species habitats and other areas of potential biological sensitivity. Based on this review and CH2M HILL's knowledge of the biological issues of the project area vicinity, the follow special-status species likely pose the most significant constraint on the proposed project:

- Vernal pool fairy shrimp
- Western burrowing owl
- California red-legged frog
- California tiger salamander
- San Joaquin kit fox
- Rare Plants

If temporary construction activities are restored to preconstruction conditions, the Project will not result in any permanent habitat loss. Typically during reconductoring temporary effects include the work activities at existing towers, staging and storage of equipment and supplies in staging areas, and overland travel to access segments of the transmission line lacking established roads. Any type of ground disturbance related to the project will likely require formal consultation with the USFWS and CDFG regarding the special-status species.

SECTION 5

Summary of Biological Resources Evaluation

5.1 Constraints Review

The following issues are expected to be the biological and regulatory issues for the proposed reconductored alignment project:

1. **Temporary disturbance of streams if no stream crossings or culverts are present: USACE Nationwide Permit, RWQCB Water Quality Certification, and/or CDFG Streambed Alteration Agreement.** Although no transmission towers are present within any streams or wetlands, streams in the project area will need to be crossed to access the Project. An initial screening of the project area suggests that there may be a few new stream crossings required to implement the Project. Therefore, the Project could result in fill of jurisdictional waters.

2. **Construction activities have the potential to affect Federal and State Threatened and Endangered Species in the grasslands along the project corridor. The project will require formal consultation with UFWS and CDFG approvals.** Given the known occurrences of vernal pool fairy shrimp, western burrowing owl, California tiger salamander, California red-legged frog, and San Joaquin kit fox in close proximity to the project area along the entire length of the project corridor, presence of these species may be presumed rather than conducting protocol surveys. If work is conducted during the seasonal period when these species are less active, then biological monitoring and avoidance of small mammal burrows and seasonal ponds would likely be sufficient to avoid take of these species. If necessary, construction fencing may be erected around the temporary work sites to prevent those species from entering the work areas. For the kit fox, a nocturnal species, avoiding driving at night would reduce potential accidental mortality from driving along the power line corridor. Construction fencing, avoiding small mammal burrows, and biological monitoring would help minimize the potential for take of kit fox.

   The construction activities are not expected to have any permanent affects on any habitat or species. However, because the presence of the federal species such as vernal pool fairy shrimp, red-legged frog, tiger salamander, and kit fox can be presumed, formal consultation would be required. Under the ESA, the USFWS will require a Biological Assessment (BA) (Section 7) or Habitat Conservation Plan (HCP) (Section 10) from PG&E for issuance of a Biological Opinion (BO) for federal species. The process could take up to 12 to 24 months including preparation of the BA or HCP and issuance of a BO. In addition under the CESA, consultation with CDFG will be required for potential impacts to state listed species such western burrowing owl and other California species of special concern.

3. **Migratory and Resident Birds**: Since this project will not affect any trees, only ground-nesting species or species nesting in the towers have the potential to be affected by

construction activities. Pre-construction nest surveys should occur so that construction does not result in the failure of any nearby active bird nest.

4. **Bird Strikes:** Aboveground infrastructure such as electrical lines pose a potential hazard to bird strikes and/or electrocution, particularly if these structures occur near known migratory bird flyways or concentrations of raptors. If the Kelso-Tesla 230 kV transmission line falls within a PG&E-designated raptor concentration zone, the proposed project should adhere to PG&E's policy of using raptor-safe standards.

5.2 Agencies and Agency Contacts

TABLE 1
Agencies and Agency Contacts

Agency	Contact/Title	Telephone
California Department of Fish Game	Marcia Grefsrud P.O. Box 47 Yountville, CA 94599	(916) 928-5805
Regional Water Quality Control Board	Greg Vaughn 11020 Sun Center Drive, Suite 200 Rancho Cordova, CA 95670	(916) 464-4742
U.S. Army Corps of Engineers	William Guthrie 1325 J Street Sacramento, CA 95814	(916) 557-5269
U.S. Fish and Wildlife Service	Kim Squires 2800 Cottage Way, W-2605 Sacramento, CA 95825	(916) 414-6654

5.3 Permits Required and Anticipated Permit Schedule

Table 2 provides assumptions regarding the following specific permits and agreements. These timelines are based on a worst case scenario, meaning that these are the maximum time periods each process could take depending on the project impacts that cannot be avoided to the maximum extent possible.

TABLE 2
Permitting Timelines

Agency	Authorization Required/Likely Permit	Typical Timeline/Comments
USFWS	Federal ESA Consultation for Biological Opinion or determination of "no effect"	6-18 months: One year from time the BA is submitted; 6 months to 1 year to prepare BA (actual consultation could be through USACE)
USACE	Preconstruction Notification for Nationwide Permit	6 months to 1 year from time application is complete; requires the BO if consulting with USFWS under Section 7 ESA.

TABLE 2
Permitting Timelines

Agency	Authorization Required/Likely Permit	Typical Timeline/Comments
RWQCB	Section 401 Water Quality Certificate and Porter-Cologne waste discharge requirements	6 months to 1 year from time application is complete, follows USACE confirmation that project meets Nationwide Permit requirements.
CDFG	1602 Streambed Alteration Agreement	3-6 months from time application is submitted.
CDFG	California ESA 2081 Incidental Take Permit or Consistency Determination	See USFWS timeline; permits are generally issued in conjunction

SECTION 6

Proposed Avoidance and Minimization Measures

Pursuant to CEQA and NEPA, avoidance and minimization measures (AMM) must be incorporated into the Project design and schedule if a determination has been made that special-status species could be adversely affected during project implementation. AMMs would also apply to mitigate project effects on wildlife habitat and movement corridors and to natural communities including wetlands and riparian corridors. Typically, consultation with the regulating agencies (section 5.2) includes negotiations regarding alternatives and methods to avoid and/or minimize any adverse effects on special-status species, should those species, or their habitats, be found within the project area. Therefore, the Project may be required to implement measures such as:

1. **Preconstruction Nesting Bird Surveys.** No earlier than 2 weeks prior to ground disturbance activities, a qualified biologist should perform active bird nesting surveys within the proposed work areas. The survey area should also include an appropriate buffer for any offsite species particularly sensitive to construction disturbances (e.g., 300 feet for raptors). The surveys should occur on an as-needed basis (determined by biologist) until all construction areas have been disturbed. If a construction area goes undisturbed for more than 3 days during the nesting season, a subsequent bird nesting survey of that area is recommended before work can resume. Any active nest found during surveys will be protected with an appropriate no-work buffer, which is typically provided by CDFG, until the eggs have hatched and young fledge. As previously mentioned, ground-nesting species in the project area may include the burrowing owl. The entire project area is within grassland, so no trees will be affected.

2. **Special-Status Species Preconstruction Surveys**. As stipulated by the USFWS and CDFG during formal consultation regarding the Project, prior to construction activities, a USFWS-approved biologist should perform a pre-construction survey for the federally listed species potentially occurring in the project corridor. If a listed species is found, individuals would be relocated or avoided in accordance with USFWS and CDFG agency directives.

3. **Onsite Biological Monitor.** USFWS is likely to require that the Project should employ a USFWS-approved onsite biological monitor to oversee all project activities, since all work sites will be presumed to be in San Joaquin kit fox, California tiger salamander, and California red-legged frog habitat. The monitor will have the responsibility of administering a worker environmental training program to construction personnel. The monitor will also ensure that the Project follows the conservation measures for the special-status species approved by the USFWS and/or CDFG.

4. **Equipment Fueling, Maintenance and Staging Controls**. All refueling, maintenance, and staging of equipment and vehicles should occur at least 50 feet from riparian habitat or water bodies and not in a location from where a spill would drain directly toward aquatic habitat. The biological monitor will make sure contamination of aquatic habitat does not occur during such operations. Prior to the onset of work, a plan will be developed (such as a Storm Water Pollution Prevention Plan) for prompt and effective response to any accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

5. **Minimal Ground Disturbance and Revegetation**. Only the minimal vegetation should be cleared to accomplish the proposed project. This Project is not expected to affect any trees, and this project does not include significant ground disturbance. To the extent feasible, existing access roads and routes should be used to access each work area. Overland travel should be minimized when practical. Heavy equipment staging and working may temporarily affect some area grassland.

6. **Establish Environmentally Sensitive Areas (ESAs).** ESAs should be established throughout the project corridor to identify potentially sensitive wildlife habitat or populations of rare plants. Sensitive wildlife habitat in the grasslands would include small mammal burrows or any vernal pools and seasonal wetlands that may occur nearby. ESAs should be cordoned off using high-visibility snow fencing.

7. **Sediment Control.** Best Management Practices (BMPs) should be incorporated into the project design and schedule to minimize any wind- or water-related erosion. At a minimum, the following protective measures should be included if necessary: 1) dust control of disturbed soils areas using water trucks or tackifiers as needed; and 2) silt fence and/or straw rolls installed according the specifications to prevent soil erosion and/or sedimentation into aquatic sites during the rainy season.

8. **Worker Environmental Awareness Training.** All personnel working on the Project should attend an employee education program. The program will consist, at minimum, of the following: 1) a description of the status and life history of special-status species; 2) specific measures that are being implemented to conserve biological resources; and 4) information regarding the procedure to follow should a listed species (California red-legged frog, California tiger salamander, or kit fox) is encountered during project construction.

9. **Construction Activities Conducted during Dry Summer Months.** Construction activities should be timed between April 15 to October 15 when aquatic sites are either dry or at their driest. This work window will avoid the dispersal period of the California tiger salamander and the California red-legged frog.

10. **Trash and Debris Control.** During project activities, trash that may attract special-status species predators should be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris should be removed from the work areas.

11. **Pet Control.** No pet owned by project personnel should be allowed on the project corridor.

SECTION 7

Conclusion

The potential impacts to sensitive biological resources from the proposed reconductored project may be reduced through careful planning of the construction schedule and placement of temporary work areas. Surveys are recommended to identify sensitive habitats and special-status species; the discrete work areas along the transmission line corridor may then be specifically sited to avoid local sensitive biological resources to the furthest extent practicable. The nature of the proposed project corridor would allow most of the work to occur using existing power line access roads. In addition, the scope of work likely includes replacing or adding to existing structures, resulting in a temporary work footprint. No permanent effects on any sensitive species have been identified at this time.

The majority of the potential biological impacts or constraints are expected to be encountered during the construction period, when species such as the San Joaquin kit fox, California red-legged frog, and California tiger salamander could be affected by project construction. Although there is a high likelihood that state or federally listed species occur along the project corridor, careful planning and implementation of AMMs (see section 6) would allow implementation of the project without significant impacts to biological resources.

SECTION 8

References

California Department of Fish and Game (CDFG). 2009. California Natural Diversity Data Base (CNDDB) Rarefind 3.0.5. Electronic database. Sacramento, CA. Search of U.S. Geological Survey 7.5 minute quadrangles Altamont, Livermore, Clifton Court Forebay, Holt, Tracy, Midway, Antioch South, Brentwood, Woodward Island, Tassajara, Byron Hot Springs, Union Island, La Costa Valley, Mendenhall Springs, Cedar Mountain, and Lone Tree Creek. Accessed in December 2009.

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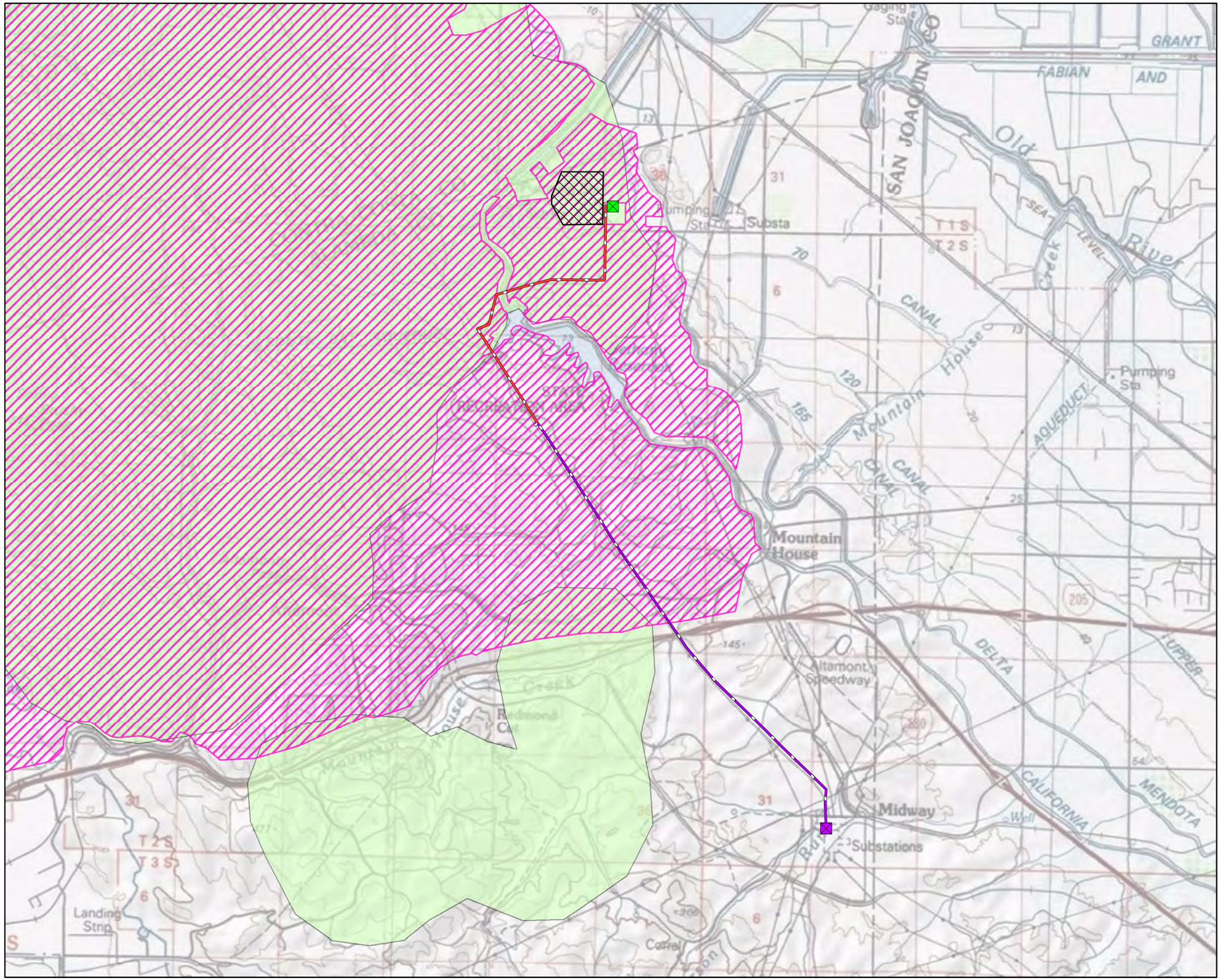
Holland, R. F. 1986. Preliminary descriptions of the terrestrial natural communities of California. Nongame-Heritage Program, California Department of Fish and Game, Sacramento, CA.

U.S. Fish and Wildlife Service (USFWS). 2009. Federal endangered and threatened species list website. Available at: http://sacramento.fws.gov/es/spp_list.htm Access in December 2009.

Figures



LEGEND

- KELSO SUBSTATION
- TESLA PEAKER SUBSTATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- BYRON CONSERVATION BANK

CRITICAL HABITAT

- CALIFORNIA RED-LEGGED FROG (PROPOSED CRITICAL HABITAT)
- CALIFORNIA TIGER SALAMANDOR (PROPOSED CRITICAL HABITAT)

Notes:
1. Source: U.S. Fish and Wildlife Service Critical Habitat Data, 2004 & 2008.

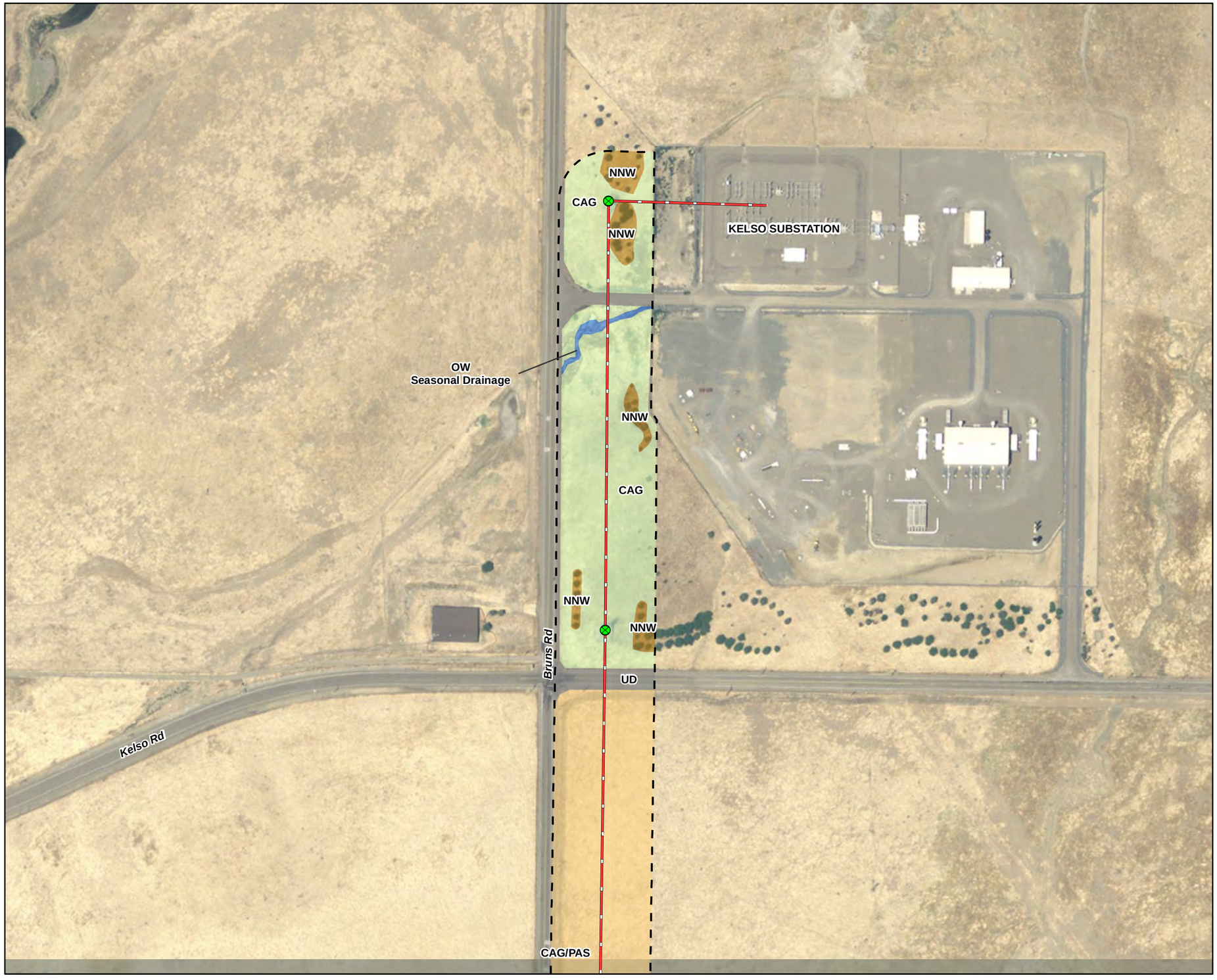
This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

N

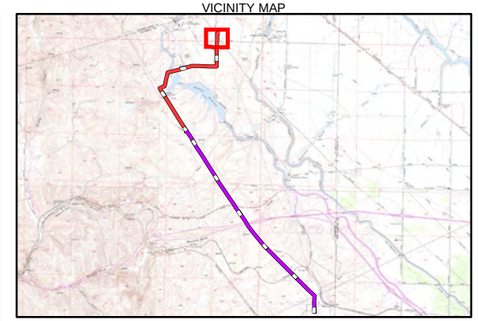
0 2,500 5,000
Feet

FIGURE 1
VICINITY MAP
PG&E KELSO-TELSA 230-KV RECONDUCTORING PROJECT
ALAMEDA COUNTY, CALIFORNIA

CH2MHILL



VICINITY MAP



LEGEND

- EXISTING TOWER LOCATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- POWER LINE 200 FOOT CORRIDOR

VEGETATION COMMUNITIES

- CALIFORNIA ANNUAL GRASSLAND (CAG)
- CALIFORNIA ANNUAL GRASSLAND/PASTURE LAND (CAG/PAS)
- NON-NATIVE WOODLAND (NNW)
- OPEN WATER (OW)
- RECREATIONAL URBAN DEVELOPMENT (RUD)
- RIPARIAN FOREST/SCRUB (RFS)
- URBAN/DEVELOPED (UD)

Source: Biological Survey, January 15, 2010.

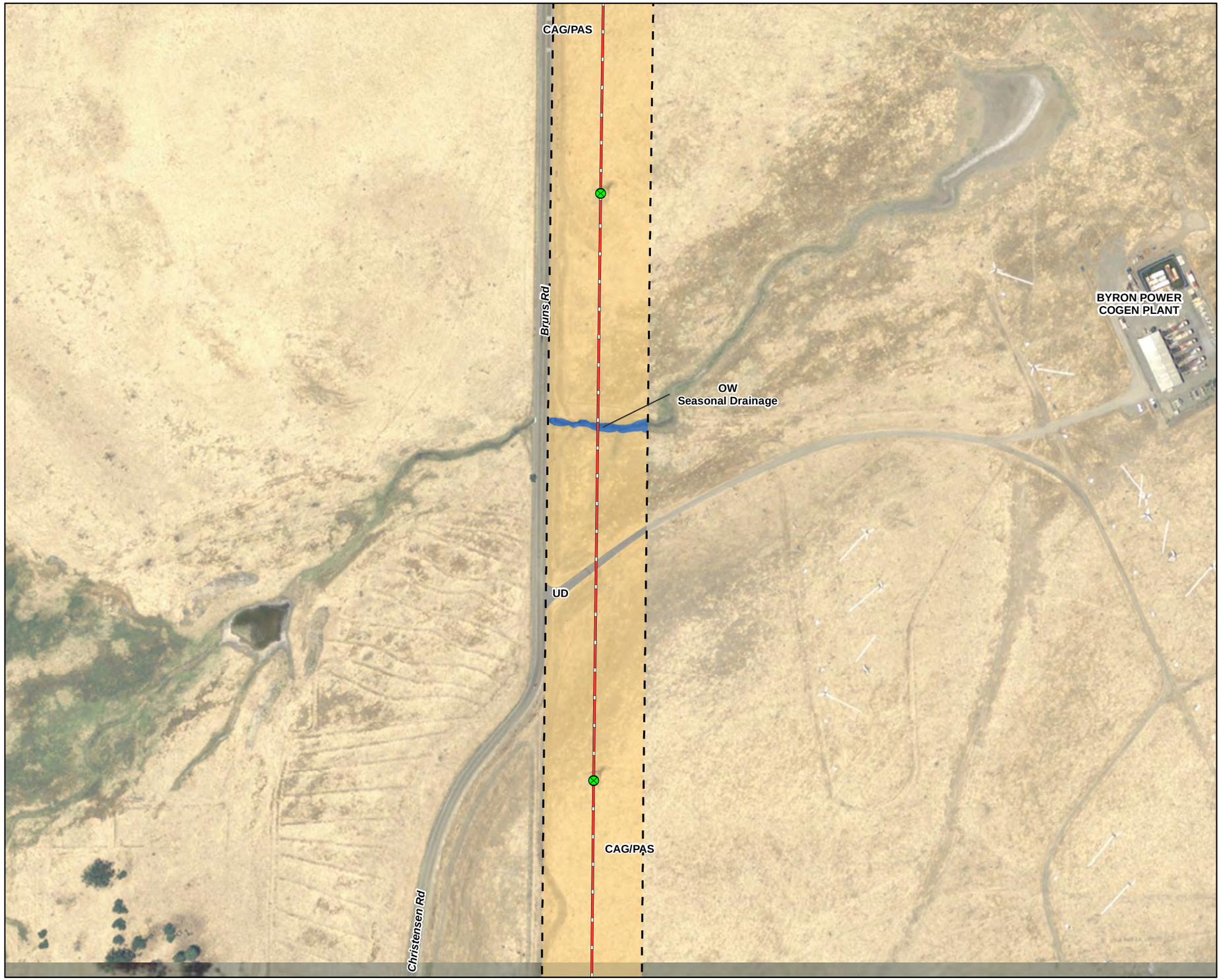
This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

N

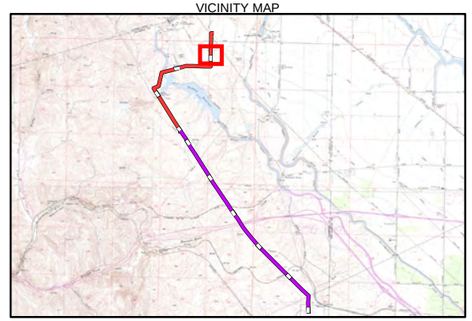
0 100 200
Feet

FIGURE 2-A
VEGETATION COMMUNITIES WITHIN THE TRANSMISSION CORRIDOR

PG&E KELSO-TELSA 230-KV RECONDUCTORING PROJECT
ALAMEDA COUNTY, CALIFORNIA



VICINITY MAP



LEGEND

- EXISTING TOWER LOCATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- POWER LINE 200 FOOT CORRIDOR

VEGETATION COMMUNITIES

- CALIFORNIA ANNUAL GRASSLAND (CAG)
- CALIFORNIA ANNUAL GRASSLAND/PASTURE LAND (CAG/PAS)
- NON-NATIVE WOODLAND (NNW)
- OPEN WATER (OW)
- RECREATIONAL URBAN DEVELOPMENT (RUD)
- RIPARIAN FOREST/SCRUB (RFS)
- URBAN/DEVELOPED (UD)

Source: Biological Survey, January 15, 2010.

