BIOLOGICAL ASSESSMENT FOR THE CARRIZO-MIDWAY 230 KV RECONDUCTORING PROJECT

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Acronyms and Abbreviations

BA	biological assessment
BMPs	best management practices
CAISO	California Independent System Operator
CDFG	California Department of Fish and Game
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS's	California Native Plant Society's
DOE	Department of Energy
ESA	Endangered Species Act
GPS	Global positioning system
IBEW	International Brotherhood of Electrical Workers
kV	kilovolt
LSTs	lattice steel towers
MP	milepost
msl	mean sea level
NEPA	National Environmental Policy Act
O&M HCP	Operations & Maintenance Habitat Conservation Plan
PG&E	Pacific Gas and Electric Company
ROW	right-of-way
SR	State Route
SWPPP	Storm Water Pollution Prevention Plan
TSP	tubular steel pole
USFWS	U.S. Fish and Wildlife Service
USGS	U.S Geological Survey
VELB	valley elderberry longhorn beetle
WHR	wildlife-habitat relationships classification system

Chapter 1
Introduction

1.1 Purpose of Biological Assessment

The California Independent System Operator (CAISO) has determined that transmission upgrades will be required to deliver the energy generated by proposed the Topaz Solar Farm Project on the Carrizo Plain. Specifically, reconductoring an approximately 34-mile segment of a Pacific Gas and Electric Company (PG&E) 230-kilovolt (kV) transmission line (Proposed Action) would be required. *Reconductoring* is the process of installing new conductor wires on existing towers to increase the capacity of an existing transmission line, although in some cases reconductoring requires the modification or replacement of some towers.

The purpose of this biological assessment (BA) is to provide the information necessary for formal consultation between the Department of Energy (DOE) and U.S. Fish and Wildlife Service (USFWS) regarding the effects of the Proposed Action as required pursuant to Section 7(a)(2) of the Endangered Species Act (ESA). This BA provides all the necessary information for the proposed action. Chapter 2 of the BA describes the specific area that may be affected by the proposed action; the listed, proposed, and candidate species that may be affected by the proposed action; and the environmental baseline against which project-related effects are determined. Chapter 3 describes the action to be considered; Chapter 4 describes the proposed conservation measures; and Chapter 5 describes how the action may affect federally listed, proposed, and candidate species and critical habitat.

As stated in the *Endangered Species Consultation Handbook* (U.S. Fish and Wildlife Service and National Marine Fisheries Service 1998) (referred to in this document as the *Consultation Handbook*), one of the purposes of a Section 7 BA is to help determine whether the proposed action is "likely to adversely affect" listed species and critical habitat, and thus whether formal consultation is necessary. These determinations are provided in Chapter 6 of the BA, along with summaries of project-related effects on the listed species.

1.2 Legal and Regulatory Background

PG&E's reconductoring project is a connected and interrelated action to the First Solar Topaz Solar Farm Project (Topaz Project). This Topaz Project is applying for a federal loan guarantee from DOE for their project, and as a result must comply with the National Environmental Policy Act (NEPA). Also, in accordance with Section 7 of the federal ESA, the DOE is required to consult with the USFWS to ensure that the Topaz Project would not jeopardize the continued existence of any federally listed species or result in the adverse modification or destruction of designated critical habitat. For purposes of this Biological Assessment, Proposed Action shall refer only to the PG&E reconductoring project. The Topaz Project proposed action is covered by the biological assessment for the Topaz Solar Farm.

The Section 7 implementing regulations (50 Code of Federal Regulations [CFR] 402.14[a]) require each federal agency to review its actions in order to determine whether an action "may affect" listed, proposed, and candidate species or critical habitat. If a project "may affect" but is "not likely to adversely affect" a federally-listed species or critical habitat, formal consultation with USFWS is not necessary (50 CFR 402.14[a]). Formal consultation between the DOE and USFWS is necessary only for a DOE action that is "likely to adversely affect" a federally listed species or critical habitat (50 CFR 402.14[a]).

The Section 7 implementing regulations (50 CFR 402.14[c]) require a federal agency to provide the following information to USFWS with any written request to initiate formal consultation:

- A description of the action to be considered;
- A description of the specific area that may be affected by the action;
- A description of any listed species or critical habitat that may be affected by the action;
- A description of the manner in which the action may affect any listed species or critical habitat and an analysis of any cumulative effects;
- Relevant reports, including any environmental impact statement, environmental assessment, or biological assessment prepared; and
- Any other relevant available information on the action, the affected species, or critical habitat.

1.3 Action Area

The *action area* as defined in 50 CFR 402.02 includes all areas in which federally listed species would be directly and indirectly affected by the Proposed Action, which is defined as the PG&E reconductoring project. The *action area* includes all work areas for construction activities associated with the reconductoring work.

1.4 Federally Threatened or Endangered Species

This document addresses potential impacts only for species that are federally listed as threatened or endangered, are proposed under the ESA for such designation, or are designated as a candidate for listing. Species with such designations are under the regulatory authority of USFWS pursuant to Section 7. California state-listed species and other special-status species (California species of special concern and California Native Plant Society listed species) that are not federally listed, proposed, or candidate species are not addressed in this document but are addressed in Appendix 4 of the *Topaz Solar Farm, LLC Draft Environmental Impact Report* (Aspen Environmental Consultants October 2010).

Consistent with Section 7 implementing regulations (50 CFR 402.12[b][2]), a list of endangered, threatened, proposed, and candidate species (USFWS list) was generated on September 28, 2010, for the La Panza NE, Las Yeguas Ranch, Carneros Rocks, Belridge, Lokern, Buttonwillow, and McKittrick Summit 7.5-minute U.S Geological Survey (USGS) quadrangles from the USFWS Sacramento Office website (Appendix A).

The following species that were included in the list are not considered in this BA for the following reasons:

- California jewelflower (*Caulanthus californicus*) (Endangered) – Species was not observed within the project area during botanical surveys conducted in 2010.
- San Joaquin wooly-threads (*Monolopia congdonii*) (Endangered) – Species was not observed within the project area during botanical surveys conducted in 2010.
- Conservancy fairy shrimp (*Branchinecta conservatio*) (Endangered)– Suitable habitat does not occur within the project area or within 250 feet of the project area.
- Longhorn fairy shrimp (*Branchinecta longiantenna*) (Endangered) - Suitable habitat does not occur within the project area or within 250 feet of the project area.
- Vernal pool fairy shrimp (*Branchinecta lynchi*) (Threatened) - Suitable habitat does not occur within the project area or within 250 feet of the project area.
- Kern primrose sphinx moth (*Euproserpinus euterpe*) (Threatened) – Host food plant (*Camissonia campestris*) was not observed within the project area.
- Delta smelt (*Hypomesus transpacificus*) (Threatened) – Project will not affect waters that flow into the Sacramento-San Joaquin Delta where the fish occurs.
- California tiger salamander (*Ambystoma californiense*) (Threatened) – Project does not occur within the range of the species.
- California red legged frog (*Rana draytonii*) (Threatened) – Project does not occur within the range of the species.
- Giant garter snake (*Thamnophis gigas*) (Threatened) – Species has been extirpated from Kern County. Project will not affect any suitable aquatic habitat for the species or affect upland habitats within 200 feet of suitable aquatic habitat.
- Buena Vista Lake shrew (*Sorex ornatus relictus*) (Endangered) – Project does not occur within the range of the species.

Based on these lists, a review of relevant literature, and database searches, ICF International biologists identified the following federally threatened, endangered, proposed, and candidate species that occur or potentially could occur within the action area:

- Kern mallow (*Eremalche kernensis*) (Endangered)
- Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) (Threatened)
- Blunt-nosed leopard lizard (*Gambelia sila*) (Endangered)
- California condor (*Gymnogyps californianus*) (Endangered)
- Golden eagle (*Aquila chrysaetos*) (Protected under the Golden and Bald Eagle Protection Act and Migratory Bird Treaty Act),
- Mountain plover (*Charadrius montanus*) (Proposed for federal listing as threatened),
- Giant kangaroo rat (*Dipodomys ingens*) (Endangered)
- Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*) (Endangered)
- San Joaquin kit fox (*Vulpes macrotis mutica*) (Endangered)

Accordingly, the above-listed species are addressed in this BA.

This BA includes a determination as to whether the proposed action "may affect" each of the species on the USFWS list; the determination is based on the species range and habitat preferences, and the types of impacts that would result from the proposed action. *May affect* is defined as the "appropriate conclusion when a proposed action may pose any effects on listed species or designated critical habitat." The appropriate conclusion when a proposed action would not affect a listed species or designated critical habitat, as stated in the Consultation Handbook, is "no effect". When the federal agency proposing the action determines that a "may affect" situation exists, it must initiate formal consultation or seek written concurrence from USFWS that the action "is not likely to adversely affect" the listed species.

1.5 Critical Habitat

Critical habitat is defined in Section 3(5)(A) of the ESA as "(i) the specific areas within the geographical area occupied by the species on which are found those physical or biological features (I) essential to the conservation of the species, and (II) which may require special management consideration or protection, and (ii) specific areas outside the geographical area occupied by the species upon a determination by the Secretary of Commerce or the Secretary of the Interior that such areas are essential for the conservation of the species." The effects analyses for designated critical habitat in this assessment consider the role of critical habitat in both the continued survival and the eventual recovery of the species in question, consistent with the Ninth Circuit judicial opinion, *Gifford Pinchot Task Force* v. *United States Fish and Wildlife Service*.

Of those species that are covered in this BA, critical habitat has not been designated or proposed for Kern mallow, blunt-nosed leopard lizard, giant kangaroo rat, Tipton kangaroo rat, or San Joaquin kit fox.

Critical habitat for the valley elderberry longhorn beetle (VELB) and California condor have been formally designated. These are discussed below.

1.5.1 Critical Habitat for the Valley Elderberry Longhorn Beetle

USFWS designated critical habitat for the valley elderberry longhorn beetle on August 8, 1980 (*Federal Register* 45-52803). This critical habitat is located along the lower American River in Sacramento. No designated critical habitat for valley elderberry longhorn beetle is located in or near the action area.

1.5.2 Critical Habitat for the California Condor

The USFWS first proposed critical habitat for the California condor on December 16, 1975 (*Federal Register* 40-58308). Final critical habitat was designated on September 22, 1977 (*Federal Register* 42-47840). No designated critical habitat for the California condor is located in or near the project area. The nearest designated critical habitat is the East Unit of the Hi Mountain-Beartrap Condor Area, approximately 7.1 miles west of the western end of the action area, where captive-raised condors were formerly released.

1.6 Consultation to Date

On September 28, 2010, Mr. Will Kohn obtained an official species list from the USFWS Sacramento Office website of all species federally listed as endangered or threatened, and species proposed or candidates for listing that could occur in the action area within Kern County; and from the Ventura Office website of all species federally listed as endangered or threatened, species proposed for such listing, or candidates for listing that could occur in the action area within San Luis Obispo County (Appendix A).

Chapter 2
Environmental Baseline

To assess the effects of an action on listed species, the Section 7 implementing regulations require an analysis of how the proposed action would affect the environmental baseline (50 CFR 402.02). The *environmental baseline* is a current measurement of the status of the listed species or their critical habitat and the status of the present environment in which the species or critical habitat exists (Sullins 2001). The environmental baseline includes the past and present impacts of all federal, state, or private actions and any other human activities, and the anticipated future effects of proposed projects that have already undergone Section 7 consultation, in the action area (50 CFR 402.02).

This chapter characterizes the environmental baseline in the action area. Section 2.1 describes the methods used to assess the present environment and the known or potential occurrences of federally listed species in the action area. Section 2.2 describes the vegetation communities and habitat types found in the action area. Section 2.3 describes the status, habitat requirements, and known or potential presence of each listed species in the action area.

Potential habitat is identified here based on vegetation communities and habitat types occurring in the action area; suitable habitat is then described based on the results of habitat assessment and focused survey efforts.

2.1 Assessment Methodology

2.1.1 Review of Existing Information

Prior to conducting field surveys, existing and readily available information was collected and reviewed to establish lists of special-status plant and wildlife species and other sensitive biological resources likely to be present in the vicinity of the action area. The key sources of data and information accessed during the prefield review are listed below:

- A search of the California Natural Diversity Database (CNDDB) for special-status plant and wildlife occurrences within 10 miles of the action area (California Natural Diversity Database 2010);
- The California Native Plant Society (CNPS) online Inventory of Rare and Endangered Plants of California (CNPS 2010);
- Special species list from the USFWS Sacramento Office website (2010) for the La Panza NE, Las Yeguas Ranch, Carneros Rocks, Belridge, Lokern, Buttonwillow, and McKittrick Summit 7.5-minute USGS quadrangles; and
- Special species list for San Luis Obispo County from the USFWS Sacramento Office website (2010).
- PG&E has an existing Operations & Maintenance Habitat Conservation Plan (O&M HCP) for the San Joaquin Valley that provides take coverage for federally and state listed species that occur

within PG&E's service area in the San Joaquin Valley. Many of these species occur within the portion of the project that occurs within Kern County. The HCP includes avoidance and minimization measures to ensure that PG&Es O&M activities are conducted consistently with state and federal endangered species regulations.

2.1.2 Vegetation and Habitat Mapping

A thorough assessment was conducted within the action area to determine the presence or absence of potential wetlands and/or waters of the United States. Several ephemeral and intermittent streams are present in the action area; however, no wetlands, as defined by the Corps, appear to be present in the action area. A formal wetland delineation that was conducted according to Corps delineation protocols under Section 404 of the Clean Water Act will be submitted to the Corps for verification.

2.1.3 Habitat Assessments and Focused Surveys

General habitat assessment surveys were conducted on February 22 and 23, 2010; March 10, 11, and 18, 2010; June 3, 2010; and August 24, 2010, to characterize wildlife habitat types and evaluate the potential for occurrence of federally listed wildlife species in the action area. The general habitat assessment surveys were conducted by wildlife biologists walking and driving the proposed project work areas (i.e., tension/pull sites, staging areas, and access roads), recording general habitat conditions, and noting habitat features associated with special-status species that could occur in the action area. Focused surveys for federally listed wildlife species were not conducted within the action area for the Proposed Action.

2.1.3.1 Listed Plant Species

The botanical survey area consisted of individual work areas where PG&E is proposing to conduct ground-disturbing activities for the proposed action . Botanical surveys of the work areas were conducted based on current California Department of Fish and Game (CDFG) guidance—*Protocols for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Natural Communities* (CDFG 2009). Surveys were conducted in all work areas as well as access roads that may be graded or improved as part of the proposed action. The surveys were floristic (i.e., all species encountered were identified to the lowest taxonomic level possible) and were conducted using systematic field techniques (i.e., transects spaced at an appropriate distance to visually survey the entire area).

The work areas are spaced unevenly along an approximately 35-mile alignment that crosses west from the San Joaquin Valley to the Carrizo Plain. In general, most of the work areas are within grassland or saltbush scrub habitats and along an elevation gradient. The work areas are small and therefore were relatively quick to survey; however, the elevation difference between the lowest point (near Buttonwillow) and the highest point (near the Kern/San Luis Obispo county line in the Temblor Range) necessitated multiple visits over an approximately 4-month period to account for the number of potentially occurring species and differences in flowering times. Generally, the lower elevation areas were surveyed in February, March, and April, and the higher elevation areas were surveyed in April and May. Additionally, known reference sites for many of the special-status plant species identified as having a high potential to occur in the area were visited by ICF International botanists to verify the flowering condition of each species at the time of the surveys.