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

N

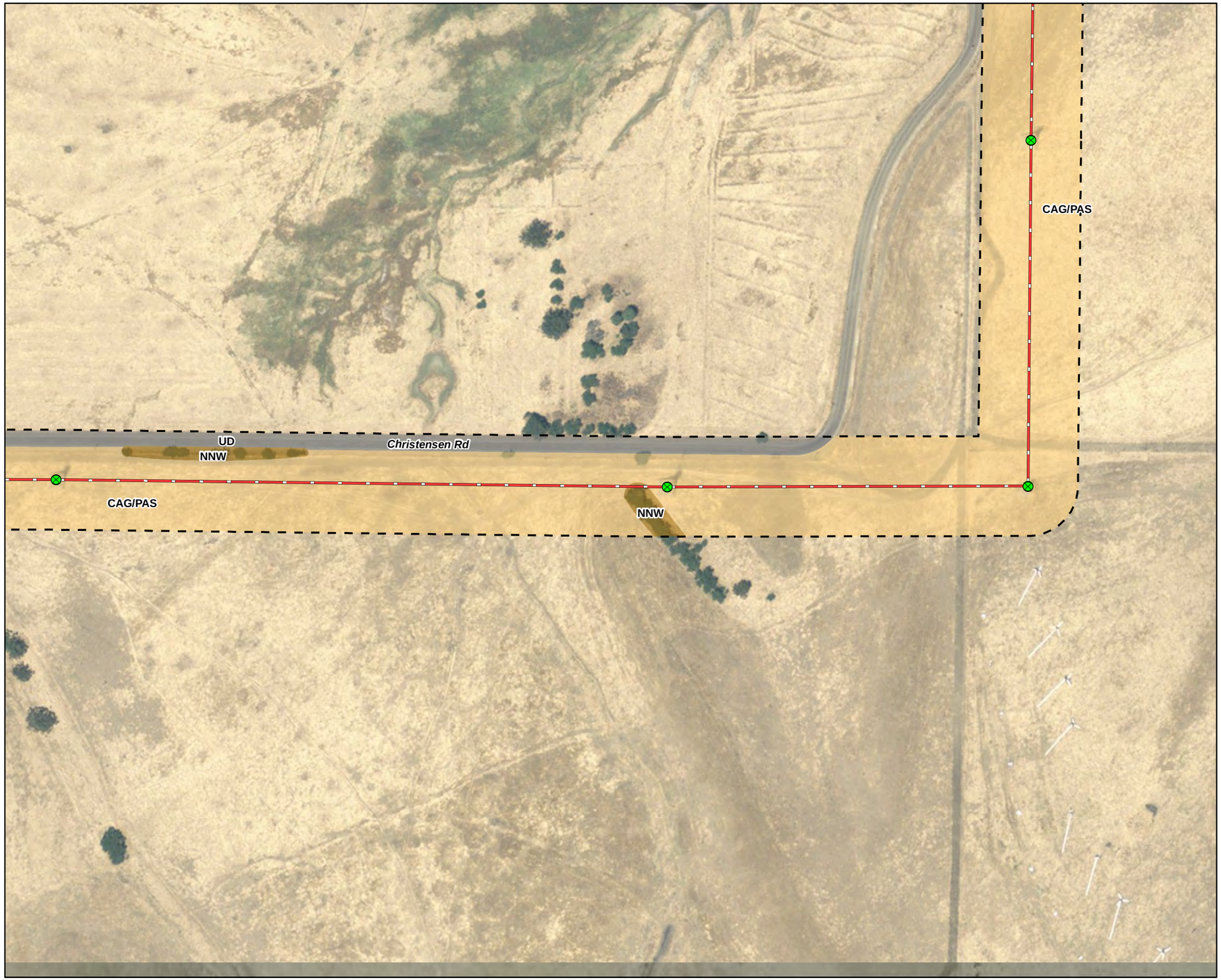
0 100 200

Feet

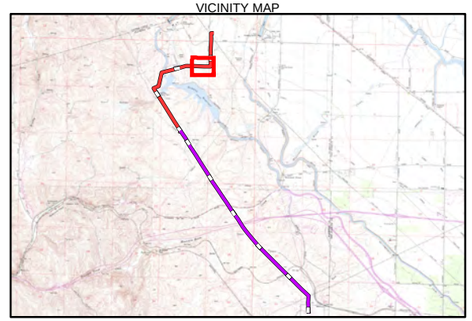
FIGURE 2-B
VEGETATION COMMUNITIES WITHIN THE TRANSMISSION CORRIDOR

PG&E KELSO-TELSA 230-KV RECONDUCTORING PROJECT

ALAMEDA COUNTY, CALIFORNIA



VICINITY MAP



LEGEND

- EXISTING TOWER LOCATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- POWER LINE 200 FOOT CORRIDOR

VEGETATION COMMUNITIES

- CALIFORNIA ANNUAL GRASSLAND (CAG)
- CALIFORNIA ANNUAL GRASSLAND/PASTURE LAND (CAG/PAS)
- NON-NATIVE WOODLAND (NNW)
- OPEN WATER (OW)
- RECREATIONAL URBAN DEVELOPMENT (RUD)
- RIPARIAN FOREST/SCRUB (RFS)
- URBAN/DEVELOPED (UD)

Source: Biological Survey, January 15, 2010.

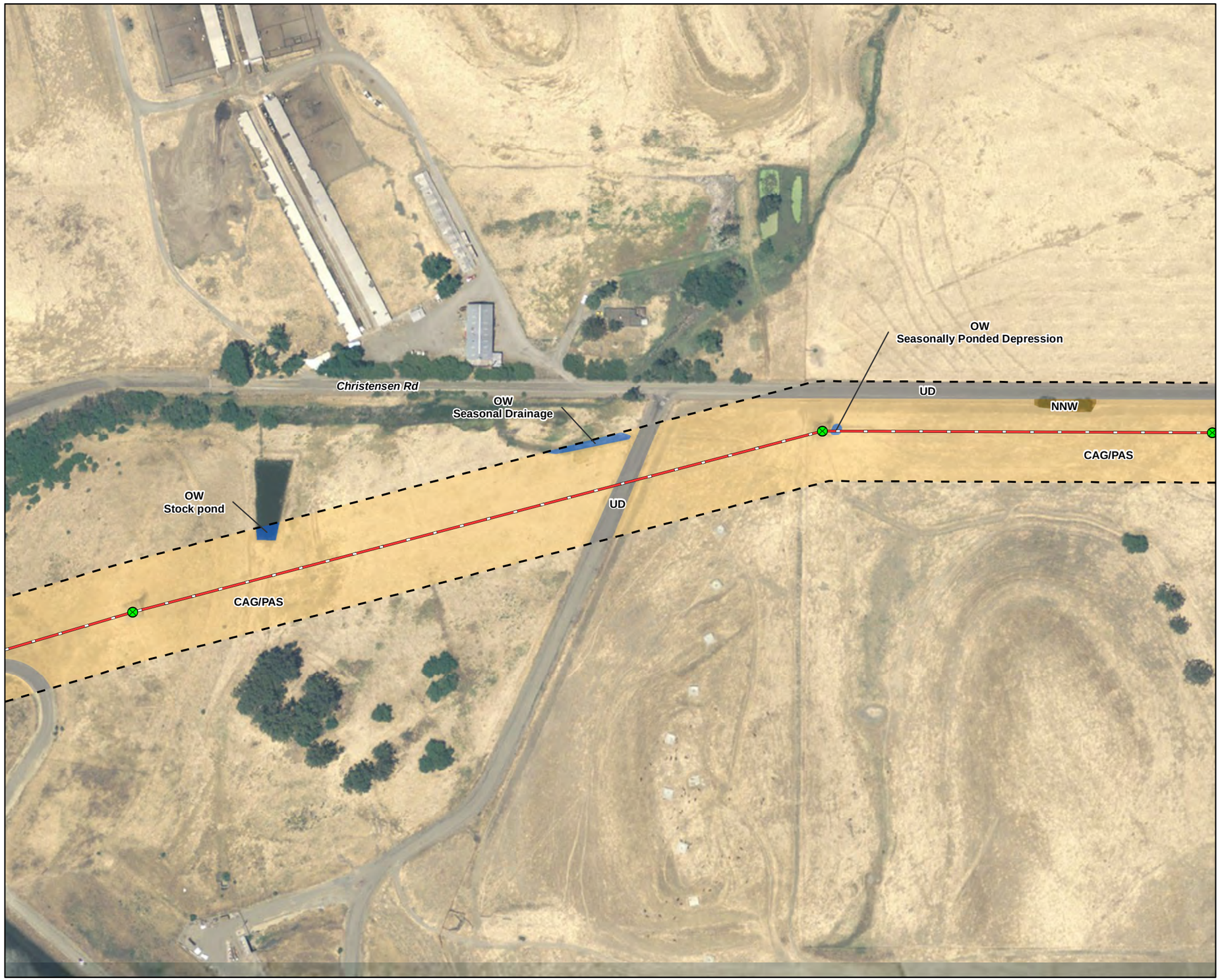
This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

N

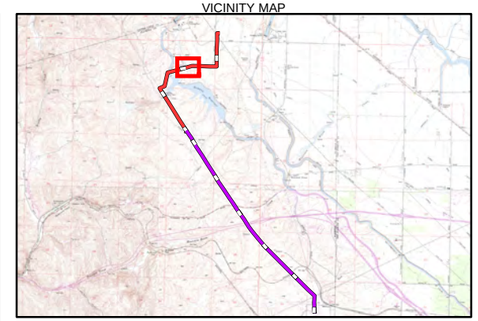
0 100 200
Feet

FIGURE 2-C
VEGETATION COMMUNITIES WITHIN THE TRANSMISSION CORRIDOR

PG&E KELSO-TELSA 230-KV RECONDUCTORING PROJECT
ALAMEDA COUNTY, CALIFORNIA



VICINITY MAP



LEGEND

- EXISTING TOWER LOCATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- POWER LINE 200 FOOT CORRIDOR

VEGETATION COMMUNITIES

- CALIFORNIA ANNUAL GRASSLAND (CAG)
- CALIFORNIA ANNUAL GRASSLAND/PASTURE LAND (CAG/PAS)
- NON-NATIVE WOODLAND (NNW)
- OPEN WATER (OW)
- RECREATIONAL URBAN DEVELOPMENT (RUD)
- RIPARIAN FOREST/SCRUB (RFS)
- URBAN/DEVELOPED (UD)

Source: Biological Survey, January 15, 2010.

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

N

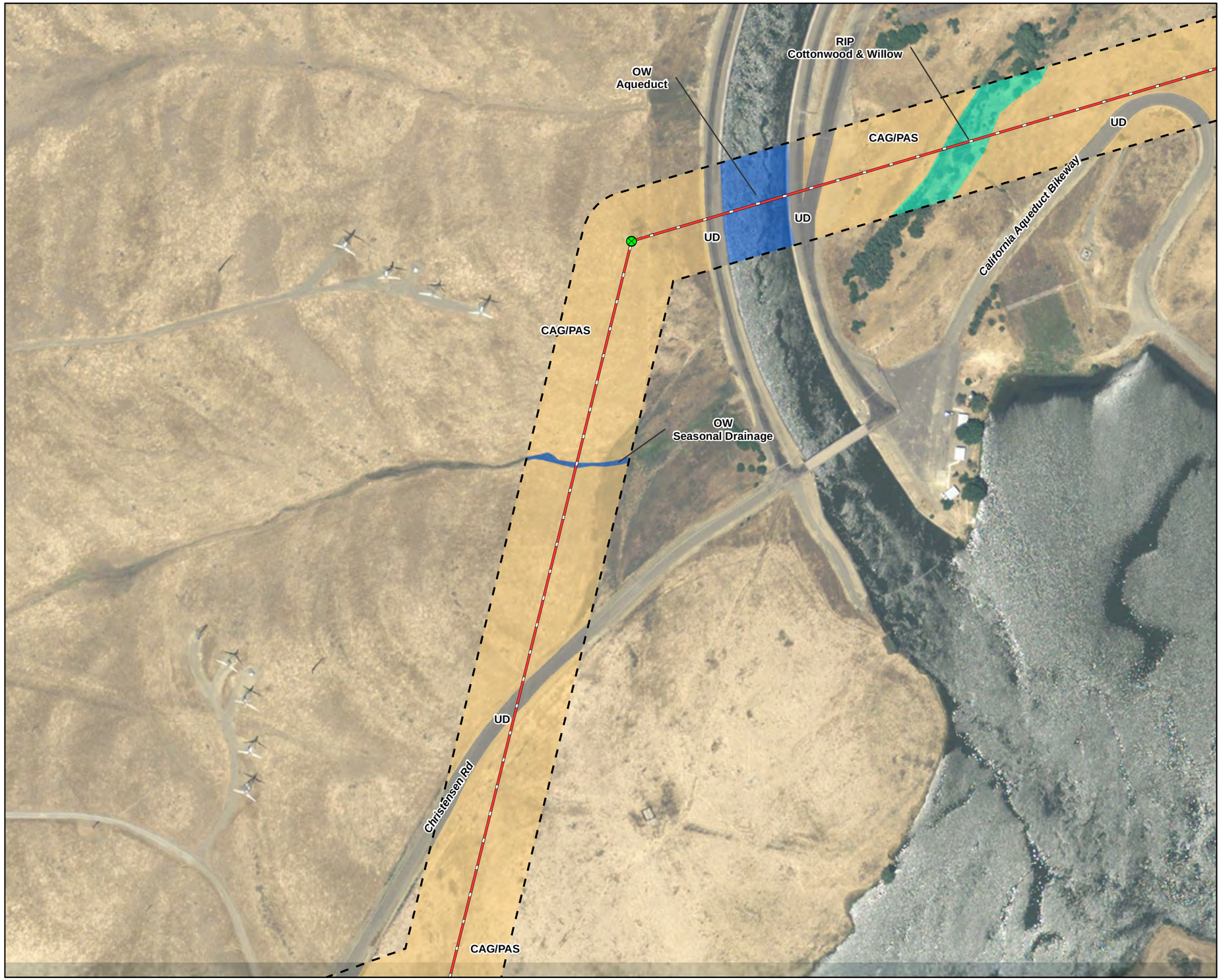
0 100 200

Feet

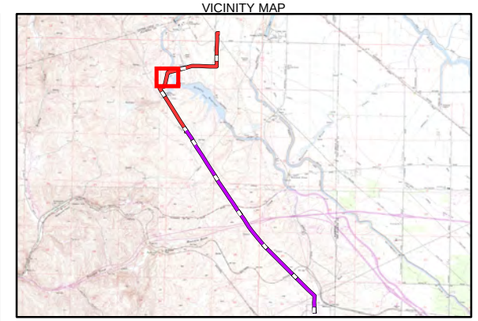
FIGURE 2-D
VEGETATION COMMUNITIES WITHIN THE TRANSMISSION CORRIDOR

PG&E KELSO-TELSA 230-KV RECONDUCTORING PROJECT

ALAMEDA COUNTY, CALIFORNIA



VICINITY MAP



LEGEND

- EXISTING TOWER LOCATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- POWER LINE 200 FOOT CORRIDOR

VEGETATION COMMUNITIES

- CALIFORNIA ANNUAL GRASSLAND (CAG)
- CALIFORNIA ANNUAL GRASSLAND/PASTURE LAND (CAG/PAS)
- NON-NATIVE WOODLAND (NNW)
- OPEN WATER (OW)
- RECREATIONAL URBAN DEVELOPMENT (RUD)
- RIPARIAN FOREST/SCRUB (RFS)
- URBAN/DEVELOPED (UD)

Source: Biological Survey, January 15, 2010.

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

N

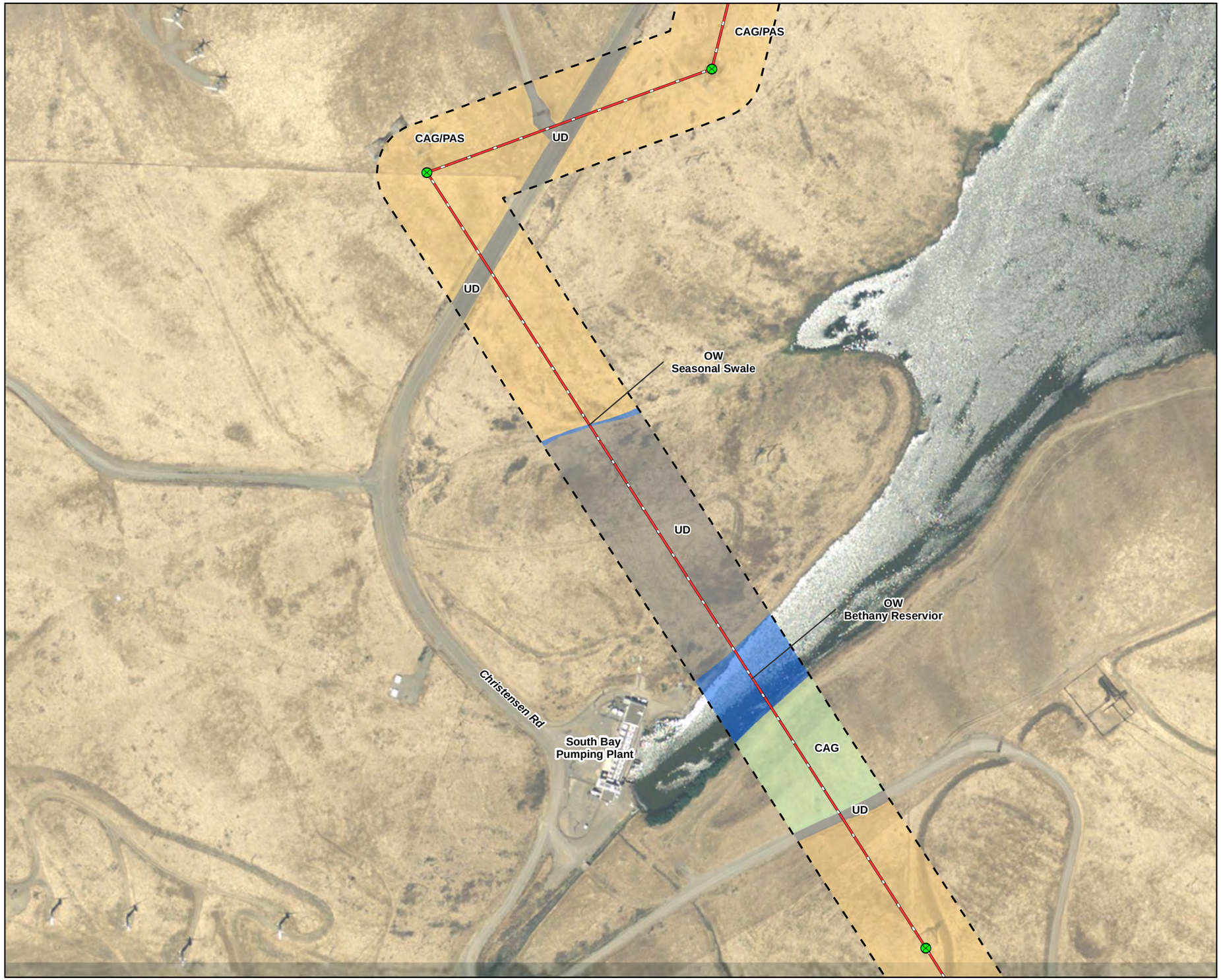
0 100 200

Feet

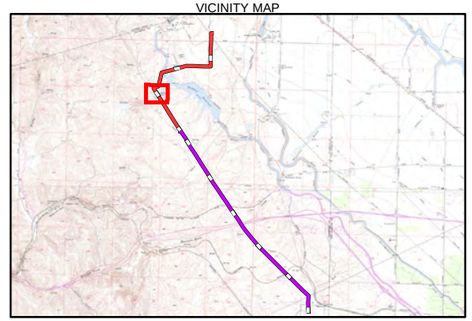
FIGURE 2-E
VEGETATION COMMUNITIES WITHIN THE TRANSMISSION CORRIDOR

PG&E KELSO-TELSA 230-KV RECONDUCTORING PROJECT

ALAMEDA COUNTY, CALIFORNIA



VICINITY MAP



LEGEND

- EXISTING TOWER LOCATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- POWER LINE 200 FOOT CORRIDOR

VEGETATION COMMUNITIES

- CALIFORNIA ANNUAL GRASSLAND (CAG)
- CALIFORNIA ANNUAL GRASSLAND/PASTURE LAND (CAG/PAS)
- NON-NATIVE WOODLAND (NNW)
- OPEN WATER (OW)
- RECREATIONAL URBAN DEVELOPMENT (RUD)
- RIPARIAN FOREST/SCRUB (RFS)
- URBAN/DEVELOPED (UD)

Source: Biological Survey, January 15, 2010.

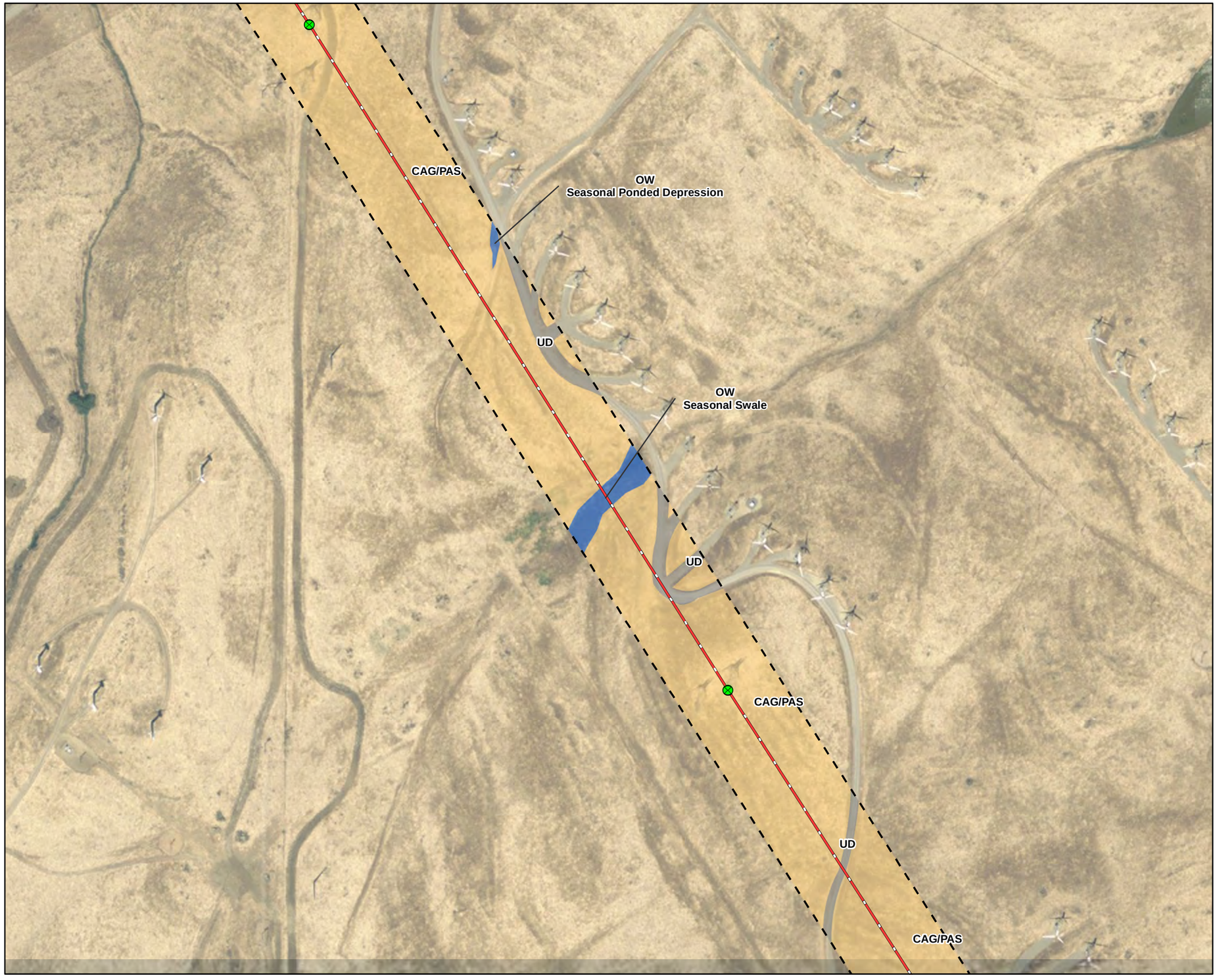
This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

N

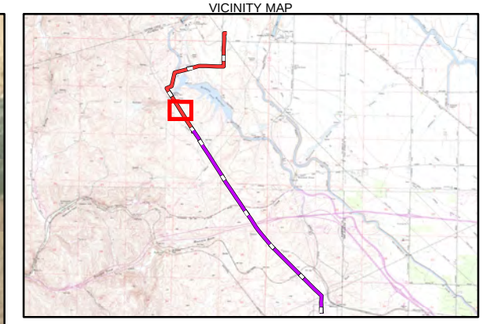
0 100 200
Feet

FIGURE 2-F
VEGETATION COMMUNITIES WITHIN THE TRANSMISSION CORRIDOR

PG&E KELSO-TELSA 230-KV RECONDUCTORING PROJECT
ALAMEDA COUNTY, CALIFORNIA



VICINITY MAP



LEGEND

- EXISTING TOWER LOCATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- POWER LINE 200 FOOT CORRIDOR

VEGETATION COMMUNITIES

- CALIFORNIA ANNUAL GRASSLAND (CAG)
- CALIFORNIA ANNUAL GRASSLAND/PASTURE LAND (CAG/PAS)
- NON-NATIVE WOODLAND (NNW)
- OPEN WATER (OW)
- RECREATIONAL URBAN DEVELOPMENT (RUD)
- RIPARIAN FOREST/SCRUB (RFS)
- URBAN/DEVELOPED (UD)

Source: Biological Survey, January 15, 2010.