Botanical surveys were conducted by ICF International botanists on 12 individual days between February and June in 2010 (see Table 2-1).

Table 2-1. Survey Dates, Botanists, and Areas Surveyed

Survey Dates	Botanists	General Areas Surveyed*
February 22, 23	Brad Schafer, Cristian Singer	All
March 10, 11	Cristian Singer, Seth Kirby	Low elevation
March 29, 30, 31	Rob Preston, Cristian Singer	All
April 22, 23	Rob Preston, Seth Kirby	All
May 18, 19	Rob Preston, Jessica Hughes	High elevation
June 3,	Brad Schafer	High elevation (new areas added in late May only)

*Several additional work areas were added in late May 2010 and were not surveyed until early June.

Adverse conditions, such as inadequate rainfall, often can affect survey results in the San Joaquin Valley region. Annual species in the region are often small and difficult to observe during drought years, and may sometimes not appear at all during a given year if conditions are not adequate. Rainfall in the region during the 2009–2010 season was approximately 110% of normal[1] at Bakersfield (National Weather Service 2010) and above normal within the Carrizo Plain, at the western end of the Proposed Action. Additionally, temperatures were relatively moderate very late into the spring season. These factors contributed to a large amount of vegetative growth, especially near Buttonwillow; and rare annual species such as Kern mallow (*Eremalche kernensis*) were often abundant within known populations.

2.2 Vegetation Communities and Habitat Types

The following habitats were identified and mapped within the action area: annual grassland, saltbush scrub, oak woodland, California juniper woodland, ephemeral drainage, irrigation canal, irrigated row and field crop, and disturbed. ICF International biologists mapped and described habitat types within a 1,000-foot corridor along the project route based on the California wildlife-habitat relationships classification system (WHR) (Mayer and Laudenslayer 1988).

2.2.1 Upland Vegetation and Habitat Types

2.2.1.1 Annual Grassland

Annual grassland occurs throughout the action area. This vegetation community type often occurs as an integral herbaceous understory component within other vegetation communities, such as saltbush scrub. Herbaceous canopy within stands is generally continuous and dense, to an average height of 0.5 meter. Composition and density of this community type vary widely, depending on fall temperatures and precipitation and a variety of disturbance-related events, including grazing

[1] Normal yearly rainfall at Bakersfield, California is 6.49 inches; rainfall during the 2009–2010 season was 7.18 inches.

intensity and fire frequency. Soil conditions and variations in microtopography also affect the composition of this community type.

Annual grassland within the action area is dominated by ripgut brome (*Bromus diandrus*), barley (*Hordeum murinum*), filaree species (*Erodium cicutarium*, *E. moschatum*, *E. botrys*), fiddleneck species (*Amsinckia menziesii* var. *menziesii*, *A. menziesii* var. *intermedia*), pepper-grass (*Lepidium nitidum*), Sierra tidytips (*Layia pentachaeta* ssp. *albida*), pygmy weed (*Crassula connata*), and goldfield species (*Lasthenia californica*, *L. debilis*). Additional common native plant species include blue dicks (*Dichelostemma capitata*), lupine species (*Lupinus* spp.), California mustard (*Guillenia lasiophylla*), common monolopia (*Monolopia lanceolata*), popcorn flower (*Plagiobothrys* sp.), and bracted alkali goldenbush (*Isocoma acradenia* var. *bracteosa*). Round-leaved filaree (*California macrophylla*), a CNPS List 1B.1 species (rare, threatened, or endangered in California and elsewhere), is known to occur in at least one portion of the action area.

Annual grasslands are used by a large variety of wildlife species. Amphibians in this community include western toad (*Bufo boreas*), Pacific tree frog (*Hyla regilla*), Reptiles that breed in annual grassland habitats include western fence lizard (*Sceloporus occidentalis*), coast horned lizard (*Phrynosoma coronatum frontale*), western skink (*Eumeces skiltonianus*), San Joaquin whipsnake (*Masticophis flagellum ruddocki*), gopher snake (*Pituophis catenifer*), and western rattlesnake (*Crotalus oreganus*). Mammals typically found in this habitat include California vole (*Microtus californicus*), western harvest mouse (*Reithrodontomys megalotis*), California ground squirrel (*Spermophilus beeheyi*), black-tailed jackrabbit (*Lepus californicus*), and coyote (Canis *latrans*). Western meadowlark (*Sturnella neglecta*), and horned lark (*Eremophila alpestris*) are common birds that breed in annual grasslands. Annual grasslands provide foraging habitat for red-tailed hawk (*Buteo jamaicenis*) and turkey vulture (*Cathartes aura*), whereas other species occupy annual grassland only when special habitat features such as cliffs, caves, ponds, or woody plants are available for breeding, resting, or escape cover. In addition, many species that nest or roost in adjacent woodlands may forage in grasslands, including western bluebird, western kingbird, and some species of bats. Federally listed wildlife species that could occur within the annual grassland habitat within the action area include blunt-nosed leopard lizard, giant kangaroo rat, Tipton kangaroo rat, and San Joaquin kit fox. Golden eagles and federally listed California condor also could forage in the annual grasslands in the Temblor Range.

2.2.1.2 Oak Woodland

Oak woodland occurs in a limited portion of the action area within the Temblor Range. Oak woodland in the action area is dominated by Tucker's oak (*Quercus john-tuckeri*). Tucker's oak is an evergreen shrub that reaches an average height of 6 meters. Stands typically occur on steep slopes and ridges. Canopy within stands is open and sparse to continuous and dense. Composition and density within stands are influenced by fire frequency and intensity.

Additional species observed occurring within this community type in the action area include oak gooseberry (*Ribes quercetorum*), linear-leaved goldenbush (*Ericameria linearifolia*), bush lupine (*Lupinus albifrons*), one-sided bluegrass (*Poa secunda*), common lomatium (*Lomatium utriculatum*), and California poppy (*Eschscholzia californica).* Additional common herbaceous species include lupine species, blue dicks, slender tropidocarpum (*Tropidocarpum gracile*), and fiddleneck species.

Many of the same wildlife species that occur in annual grassland habitat are found in coastal oak woodlands. Coastal oak woodlands also provide nesting and foraging habitat for many bird species.

Elderberry shrubs that provide suitable habitat for the federally listed VELB occur along an access road on the east slope of the Temblor Range in oak woodland.

2.2.1.3 Saltbush Scrub

Saltbush scrub stands occur throughout the action area but are primarily concentrated and best represented within the lower, eastern portion of the action area, east of the Temblor Range. Saltbush scrub within the action area is dominated by allscale (*Atriplex polycarpa*), an intricately branched woody perennial shrub that reaches an average height of 1 to 2 meters. Shrub canopy within stands varies from open and sparse to continuous and dense. Allscale exhibits a high tolerance for drought and some tolerance for saline conditions. Natural stand replacement is primarily via flooding events in lowland areas. Natural stand replacement in upland areas is typically via fire events.

The herbaceous understory in these stands commonly supports plant species such as ripgut brome, barley, filaree species, Arabian schismus (*Schismus arabicus*), fiddleneck species pepper-grass, and several commonly occurring native annual plant species, including Sierra tidytips, pygmy weed, goldfield species, tansy leafed phacelia (*Phacelia tanacetifolia*), and slender tropidocarpum. Kern mallow, a species federally listed as endangered and a CNPS List 1B.1 species (rare, threatened, or endangered in California and elsewhere), is known to occur in saltbush scrub habitat within portions of the action area east of the Temblor Range.

Wildlife species that use saltbush scrub habitat include coast horned lizard, San Joaquin whipsnake, California towhee (*Pipilo crissalis*), California quail (*Callipepla californica*), California thrasher (T*oxostoma redivivum*), brush rabbit (*Sylvilagus bachmani*), and coyote. Federally listed wildlife species that could occur within the saltbush scrub habitat in the action area include blunt-nosed leopard lizard, giant kangaroo rat, Tipton kangaroo rat, and San Joaquin kit fox.

2.2.1.4 California Juniper Woodland

California juniper (*Juniperus californica*) woodland occurs in a limited portion of the action area within the Temblor Range. California juniper is an evergreen shrub that reaches an average height of 4 meters. Canopy within stands is open to intermittent, often consisting of a few scattered individuals. Natural stand replacement is via seed; California juniper does not sprout after moderate to intense fire events.

Additional species observed occurring within this community type in the action area include bracted alkali goldenbush, linear-leaved goldenbush, one-sided bluegrass, fiddleneck species, common lomatium, blue dicks, slender tropidocarpum, pepper-grass, and bush lupine.

2.2.1.5 Irrigated Row and Field Crops

Irrigated row and field crop habitat consists of currently cultivated lands (i.e., row crops) and fallow fields (Mayer and Laudenslayer 1988). This habitat occurs at the eastern end of the action area. Dominant vegetation in irrigated row and field crop habitat in the action area consists of agricultural cultivars such as alfalfa, cabbage, onions, and lettuce.

Agricultural lands were established on habitat that historically supported an abundance of wildlife. The diversity of wildlife greatly diminishes when row crops are planted. The understory consists of low-growing grasses and is commonly sprayed with herbicides to prevent the growth of herbaceous vegetation. Many species of rodents and birds have adapted to agricultural lands but are controlled

by fencing, trapping, and poisoning to prevent excessive crop losses. Wildlife species associated with agricultural lands include mourning dove (*Zenaida macroura*), American crow (*Corvus branchytrhynchos*), Brewer's blackbird (*Euphagus cyanocephalus*), and many species of rodents, among others. Irrigated row and field crops do not provide suitable habitat for any federally listed plant or wildlife species, although the federally listed San Joaquin kit fox could move through agriculture lands.

2.2.1.6 Disturbed Areas

Disturbed areas, although not designated as WHR habitats, are distinct habitats within the action area. Disturbed habitats are mostly bare areas that support ruderal species whose life history enables them to quickly colonize areas that have undergone some level of disturbance, either as the result of human activity or natural events (e.g., fire).

Disturbed areas typically provide low habitat value for many wildlife species, although there are exceptions, as in the case of burrowing owls (*Athene cunicularia***)**. California ground squirrels often colonize disturbed areas; their burrows often provide habitat for other wildlife species. Other wildlife species that commonly use disturbed areas include mourning dove, house sparrow (*Passer domesticus*), American crow, and Brewer's blackbird. Disturbed areas do not provide suitable habitat for any federally listed plant or wildlife species, although the federally listed San Joaquin kit fox could move through disturbed areas.

2.2.2 Other Waters

2.2.2.1 Ephemeral Drainages

One named ephemeral drainage (Salt Creek) and three unnamed ephemeral drainages were identified in the action area, for a total of 0.419 acre of other waters. The drainages occur in the foothills of the Temblor Range, with two drainages draining to the Carrizo Plain and eventually into Soda Lake. Two other drainages drain east toward the Central Valley, occurring as sheet flow upon reaching the valley floor. The ephemeral drainages occurred on the Las Yeguas Ranch, McKittrick Summit, and Lokern USGS 7.5-minute topographical maps as a blueline stream. All four ephemeral drainages carry water seasonally from winter to late spring during and after rain events; and clearly defined beds and banks are indicated by sediment deposition, sediment sorting, shelving, scour, and an abrupt change in vegetative community. In addition, the drainages all occur in annual grassland habitats and have little or no vegetation in the channels. The ephemeral drainages in the action area do not provide habitat for any federally listed plants or wildlife species.

2.2.2.2 Irrigation Canals

One named irrigation canal (Eastside Canal) and six unnamed irrigation canals were identified in the action area. The Eastside Canal occurs as a named canal on the Buttonwillow USGS 7.5-minute topographical map. All of the mapped canals occur adjacent to farm land along Lokern Road or State Route (SR) 58 near Buttonwillow and are used for irrigation. These canals are well defined by a clear cut bed and bank, with little or no vegetation in the channels. The irrigation drainages in the action area do not provide habitat for any federally listed plant or wildlife species.

2.3 Listed Species

2.3.1 Kern Mallow

2.3.1.1 Status

Kern mallow is federally listed as endangered under the ESA and is a CNPS List 1B.1 species (rare, threatened, or endangered in California and elsewhere). Critical habitat for this species has not been designated.

2.3.1.2 Distribution

Kern mallow in an annual herbaceous plant known to occur within portions of Kern, Kings, San Luis Obispo, and Tulare Counties (U.S. Fish and Wildlife Service 1998).

2.3.1.3 Habitat

Typical habitat type is the herbaceous understory within saltbush scrub stands, valley sink scrub, and valley and foothill grassland on sandy clay-loam soils at elevations of 315 to 900 feet (U.S. Fish and Wildlife Service 1998).

2.3.1.4 Threats

The greatest threat to Kern mallow is the continued conversion and modification of suitable habitat due to agricultural conversion and urban development (U.S. Fish and Wildlife Service 1998).

2.3.1.5 Presence in the Action Area

Kern mallow is known to occur in saltbush scrub habitat within portions of the action area east of the Temblor Range. Specific locations where Kern mallow is known to occur in the action area include the area at and around Tower 109 and between Tower 127 and Tower 128. Although some of these locations are previously known in the action area, the results of assessment-level botanical surveys in 2010 already have resulted in discovery of increased densities within some known locations, as well as additional locations not previously known in the action area.

2.3.2 Valley Elderberry Longhorn Beetle

2.3.2.1 Status

The valley elderberry longhorn beetle is listed as threatened under the ESA. Critical habitat for this species has been designated in Sacramento, approximately 250 miles to the north of the action area.

2.3.2.2 Distribution

The distribution of valley elderberry longhorn beetle extends throughout the Central Valley and associated foothills, from the 3,000-foot contour in the Sierra Nevada foothills, across the valley floor, to the Central Valley watershed in the foothills of the Coast Ranges (U.S. Fish and Wildlife Service 2006).

2.3.2.3 Habitat

The valley elderberry longhorn beetle's life cycle is entirely dependent on its host plants—blue elderberry (*Sambucus mexicana*) and red elderberry (*Sambucus racemosa*). Red and blue elderberry both occur commonly in riparian forest patches along the Sacramento, American, and San Joaquin Rivers and their tributaries, and may also be found as isolated bushes or clumps of bushes in elderberry savannas adjacent to riparian vegetation. Elderberry shrubs usually co-occur with other woody riparian plants, including Fremont cottonwood (*Populus fremontii*), California sycamore (*Platanus racemosa*), various willows (*Salix* spp.), wild grape (*Vitis californica*), blackberry (*Rubus* spp.), and poison-oak (Collinge et al. 2001).

2.3.2.4 Threats

Threats to valley elderberry longhorn beetle include ongoing maintenance of levees and canals where elderberry shrubs occur, urban expansion, use of insecticides, and infestations of aggressive Argentine ants (*Linepthema humile*) (U.S. Fish and Wildlife Service 2006).

2.3.2.5 Presence in the Action Area

There are currently no valley elderberry longhorn beetle CNDDB records within 10 miles of the action area (California Natural Diversity Database 2010). Ten elderberry shrubs that provide potential habitat occur along the access road to Tension/Pull Site at Tower 65. There is no designated critical habitat located in the action area. The USFWS has designated critical habitat for valley elderberry longhorn beetle along the American River in Sacramento, approximately 250 miles to the north of the action area.