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

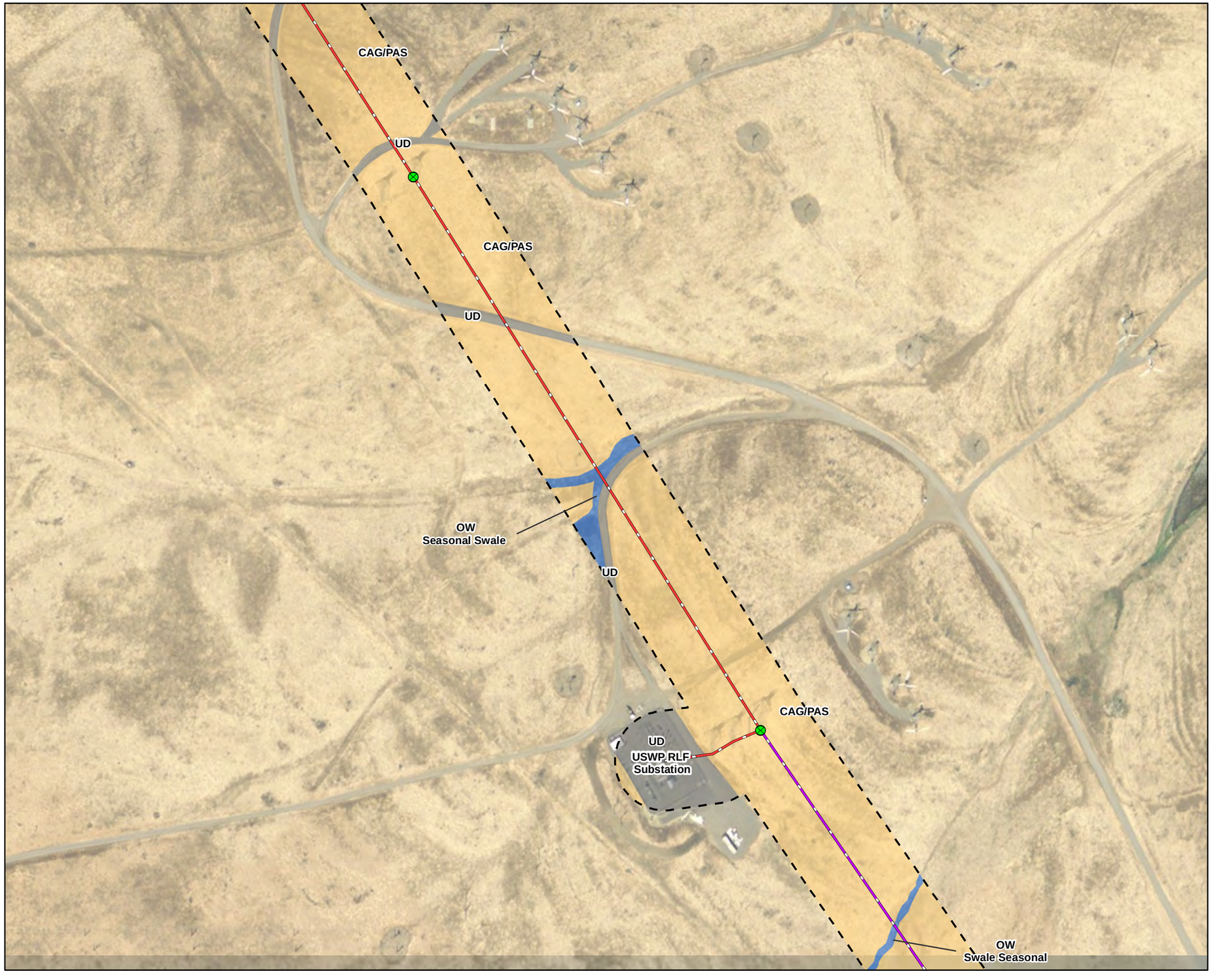
N

0 100 200
Feet

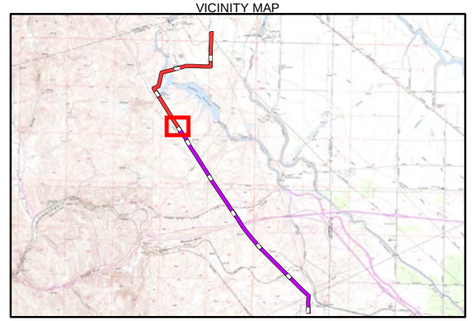
FIGURE 2-G
VEGETATION COMMUNITIES WITHIN THE TRANSMISSION CORRIDOR

PG&E KELSO-TELSA 230-KV RECONDUCTORING PROJECT
ALAMEDA COUNTY, CALIFORNIA

CH2MHILL



VICINITY MAP



LEGEND

- EXISTING TOWER LOCATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- POWER LINE 200 FOOT CORRIDOR

VEGETATION COMMUNITIES

- CALIFORNIA ANNUAL GRASSLAND (CAG)
- CALIFORNIA ANNUAL GRASSLAND/PASTURE LAND (CAG/PAS)
- NON-NATIVE WOODLAND (NNW)
- OPEN WATER (OW)
- RECREATIONAL URBAN DEVELOPMENT (RUD)
- RIPARIAN FOREST/SCRUB (RFS)
- URBAN/DEVELOPED (UD)

Source: Biological Survey, January 15, 2010.

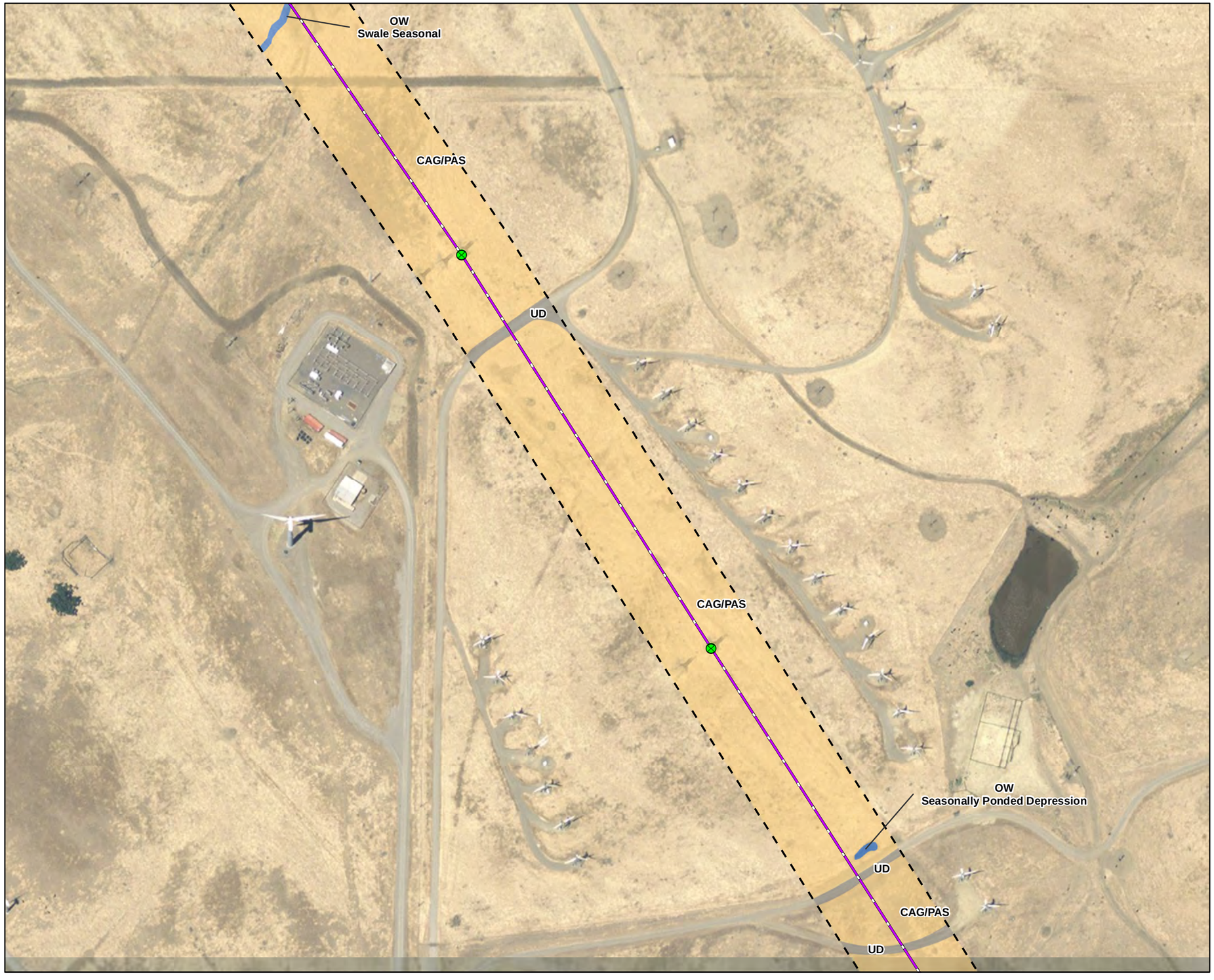
This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

N

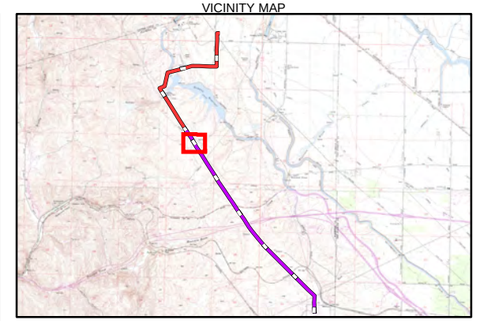
0 100 200
Feet

FIGURE 2-H
VEGETATION COMMUNITIES WITHIN THE TRANSMISSION CORRIDOR

PG&E KELSO-TELSA 230-KV RECONDUCTORING PROJECT
ALAMEDA COUNTY, CALIFORNIA



VICINITY MAP



LEGEND

- EXISTING TOWER LOCATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- POWER LINE 200 FOOT CORRIDOR

VEGETATION COMMUNITIES

- CALIFORNIA ANNUAL GRASSLAND (CAG)
- CALIFORNIA ANNUAL GRASSLAND/PASTURE LAND (CAG/PAS)
- NON-NATIVE WOODLAND (NNW)
- OPEN WATER (OW)
- RECREATIONAL URBAN DEVELOPMENT (RUD)
- RIPARIAN FOREST/SCRUB (RFS)
- URBAN/DEVELOPED (UD)

Source: Biological Survey, January 15, 2010.

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

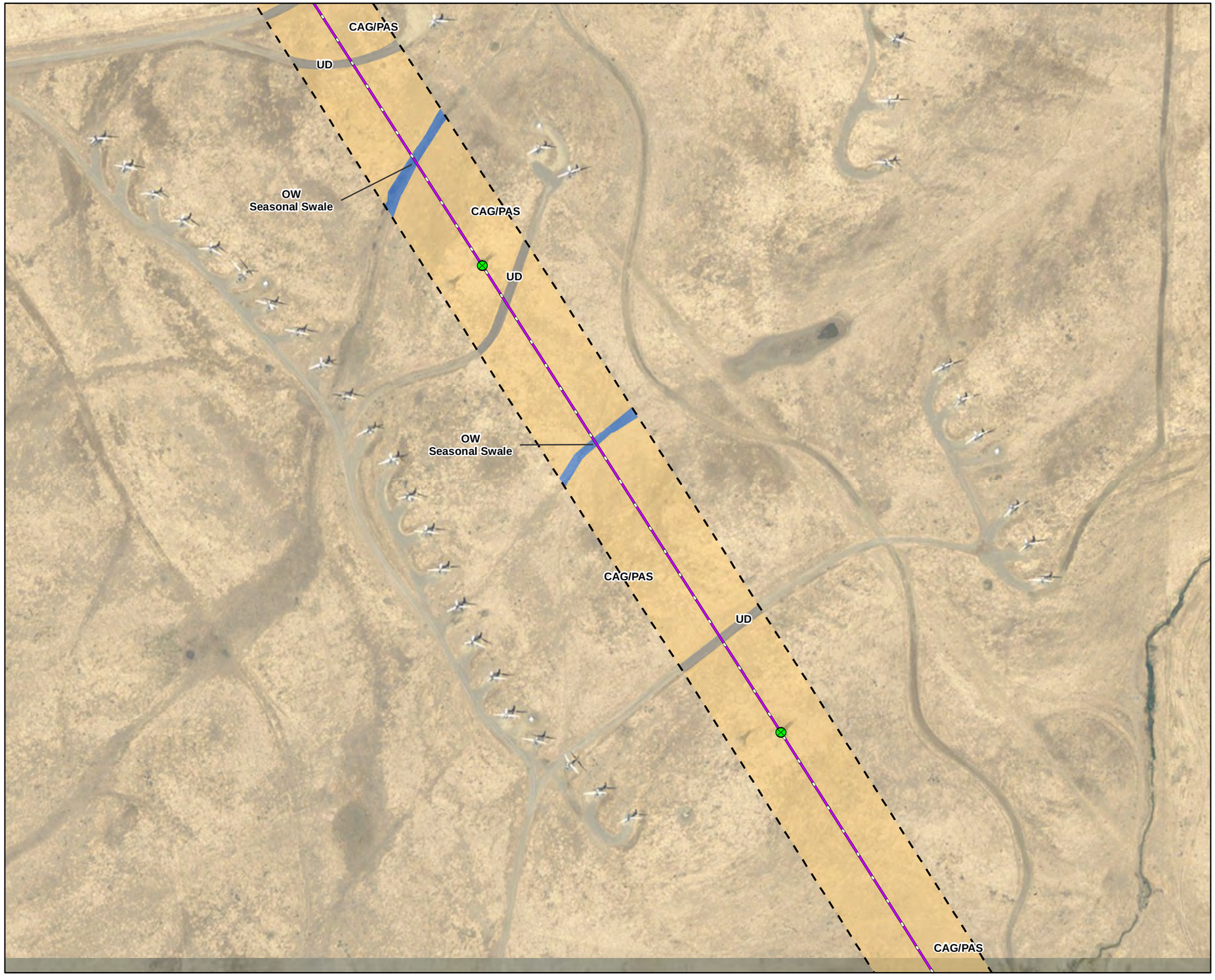
N

0 100 200
Feet

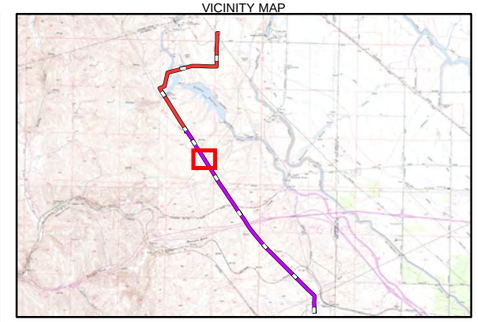
FIGURE 2-I
VEGETATION COMMUNITIES WITHIN THE TRANSMISSION CORRIDOR

PG&E KELSO-TELSA 230-KV RECONDUCTORING PROJECT
ALAMEDA COUNTY, CALIFORNIA

CH2MHILL



VICINITY MAP



LEGEND

- EXISTING TOWER LOCATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- POWER LINE 200 FOOT CORRIDOR

VEGETATION COMMUNITIES

- CALIFORNIA ANNUAL GRASSLAND (CAG)
- CALIFORNIA ANNUAL GRASSLAND/PASTURE LAND (CAG/PAS)
- NON-NATIVE WOODLAND (NNW)
- OPEN WATER (OW)
- RECREATIONAL URBAN DEVELOPMENT (RUD)
- RIPARIAN FOREST/SCRUB (RFS)
- URBAN/DEVELOPED (UD)

Source: Biological Survey, January 15, 2010.

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

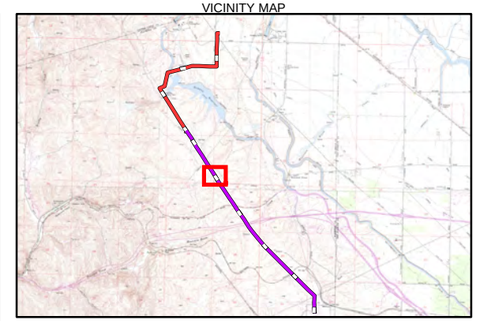
N

0 100 200
Feet

FIGURE 2-J
VEGETATION COMMUNITIES WITHIN THE TRANSMISSION CORRIDOR

PG&E KELSO-TELSA 230-KV RECONDUCTORING PROJECT
ALAMEDA COUNTY, CALIFORNIA

VICINITY MAP



LEGEND

- EXISTING TOWER LOCATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- POWER LINE 200 FOOT CORRIDOR

VEGETATION COMMUNITIES

- CALIFORNIA ANNUAL GRASSLAND (CAG)
- CALIFORNIA ANNUAL GRASSLAND/PASTURE LAND (CAG/PAS)
- NON-NATIVE WOODLAND (NNW)
- OPEN WATER (OW)
- RECREATIONAL URBAN DEVELOPMENT (RUD)
- RIPARIAN FOREST/SCRUB (RFS)
- URBAN/DEVELOPED (UD)

Source: Biological Survey, January 15, 2010.

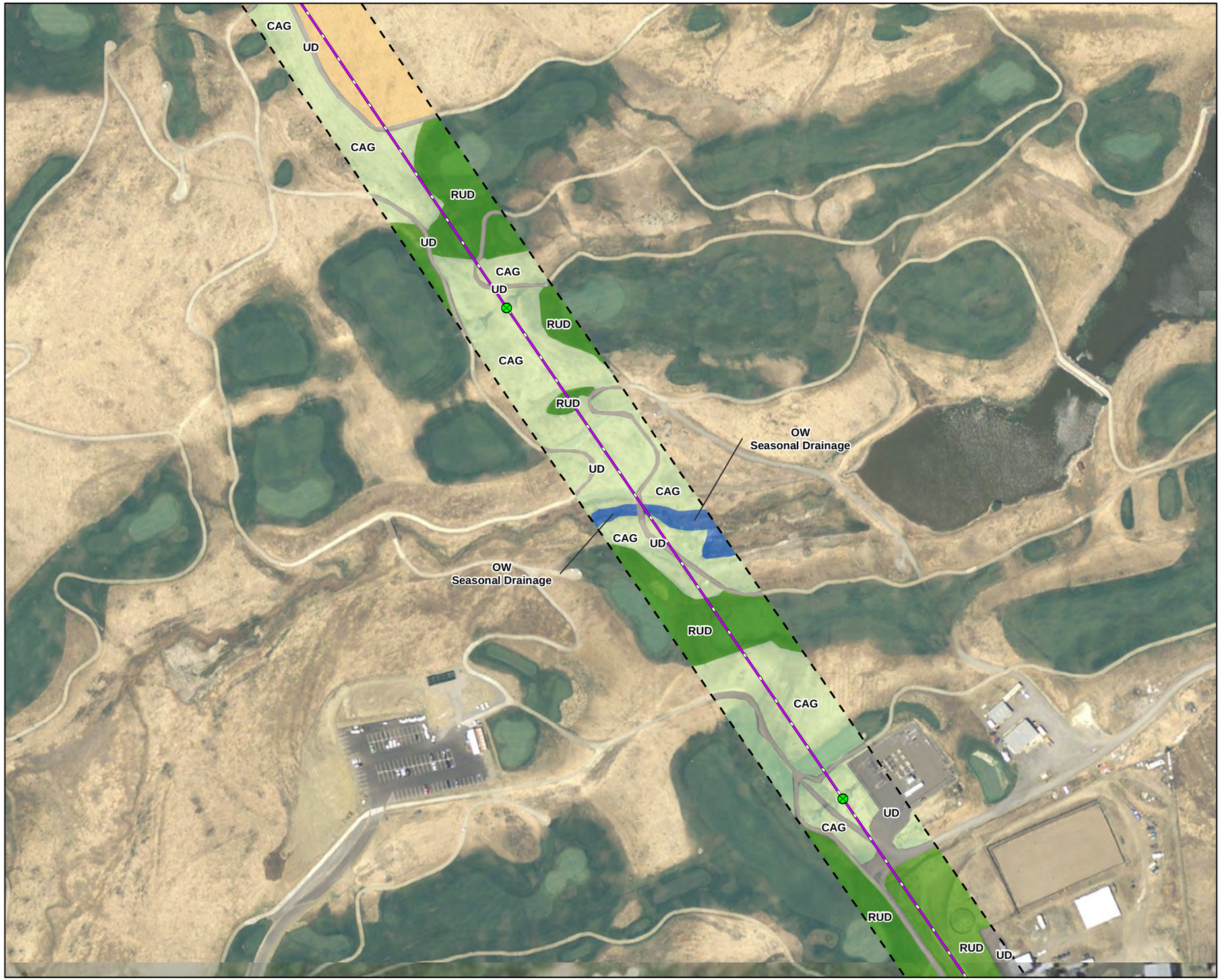
This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

N

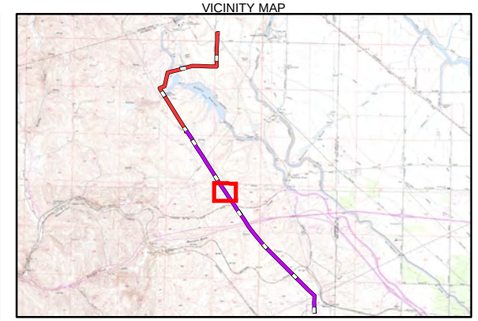
0 100 200
Feet

FIGURE 2-K
VEGETATION COMMUNITIES WITHIN THE TRANSMISSION CORRIDOR

PG&E KELSO-TELSA 230-KV RECONDUCTORING PROJECT
ALAMEDA COUNTY, CALIFORNIA



VICINITY MAP



LEGEND

- EXISTING TOWER LOCATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- POWER LINE 200 FOOT CORRIDOR

VEGETATION COMMUNITIES

- CALIFORNIA ANNUAL GRASSLAND (CAG)
- CALIFORNIA ANNUAL GRASSLAND/PASTURE LAND (CAG/PAS)
- NON-NATIVE WOODLAND (NNW)
- OPEN WATER (OW)
- RECREATIONAL URBAN DEVELOPMENT (RUD)
- RIPARIAN FOREST/SCRUB (RFS)
- URBAN/DEVELOPED (UD)

Source: Biological Survey, January 15, 2010.

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

N

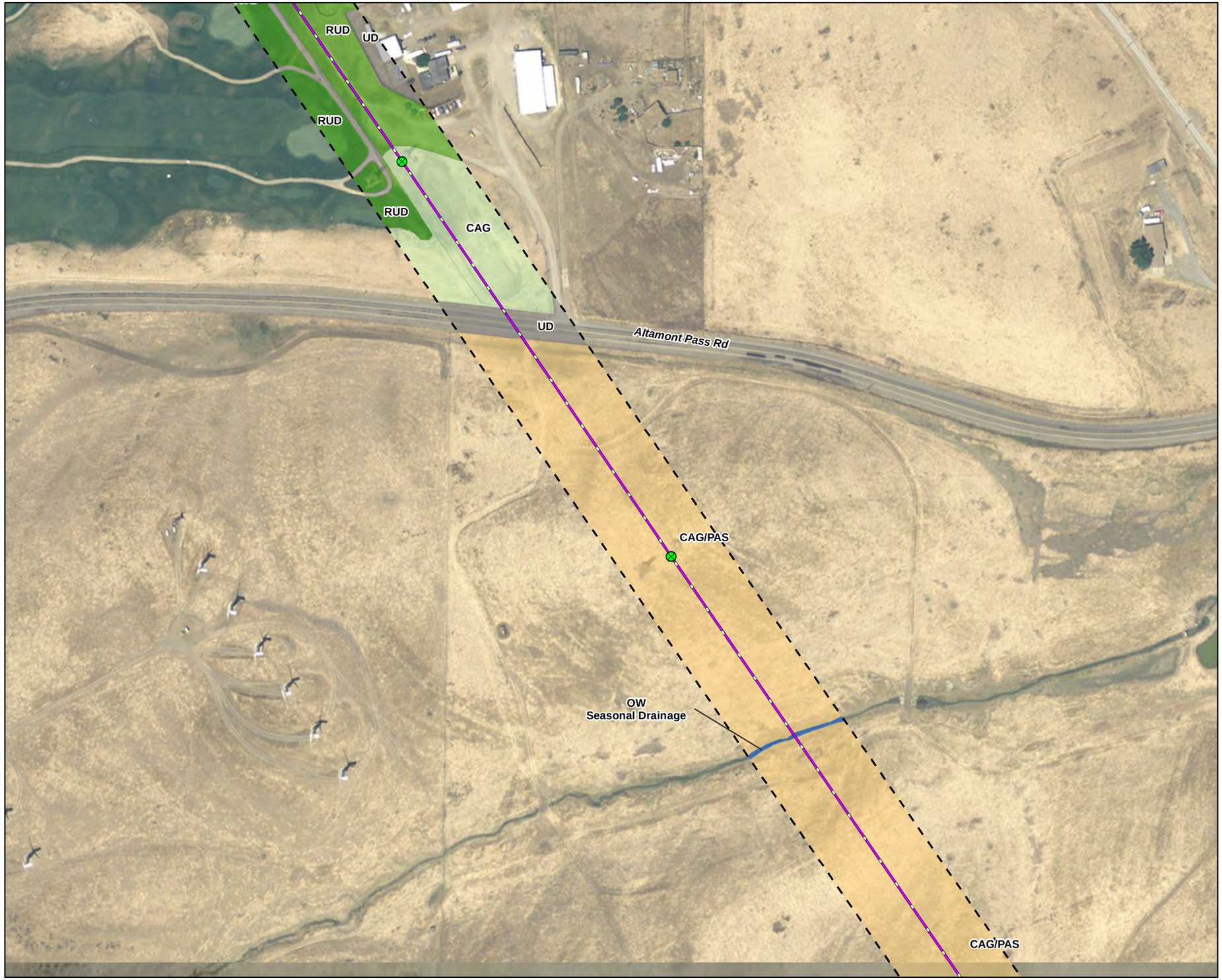
0 100 200

Feet

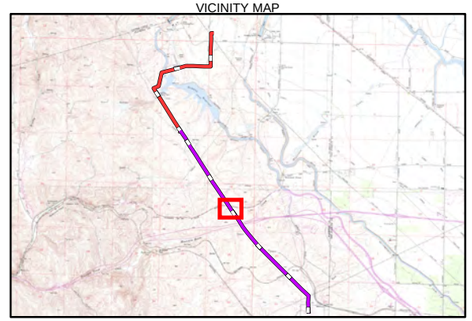
FIGURE 2-L
VEGETATION COMMUNITIES WITHIN THE TRANSMISSION CORRIDOR

PG&E KELSO-TELSA 230-KV RECONDUCTORING PROJECT

ALAMEDA COUNTY, CALIFORNIA



VICINITY MAP



LEGEND

- EXISTING TOWER LOCATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- POWER LINE 200 FOOT CORRIDOR

VEGETATION COMMUNITIES

- CALIFORNIA ANNUAL GRASSLAND (CAG)
- CALIFORNIA ANNUAL GRASSLAND/PASTURE LAND (CAG/PAS)
- NON-NATIVE WOODLAND (NNW)
- OPEN WATER (OW)
- RECREATIONAL URBAN DEVELOPMENT (RUD)
- RIPARIAN FOREST/SCRUB (RFS)
- URBAN/DEVELOPED (UD)

Source: Biological Survey, January 15, 2010.

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

N

0 100 200

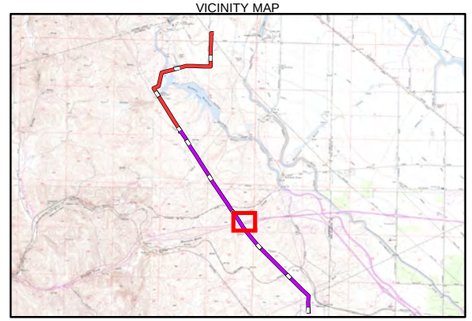
Feet

FIGURE 2-M
VEGETATION COMMUNITIES WITHIN THE TRANSMISSION CORRIDOR

PG&E KELSO-TELSA 230-KV RECONDUCTORING PROJECT

ALAMEDA COUNTY, CALIFORNIA

VICINITY MAP



LEGEND

- EXISTING TOWER LOCATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- POWER LINE 200 FOOT CORRIDOR

VEGETATION COMMUNITIES

- CALIFORNIA ANNUAL GRASSLAND (CAG)
- CALIFORNIA ANNUAL GRASSLAND/PASTURE LAND (CAG/PAS)
- NON-NATIVE WOODLAND (NNW)
- OPEN WATER (OW)
- RECREATIONAL URBAN DEVELOPMENT (RUD)
- RIPARIAN FOREST/SCRUB (RFS)
- URBAN/DEVELOPED (UD)

Source: Biological Survey, January 15, 2010.

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

N

0 100 200

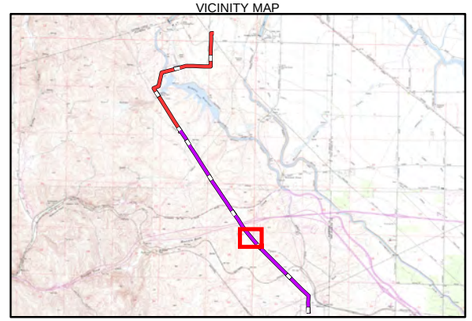
Feet

FIGURE 2-N
VEGETATION COMMUNITIES WITHIN THE TRANSMISSION CORRIDOR

PG&E KELSO-TELSA 230-KV RECONDUCTORING PROJECT

ALAMEDA COUNTY, CALIFORNIA

VICINITY MAP



LEGEND

- EXISTING TOWER LOCATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- POWER LINE 200 FOOT CORRIDOR

VEGETATION COMMUNITIES

- CALIFORNIA ANNUAL GRASSLAND (CAG)
- CALIFORNIA ANNUAL GRASSLAND/PASTURE LAND (CAG/PAS)
- NON-NATIVE WOODLAND (NNW)
- OPEN WATER (OW)
- RECREATIONAL URBAN DEVELOPMENT (RUD)
- RIPARIAN FOREST/SCRUB (RFS)
- URBAN/DEVELOPED (UD)

Source: Biological Survey, January 15, 2010.

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

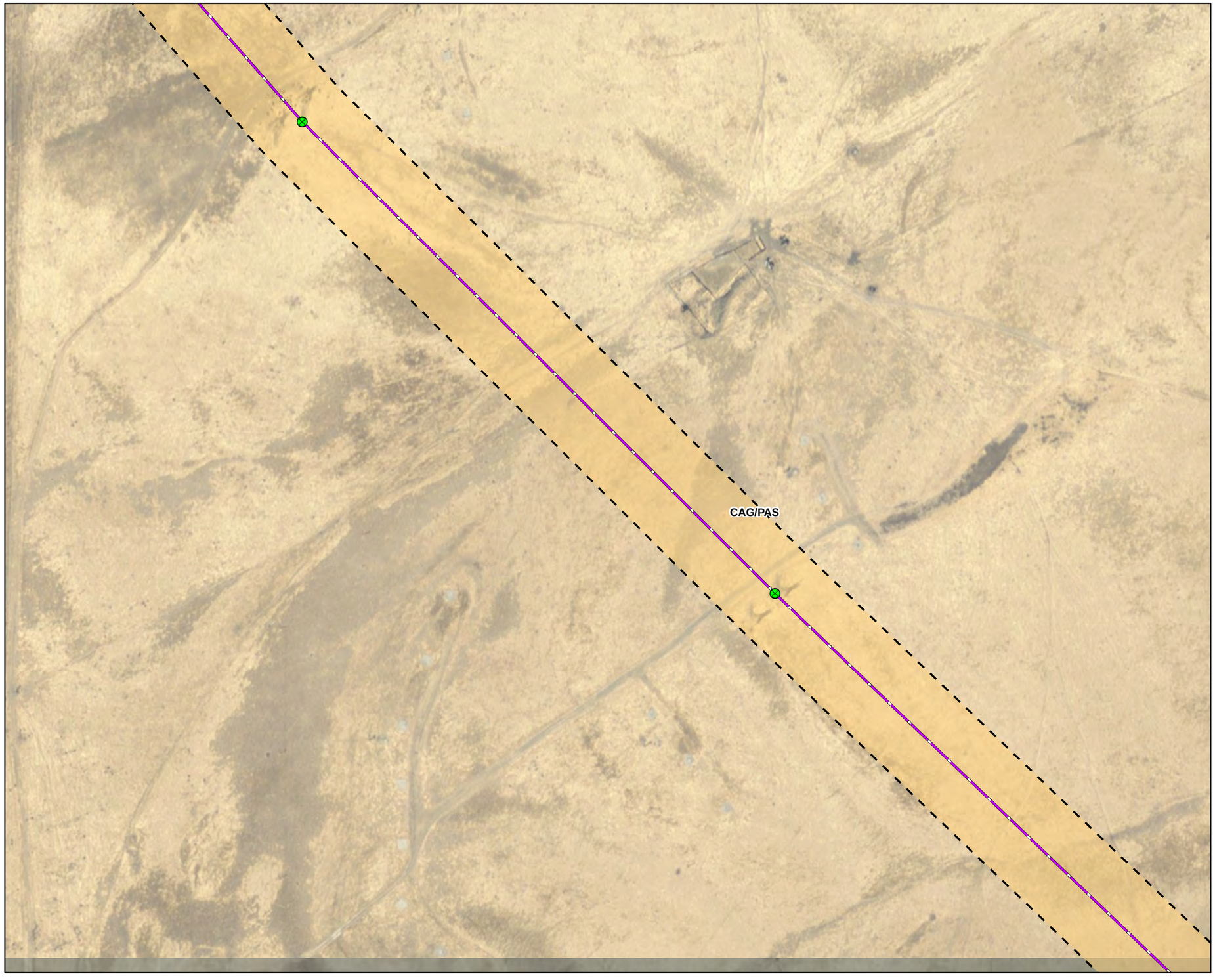
N

0 100 200
Feet

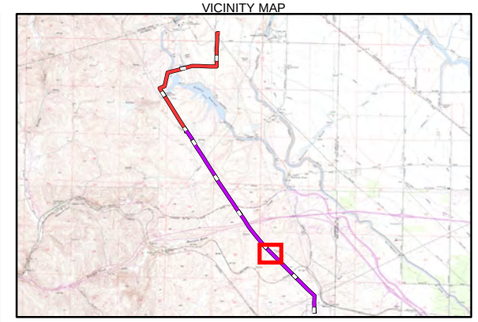
FIGURE 2-O
VEGETATION COMMUNITIES WITHIN THE TRANSMISSION CORRIDOR

PG&E KELSO-TELSA 230-KV RECONDUCTORING PROJECT
ALAMEDA COUNTY, CALIFORNIA

CH2MHILL



VICINITY MAP



LEGEND

- EXISTING TOWER LOCATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- POWER LINE 200 FOOT CORRIDOR

VEGETATION COMMUNITIES

- CALIFORNIA ANNUAL GRASSLAND (CAG)
- CALIFORNIA ANNUAL GRASSLAND/PASTURE LAND (CAG/PAS)
- NON-NATIVE WOODLAND (NNW)
- OPEN WATER (OW)
- RECREATIONAL URBAN DEVELOPMENT (RUD)
- RIPARIAN FOREST/SCRUB (RFS)
- URBAN/DEVELOPED (UD)

Source: Biological Survey, January 15, 2010.

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

N

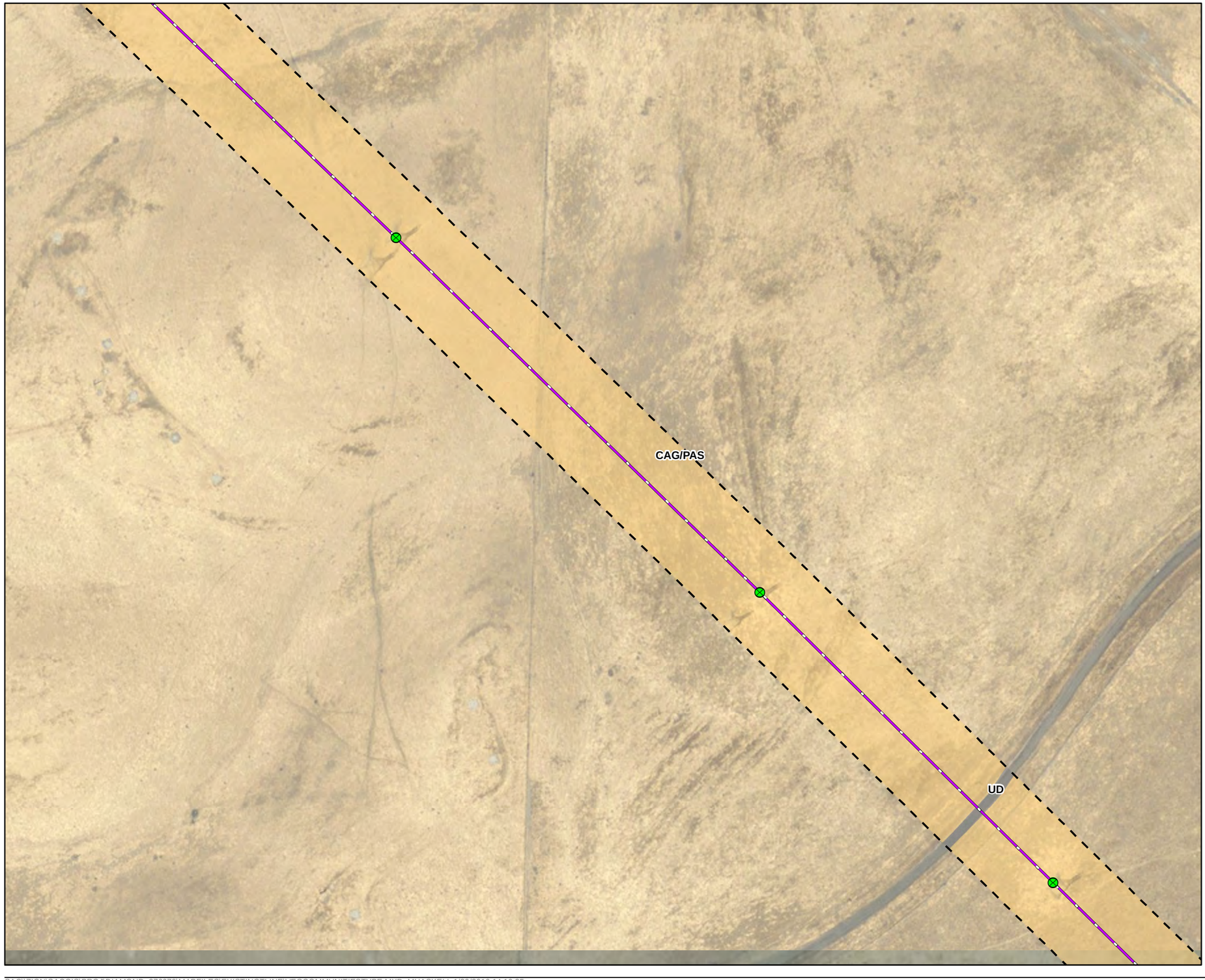
0 100 200

Feet

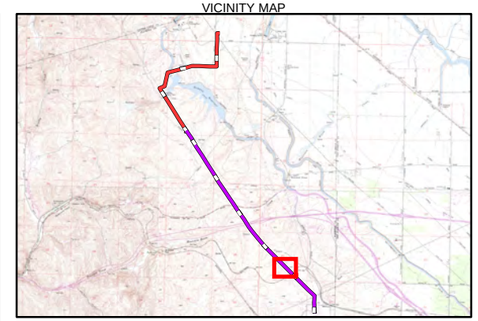
FIGURE 2-P
VEGETATION COMMUNITIES WITHIN THE TRANSMISSION CORRIDOR

PG&E KELSO-TELSA 230-KV RECONDUCTORING PROJECT

ALAMEDA COUNTY, CALIFORNIA



VICINITY MAP



LEGEND

- EXISTING TOWER LOCATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- POWER LINE 200 FOOT CORRIDOR

VEGETATION COMMUNITIES

- CALIFORNIA ANNUAL GRASSLAND (CAG)
- CALIFORNIA ANNUAL GRASSLAND/PASTURE LAND (CAG/PAS)
- NON-NATIVE WOODLAND (NNW)
- OPEN WATER (OW)
- RECREATIONAL URBAN DEVELOPMENT (RUD)
- RIPARIAN FOREST/SCRUB (RFS)
- URBAN/DEVELOPED (UD)

Source: Biological Survey, January 15, 2010.

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

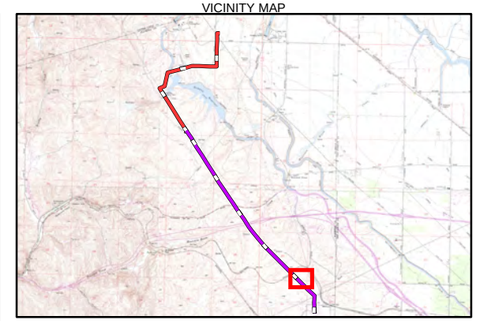
N

0 100 200
Feet

FIGURE 2-Q
VEGETATION COMMUNITIES WITHIN THE TRANSMISSION CORRIDOR

PG&E KELSO-TELSA 230-KV RECONDUCTORING PROJECT
ALAMEDA COUNTY, CALIFORNIA

VICINITY MAP



LEGEND

- EXISTING TOWER LOCATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- POWER LINE 200 FOOT CORRIDOR

VEGETATION COMMUNITIES

- CALIFORNIA ANNUAL GRASSLAND (CAG)
- CALIFORNIA ANNUAL GRASSLAND/PASTURE LAND (CAG/PAS)
- NON-NATIVE WOODLAND (NNW)
- OPEN WATER (OW)
- RECREATIONAL URBAN DEVELOPMENT (RUD)
- RIPARIAN FOREST/SCRUB (RFS)
- URBAN/DEVELOPED (UD)

Source: Biological Survey, January 15, 2010.

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

N

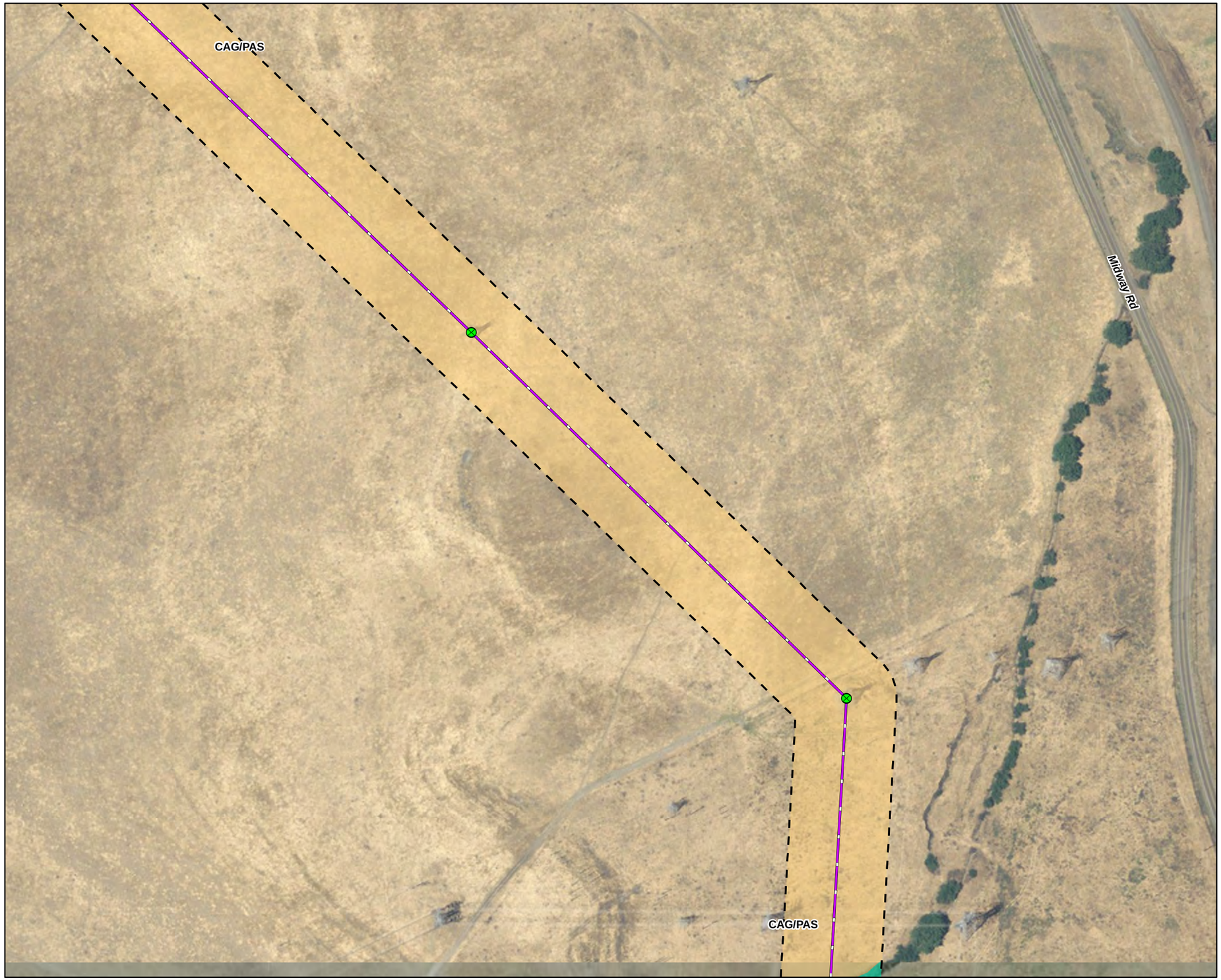
0 100 200

Feet

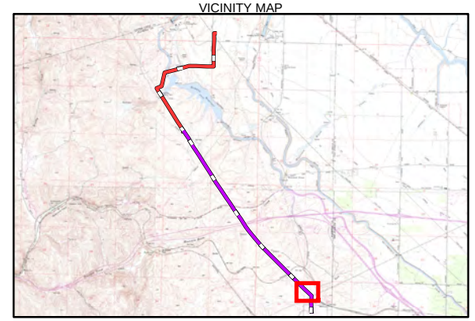
FIGURE 2-R
VEGETATION COMMUNITIES WITHIN THE TRANSMISSION CORRIDOR

PG&E KELSO-TELSA 230-KV RECONDUCTORING PROJECT

ALAMEDA COUNTY, CALIFORNIA



VICINITY MAP



LEGEND

- EXISTING TOWER LOCATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- POWER LINE 200 FOOT CORRIDOR

VEGETATION COMMUNITIES

- CALIFORNIA ANNUAL GRASSLAND (CAG)
- CALIFORNIA ANNUAL GRASSLAND/PASTURE LAND (CAG/PAS)
- NON-NATIVE WOODLAND (NNW)
- OPEN WATER (OW)
- RECREATIONAL URBAN DEVELOPMENT (RUD)
- RIPARIAN FOREST/SCRUB (RFS)
- URBAN/DEVELOPED (UD)

Source: Biological Survey, January 15, 2010.

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

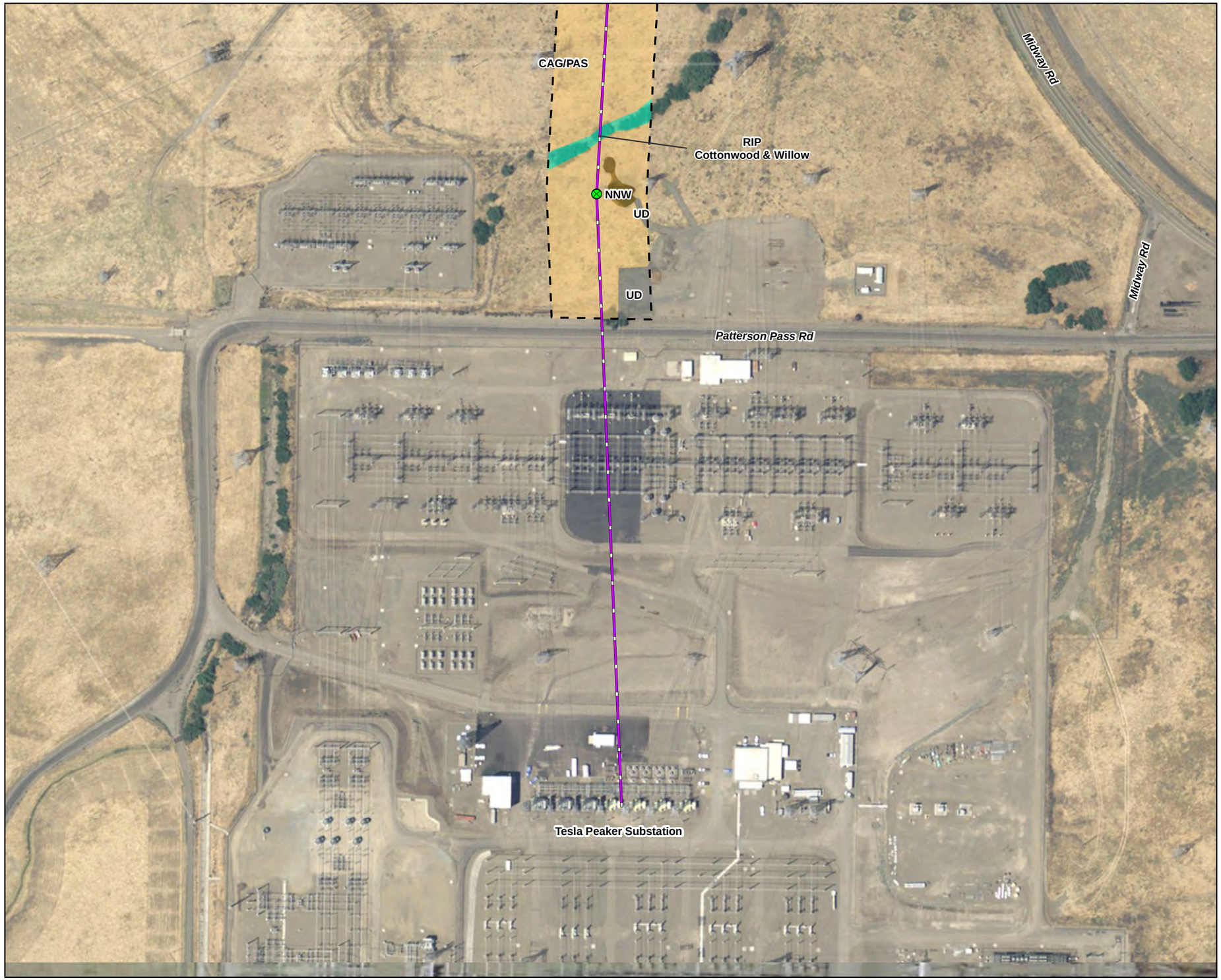
N

0 100 200
Feet

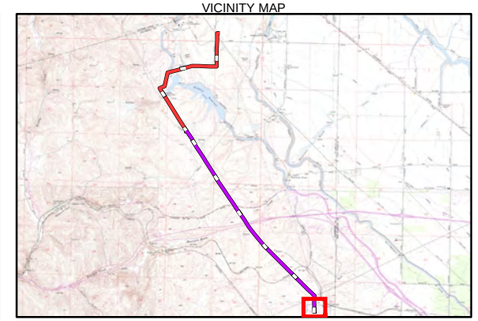
FIGURE 2-S
VEGETATION COMMUNITIES WITHIN THE TRANSMISSION CORRIDOR

PG&E KELSO-TELSA 230-KV RECONDUCTORING PROJECT
ALAMEDA COUNTY, CALIFORNIA

CH2MHILL



VICINITY MAP



LEGEND

- EXISTING TOWER LOCATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- POWER LINE 200 FOOT CORRIDOR

VEGETATION COMMUNITIES

- CALIFORNIA ANNUAL GRASSLAND (CAG)
- CALIFORNIA ANNUAL GRASSLAND/PASTURE LAND (CAG/PAS)
- NON-NATIVE WOODLAND (NNW)
- OPEN WATER (OW)
- RECREATIONAL URBAN DEVELOPMENT (RUD)
- RIPARIAN FOREST/SCRUB (RFS)
- URBAN/DEVELOPED (UD)

Source: Biological Survey, January 15, 2010.