2.3.3 Blunt-Nosed Leopard Lizard

2.3.3.1 Status

The blunt-nosed leopard lizard is federally listed as endangered under the ESA and is state listed as endangered. Critical habitat for this species has not been designated. The blunt-nosed leopard lizard was included in the *Recovery Plan for Upland Species of the San Joaquin Valley, California* (U.S. Fish and Wildlife Service 1998). USFWS prepared a 5-year review for the status of blunt-nosed leopard lizards in 2010. USFWS concluded that the status of blunt-nosed leopard lizards continues to meet the definition of endangered because the species is in danger of extinction throughout its known range (U.S. Fish and Wildlife Service 2010a).

2.3.3.2 Distribution

Blunt-nosed leopard lizards are endemic to the San Joaquin Valley and the Carrizo Plain in California. Historically, this species was found from Stanislaus County in the north to the Tehachapi Mountains in Kern County in the south. The foothills of the Sierra Nevada and Coast Ranges roughly define the eastern and western boundaries of its distribution, except for populations on the Carrizo Plain and in the Cuyama Valley west of the San Joaquin Valley. Blunt-nosed leopard lizard occurs at elevations below 2,600 feet (U.S. Fish and Wildlife Service 2010a).

2.3.3.3 Habitat

Blunt-nosed leopard lizards are found in sparsely vegetated plains, alkali flats, grasslands, low foothills, canyon floors, and large washes. They inhabit areas with sandy soils and scattered vegetation and are usually absent from thickly vegetated habitats. On the floor of the San Joaquin Valley, they are usually found in nonnative grassland, valley sink scrub habitats, valley needlegrass grassland, alkali playa, and valley saltbush scrub. Blunt-nosed leopard lizards use small rodent burrows for shelter, predator avoidance, and behavioral thermoregulation. These burrows may be abandoned ground squirrel tunnels, or occupied or abandoned kangaroo rat tunnels (U.S. Fish and Wildlife Service 2010a).

2.3.3.4 Threats

The greatest threats to blunt-nosed leopard lizards include the continued conversion and modification of suitable habitat due to agricultural conversion and urban development. Mineral and gas/oil exploration and extraction and water banking activities also have affected significant portions of the range of blunt-nosed leopard lizards. More recently, the proposed siting of solar facilities in blunt-nosed leopard lizard habitat is a potential emerging threat with the potential to substantially affect the blunt-nosed leopard lizard (U.S. Fish and Wildlife Service 2010a).

2.3.3.5 Presence in the Action Area

Protocol surveys for blunt-nosed leopard lizards were not conducted for this project; however, ICF International wildlife biologists previously have observed blunt-nosed leopard lizards in the Lokern Preserve between Tower 109 and Tower 143. Several CNDDB (2010) records for blunt-nosed leopard lizards occur within 10 miles of the proposed action area. Many of the proposed tension/pull sites, landing zones, and areas for crossing guards between Tower 90 and Tower 138 are located within suitable habitat for blunt-nosed leopard lizards.

2.3.4 Golden Eagle

2.3.4.1 Status

Golden eagles and their nests are protected under the Bald Eagle and Golden Eagle Protection Act and under the Migratory Bird Treaty Act.

2.3.4.2 Distribution

Golden eagles are found throughout most of California except for the center portion of the Central Valley. Most commonly found in the grassland of the foothills surrounding the Central Valley

2.3.4.3 Habitat

Golden eagles typically inhabit open grassland areas in foothills surrounding the Central Valley. Golden eagle nests are commonly built on cliff ledges and in large trees in open areas. They typically forage in open grasslands, where they prey on California ground squirrels and black-tailed jackrabbits (Kochert et al. 2002).

2.3.4.4 Threats

Death from human causes account for >70% of golden eagle mortality. Of these, collision with vehicles, and aerial structures account for a majority of deaths followed by electrocution, shooting, and poisoning (Kochert er al. 2002).

2.3.4.5 Presence in the Action Area

No golden eagles were reported by the CNDDB (2010) within 10 miles of the project area. One golden eagle was observed soaring above Tension/Pull Site 013 during the 2010 field surveys. Large trees and towers occurring in or near the project area provide suitable nesting habitat for this species, and grasslands and agricultural areas provide suitable foraging habitat.

2.3.5 California Condor

2.3.5.1 Status

The California condor is federally listed as endangered under the ESA and is state listed as endangered. Critical habitat for this species has been designated. The nearest designated critical habitat is the East Unit of the Hi Mountain-Beartrap Condor Area, approximately 7.1 miles west of the western end of the action area, where captive-raised condors were formerly released. USFWS published a third revision of the *Recovery Plan for the California Condor* in 1996 (U.S. Fish and Wildlife Service 1996). The USFWS is currently in the process of preparing a 5-year review for the status of California condors.

2.3.5.2 Distribution

In the early nineteenth century, the California condor occurred in northern Baja California, northern California, Oregon, Washington, and southern British Columbia—with a few reports from Arizona, Nevada, Utah, Wyoming, Colorado, Idaho, Montana, and southern Alberta. By the mid-twentieth century, its range was confined mostly to southern California. In California, California condors historically occurred along a wishbone-shaped area encompassing 10 counties in the southern and central parts of the state—San Benito, Monterey, San Luis Obispo, Santa Barbara, Kern, Ventura, Tulare, Fresno, Kings, and Los Angeles Counties (U.S. Fish and Wildlife Service 1996).

The wild population was extirpated by mid-1987 (with the trapping of the last individuals for captive breeding). Since 1992, releases of captives have occurred in parts of California and Arizona (Snyder and Schmitt 2002). A third reintroduction area was added in 2002 in Baja California, Mexico (Arizona Department of Game and Fish 2008). Reintroduction sites in California include Big Sur in the Ventana Wilderness Sanctuary; the Sespe Condor Sanctuary; and the Los Padres National Forest in Santa Barbara, Ventura, and Kern Counties (Arizona Department of Game and Fish 2009). As of August 31, 2010 there were 188 California condors in the wild, with 96 in California, 19 in Baja California, and 73 in Arizona. (Condor Program Monthly Status Report 2010).

2.3.5.3 Habitat

California condors are cavity nesters that require caves, cliff ledges, or large trees in which to build nests. Condors also require cliffs for roosting and other California condors forage for carrion in grassland and oak savannah, as well as along the coastline of California. Cliffs, large trees, and snags

are also used for roosting. Roosting areas are often close to nest sites or foraging grounds; scattered roost sites are located through the condor's range (U.S. Fish and Wildlife Service 1996).

Condors feed primarily on the carcasses of medium- to large-sized mammals. Historically, condors fed on the carcasses of mule deer (*Odocoileus hemionus*), tule elk (*Cervus elaphus nannodes*), pronghorn (*Antilocarpa americana*), and marine carrion, including whales (*Cetacea* spp.) and California sea lions (*Zalophus californianus*) along the Pacific Coast. Domestic cattle, sheep, and horses—along with mule deer and California ground squirrel—are the predominant food sources for California condors today (U.S. Fish and Wildlife Service 1996).

2.3.5.4 Threats

Because California condors are characterized by high survival rates and low reproductive rates, they are dependent on low rates of adult mortality for population stability (Meretsky et al. 2000, Snyder and Schmitt 2002, Walters et al. 2008). Condors have a clutch size of one egg, a normal nest success rate of from 40 to 50 percent, and an age of first breeding from 6 to 8 years. Mortality in recent release efforts has been too high to develop a self-sustaining population (Meretsky et al. 2000, Snyder and Schmitt 2002). Reducing mortality factors is necessary to create a self-sustaining wild population (Snyder and Schmitt 2002).

Largely because of their size, California condors have few predators, except humans. Recent evidence from release efforts indicate that condors may occasionally be killed by golden eagles (*Aquila chrysaetos*) (Meretsky et al. 2000). Eggs and nestlings are susceptible to predation by common ravens (*Corvus corax*), golden eagles, and black bears (*Ursus americanus*) (Snyder and Schmitt 2002).

Human causes of mortality prior to the 1980s have been numerous, including strychnine poisoning due to predator-control programs; collisions with overhead wires; drowning in water tanks; and shooting for curiosity, quills, and museum collections (Snyder and Schmitt 2002). Recent evidence (since the 1980s) indicates that lead poisoning caused by ingestion of ammunition fragments in carcasses is a key factor in mortality (Snyder and Schmitt 2002). Other recent sources of mortality in released condors include collisions, drowning, golden eagle predation, anti-freeze poisoning, and feeding of micro-trash to nestlings (Snyder and Schmitt 2002, Walters et al. 2008). Collisions may be especially frequent because of the condors' attraction to human structures and developed areas (Snyder and Schmitt 2002). Although historical condor habitat, especially foraging areas, has been modified, condors do not seem to be habitat specialists and have switched to feeding on domestic livestock with the conversion of native grasslands to pasture (Snyder and Schmitt 2002). Current condor populations may be too low to be affected by low habitat availability (Snyder and Schmitt 2002).

2.3.5.5 Presence in the Action Area

The Carrizo Plain was part of the California condor's foraging range prior to the initiation of the captive breeding program. Condors subsequently have been returned to the Los Padres National Forest to the south and west of the Carrizo Plain. The Ventana Wildlife Society has been tracking the flight patterns of released condors fitted with radio transmitters. As of April 2009, there had been no recent California condor records on the Carrizo Plain. There have been no reports of injury or death of California condors resulting from collisions with the Carrizo-Midway 230 kV transmission line or any other nearby transmission lines.

The nearest designated critical habitat for California condor is the East Unit of the Hi Mountain-Beartrap Condor Area, approximately 7.1 miles west of the western end of the action area.

2.3.6 Mountain Plover

2.3.6.1 Status

Mountain plovers have been proposed for listing as threatened under the federal ESA and their nests are protected under the Migratory Bird Treaty Act.

2.3.6.2 Distribution

Mountain plovers breed in the short-grassland prairies of the high plains east of the Rocky Mountains. Mountain plovers are a winter resident in California in the San Joaquin Valley, the Carizzo Plain, and Imperial Valley. They primarily occur in California from September through February (Shuford and Gardali 2008).

2.3.6.3 Habitat

Mountain plovers are associated with short-grass prairie habitats. They prefer areas that are relatively flat and devoid of vegetation (Shuford and Gardali 2008).

2.3.6.4 Threats

Loss of winter and breeding habitat is the primary threat to this species. Conversion of grassland habitats to agricultural production that is incompatible with this species, urban development, detrimental range management practices, and oil and gas production are all contributing factors negatively affecting Mountain plovers.

2.3.6.5 Presence in the Action Area

No mountain plovers were reported by the CNDDB (2010) within 10 miles of the project area. Mountain plovers were observed between January and March 2010 by Althouse and Meade biologists during surveys conducted between November 2009 and March 2010 (Althouse and Meade 2010).

2.3.7 Giant Kangaroo Rat

2.3.7.1 Status

The giant kangaroo rat is federally listed as endangered under the ESA and is state listed as endangered. Critical habitat for this species has not been designated. The giant kangaroo rat was included in the *Recovery Plan for Upland Species of the San Joaquin Valley, California* (U.S. Fish and Wildlife Service 1998). USFWS prepared a 5-year review for the status of giant kangaroo rats in 2010. USFWS concluded that the status of giant kangaroo rats continues to meet the definition of endangered because the species in danger of extinction throughout its known range (U.S. Fish and Wildlife Service 2010b).

2.3.7.2 Distribution

Historically, the range of giant kangaroo rats extended from the base of the Tehachapi Mountains north to approximately 10 miles south of Los Baños, Merced County; in the Carrizo Plain and San Juan Creek watershed in the west; and the floor of the San Joaquin Valley to the east (U.S. Fish and Wildlife Service 2010b)

Currently, giant kangaroo rats occupy only 5 percent of their former range. The current distribution of giant kangaroo rats is fragmented into six major geographic regions: (1) the Ciervo-Panoche region in western Fresno and eastern San Benito Counties; (2) Kettleman Hills in southwestern Kings County; (3) San Juan Creek Valley in eastern San Luis Obispo County; (4) the Lokern area, Elk Hills previously known as the National Petroleum Reserve Number One (NPR-1), which includes Buena Vista and McKittrick Valleys; National Petroleum Reserve Number Two (NPR-2); and Taft and Maricopa in western Kern County; (5) the Carrizo Plain in eastern San Luis Obispo County; and (6) Cuyama Valley along the eastern Santa Barbara County-San Luis Obispo county line (U.S. Fish and Wildlife Service 2010b).

2.3.7.3 Habitat

Giant kangaroo rats inhabit annual grassland and shrub community habitats with various soil types and slopes up to 22 percent. It is believed that historical populations occupied annual grassland habitat with few or no shrubs, sandy-loam soils, and gentler slopes of approximately 10 percent or less. This change in habitat usage suggests that current populations occupy suboptimal lands in response to large-scale agricultural development of optimal grassland habitat that supported historical populations. Inhabited areas receive an average of 6–7 inches of rain and are free from flooding (U.S. Fish and Wildlife Service 2010b).

Changes in rainfall have been linked to expansions and declines in giant kangaroo rat populations. Changes in rainfall also can affect the availability of forage plant species, the development of toxic pathogentic molds, and fire fuel loads—affecting habitats inhabited by giant kangaroo rats (U.S. Fish and Wildlife Service 2010b).

2.3.7.4 Threats

Historically, the greatest threat to giant kangaroo rats was the conversion of natural habitat to agricultural lands. The amount of suitable lands that are currently being converted to agricultural use has slowed because the remaining suitable habitats are too rugged for agricultural uses. Currently, there are numerous potential threats to suitable habitat. These include development of certain large-scale renewable solar energy projects and construction of large transmission lines; potential increases in oil and gas developments in the southern portion of the species range and Kettleman Hills; increased off-road vehicle use throughout the species range, but particularly in the southern portion of the range; and urban and residential development in western Kern County. Road widening projects continue to threaten giant kangaroo rats, although these road projects currently affect less habitat area than the threats listed previously (U.S. Fish and Wildlife Service 2010b).

2.3.7.5 Presence in the Action Area

Protocol surveys for giant kangaroo rats were not conducted for this project. Several CNDDB (2010) records for giant kangaroo rat occur within 10 miles of the proposed action area. Many of the

proposed tension/pull sites, landing zones, and areas for crossing guards between Tower 73 and Tower 138 are located within suitable habitat for giant kangaroo rats. ICF International wildlife biologists observed potential giant kangaroo burrows north of Tower 75 and in the Lokern Preserve between Tower 128 and Tower 130 during habitat assessment in February and March 2010.

2.3.8 Tipton Kangaroo Rat

2.3.8.1 Status

The Tipton kangaroo rat is federally listed as endangered under the ESA and is state listed as endangered. Critical habitat for this species has not been designated. The Tipton kangaroo rat was included in the *Recovery Plan for Upland Species of the San Joaquin Valley, California* (U.S. Fish and Wildlife Service 1998). USFWS prepared a 5-year review for the status of Tipton kangaroo rats in 2010. USFWS concluded that the status of Tipton kangaroo rats continues to meet the definition of endangered because the species in danger of extinction throughout its known range (U.S. Fish and Wildlife Service 2010c).