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

N

0 100 200

Feet

FIGURE 2-T
VEGETATION COMMUNITIES WITHIN THE TRANSMISSION CORRIDOR

PG&E KELSO-TELSA 230-KV RECONDUCTORING PROJECT

ALAMEDA COUNTY, CALIFORNIA

LEGEND

- KELSO SUBSTATION
- TESLA PEAKER SUBSTATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- FIVE MILE BUFFER

SPECIAL STATUS SPECIES

ANIMALS

- CALIFORNIA RED-LEGGED FROG
- CALIFORNIA TIGER SALAMANDER
- SAN JOAQUIN KIT FOX
- SWAINSON'S HAWK
- VALLEY ELDERBERRY LONGHORN BEETLE
- VERNAL POOL FAIRY SHRIMP

PLANT

- LARGE-FLOWERED FIDDLENECK

Note:

1. Source - California Dept. of Fish and Game, Califorina Natural Diversity Database (CNDDB) January, 2010. Species listed here are either Threatened or Endangered according to Federal and State agencies.

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

N

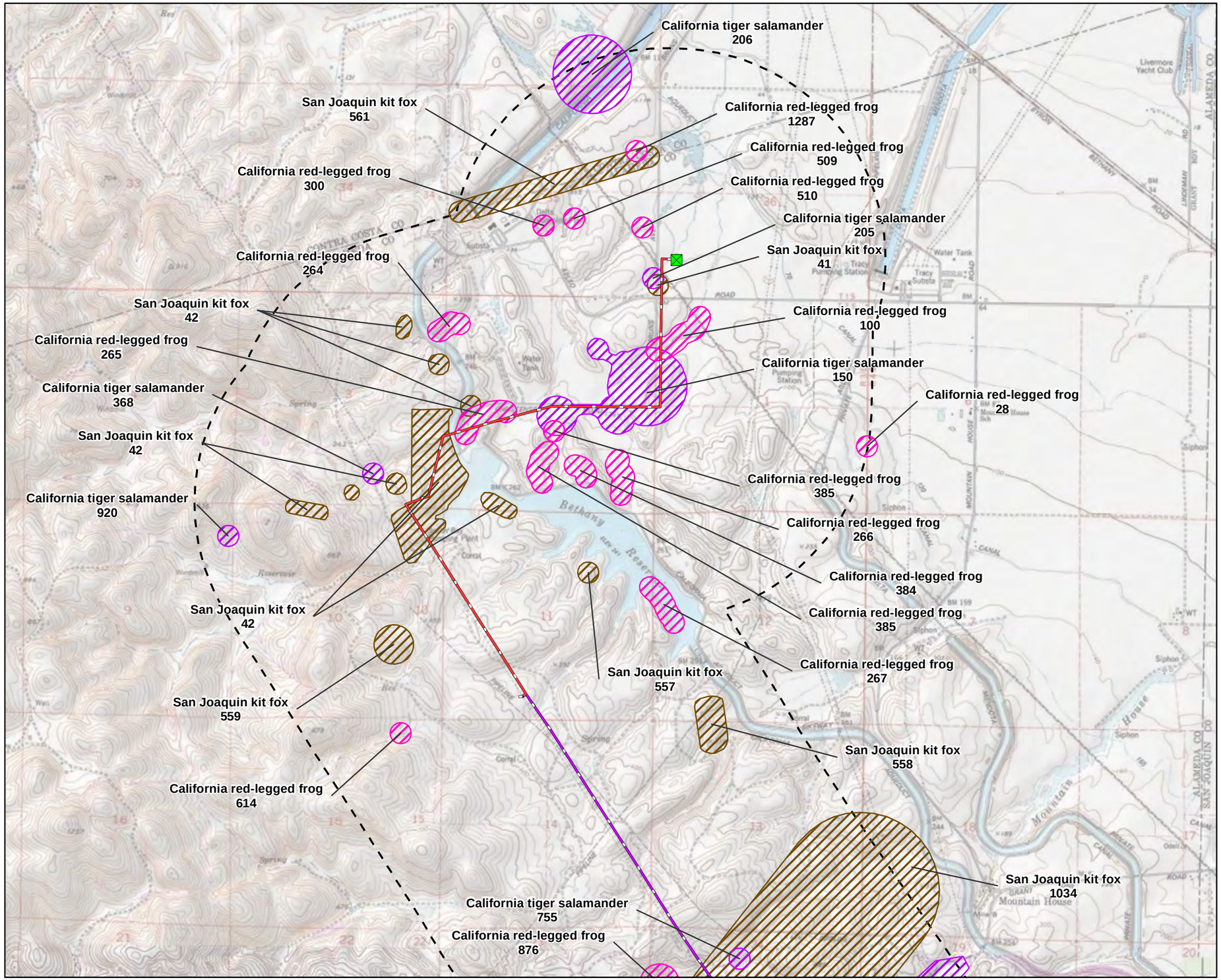
0 4,750 9,500

Feet

FIGURE 3
SPECIAL STATUS SPECIES RECORDED WITHIN FIVE MILES

PG&E KELSO-TELSA 230-KV RECONDUCTORING PROJECT

ALAMEDA COUNTY, CALIFORNIA



LEGEND

- KELSO SUBSTATION
- TESLA PEAKER SUBSTATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- ONE MILE BUFFER

SPECIAL STATUS SPECIES

- California red-legged frog
- California tiger salamander
- San Joaquin kit fox

Note:
1. Species Name/Occurance Number.

2. Source - California Dept. of Fish and Game, Califorina Natural Diversity Database (CNDDB) January, 2010. Species listed here are either Threatened or Endangered according to Federal and State agencies.

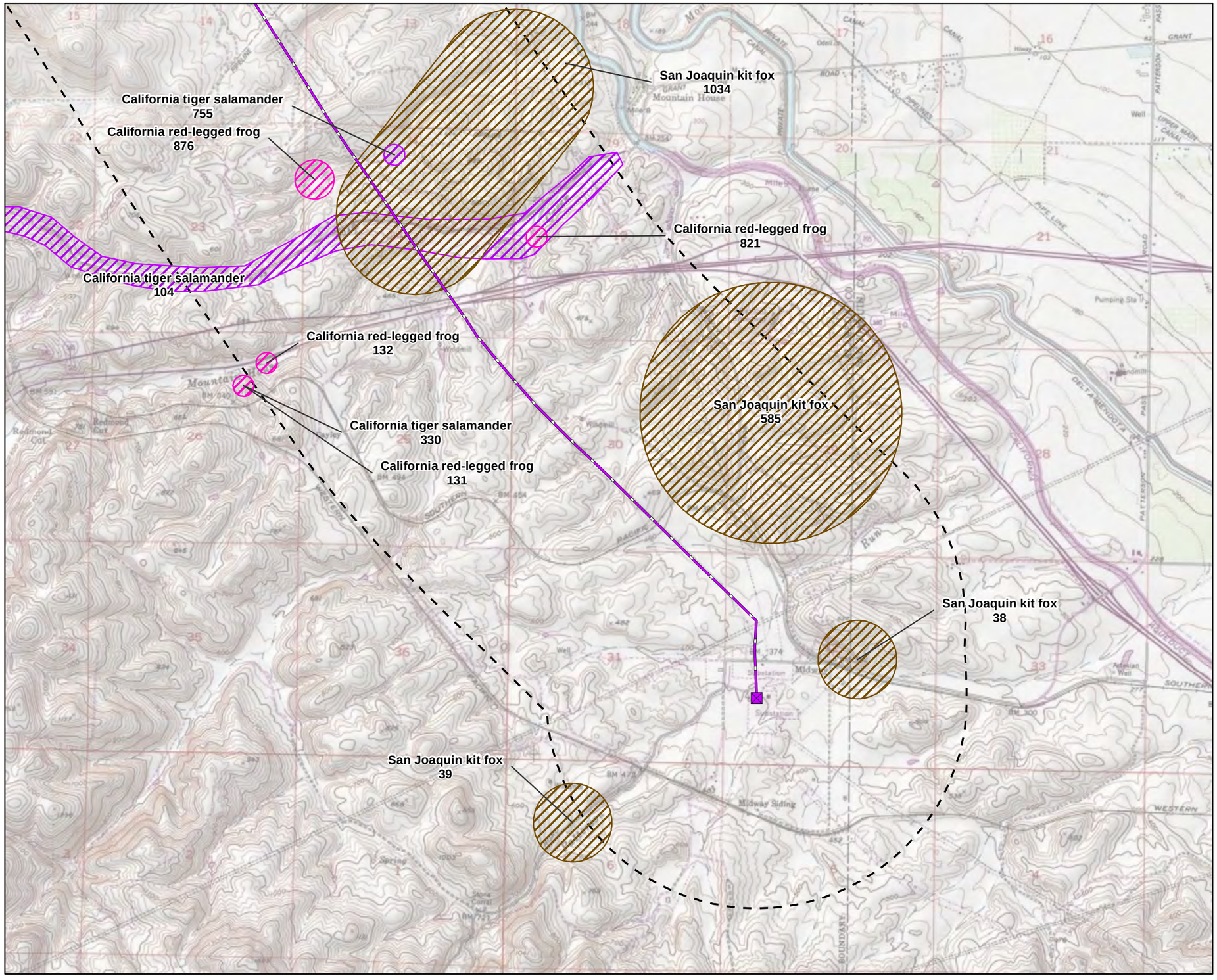
This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

N

0 1,250 2,500
Feet

FIGURE 4A
SPECIAL STATUS SPECIES RECORDED WITHIN PROJECT AREA
PG&E KELSO-TELSA 230-KV RECONDUCTORING PROJECT
ALAMEDA COUNTY, CALIFORNIA

CH2MHILL



LEGEND

- KELSO SUBSTATION
- TESLA PEAKER SUBSTATION
- EXISTING TRANSMISSION LINE A
- EXISTING TRANSMISSION LINE B
- ONE MILE BUFFER

SPECIAL STATUS SPECIES

- California red-legged frog
- California tiger salamander
- San Joaquin kit fox

Note:
1. Species Name/Occurance Number.

2. Source - California Dept. of Fish and Game, Califorina Natural Diversity Database (CNDDB) January, 2010. Species listed here are either Threatened or Endangered according to Federal and State agencies.

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

N

0 1,250 2,500
Feet

FIGURE 4B
SPECIAL STATUS SPECIES RECORDED WITHIN PROJECT AREA

PG&E KELSO-TELSA 230-KV RECONDUCTORING PROJECT
ALAMEDA COUNTY, CALIFORNIA

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Appendix A
Plants and Wildlife Observed during the Reconnaissance Survey

TABLE A-1
Plant Species Observed during a Reconnaissance Survey on January 15, 2010
PG&E Kelso-Tesla Reconductoring Project

Scientific Name	Common Name	Growth Habit	Indicator Status *
Anacardiaceae			
Schinus molle	Peruvian peppertree	Tree	NL
Apiaccae			
Conium maculatum	Poison hemlock	Herb	FACW
Asteraceae			
Ambrosia psilostachya	Ragweed	Herb	FAC
Baccharis pilularis	Coyote brush	Shrub	NL
Carduus pycnocephalus	Italian thistle	Herb	NL
Centaurea solstitialis	Yellow star-thistle	Herb	NL
Cirsium vulgare	Bull Thistle	Herb	FACU
Grindelia camporum	Great Valley gumweed	Herb	FACU
Hypochaeris glabra	Smooth cat's-ear	Herb	NL
Silybum marianum	Milk thistle	Herb	NL
Sonchus asper	Prickly sow thistle	Herb	NI*
Brassicaceae			
Hirschfeldia incana	Summer Mustard	Herb	NL
Raphanus sativa	Wild radish	Herb	NL
Chenopodiaceae			
Chenopodium album	Lamb's quarters	Herb	FAC
Salsola tragus	Russian thistle	Herb	NL
Fabaceae			
Atriplex sp.	Milkvetch	Herb	NL
Lupinus bicolor	Miniature lupine	Herb	NL
Medicago polymorpha	Bur clover	Herb	NL
Melilotus indica	Sweet clover	Herb	FAC
Vicia villosa	Hairy vetch	Herb	NL
Geraniaceae			
Erodium botrys	Broadleaf filaree	Herb	NL
Geranium dissectum	Cranesbill	Herb	NL
Malvacaeae			
Malva parviflora	Cheeseweed	Herb	NL

TABLE A-1
Plant Species Observed during a Reconnaissance Survey on January 15, 2010
PG&E Kelso-Tesla Reconductoring Project

Scientific Name	Common Name	Growth Habit	Indicator Status *
Oleaceae			
Olea europaea	Olive	Tree	NL
Pinaceae			
Pinus muricata	Bishop pine	Tree	NL
Poaceae			
Avena barbata	Slender wild oat	Herb	NL
Bromus diandrus	Ripgut grass	Herb	NL
Bromus madritensis ssp. *rubens*	Foxtail chess	Herb	NI
Distichlis spicata	Salt grass	Herb	FACW
Hordeum murinum ssp. *leporinum*	Foxtail barley	Herb	NL
Vulpia myuros	Rat-tail fescue	Herb	FACU*
Polemoniaceae			
Navarretia sp.	Navarretia	Herb	FAC, FACW, OBL
Polygonaceae			
Rumex crispus	Curly dock	Herb	FACW-

Notes:
* Indicator Status from the *National List of Plant Species that Occur in Wetlands*, Region 0 (Reed, 1988).
FAC = Facultative Status Species; Estimated probability of 33 to 67 percent chance of occurring in wetlands.
FAC = Species not considered to be typically adapted for life in anaerobic soil conditions.
FACW = Facultative Wetland Status; Estimated probability of 67 to 99 percent chance of occurring in wetlands.
FACU = Facultative Upland Status; Estimated probability of 1 to 33 percent chance of occurring in wetlands.
NL = Not included on the 1988 List.
N I= No Indicator of wetland status.
OBL = Obligate Species; Estimated probability of 99 percent chance of occurring in wetlands.
+/- = Indicates greater (+) or lesser (-) tendency to occur in wetlands.
* = Indicates a tentative status code assignment.

TABLE A-2
Wildlife Species Observed during a Reconnaissance Survey on January 15, 2010
PG&E Kelso-Telsa Reconductoring Project

Scientific Name	Common Name
Birds	
Accipitridae – Hawks	
Buteo jamaicensis	Red-tailed hawk
Circus cyaneus	Northern harrier
Cathartidae – Vultures	
Cathartes aura	Turkey vulture
Charadriidae – Plovers	
Charadrius vociferus	Killdeer
Columbidae – Doves and Pigeons	
Columba livia	Rock dove
Zenaida macroura	Mourning dove
Corvidae – Jays	
Aphelocoma coerulescens	Western scrub jay
Corvus corax	Common raven
Corvus brachyrhynchos	American crow
Emberizidae – Sparrows	
Zonotrichia atricapilla	White-crowned sparrow
Icteridae – Blackbirds	
Agelaius phoeniceus	Red-winged blackbird
Euphagus cyanocephalus	Brewer's blackbird
Sturnella neglecta	Western meadowlark
Laniidae – Shrikes	
Lanius ludovicianus	Loggerhead shrike (CSC)
Mimidae – Mockingbirds and Thrashers	
Mimus polyglottos	Northern mockingbird
Parulidae – Warblers	
Dendroica coronata	Yellow-rumped warbler
Picidae – Woodpeckers	
Picoides nuttallii	Nuttall's woodpecker

TABLE A-2
Wildlife Species Observed during a Reconnaissance Survey on January 15, 2010
PG&E Kelso-Telsa Reconductoring Project

Sturnidae – Starlings	
Sturnus vulgaris	European starling
Trochilidae – Hummingbirds	
Calypte anna	Anna's hummingbird
Tyrannidae – Flycatchers	
Sayornis saya	Say's phoebe
Falconidae – Falcons	
Falco sparverius	American kestrel
Mammals	
Sciuridae – Squirrels	
Spermophilus beecheyi	California ground squirrel
Mephitidae – Weasels and Skunks	
Mephitis mephitis	Striped skunk

Note:
CSC: CDFG species of special concern

Appendix B
Special-status Species Evaluated for this Analysis

TABLE B-1
Comprehensive List of Special-Status Species Potentially Occurring in the RA Area

Common Name	Scientific Name	Status[a]	Season[b]	Primary Habitat[c]	Potential Occurrence in Project Area
Plants					
Sharsmith's onion	*Allium sharsmithiae*	CNPS 1B, ECCHP/EACCS	Mar-May	In cismontane woodland on rocky, serpentine slopes. 1300-4000 ft	None. The entire project area is in annual grassland. No suitable habitat is present for this species.
Large-flowered fiddleneck	*Amsinckia grandiflora*	FE, CE, CNPS 1B, ECCHCP/EACCS	Apr-May	Cismontane woodland, valley and foothill grassland. 900-1800 ft	Low. The nearest records of occurrence are about four miles to the south of the Project, but in essentially similar habitat. Protocol rare plant surveys will assess species presence.
Bent-flowered fiddleneck	*Amsinckia lunaris*	CNPS 1B, ECCHCP/EACCS	Mar-Jun	Coastal bluff scrub, cismontane woodland, valley and foothill grassland. 10-1640 ft	Low. Only one record of occurrence about three miles to the east. Protocol rare plant surveys will assess species presence.
Slender silver moss	*Anomobryum julaceum*	CNPS 2, ECCHCP/EACCS	NA	Broadleaved upland forest, lower montane coniferous forest, north coast coniferous forest. Moss grows on damp rocks and soil, usually seen on road cuts. 328-3280 ft.	None. The entire project area is in annual grassland. No suitable habitat is present for this species.
Mt. Diablo manzanita	*Arctostaphylos auriculata*	CNPS 1B, ECCHCP/EACCS	Jan-Mar	Chaparral, cismontane woodland. 440-2130 ft	None. The entire project area is in annual grassland. No suitable habitat is present for this species.
Alkali milk-vetch	*Astragalus tener var. tener*	CNPS 1B, ECCHCP/EACCS	Mar-Jun	Playas, valley and foothill grassland, vernal pools/alkaline. 3-200 ft	Low. No records of occurrence within five miles of project area. Suitable habitat present on site. Protocol rare plant surveys assess species presence.
Heartscale	*Atriplex cordulata*	CNPS 1B, ECCHCP/EACCS	Apr-Oct	Chenopod scrub, meadows and seeps, valley and foothill grassland. 3-1230 ft	Low. No records of occurrence within five miles of project area. Suitable habitat present on site. Protocol rare plant surveys will assess species presence.

TABLE B-1
Comprehensive List of Special-Status Species Potentially Occurring in the RA Area

Common Name	Scientific Name	Status[a]	Season[b]	Primary Habitat[c]	Potential Occurrence in Project Area
Brittlescale	*Atriplex depressa*	CNPS 1B, ECCHCP/EACCS	Apr-Oct	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland, vernal pools. 3-1050 ft	Moderate. Numerous records of occurrence about four miles away from the northern end of the project. Suitable habitat present on site. Protocol rare plant surveys will assess species presence.
San Joaquin spearscale	*Atriplex joaquiniana*	CNPS 1B, ECCHCP/EACCS	Apr-Oct	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland/alkaline. 3-3070 ft	Moderate. Numerous records of occurrence within five miles of the project north of I-580. Suitable habitat present on site. Protocol rare plant surveys will assess species presence.
Big-scale balsamroot	*Balsamorhiza macrolepis var. macrolepis*	CNPS 1B	Mar-Jun	Chaparral, cismontane woodland, valley and foothill grassland. 295-5100 ft	Low. No known records of occurrence within five miles of project area. Suitable habitat present on site. Protocol rare plant surveys will assess species presence.
Big tarplant	*Blepharizonia plumosa*	CNPS 1B, ECCHCP/EACCS	Jul-Oct	Valley and foothill grassland. 98-1660 ft	Moderate. Suitable habitat present on site, and several occurrences within five miles to the south of the project. One occurrence within one mile of the Tesla substation. Protocol rare plant surveys will assess species presence.
Round-leaved filaree	*California macrophylla*	CNPS 1B, ECCHCP	Mar-May	Cismontane woodland, valley and foothill grassland. 50-4000 ft	Moderate. Suitable habitat present on site, and several records of occurrence within five miles of project area. Protocol rare plant surveys will assess species presence.
Mt. Diablo fairy-lantern	*Calochortus pulchellus*	CNPS 1B, ECCHCP	Apr-Jun	Chaparral, cismontane woodland, riparian woodland, valley and foothill grassland, on wooded and brushy slopes. 100-2755 ft	None. The entire project area is in annual grassland. No suitable habitat is present for this species.
Chaparral harebell	*Campanula exigua*	CNPS 1B	May-Jun	Rocky sites in chaparral, usually on serpentine. 902-4100 ft	None. The entire project area is in annual grassland. No suitable habitat is present for this species.

TABLE B-1
Comprehensive List of Special-Status Species Potentially Occurring in the RA Area

Common Name	Scientific Name	Status[a]	Season[b]	Primary Habitat[c]	Potential Occurrence in Project Area
Bristly sedge	*Carex comosa*	CNPS 2	May-Sep	Coastal prairie, marshes and swamps (lake margins), valley and foothill grassland. 0-2050 ft	Low. No records of occurrence within five miles of project area. Suitable habitat present on site. Protocol rare plant surveys will assess species presence.
Brown fox sedge	*Carex vulpinoidea*	CNPS 2	May-Jun	Marshes and swamps (freshwater), riparian woodland. 82-4000 ft	Low. Preferred habitat not present within project area; marginal habitat may be present. No records of occurrence within five miles. Protocol rare plant surveys will assess species presence.
Lemmon's jewelflower	*Caulanthus coulteri var. lemmonii*	CNPS 1B	Mar-May	Valley and foothill grassland. 260-4000	Low. Only one record of occurrence nearly four miles south of the Tesla substation. Suitable habitat present on site. Protocol rare plant surveys will assess species presence.
Congdon's tarplant	*Centromadia parryi ssp. congdonii*	CNPS 1B, EACCS	May-Oct(Nov)	Valley and foothill grassland (alkaline). 3-754 ft	Low. Preferred habitat not present within project area; marginal habitat may be present. Only one record of occurrence about three miles to the east of the project site. Protocol rare plant surveys will assess species presence.
Slough thistle	*Cirsium crassicaule*	CNPS 1B	May-August	Chenopod scrub, marshes and swamps, riparian scrub. 10-328 ft	Low. Preferred habitat not present within project area; marginal habitat may be present. No records of occurrence within five miles. Protocol rare plant surveys will assess species presence.
Mt. Hamilton fountain thistle	*Cirsium fontinale var. campylon*	CNPS 1B	(Feb) Apr-Oct	Cismontane woodland, chaparral, valley and foothill grassland, in seasonal and perennial drainages on serpentine. 311-2920 ft	Low. Preferred habitat not present within project area; marginal habitat may be present. No records of occurrence within five miles. Protocol rare plant surveys will assess species presence.

TABLE B-1
Comprehensive List of Special-Status Species Potentially Occurring in the RA Area

Common Name	Scientific Name	Status[a]	Season[b]	Primary Habitat[c]	Potential Occurrence in Project Area
Santa Clara red riboons	*Clarkia concinna ssp. automixa*	CNPS 4	(Apr) May-Jun (Jul)	Cismontane woodland, chaparral, on slopes and near drainages. 295-3182 ft	None. The entire project area is in annual grassland. No suitable habitat is present for this species.
Hispid bird's-beak	*Cordylanthus mollis ssp. hispidus*	CNPS 1B	Jun-Sep	Meadows and seeps, playas, valley and foothill grassland/alkaline. 3-510 ft	Low. No records of occurrence within five miles of project area. Suitable habitat present on site. Protocol rare plant surveys will assess species presence.
Palmate-bracted bird's-beak	*Cordylanthus palmatus*	FE, CE, CNPS 1B, EACCS	May-Oct	Chenopod scrub, valley and foothill grassland/alkaline. 16-510 ft	Low. No records of occurrence within five miles of project area. Suitable habitat present on site. Protocol rare plant surveys will assess species presence.
Mt. Hamilton coreopsis	*Coreopsis hamiltonii*	CNPS 1B	Mar-May	Cismontane woodland, on steep shale talus with open southwestern exposure. 1739-4265 ft	None. The entire project area is in annual grassland. No suitable habitat is present for this species.
Hoover's cryptantha	*Cryptantha hooveri*	CNPS 1A	Apr-May	Valley and foothill grassland in coarse sand. 0-492 ft	Low. Preferred habitat not present within project area; marginal habitat may be present. No records of occurrence within five miles. Protocol rare plant surveys will assess species presence.
Livermore tarplant	*Deinandra bacigalupi*	CNPS 1B, EACCS	Jun-Oct	Meadows and seeps (alkaline). 492-607 ft	Low. Preferred habitat not present within project area; marginal habitat may be present. No records of occurrence within five miles. Protocol rare plant surveys will assess species presence.
Hospital Canyon larkspur	*Delphinium californicum ssp. interius*	CNPS 1B	Apr-Jun	Chaparral (openings), cismontane woodland (mesic). 755-3593 ft	None. The entire project area is in annual grassland. No suitable habitat is present for this species.
Recurved larkspur	*Delphinium recurvatum*	CNPS 1B, ECCHCP/EACCS	Mar-Jun	Chenopod scrub, cismontane woodland, valley and foothill grassland/alkaline. 10-2460 ft	Moderate. Several records of occurrence near Kelso substation; one record within one mile. Suitable habitat present on site. Protocol rare plant surveys should assess species presence.