2.3.8.2 Distribution

Historically, the geographic range of Tipton kangaroo rats was distributed on arid-land communities occupying the valley floor of the Tulare Basin. By 1985, the inhabited area had been reduced, primarily by cultivation and urbanization, to only about 4 percent of the historical acreage. Current occurrences are limited to scattered, isolated areas in Kings, Tulare, and Kern Counties (U.S. Fish and Wildlife Service 2010c).

2.3.8.3 Habitat

Tipton kangaroo rats inhabit valley saltbush scrub and valley sink scrub habitats located on the San Joaquin Valley floor. They occur on level to nearly-level terrains with alluvial fan and floodplain soils ranging from fine sands to clay-sized particles with high salinity. Although Tipton kangaroo rats occur in terrace grasslands devoid of woody shrubs, sparse to moderate shrub cover is associated with populations of high density. Densities typically are low, but populations are known to fluctuate greatly in response to climatic conditions (precipitation) and to vary across habitat type (seasonal/short-lived invasion of vegetation, particularly by non-native grasses, can exacerbate Tipton kangaroo rat declines) (U.S. Fish and Wildlife Service 2010c).

2.3.8.4 Threats

The large-sale conversion of suitable habitat for agriculture or urban development was principally responsible for the decline and endangerment of the Tipton kangaroo rat. Current threats of habitat destruction or modifications are increasing. Urban sprawl and associated human activities are currently the greatest threat to Tipton kangaroo rats (U.S. Fish and Wildlife Service 2010c).

2.3.8.5 Presence in the Action Area

Protocol surveys for Tipton kangaroo rats were not conducted for this project. There are four Tipton kangaroo rat CNDDB (2010) occurrences within 10 miles of the action area. One record is located approximately 0.70 mile south of Tower 139. The proposed tension/pull sites between Tower 138 and Tower 139 and the road crossing at Tower 162 are located within suitable habitat for Tipton kangaroo rats.

2.3.9 San Joaquin Kit Fox

2.3.9.1 Status

The San Joaquin kit fox is federally listed as endangered under the ESA and is state listed as threatened. Critical habitat for this species has not been designated. San Joaquin kit fox was included in the *Recovery Plan for Upland Species of the San Joaquin Valley, California* (U.S. Fish and Wildlife Service 1998). USFWS prepared a 5-year review for the status of the San Joaquin kit fox in 2010. USFWS concluded that the status of the San Joaquin kit fox continues to meet the definition of endangered because the species is in danger of extinction throughout its known range (U.S. Fish and Wildlife Service 2010d).

2.3.9.2 Distribution

The historical range of San Joaquin kit fox included most of the San Joaquin Valley as well as low-elevation basins and ranges along the eastern side of the central Coast Ranges. By 1930, this range had been reduced by more than half, with the largest populations occurring in the southern and western portions of the San Joaquin Valley. Today, the San Joaquin kit fox occurs in the remaining native valley and foothill grasslands and chenopod scrub communities of the valley floor and surrounding foothills, from southern Kern County north to Los Baños, Merced County. Smaller, less dense populations may be found further north and in the narrow corridor between Interstate 5 and the Interior Coast Ranges from Los Baños to Contra Costa County. The range of the San Joaquin kit fox also includes portions of Monterey, Santa Clara, and San Benito Counties and the upper Cuyama River watershed in northern Ventura and Santa Barbara and southeastern San Luis Obispo Counties (U.S. Fish and Wildlife Service 1998). Monitoring of kit fox populations has indicated that the occupied range of kit foxes is contracting and is increasingly fragmented. It is also likely that kit foxes have disappeared from areas of extant habitat within the central and northern portions of their historical range (U.S. Fish and Wildlife Service 2010d).

2.3.9.3 Habitat

The San Joaquin kit fox inhabits a variety of habitats, including grasslands; scrublands; vernal pool areas; alkali meadows and playas; and agricultural irrigated pastures, orchards, and vineyards. They prefer habitats with loose-textured soils and are primarily found in arid grasslands and open scrublands that are suitable for digging, but they occur on virtually every soil type (U.S. Fish and Wildlife Service 2010d).

Dens generally are located in open areas with grass or grass and scattered brush, and seldom occur in areas with thick brush. Preferred sites are relatively flat, well-drained terrain. They are seldom found in areas with shallow soils resulting from high water tables or impenetrable bedrock or

hardpan layers. However, kit fox may occupy soils with high clay content where they can modify burrows dug by other animals, such as ground squirrels (U.S. Fish and Wildlife Service 1998).

2.3.9.4 Threats

The greatest threats to San Joaquin kit fox and its habitat is the conversion of natural habitat to agricultural lands, infrastructure construction, and urban development. The amount of suitable lands that are currently being converted to agricultural use has slowed because the remaining suitable habitats are too rugged for agricultural uses. The proposed siting of large-scale renewable solar energy projects in core, satellite, and linkage San Joaquin kit fox habitat is a potential emerging threat to San Joaquin kit foxes (U.S. Fish and Wildlife Service 2010).

2.3.9.5 Presence in the Action Area

Protocol surveys for San Joaquin kit foxes were not conducted for this project. There are numerous San Joaquin kit fox CNDDB (2010) occurrences within 10 miles of the action area. One San Joaquin kit fox was observed just south of SR 58 in the Carrizo Plain by an ICF International wildlife biologist during the March 2010 field surveys. Suitable San Joaquin kit habitat occurs between the Solar Switching Station on the western end of the project east to Tower 38 and between Tower 72 and Tower 140.

Chapter 3
Project Description

This section identifies the specific transmission line segment that would be reconductored by PG&E, and provides an overview of the reconductoring process. It describes the basic work involved in reconductoring a transmission line, as well as specific designs (when known) for the reconductoring project (project or proposed project) which is referred to as the "proposed action".

3.1 Reconductoring

Reconductoring would occur on both circuits of the PG&E Morro Bay–Midway double-circuit 230 kV transmission line between a new 230 kV PG&E switching station (Solar Switching Station) at the point of interconnection of the Topaz Solar Farm Project and the existing Midway Substation in Kern County. The existing transmission line extends from PG&E's Morro Bay Substation in the City of Morro Bay, San Luis Obispo County, California to PG&E's Midway Substation in the City of Buttonwillow, Kern County, California. However, only the portion of the line between the solar energy projects on the Carrizo Plain and the Midway Substation would be reconductored, as shown in Figure 1a-1f. In all, approximately 35 miles of the transmission line would be reconductored, ranging in elevation from 80 feet above mean sea level (msl) (at the Midway Substation) to 3,600 feet above msl (in the Temblor Range). Figure 1a-1f shows an overview of the entire project.

The 35-mile portion of the existing transmission line proposed for reconductoring is supported by 171 lattice steel towers (LSTs), some of which would require modification or replacement to accommodate the new conductors, which are heavier and operate at a higher temperature than the existing conductors. The existing 1113 AA conductor is 1.0440 lbs/foot, and the replacement 954 ACSS conductor would be 1.2270 lbs/foot. Most of these towers are double-circuit towers, with the exception of eight single-circuit transposition towers, two single-circuit substation dead-end structures at Midway Substation, and one double-circuit tubular steel pole (TSP) at Midway Substation. The average height of existing towers is approximately 118 feet, and the average height of towers with proposed extensions would be approximately 127 feet. PG&E's right-of-way (ROW) for the existing transmission line between the Solar Switching Station and the Midway Substation varies between 75 and 128 feet wide. For approximately 6 miles extending easterly from the Topaz Solar Farm on the Carrizo Plain, the transmission line is adjacent to a ROW with a 115 kV transmission line. The wider sections of ROW within the 230 kV transmission corridor are located near transposition towers (where the positions of the conductors are changed at four separate sites along the path). The transmission line segment to be reconductored would begin at the Solar Switching Station required for interconnection of the Topaz Solar Farm to the PG&E 230 kV transmission system.