TABLE B-1
Comprehensive List of Special-Status Species Potentially Occurring in the RA Area

Common Name	Scientific Name	Status[a]	Season[b]	Primary Habitat[c]	Potential Occurrence in Project Area
Ben Lomond buckwheat	*Eriogonun nudum var. decurrens*	CNPS 1B	Jun-Oct	Chaparral, cismontane woodland, lower montane coniferous forest. On sandy soils, also in maritime ponderosa pine sand hills. 164-2625 ft	None. The entire project area is in annual grassland. No suitable habitat is present for this species.
Mt. Diablo buckwheat	*Eriogonum truncatum*	CNPS 1B	Apr-Sep (Nov-Dec)	Chaparral, coastal scrub, valley and foothill grassland on dry, exposed clay or sandy substrates. 328-2000 ft.	Low. No records of occurrence within five miles of project area. Suitable habitat present on site. Protocol rare plant surveys will assess species presence.
Delta button-celery	*Eryngium racemosum*	CE, CNPS 1B	Jun-Sep	Riparian scrub (vernally mesic clay depressions). 10-98 ft	None. The entire project area is in annual grassland. No suitable habitat is present for this species.
Diamond-petaled California poppy	*Eschscholzia rhombipetala*	CNPS 1B	Mar-Apr	Valley and foothill grassland (alkaline). 0-3200 ft	Moderate. Several records of occurrence within five miles of project area. Suitable habitat present on site. Protocol rare plant surveys will assess species presence.
Stinkbells	*Fritillaria agrestis*	CNPS 4	Mar-Apr (Blooming Period)	Cismontane woodland, chaparral, valley and foothill grassland. Sometimes on serpentine; mostly found in non-native grassland or in grassy openings in clay soil.	Low. Only one record of occurrence nearly five miles from northern end of project area. Suitable habitat present on site. Protocol rare plant surveys will assess species presence.
Talus fritillary	*Fritillaria falcata*	CNPS 1B	Mar-May	Chaparral, cismontane woodland, lower montane coniferous forest on shale, granite, or serpentine talus. 984-5000 ft	None. The entire project area is in annual grassland. No suitable habitat is present for this species.
Diablo helianthella	*Helianthella castanea*	CNPS 1B	Mar-Jun	Chaparral, cismontane woodland, riparian woodland, valley and foothill grassland. 197-4265 ft	Low. No records of occurrence within five miles of project area. Suitable habitat present on site. Protocol rare plant surveys will assess species presence.
Brewer's western flax	*Hesperolinon breweri*	CNPS 1B, ECCHCP:	May-Jul	Chaparral, cismontane woodland, valley and foothill grassland, often in serpentine soil in chaparral and grassland. 98-2953 ft	Low. No records of occurrence within five miles of project area. Suitable habitat present on site. Protocol rare plant surveys will assess species presence.

TABLE B-1
Comprehensive List of Special-Status Species Potentially Occurring in the RA Area

Common Name	Scientific Name	Status[a]	Season[b]	Primary Habitat[c]	Potential Occurrence in Project Area
Napa western flax	*Hesperolinon sp. nov. "serpentinum"*	CNPS 1B.1, ECCHCP: No, EACCS: No	May-Jul	Chaparral, predominantly serpentine chaparral. 164-2625 ft.	None. The entire project area is in annual grassland. No suitable habitat is present for this species.
Woolly rose-mallow	*Hibiscus lasiocarpus*	CNPS 2	Jun-Sep	Marshes and swamps (freshwater). 0-394 ft	None. The entire project area is in annual grassland. No suitable habitat is present for this species. There are several occurrences within five miles, but these are aquatic and near Clifton Court Forebay.
Contra Costa goldfields	*Lasthenia conjugens*	FE, CNPS 1B	Mar-Jun	Cismontane woodland, playas (alkaline), valley and foothill grassland, vernal pools. 0-1542 ft	Low. No records of occurrence within five miles of project area. Suitable habitat present on site. Protocol rare plant surveys will assess species presence.
Delta tule pea	*Lathyrus jepsonii var. jepsonii*	CNPS 1B	May-Jul(Sep)	Marshes and swamps (freshwater and brackish). 0-13 ft	None, this species generally associated with Delta water bodies (i.e., sloughs). There are no known records of occurrence in the project area. The entire project area is in annual grassland. No suitable habitat is present for this species.
Legenere	*Legenere limosa*	CNPS 1B	Apr-Jun	In beds of vernal pools. 3-2887 ft	None. No vernal pools within project area.
Mason's lilaeopsis	*Lilaeopsis masonii*	CR, CNPS 1B	Apr-Nov	Marshes and swamps (brackish or freshwater), riparian scrub. 0-33 ft	None, this species generally associated with Delta water bodies (i.e., sloughs). Although there are records of occurrence within five miles, they are in aquatic sites near Clifton Court Forebay. The entire project area is in annual grassland. No suitable habitat is present for this species.

TABLE B-1
Comprehensive List of Special-Status Species Potentially Occurring in the RA Area

Common Name	Scientific Name	Status[a]	Season[b]	Primary Habitat[c]	Potential Occurrence in Project Area
Delta mudwort	*Limosella subulata*	CNPS 2	May-Aug	Marshes and swamps. 0-10 ft	None, this species generally associated with Delta water bodies (i.e., sloughs). There are no records of occurrence within five miles of the project area. The entire project area is in annual grassland. No suitable habitat is present for this species.
Showy golden madia	*Madia radiata*	CNPS 1B	Mar-May	Cismontane woodland, valley and foothill grassland. 82-2953 ft	Low. No records of occurrence within five miles of project area. Suitable habitat present on site. Protocol rare plant surveys will assess species presence.
Hall's bush-mallow	*Malacothamnus hallii*	CNPS 1B	May-Sept (Oct)	Chaparral, some populations on serpentine. 33-2493	None. The entire project area is in annual grassland. No suitable habitat is present for this species.
Mt. Diablo cottonweed	*Micropus amphibolus*	CNPS 3	Mar-May	Broadleafed upland forest, chaparral, cismontane woodland, valley and foothill grassland. 147-2707 ft	Low. No records of occurrence within five miles of project area. Suitable habitat present on site. Protocol rare plant surveys will assess species presence.
Little mousetail	*Myosurus minimus ssp. apus*	CNPS 2	Mar-Jun	Valley and foothill grassland, vernal pools (alkaline). 65-2100 ft	Low. No records of occurrence within five miles of project area. Suitable habitat present on site. Protocol rare plant surveys will assess species presence.
Mt. Diablo phacelia	*Phacelia phacelioides*	CNPS 1B	Apr-May	Chaparral, cismontane woodland. Adjacent to trails, on rock outcrops and talus slopes, sometimes on serpentine. 1640-4494 ft	None. The entire project area is in annual grassland. No suitable habitat is present for this species.
Hairless popcorn-flower	*Plagiobothrys glaber*	CNPS 1B	Mar-May	Meadows and seeps (alkaline). 49-590 ft	Low. Preferred habitat not present within project area; marginal habitat may be present. No records of occurrence within five miles. Protocol rare plant surveys will assess species presence.

TABLE B-1
Comprehensive List of Special-Status Species Potentially Occurring in the RA Area

Common Name	Scientific Name	Status[a]	Season[b]	Primary Habitat[c]	Potential Occurrence in Project Area
Sanford's arrowhead	*Sagittaria sanfordii*	CNPS 1B	May-October	Marshes and swamps in standing or slow-moving freshwater ponds, marshes, and ditches. 0-2133 ft	Low. Preferred habitat not present within project area; marginal habitat may be present. No records of occurrence within five miles. Protocol rare plant surveys will assess species presence.
Marsh skullcap	*Scutellaria galericulata*	CNPS 2	Jun-Sep	Meadows and seeps (mesic), marshes and swamps. 0-6890 ft	None, this species generally associated with Delta water bodies (i.e., sloughs). There are no known records of occurrence in the project area. The entire project area is in annual grassland. No suitable habitat is present for this species.
Chaparral ragwort	*Senecio aphanactis*	CNPS 2	Jan-Apr	Chaparral, cismontane woodland, coastal scrub /sometimes alkaline. 49-2625 ft	None. The entire project area is in annual grassland. No suitable habitat is present for this species.
Most beautiful jewel-flower	*Streptanthus albidus ssp. peramoenus*	CNPS 1B	(Mar) Apr-Sept (Oct)	Chaparral, valley and foothill grassland, cismontane woodland. 308-3280 ft	Low. No records of occurrence within five miles of project area. Suitable habitat present on site. Protocol rare plant surveys will assess species presence.
Suisun Marsh aster	*Symphyotrichum lentum*	CNPS 1B	May-Nov	Marshes and swamps (brackish and freshwater). 0-10 ft	None, this species generally associated with Delta water bodies (i.e., sloughs). There are no known records of occurrence in the project area. The entire project area is in annual grassland. No suitable habitat is present for this species.
Wright's trichocoronis	*Trichocoronis wrightii var. wrightii*	CNPS 2	May-September	Marshes and swamps, riparian forest, meadows and seeps, vernal pools. 16-1427 ft	Low. Preferred habitat not present within project area; marginal habitat may be present. No records of occurrence within five miles. Protocol rare plant surveys will assess species presence.

TABLE B-1
Comprehensive List of Special-Status Species Potentially Occurring in the RA Area

Common Name	Scientific Name	Status[a]	Season[b]	Primary Habitat[c]	Potential Occurrence in Project Area
Saline clover	*Trifolium depauperatum var. hydrophilum*	CNPS 1B	Apr-Jun	Marshes and swamps, valley and foothill grassland (mesic, alkaline), vernal pools. 0-984 ft	Low No records of occurrence within five miles of project area. Suitable habitat present on site. Protocol rare plant surveys will assess species presence.
Caper-fruited tropidocarpum	*Tropidocarpum capparideum*	CNPS 1B	Mar-Apr	Valley and foothill grassland (alkaline hills).	Moderate. Numerous records of occurrence within five miles of project area. Suitable habitat present on site. Protocol rare plant surveys will assess species presence.
Oval-leaved viburnum	*Viburnum ellipticum*	CNPS 2	May-Jun	Chaparral, cismontane woodland, lower montane coniferous forest. 705-4600 ft.	None. The entire project area is in annual grassland. No suitable habitat is present for this species.
Insects and Crustaceans					
Conservancy fairy shrimp	*Branchinecta conservatio*	FE	RES	Large, cool-water vernal pools with moderately turbid water.	None. Large playa pools do not occur in the project area and there are no known records in the project vicinity.
Longhorn fairy shrimp	*Branchinecta longiantenna*	FE, ECCHCP/EACCS	RES	Vernal pools, seasonally ponded areas within vernal swales, and ephemeral freshwater habitats.	Low. No known records in the project area. Potentially suitable habitat is present but this species is quite rare, as they are only known from four disjunct populations outside the project area.
Vernal pool fairy shrimp	*Branchinecta lynchi*	FT, ECCHCP/EACCS	RES	Vernal pools, ephemeral alkali pools, seasonal drainages, stock ponds, vernal swales and rock outcrops.	High. Suitable habitat is present. This species may be present in the wetlands along the reconductored alignment; surveys should be conducted.
Mid-valley fairy shrimp	*Branchinecta mesovallensis*	ECCHCP	RES	Shallow vernal pools, swales and various artificial ephemeral wetland habitats.	Moderate. Project area is located on edge of this species range, but suitable habitat is present and *Branchinecta* sp. has been observed near the Kelso Substation.

TABLE B-1
Comprehensive List of Special-Status Species Potentially Occurring in the RA Area

Common Name	Scientific Name	Status[a]	Season[b]	Primary Habitat[c]	Potential Occurrence in Project Area
Vernal pool tadpole shrimp	*Lepidurus packardi*	FE, ECCHCP	RES	Typically larger playa pools or vernal pool complexes.	None. Large playa pools and vernal pool complexes lacking in the project area; no known records in the project vicinity.
California linderiella	*Linderiella occidentalis*	--	RES	Seasonal pools in unplowed grasslands with old alluvial soils underlain by hardpan or in sandstone depressions. Water in the pools has very low alkalinity, conductivity and total dissolved solids.	High. Suitable habitat is present. This species may be present in the wetlands along the reconductored alignment; surveys should be conducted.
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	FT	RES	The species is nearly always found on or close to its host plant, elderberry.	None. The elderberry host plant does not occur in the project area; no known records in the project area.
Bay checkerspot butterfly	*Euphydryas editha bayensis*	FT	RES	Found on shallow, serpentine-derived soils along the spine of the San Francisco peninsula, now restricted to San Mateo and Santa Clara counties.	None. All extant butterfly populations are known from San Mateo and Santa Clara counties. No serpentine habitats are known in the project area and vicinity.
Bridges' coast range shoulderband (snail)	*Helminthoglypta nickliana bridgesi*	--	RES	Inhabits open hillsides of Alameda and Contra Costa counties. Tends to colonize under tall grasses and weeds.	Low. Nearest occurrence is over five miles from project site. Site surveys will assess species presence. Microhabitats not present in project area.
Curved-foot hygrotus diving beetle	*Hygrotus curvipes*	--	RES	Aquatic, known only from Alameda and Contra Costa counties. It inhabits alkali vernal pools and other seasonal wetlands or slow-moving streams with pools and fringed with alkali vegetation.	Moderate. Nearest records within one mile from Project. Suitable seasonal wetland habitat may be present along the reconductored alignment.
Fish					
Green sturgeon	*Acipenser medirostris*	CSC, FT	RES	Green sturgeon is found in coastal marine waters and inland in waters and tributaries of the Sacramento-San Joaquin river delta.	None. Sturgeon is not present in the Delta-Mendota canal or other small creeks crossing the project area. Project is outside of critical habitat.

TABLE B-1
Comprehensive List of Special-Status Species Potentially Occurring in the RA Area

Common Name	Scientific Name	Status[a]	Season[b]	Primary Habitat[c]	Potential Occurrence in Project Area
Delta smelt (and critical habitat)	*Hypomesus transpacificus*	FT, ST	RES	Delta smelt are found upstream from Suisun Bay through the delta, primarily in the mixing zone, but dispersing up rivers and sloughs in spawning season.	None. Project area is outside of range and delta smelt are not known downstream of Suisun Bay. Project is outside of delta smelt critical habitat.
Steelhead-central California coast ESU and central valley ESU (and critical habitat)	*Oncorhynchus mykiss irideus*	FT, EACCS	Summer run (May-Oct); Winter run (Nov-Apr)	From Russian River south to Pajaro River.	None. Project is outside of critical habitat, and these fish do not extend into the waterways crossing the project.
Central Valley spring-run Chinook salmon, winter-run Chinook salmon, Sacramento River	*Oncorhynchus tshawytscha*	FT	Spring, Winter	Sacramento River and tributaries.	None. Fish do not extend into waterways crossing the project.
Amphibians					
California tiger salamander, central population	*Ambystoma californiense*	FT, CSC, ECCHCP/EACCS	RES	Grassland, oak savanna, and edges of mixed woodlands. Breeding: vernal pools, temporary rainwater ponds, permanent human-made ponds if predatory fishes are absent.	High. CNDDB occurrences within 0.5 mile of Project. Potentially suitable aestivation and dispersal habitat in project area.
Foothill yellow-legged frog	*Rana boylii*	CSC, ECCHCP/EACCS	RES	Partly shaded, shallow streams and riffles with a rocky substrate in a variety of habitats.	None. No known record occurrences within 5 miles of Project. In addition, the project area lacks suitable habitat for this species.
California red-legged frog	*Rana draytonii*	FT, CSC, ECCHCP/EACCS	RES	Grasslands and streamsides with plant cover; permanent water sources: lakes, ponds, reservoirs, slow streams, marshes, bogs, and swamps.	High. CNDDB occurrences within 0.5 mile of Project. Suitable breeding, aestivation, and dispersal habitat in project area.
Western spadefoot toad	*Spea hammondii*	CSC,EACCS	RES	Open areas with sandy or gravelly soils, in mixed woodlands, grasslands; rain pools which do not contain bullfrogs, fish, or crayfish are necessary for breeding.	Low. No known record occurrences in project area and sandy/gravelly soils are lacking in the project area.

TABLE B-1
Comprehensive List of Special-Status Species Potentially Occurring in the RA Area

Common Name	Scientific Name	Status[a]	Season[b]	Primary Habitat[c]	Potential Occurrence in Project Area
Reptiles					
Western pond turtle	*Actinemys marmorata*	CSC, ECCHCP/EACCS	RES	Ponds, lakes, rivers, streams, creeks, marshes, and irrigation ditches, with abundant vegetation.	Moderate. CNDDB occurrences known within the region. Suitable breeding habitat may occur on the waterways crossing the reconductored alignment. Pre-construction surveys will assess presence of this species within the project area.
Silvery legless lizard	*Anniella pulchra pulchra*	CSC, ECCHCP/EACCS	RES	Occurs in moist warm loose soil with plant cover. Occurs in sparsely vegetated areas.	Low. There are no known record occurrences in project area and loose friable soils suitable for this species lacking in project area.
San Joaquin coachwhip	*Masticophis flagellum ruddocki*	CSC, EACCS	RES	Open, dry, treeless areas, including grassland and saltbush scrub. Takes refuge in rodent burrows, under vegetation and surface objects.	Low. There are no known record occurrences in project area, and grasslands with a shrub component are lacking along the alignment.
Alameda whipsnake	*Masticophis lateralis euryxanthus*	FT, CT, ECCHCP/EACCS	RES	Open areas in canyons, rocky hillsides, chaparral scrublands, open woodlands, pond edges, and stream courses.	None. The project area is grassland, with no suitable chaparral habitat for this species. There are no known record occurrences present in the project vicinity.
California coast horned lizard	*Phrynosoma coronatum (frontale population)*	CSC, EACCS	RES	Grasslands, woodlands, and chaparral, with open areas and patches of loose soil; and frequently found near ant hills.	Low. There are no known record occurrences in project area. Site surveys will search for ant prey base to assess likelihood of species presence.
Giant garter snake	*Thamnophis gigas*	FT, CT, ECCHCP/EACCS	RES	Marshes, sloughs, drainage canals, and irrigation ditches, especially around rice fields, and occasionally in slow-moving creeks of the Central Valley floor.	None. There are no known record occurrences in the project area. The project area is located outside of the known range for this species and above the valley floor in grassland, which is not suitable habitat.

TABLE B-1
Comprehensive List of Special-Status Species Potentially Occurring in the RA Area

Common Name	Scientific Name	Status[a]	Season[b]	Primary Habitat[c]	Potential Occurrence in Project Area
Birds					
Cooper's hawk	*Accipiter cooperii*	CSC	RES	Open, interrupted, or marginal woodland. Nests in riparian areas of deciduous trees and live oaks.	Low. No suitable nesting habitat is present within the grasslands of the project area. May disperse through the project area.
Sharp-shinned hawk	*Accipiter striatus*	CSC	RES, WNTR	Ponderosa pine, black oak, riparian deciduous, mixed conifer, and Jeffrey pine habitats, preferably riparian. North-facing slopes with plucking perches are critical. Usually nests within 275 ft of water.	Low. No suitable nesting habitat is present within the grasslands of the project area. May disperse through the project area.
Tricolored blackbird	*Agelaius tricolor*	CSC, ECCHCP/EACCS	RES (primarily)	Near open accessible water with dense emergent vegetation (e.g., cattails).	Moderate. There are a few records of occurrence within five miles of the project area, but no suitable marsh habitat that crosses the reconductored alignment. Site surveys will assess species presence.
Golden eagle	*Aquila chrysaetos*	BGPA, CSC/FP, ECCHCP/EACCS	RES (primarily)	Open grasslands and savannahs. Nests on cliffs of all heights and in large trees in open areas.	High. This species well known in the Altamont Hills and vicinity. Grassland areas of Project provide suitable foraging habitat; however suitable breeding habitat not present in project area.
Great blue heron (rookery)	*Ardea herodias*	--	RES	Colonial nester in tall trees, cliffsides, and sequestered spots on marshes. Rookery sites in close proximity to foraging areas such as marshes, lake margins, tide-flats, rivers and streams, wet meadows.	Low. No known rookery sites in project area, but marsh wetlands crossing the alignment corridor provides suitable foraging habitat.
Western burrowing owl	*Athene cunicularia*	CSC, ECCHCP/EACCS	Primarily RES (may WNTR to South)	Open, dry grassland. Usually nests in old burrow of ground squirrel, or other small mammal.	High. This species well known in the Altamont Hills and vicinity. Suitable breeding and foraging habitat in project area.

TABLE B-1
Comprehensive List of Special-Status Species Potentially Occurring in the RA Area

Common Name	Scientific Name	Status[a]	Season[b]	Primary Habitat[c]	Potential Occurrence in Project Area
Short-eared owl	*Asio flammeus*	CSC	WNTR	Usually found in open areas with few trees such as annual and perennial grasslands, prairies, dunes, wetlands and irrigated lands.	Low. This species is a winter migrant to central valley and western Sierra Nevada foothills. Suitable roosting and resting habitat is not present in the project area. No known records in the project area.
Ferruginous hawk	*Buteo regalis*	CSC	WNTR	Open grasslands, sagebrush flats, desert scrub, low foothills and fringes of pinyon-juniper habitats.	Low. Although there are CNDDB occurrences within 1 mile of reconductored alignment and suitable foraging habitat is present, this species is likely an occasional winter migrant in the project area.
Swainson's hawk	*Buteo swainsoni*	CT, ECCHCP/EACCS	SUM	Open riparian habitat, in scattered trees or small groves in sparsely vegetated flatlands. Usually near water in the Central Valley.	High. There are CNDDB occurrences within 1 mile of the reconductored alignment. Only foraging habitat will be affected, as no trees will be affected during construction.
Northern harrier	*Circus cyaneus*	CSC, EACCS	RES (primarily)	Flat, open areas of tall, dense grasses, moist or dry shrubs, and edges for nesting, cover, and feeding.	Detected. This species well known in the Altamont Hills and vicinity, and observed during January 2010 site survey. Suitable foraging habitat only in project area.
White-tailed kite	*Elanus leucurus*	FP, EACCS	RES	Open grasslands, meadows, farmlands and emergent wetlands. Groves of dense, broad-leafed deciduous trees used for nesting and roosting.	Moderate. No known record occurrences in project area. Although no suitable breeding habitat is present in the project area, suitable foraging habitat is present.
California horned lark	*Eremophila alpestris actia*	CSC	RES	Coastal regions, short-grass prairie, "bald" hills, mountain meadows, open coastal plains, fallow grain fields, alkali flats	High. CNDDB occurrences within 1 mile of alignment. Suitable nesting and foraging habitat in project area.
Prairie falcon	*Falco mexicanus*	CSC	RES/ WNTR	Inhabits dry, open terrain. Breeding sites located on cliffs. Forages far afield, even to marshlands and ocean shores.	Low. No known record occurrences in project area. Suitable foraging habitat in project area.

TABLE B-1
Comprehensive List of Special-Status Species Potentially Occurring in the RA Area

Common Name	Scientific Name	Status[a]	Season[b]	Primary Habitat[c]	Potential Occurrence in Project Area
American peregrine falcon	*Falco peregrinus anatum*	FD, CE/FP	RES	Near water, on cliffs, banks, dunes, mounds, or human architecture. Nest is a scrape in a depression or a ledge in an open site.	Low. No known record occurrences in project area. Suitable foraging habitat in project area.
Bald eagle	*Haliaeetus leucocephalus*	FD, CE/FP,	RES	Ocean shore, lake margins, and rivers for both nesting and wintering. Nests within one mile of water in large, open-branched live trees.	Low. No nesting habitat present near project area, but may disperse through project area.
Loggerhead shrike	*Lanius ludovicianus*	CSC, EACCS	RES	Open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches.	High. Foraging habitat only, as no trees or shrubs will be impacted during construction.
California black rail	*Laterallus jamaicensis coturniculus*	ST, FP	RES	Inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays. Needs water depth of about one inch that does not fluctuate during the year and dense vegetation for nesting habitat.	None. No known record occurrences in project area and suitable habitat not present in project area. All occurrences are well to the north of the project area.
Yellow-headed blackbird	*Xanthocephalus xanthocephalus*	CSC	SUM / RES	Dense emergent wetland of cattails, tules, and other wetland plants, often along border of lake or pond.	Low. There are no known record occurrences in project area, and the project is on the edge of the species' known range. There is a slight chance that wetlands crossing the Project may provide suitable habitat. Site surveys will assess species presence.
Mammals					
Pallid bat	*Antrozous pallidus*	CSC, ECCHCP/EACCS	RES	Shrub-steppe grasslands; day roosts in caves, crevices, mines, and occasionally in hollow trees and buildings.	Low. Suitable roosting habitat lacking in project area; however may disperse through the project area.
Townsend's big-eared bat	*Corynorhinus townsendii*	CSC, ECCHCP	RES	Wide variety of sites, mostly mesic. Roosts in the open. Extremely sensitive to human disturbance.	Low. No suitable roosting habitat present in strictly grassland habitat, but species may disperse through or forage in project area.

TABLE B-1
Comprehensive List of Special-Status Species Potentially Occurring in the RA Area

Common Name	Scientific Name	Status[a]	Season[b]	Primary Habitat[c]	Potential Occurrence in Project Area
Berkeley kangaroo rat	*Dipodomys heermanni berkeleyensis*	--	RES	Open grassy hilltops and open spaces in chaparral and blue oak/digger pine woodlands. Needs fine, deep, well-drained soil for burrowing.	None. Project area is well outside of the species' known range.
Western mastiff bat	*Eumops perotis californicus*	CSC, EACCS	RES	Broad open areas; chaparral, oak woodland, grassland, and agricultural areas; primarily cliff-dwelling; building roosts.	Low, suitable roosting habitat lacking in project area; however may disperse through the project area.
Western red bat	*Lasiurus blossevillii*	CSC	RES	Prefers habitat mosaics and edges, roosting in trees protected from above and open below.	Low. No suitable roosting habitat present in strictly grassland habitat, but species may disperse through or forage in project area.
Hoary bat	*Lasiurus cinereus*	CSC	RES/WNTR	Prefers open habitats or mosaics, roosting in dense tree stands with access to open areas for foraging.	Low. No suitable roosting habitat present in strictly grassland habitat, but species may disperse through or forage in project area.
San Francisco dusky-footed woodrat	*Neotoma fuscipes annectens*	CSC	RES	Forest habitats of moderate canopy and moderate to dense understory. Constructs nests of shredded grass, leaves, and other material.	None. No CNDDB occurrences within 1 mile of project area and no suitable habitat within project area.
San Joaquin pocket mouse	*Perognathus inornatus inornatus*	--	RES	Typically found in grasslands and blue oak savannahs.	High. Suitable habitat exists along project area and species is known from general area. Site surveys will assess species presence.
Riparian brush rabbit	*Sylvilagus bachmani riparius*	FE, CE	RES	Riparian areas on the San Joaquin River in Northern Stanislaus county.	None. No CNDDB occurrences within five miles of project area and no suitable habitat within project area.
American badger	*Taxidea taxus*	CSC EACCS	RES	Friable soils, and relatively open, uncultivated ground; grasslands, savannas.	Moderate. CNDDB occurrences within 1 mile of project area. Suitable foraging habitat in project area; small mammal burrow located on site may provide denning opportunities for this species.

TABLE B-1
Comprehensive List of Special-Status Species Potentially Occurring in the RA Area

Common Name	Scientific Name	Status[a]	Season[b]	Primary Habitat[c]	Potential Occurrence in Project Area
San Joaquin kit fox	*Vulpes macrotis mutica*	FE, CT, ECCHCP/EACCS	RES	Annual grasslands or grassy open stages of vegetation, some agricultural areas.	High. CNDDB occurrences within 0.5 mile of the reconductored alignment. Suitable foraging habitat in project area; small mammal burrows located on site may provide denning opportunities for this species.

Notes:
[a] **Status.**
[b] **Season**. Blooming period for plants. Season of use for animals. RES=Resident; SUMR=Summer; WNTR=Winter; rare visitor
[c] **Primary Habitat.** Most likely habitat association

Federal Status
FE = federally listed as endangered
FT = federally listed as threatened
FD = federally delisted
BGPA = Bald and Golden Eagle Protection Act
State Status
CE = state listed as endangered
CT = state listed as threatened
CR = state rare
CSC = state species of special concern
FP = fully protected

California Native Plant Society (CNPS) Status
1A = plants presumed extinct in California
1B = plants rare, threatened, or endangered in California, but more common elsewhere
2 = plants rare, threatened, or endangered in California, but more common elsewhere
3 = plants on a review list needing more information
4 = plants on a watch list

EACCS = Species covered by the East Alameda County Conservation Strategy
ECCHCP = Species covered by the East Contra Costa Habitat Conservation Plan

Sources (CNPS, 2009; CDFG, 2009; USFWS, 2009):
(Altamont, Livermore, Clifton Court Forebay, Holt, Tracy, Midway, Antioch South, Brentwood, Woodward Island, Tassajara, Byron Hot Springs, Union Island, La Costa Valley, Mendenhall Springs, Cedar Mountain, and Lone Tree Creek) 7.5-minute USGS quadrangles searched) California Department of Fish and Game. Natural Diversity Database Program “Rarefind” (December 2009). California Natural Diversity Database. The Resources Agency, Sacramento.

Appendix C
Summary of LORS

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

Element	Goal/Policy
Federal	
Federal Endangered Species Act (Federal ESA, 16 USC 1531 et seq.)	Applicants for projects that could result in adverse impacts to or take of any federally listed species are required to obtain take authorization and mitigate potential impacts in consultation with USFWS.
Migratory Bird Treaty Act (16 USC 703 to 711)	Protects all migratory birds, including nests and eggs.
Bald and Golden Eagle Protection Act (16 USC 668)	Specifically protects bald and golden eagles from harm or trade in parts of these species.
Section 404 of Clean Water Act	Prohibits discharge of dredge or fill material into Waters of the U.S. (including wetlands) without prior authorization.
State	
California Endangered Species Act (Fish and Game Code, Section 2050 et seq.).	Species listed under this act cannot be "taken" or harmed unless authorized by an incidental take permit.
Fish and Game Code, Section 3511	Describes bird species, primarily raptors, that are "fully protected." Fully protected birds may not be taken or possessed, except under specific permit requirements.
Fish and Game Code, Section 3503	States that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto.
Fish and Game Code, Section 3503.5	Protects all birds of prey and their eggs and nests.
Fish and Game Code, Section 3513	Makes it unlawful to take, possess, or destroy any birds of prey or to take, possess, or destroy the nest or eggs of any such bird.
Fish and Game Code, Sections 4700, 5050, and 5515	Lists mammal, amphibian, and reptile species that are fully protected in California.
Fish and Game Code, Sections 1900 et seq.,	The Native Plant Protection Act lists threatened, endangered, and rare plants listed by the state.
Title 14, California Code of Regulations, Sections 670.2 and 670.5	Lists animals designated as threatened or endangered in California.
Fish and Game Code Sections 1601 through 1607	Prohibits alteration of any stream, including intermittent and seasonal channels and many artificial channels, without a permit from CDFG.
Porter-Cologne Water Quality Control Act (Section 13263); Section 401 of CWA	Authorizes the RWQCB to regulate discharges of waste and fill material to Waters of the State, including "isolated" wetlands, through issuance of a permit.
CEQA (Public Resources Code, Section 15380)	CEQA requires that the effects of a project on environmental resources must be analyzed and assessed using criteria determined by the lead agency.
Local and Other Jurisdictions	
East Alameda County Conservation Plan	Stipulates conservation measures that should be incorporated into projects for the protection of environmental resources.

Appendix B
Supplemental Cultural Resources Assessment

Supplemental Cultural Resources Assessment for the Electrical Transmission Line Reconductoring, Mariposa Energy Project

PREPARED FOR: Mariposa Energy, LLC

PREPARED BY: Clint Helton, RPA / CH2M HILL
Dan Ewers, RPA / CH2M HILL
Ken Hazlett / CH2M HILL

DATE: February 13, 2010

Introduction

As requested by Mariposa Energy, LLC (Mariposa Energy), CH2M HILL conducted a cultural resources study, including archival research and pedestrian field survey, for the proposed reconductoring of the Kelso-Tesla 230-kV high-voltage electric power transmission line related to the Mariposa Energy Project (MEP). Subsequent to obtaining literature search results for the proposed route plus a one-quarter mile research area buffer around the project area, a pedestrian field survey of the proposed transmission line route was conducted over the period of January 18-20, 2010 by CH2M HILL.

Based on the record search and pedestrian survey results, the archaeological sensitivity of the proposed MEP transmission line project area is considered to be low. The only previously recorded resource in the immediate project area, the historic Pittsburg-Tesla Transmission Line (adjacent to the Kelso-Tesla line that will be reconductored), was previously determined not eligible for the National Register of Historic Places (NRHP) or California Register of Historical Resources (CRHR) and no new historic or prehistoric resources were discovered during survey.

The summary of findings for archaeological and architectural resources is presented herein. These findings include the literature search results for the project and buffer area provided by the Northwest Information Center (NWIC) and the results of the pedestrian survey.

This memorandum supplements the previously prepared technical memorandum *Cultural Resources Assessment for the Mariposa Energy Project*, dated May 15, 2009, in support of the MEP AFC. More detailed description of the affected environment is found therein, and will not be repeated here.

Attachment A to this memorandum contains a map of the project area as surveyed. Attachment B contains an update continuation form to the site record for the existing Pittsburg-Tesla transmission line [P-01-010947/P-07-002956].

Transmission Line Alignment

The proposed MEP transmission line reconductoring utilizes the existing steel lattice towers of the Kelso-Tesla transmission line stretching approximately 8 miles, roughly north to south, in the northeast corner of Alameda County, California. The route commences approximately 2 miles north of Bethany Reservoir and proceeds south overland to a point approximately 3 miles south of the I-580 freeway to terminate at an existing substation (see Attachment A).

A project area corridor 200 feet (60 meters) wide, 100 feet (30 meters) on either side perpendicular to the centerline, was examined by pedestrian survey and evaluated for the presence of significant cultural resources.

Cultural Resources Survey Results

Archival Research

CH2M HILL commissioned literature searches in November, 2009 for MEP from the staff of the NWIC (Alameda County), using a research area defined by a one-quarter mile buffer zone around the proposed transmission line linear facilities. This is in accordance with the latest CEC *Rules of Practice and Procedure & Power Plant Site Certification Regulations* for assessing potential impacts to archaeological and architectural resources.

The literature and records review included a review of all previously recorded archaeological sites as well as all known cultural resource survey and excavation reports. The National Register of Historic Places (NHRP), the California Register of Historical Resources (CRHR), California Historical Landmarks, and California Points of Historical Interest, and assorted historic maps were examined.

The record search indicated that there is one previously recorded resource in the immediate survey corridor, with three more outside the project area but within the buffer, as follows.

RESOURCES IN PROJECT AREA (200 ft corridor, 100 ft from centerline)

- P-01-010947/P-07-002956: Pittsburg-Tesla Transmission Line [Historic]

RESOURCES IN PROJECT BUFFER (0.5 mile corridor, 0.25 miles from centerline)

- P-01-000163 : Ranch complex and related debris [Historic]
- P-01-010499 : Vaca Dixon-Tesla and Table Mountain-Tesla transmission lines [Historic]
- P-01-010614 : Midway Road segment [Historic]

Field Survey

An archaeological pedestrian field survey of the proposed MEP transmission line reconductoring was performed over the period of January 18-20, 2010 by a survey crew consisting of Dan Ewers, MA, RPA, who meets the qualifications for Principal Investigator stated in the Secretary of the Interior's standards and guidelines for archaeology and historic preservation (USNPS, 1983), and Ken Hazlett. The project area, as defined, encompassed the route detailed above and shown in Attachment A, including a corridor 100 feet from centerline on either side (200 feet wide in total) over the extent of the proposed reconductor transmission line route.

Using pedestrian transects spaced no more than 15 meters apart, the crew surveyed, the entirety of the defined project area. Ground visibility for nearly all of the project area was good to excellent (70-100%), with the only ground cover consisting of low-lying grasses. The exceptions to this lie in the northernmost half-mile of the project area, the northern part of which (immediately north of Kelso Road) consists of approximately 18 inch high introduced landscape grasses and the southern portion of which (immediately south of Kelso Road) contained approximately 24 inch high native grasses.

The existing transmission line corridor has been disturbed by its construction thoughout and the land appears in current use for light grazing of cattle. The entire area has historically been the subject of intensive agricultural activity. In the southern half of the project area, extending from just north of Altamont Road to a point roughly 3,200 feet (0.6 miles) northwest along the transmission line route, lies a decommissioned golf course. This area, naturally, exhibits heavy ground disturbance from landscaping, and any research potential for this segment would almost certainly be nullified.

One known cultural resource is present in the project area; the Pittsburg-Tesla Transmission Line [P-01-010947/P-07-002956], constructed in 1959-1960. The line was recently recorded and evaluated by Garcia and Associates in 2008 (GANDA 2009) and recommended not eligible for either NRHP (per Criteria A, B, C, or D) or CRHR (per Criteria 1, 2, 3, or 4). Upon consideration of the existing documentation and onsite observations, CH2M HILL is in accordance with this assessment. An update to the DPR site record was prepared and is provided as Attachment B, along with the original site record. The section of the alignment nearest to previously recorded site P-01-000163 (historic ranch complex and related debris) was examined, and no evidence was found that the site extends into the project area. Additionally, no new historic or prehistoric resources were discovered over the course of the survey.

Recommendations

The literature search and pedestrian survey have revealed no significant prehistoric or historic resources located within the immediate MEP transmission line reconductor area of potential effect. Naturally, should reconductor construction activity be reassessed, amended, or altered to extend beyond the 200 foot survey corridor, the added area(s) will require further evaluation. However, with this caveat, the project will not have an adverse effect on significant historical or archaeological sites (i.e. those eligible for listing in the NRHP or CRHR). Further, there are no known cemeteries or other subsurface cultural elements in the project area which might be disturbed by project construction.

It is highly unlikely, due to the lack of any cultural resources in the project area and the minimal degree of disturbance likely to result from the reconductoring of the transmission line, that disturbance to significant cultural resources will result. Nevertheless, although significant archaeological and historical sites were not found during the survey for the MEP, it is theoretically possible that subsurface excavation related to construction could encounter buried archaeological elements. For this reason, the Project should include measures to mitigate any potential resultant adverse impacts should discovery of buried cultural resources occur.

Should human remains are found during construction, project officials should contact the designated CRS immediately, and are required by the California Health and Safety Code (Section 7050.5) to contact the Alameda County coroner. If the Coroner determines that the find is Native American, he or she must contact the NAHC. The NAHC, as required by the Public Resources Code (Section 5097.98) will then determine and notify the Most Likely Descendant (MLD), tendering a formal request to inspect the burial and make appropriate recommendations regarding how to proceed.

Additional measures should include, but not be limited to, the following.

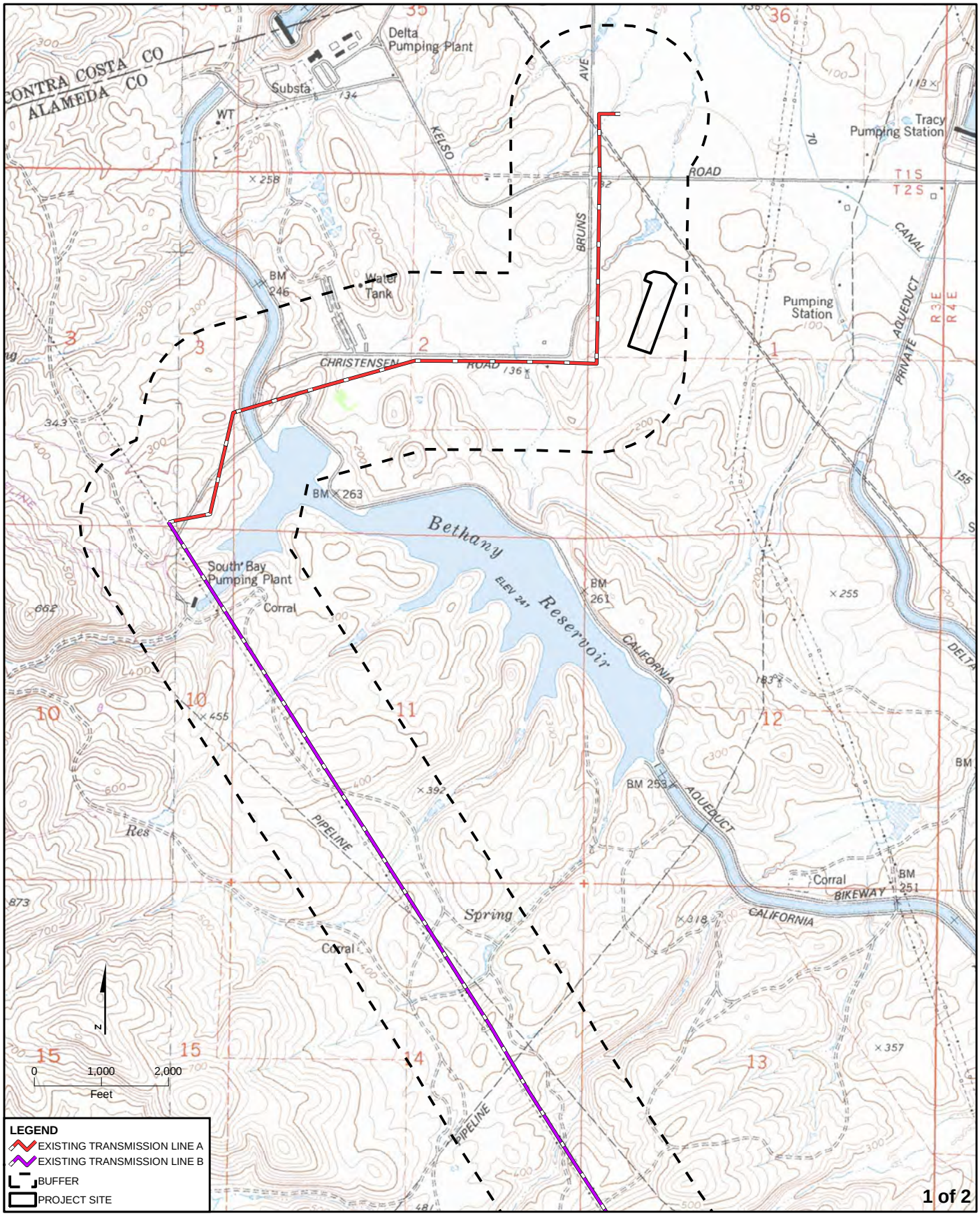
1. Designation of a qualified on-call Cultural Resources Specialist to investigate any cultural resource finds made during construction
2. Implementation of a construction worker cultural resource awareness training program, to be conducted by the Cultural Resources Specialist
3. Procedures for halting construction in the event of inadvertent discovery of surface or subsurface archaeological deposits or subsurface human remains
4. Procedures for evaluation of any inadvertent archaeological discovery by the designated Cultural Resources Specialist
5. Procedures to mitigate adverse impacts on any inadvertent archaeological discovery determined to be significant

Details for these additional measures should be arranged prior to reconductoring, and the necessary information disseminated to the appropriate project manager(s) and/or field supervisor(s), prior to commencement of construction operations for the proposed transmission line reconductoring.

References

Garcia and Associates (GANDA). 2009. *Cultural Resources Investigation and Architectural Evaluation of the Pittsburg-Tesla 230 Kv Transmission Line Contra Costa Counties, California.* Prepared for PG&E.

Attachment A
Project Area Map



Township 1.0 & 2.0 S Range 3.0 & 4.0 E MDBM Sections 2, 10, 11, 14, 24, 30 - 32, 35, 36
Quad Names: Clifton Court Forebay, Byron Hot Springs & Midway, 1978, 1968 & 1980.

MARIPOSA ENERGY PROJECT

ALAMEDA COUNTY, CALIFORNIA

CH2MHILL

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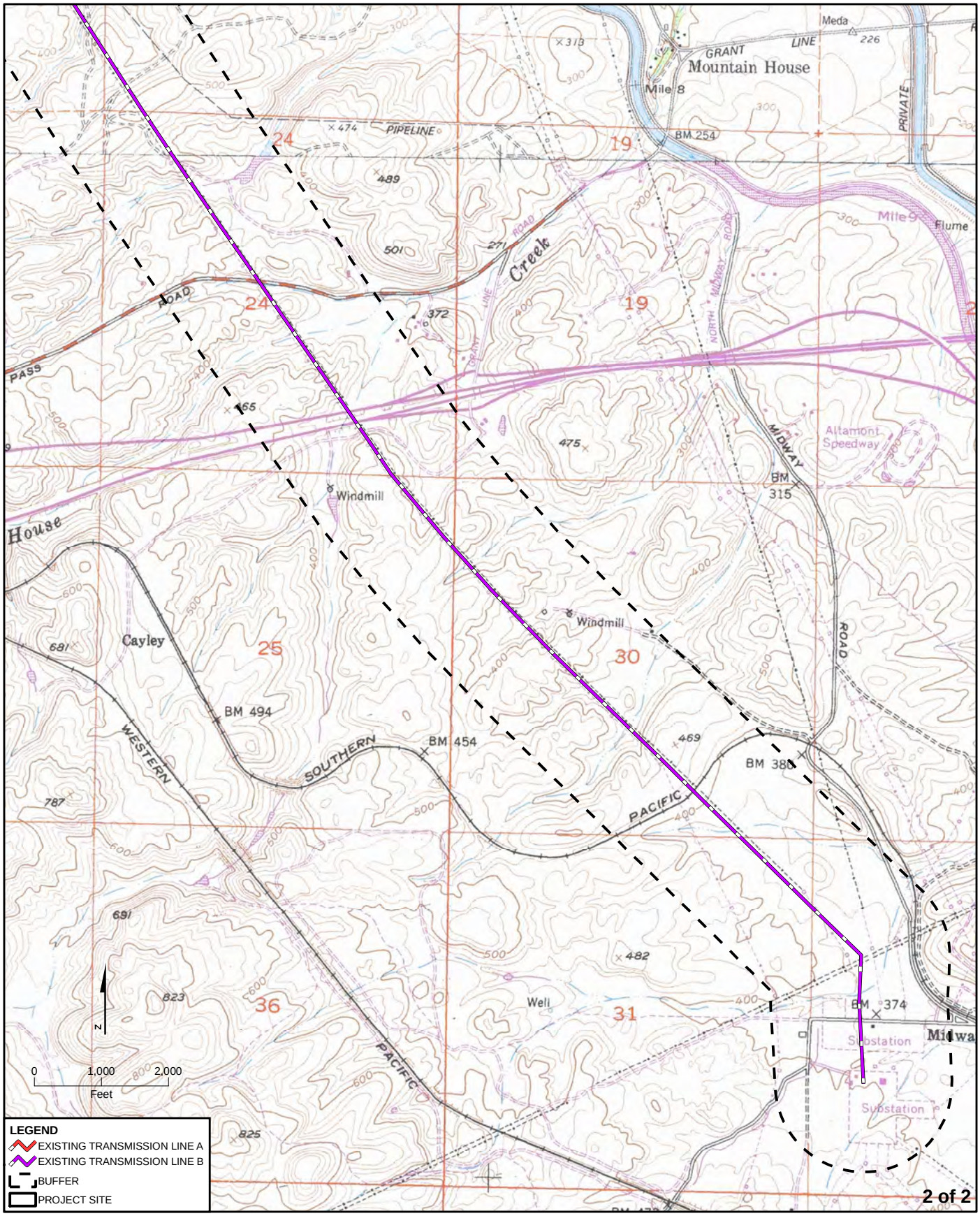

Township 1.0 & 2.0 S Range 3.0 & 4.0 E MDBM Sections 2, 10, 11, 14, 24, 30 - 32, 35, 36
Quad Names: Clifton Court Forebay, Byron Hot Springs & Midway, 1978, 1968 & 1980.

MARIPOSA ENERGY PROJECT

ALAMEDA COUNTY, CALIFORNIA

CH2MHILL

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Attachment B
Pittsburg-Tesla Transmission Line [P-01-010947 / P-07-002956] Site Form & Update

P-01-010947 / P-07-002956

This resource extends into two counties and, therefore, has received a Primary Number in each county's P-number series. The record for this resource is located in the Primary File for Contra Costa County:

P-01-010947 ✓

21 October 2009
Leigh Jordan, Coordinator NWIC

P-01-010947
P-07-002956

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code
Other Listings
Review Code Reviewer Date

 ***Resource Name or #:** Pittsburg-Tesla Transmission Line

P1. Other Identifier: Pittsburg – Tesla Transmission Line

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** Contra Costa County and Alameda County
and (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad** T ; R; ; B.M.
c. Address: Various
d. UTM: Zone ; mE/ mN
e. Other Locational Data: The northern end of the Pittsburg-Tesla transmission line begins in Contra Costa County at the Pittsburg Substation, south of the confluence of the Sacramento and San Joaquin rivers. After leaving the substation, the line runs south for approximately four miles, and then turns east-southeast for 13 miles, crossing Black Diamond Mines Regional Preserve, Marsh Creek Reservoir Dam, and portions of the John Marsh Home State Historic Park. The line turns southeast for 14 miles to enter Alameda County, then crosses a western branch of Bethany Reservoir and I-580, and then ends at the Tesla Substation near the community of Midway.

***P3a. Description:**

The Pittsburg-Tesla 230kV transmission line, approximately 31 miles long and oriented northwest to southeast, is located in eastern Contra Costa County and northeastern Alameda County and was constructed by PG&E in 1959-1960. The northern end of the Pittsburg-Tesla transmission line begins in Contra Costa County at the Pittsburg Substation and the southern end of the transmission line ends at the Tesla Substation near the community of Midway. There are approximately 147 transmission towers included in this project.

Documentation at the PG&E Records Center in Brisbane indicates that the steel lattice towers date from 1959-1960 (PG&E 1959). The 230kV transmission line consists of high voltage electrical power transmission lines, strung between steel lattice towers. The towers have four sides with the base tapering upwards to a vertical tower. The four main supports angle inwards about half way up the tower and then they become vertical. Diagonal cross bracing stabilizes the main supports. The base of each steel lattice tower flares outward to four legs with concrete footings. Three arms extend from the tower on either side; a center insulator is suspended from the center of each arm.

***P3b. Resources Attributes:** (HP11) Engineering Structure (Transmission Line)

***P4. Resources Present:** ☐ Building ☒ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

***P5b. Description of Photo:** View of a Pittsburg-Tesla transmission tower adjacent to the Tesla substation, October 22, 2008.

***P6. Date Constructed/Age and Source:** 1959-1960, PG&E.
☐ Prehistoric ☒ Historic ☐ Both

***P7. Owner and Address:**
PG&E
77 Beale Street
San Francisco, CA 94105

***P8. Recorded by:**
Jennifer Lang, M.S.
Garcia and Associates
1 Saunders Avenue
San Anselmo, CA 94960

***P9. Date Recorded:** 10/22/08

***P10. Type of Survey:** Intensive Survey

***P11. Report Citation**: *Cultural Resources Investigation and Architectural Evaluation of the Pittsburg-Tesla 230 Kv Transmission Line, Contra Costa and Alameda Counties, California*. Prepared for PG&E. Prepared by Garcia and Associates (GANDA), January 2009.

***Attachments:** ☐ NONE ☒ Location Map ☒ Sketch Map ☐ Continuation Sheet ☒ Building, Structure, and Object Record
☐ Archaeological Record ☐ District Record ☐ Linear Resource Record ☐ Milling Station Record ☐ Rock Art Record
☐ Artifact Record ☐ Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
Primary #
HRI #

BUILDING, STRUCTURE, AND OBJECT RECORD

*NRHP Status Code: Pittsburg – Tesla Transmission Line
*Resource Identifier:

B1. Historic Name:
B2. Common Name:
B3.. Original Use: Electrical Transmission Line
B4. Present Use: Electrical Transmission Line
*B5. **Architectural Style:**
*B6. **Construction History:** The Pittsburg-Tesla Transmission line was constructed by PG&E in 1959-1960.
*B7. **Moved:** ☒ No ☐ Yes ☐ Unknown **Date:** **Original Location:**
*B8. **Related Features:**

B9a. Architect: N/A
b Builder: N/A
*B10. **Significance:** N/A
Area: N/A
Period of Significance: N/A
Property Type: N/A
Applicable Criteria: N/A

(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

The Pittsburg-Tesla 230 kV Transmission Line does not appear to be eligible for the NRHP or the CRHR. Under NRHP Criterion A (events), and CRHR Criterion 1 (events), the transmission line is not significant for its association with a specific event or the development of electrical power and transmission in northern California in the 20th century.

Under NRHP Criterion B (persons) and the CRHR 2 (persons), the Pittsburg-Tesla Transmission Line is not associated with the lives of persons important to local, California, or national history.

Under NRHP Criterion C (architecture/engineering) and the CRHR Criterion 3 (architecture/engineering), the Pittsburg-Tesla Transmission Line was designed as a utilitarian electrical transmission line, and, as such, is not associated with any distinctive or pioneering engineering features in the field of long electrical power transmission, or the development of electrical power in northern California. The utilitarian nature of the transmission line limits any expression of aesthetics. Its design and construction is not unique, utilizes commonly accepted technology and engineering principles, and is shared by and typical of many 230kV transmission lines for its period in California.

Finally, the Pittsburg-Tesla transmission line does not appear eligible under Criterion 4. The components of the line and its method of construction are similar to components and methods used in the construction of modern lines. The line itself does not appear to be the source of additional information.

In summary, the Pittsburg-Tesla transmission line does not appear to be eligible for inclusion in the NRHP under Criteria A, B, C, or D, or the CRHR under Criteria 1, 2, 3, or 4, at the local, state, or national level. This transmission line does not appear to be significant individually, or as part of a larger whole.

For a property to be eligible for listing on the NRHP and the CRHR, it must retain sufficient integrity. The seven elements of integrity include location, design, setting, materials, workmanship, feeling and association. However, a resource must meet one or more of the criteria before a determination can be made about it integrity. As such, the Pittsburg-Tesla Transmission Line is not associated with important events or persons in California history, nor does it possess distinctive engineering or technology. The Pittsburg-Tesla Transmission Line is not eligible for inclusion in the NRHP or the CRHR.

B11. Additional Resource Attributes: (List attributes and codes): (HP11) Engineering Structure, Transmission Line
*B12. **References**: PG&E
1959 GM 146671 (on file at thePG&E Records Center Brisbane, CA)

B13. Remarks:

*B14. **Evaluator:** Jennifer Lang. M.S.
Garcia and Associates (GANDA)
1 Saunders Avenue
San Anselmo, CA 94960

(This space reserved for official comments.)

(Sketch map with north arrow required)

P-01-010947
P-07-002956

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

Primary #
HRI #

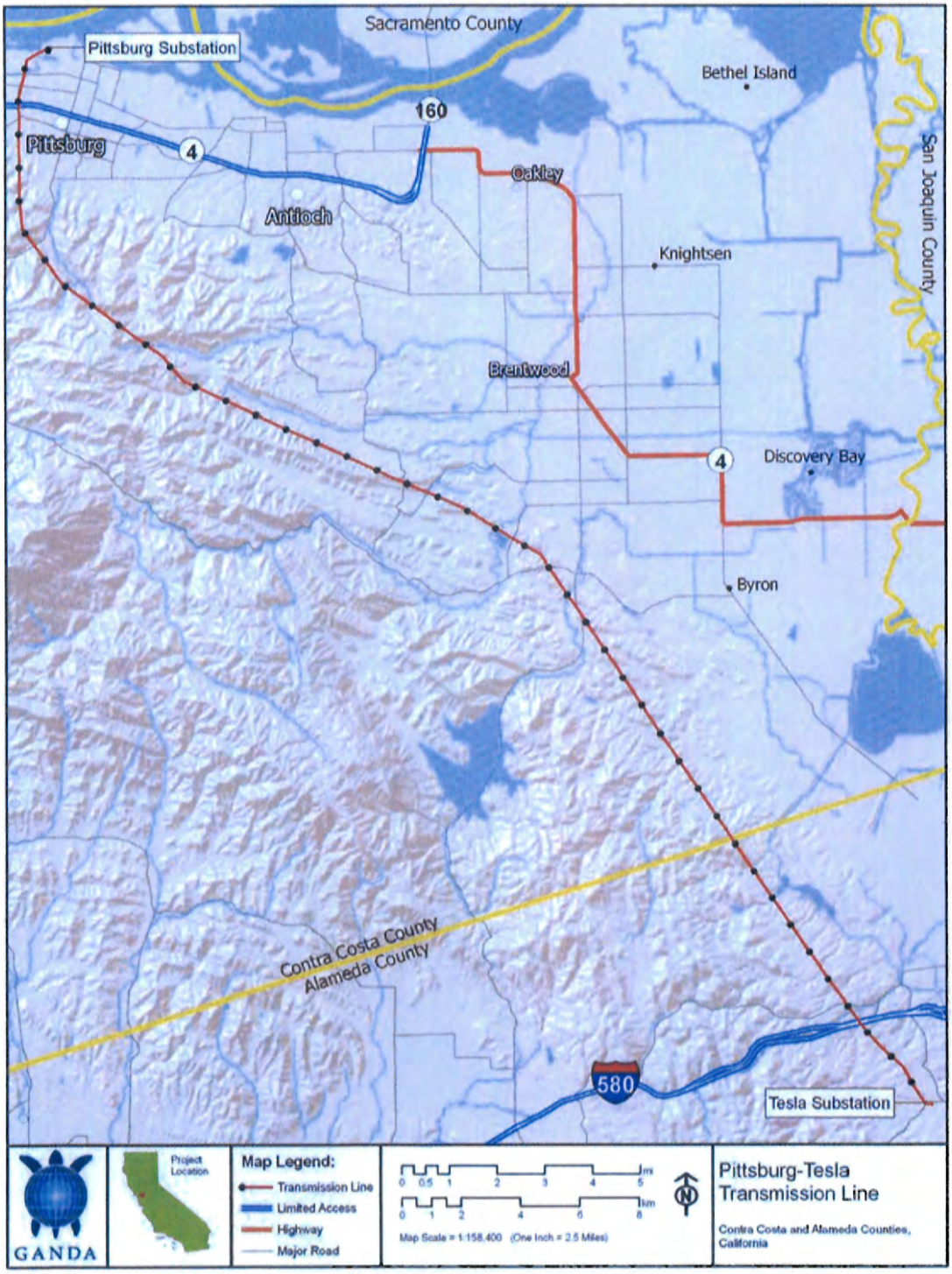
SKETCH MAP

Trinomial

*Resource Name or # (Assigned by recorder): Pittsburg-Tesla Transmission Line

*Drawn By: Josh Robino, Garcia and Associates

*Date: November 2008



*Required Information

P-01-010947
P-07-002956

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

Primary #
HRI #

Trinomial

LOCATION MAP

 *Resource Name or #: Pittsburg-Tesla Transmission Line
*Map Name: USGA 7.5' Quad Honker Bay *Scale 1:24000 *Date of Map: 1980

*Required Information

a.

P-01-010947
P-07-002956

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

Primary #
HRI #

LOCATION MAP

Trinomial

Page 5 of 12 ***Resource Name or #:** Pittsburg-Tesla Transmission Line
***Map Name:** USGS 7.5' Quad Honker Bay and Clayton ***Scale** 1:24000 ***Date of Map:** 1980 and 1994

DPR 523J (1/95)

*Required Information

P-01-010947
P-07-002956

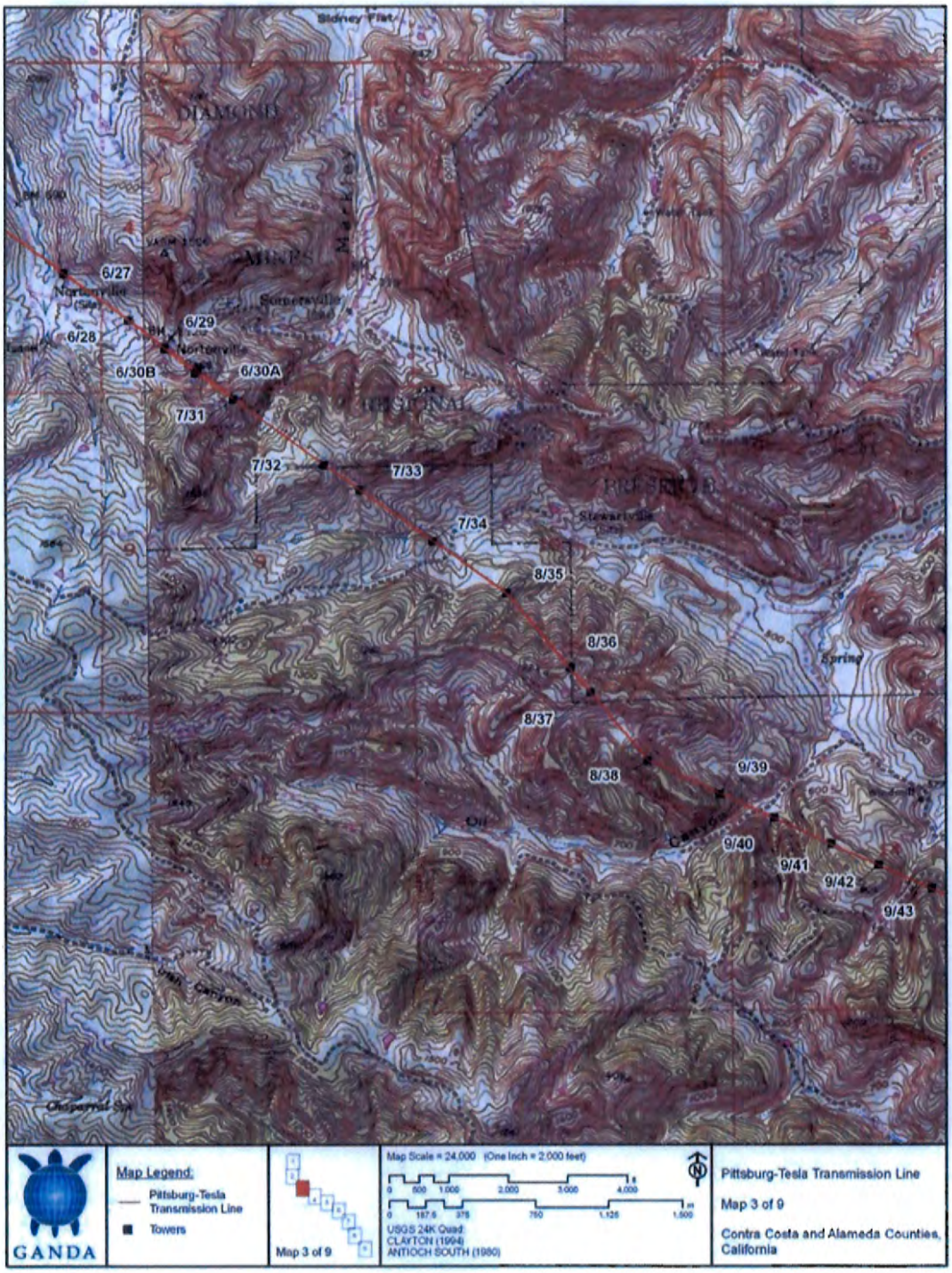
State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

Primary #
HRI #

Trinomial

LOCATION MAP

Page 6 of 12 ***Resource Name or #:** Pittsburg-Tesla Transmission Line
***Map Name:** USGS 7.5' Quad Clayton and Antioch South ***Scale** 1:24000 *Date of Map: 1994 and 1980



DPR 523J (1/95)

*Required Information

P-01-010947
P-07-002956

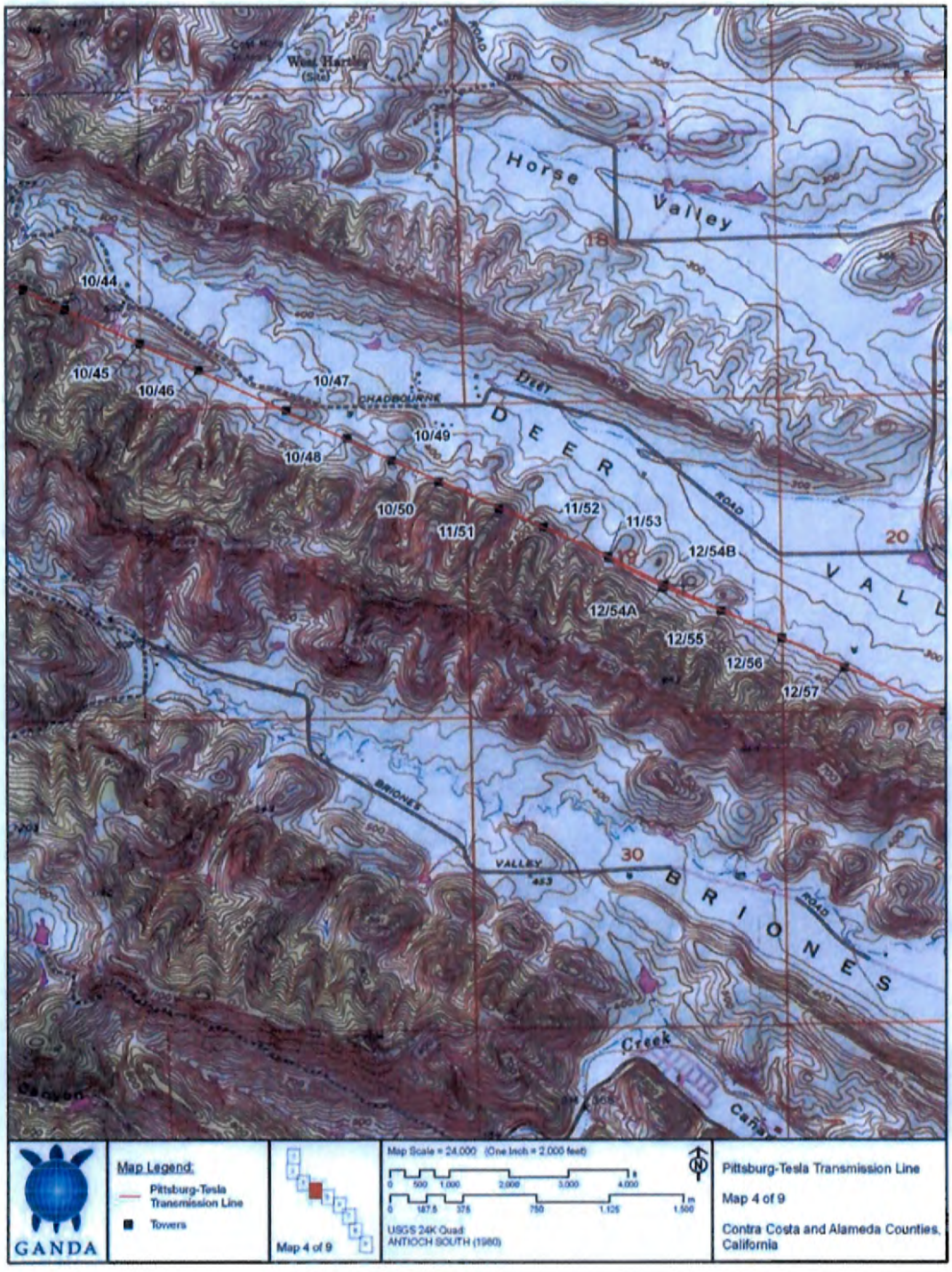
State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

Primary #
HRI #

Trinomial

LOCATION MAP

 *Resource Name or #: Pittsburg-Tesla Transmission Line
*Map Name: USGS 7.5' Quad Antioch South *Scale 1:24000 *Date of Map: 1980



*Required Information

a.

P-01-010947
P-07-002956

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

Primary #
HRI #

Trinomial

LOCATION MAP

 *Resource Name or #: Pittsburg-Tesla Transmission Line
*Map Name: USGS 7.5' Quad Brentwood and Antioch South *Scale 1:24000 *Date of Map: 1978 and 1980

*Required Information

a.

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

Primary #
HRI #

Trinomial

LOCATION MAP

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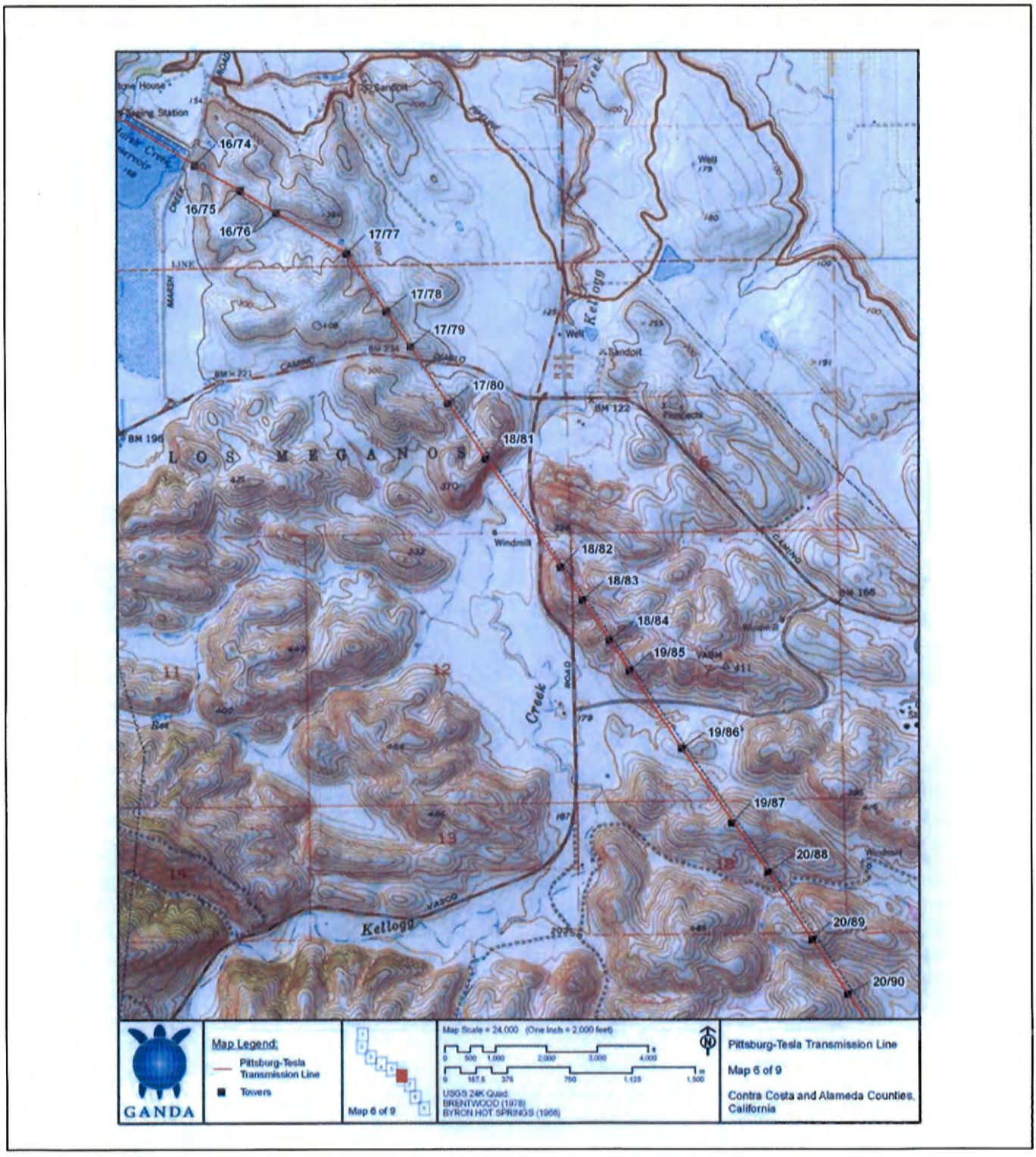
*Map Name: USGS 7.5'Quad Brentwood and Byron Hot Springs *Scale 1:24000 *Date of Map: 1978 and 1968



*Required Information

P-01-010947
P-07-002956

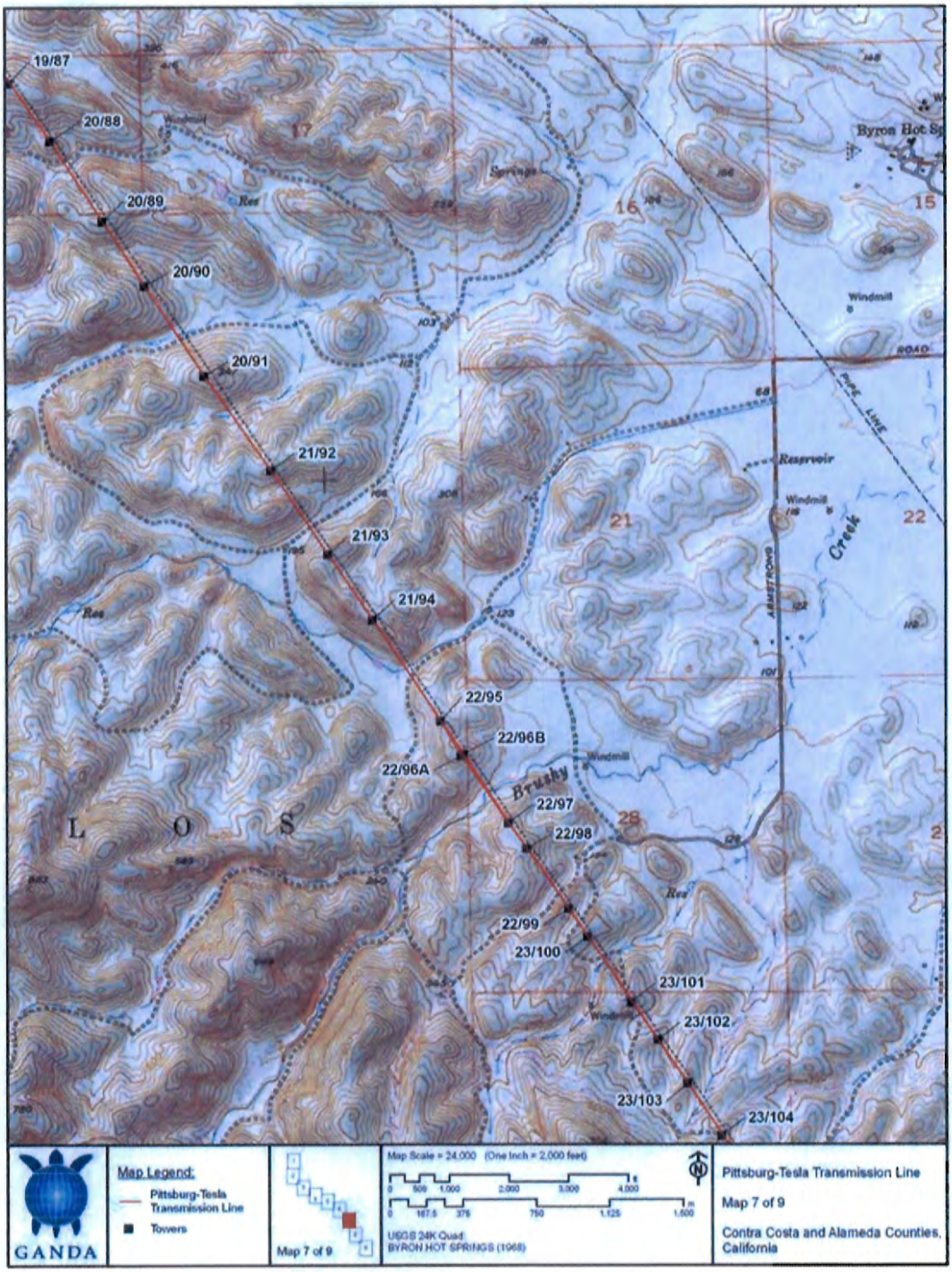
State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

Primary #
HRI #

Trinomial

LOCATION MAP

 ***Resource Name or #:** Pittsburg-Tesla Transmission Line
***Map Name:** USGS 7.5' Quad Byron Hot Springs ***Scale** 1:24000 *Date of Map: 1968



*Required Information

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

CONTINUATION SHEET

Primary # P-01-010947
HRI#
Trinomial

***Resource Name or #** (Assigned by recorder)

***Recorded by:** Ken Hazlett, CH2M HILL, Santa Ana, CA ***Date: 1/20/2010** ☐ Continuation ☒ Update

Over the period of January 18-20, 2010, CH2M HILL conducted a pedestrian survey of the the immediate area surrounding the Kelso-Tesla 230kV electrical power transmission line for purposes of evaluating the area for cultural resources.

The suvey area included a southern segment of the historic Pittsburg-Tesla Transmission Line (P-01-010947). The segment began, to the north, in Alameda County at a point approximately 1800 feet (0.34 miles) north of the South Bay Pumping Plant (near Bethany Reservoir) and proceeding SSE to terminate at the south end (see north-facing photo below) at the Tesla Substation near the intersection of Midway Road and Patterson Pass Road.

In preparing for the survey, the site record for P-01-010947, prepared by Jennifer Lang of Garcia and Associates, San Anselmo, CA on 10/22/2008, was reviewed. Following on-site evaluation, no notable changes were found to the state of the resource, in the section included in the survey, from the referenced previous recordation.