From milepost (MP) 0, the reconductored transmission line follows a path due east for 7.2 miles, passing within 325 feet of a residence at MP 0.5, crossing Soda Lake Road at MP 1.5, and east to MP 7. At MP 7.3, the transmission line turns east-southeast for 3.0 miles and crosses the Temblor Range into Kern County at MP 10.3. The line then proceeds east for 4.7 miles and northeast for 3.5 miles, crossing a number of tributaries of Salt Creek between MP 11 and MP 16. The transmission line then

turns due east for 1.2 miles, northeast for 0.4 mile, and east again for another 14.1 miles, crossing Lost Hills Road at MP 21.7, Highway 33 (West Side Highway) at MP 22.8, a petroleum pipeline at MP 27.2, the California Aqueduct at MP 29.0, SR 58 at MP 29.5, and the West Side Canal (Kern River Flood Canal) at MP 29.8. The transmission line turns northeast for 0.4 mile and then north for 0.4 mile, once again crossing SR 58 at MP 30.0 before entering Midway Substation at MP 35.0 and elevation 80 feet above msl. A detailed illustration of the route is included on Figures 1a-1f.

3.1.1 Switching Stations

3.1.1.1 Solar Switching Station (Topaz Project)

The Topaz Solar Farm would interconnect with PG&E transmission lines using a three-bay, six-position breaker and a half configuration switching station. PG&E's Switching Station, called the Solar Switching Station, would contain nine 230 kV gas-insulated circuit breakers. Two positions of this switching station would be used to connect the Topaz Solar Farm output to the switching station, and the remaining four positions would be used to loop the PG&E line through the switching station. The PG&E Solar Switching Station work area would be approximately 600 feet by 650 feet (9 acres) with a buffer zone and would be enclosed by a fence separate from the adjacent Topaz Solar Farm substation. The switching station would require additional area for the incoming and existing transmission line, and the dimensions with the transmission line would be 880 feet by 715 feet. PG&E would install night lighting at the switching station for security purposes. To interconnect the Topaz Solar Farm, both circuits of the Morro Bay–Midway 230 kV double-circuit line would be looped from the transmission corridor into the new Solar Switching Station adjacent to the transmission corridor and then back to the transmission corridor. The loop lines would be approximately 200 feet to 400 feet in length. A total of four new circuits would be constructed between the existing transmission corridor and the new switching station (two in and two out of the switching station) with two circuits per tower line. Two new double-circuit LSTs and four TSPs would be installed to accommodate the looping of PG&E's 230 kV line into the Solar Switching Station. It is expected that the two LSTs would be located within or adjacent to the existing PG&E transmission line ROW. The four TSPs would be located on either side of the new PG&E Solar Switching Station to position the transmission conductors for proper ingress and egress to the station.

3.1.1.2 Switching Station Equipment

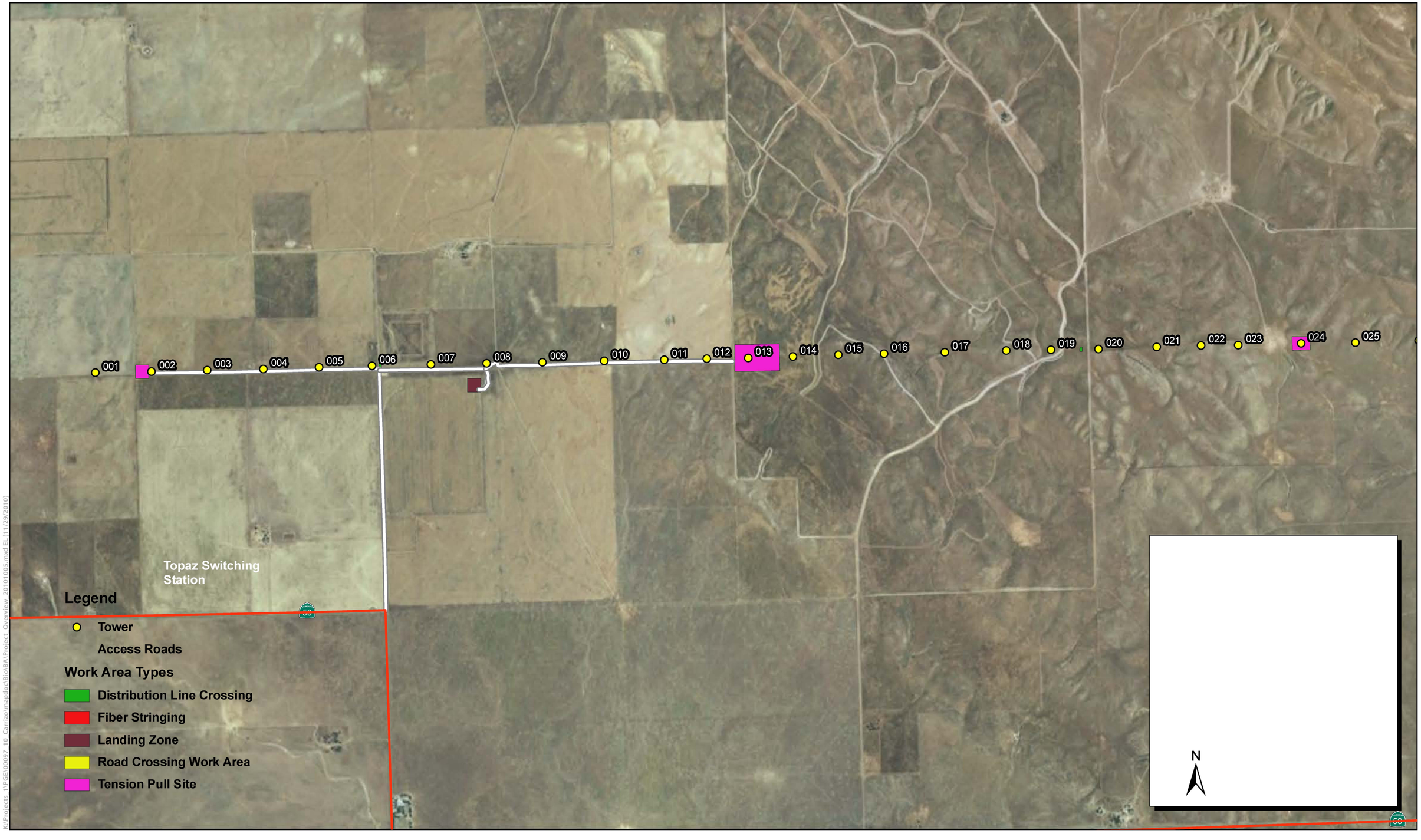
Two short transmission line segments would be required to connect the proposed switching station to the existing Morro Bay–Midway double-circuit 230 kV transmission line. These line segments would require facility modifications on the 230 kV and potentially on the 115 kV lines, as described below.

Modifications to the existing PG&E 115 kV transmission line facilities would include the following:

- Remove two existing 115 kV towers, and
- Install two low-profile, horizontally configured towers.

Modifications to the existing Morro Bay–Midway 230 kV double-circuit transmission line facilities would include the following:

- Install two new 230 kV dead-end towers, and



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ICF INTERNATIONAL

Figure 1a
Carrizo to Midway Reconductoring Project

027 028 029 030 031 032 033 034 035 036 037A 038 039 040 041 042 043 044 045 046 047 048 049 050 051 052 053 054 055 056 057

San Luis Obispo County
Kern County

Legend

- Tower
- Access Roads

Work Area Types

- Distribution Line Crossing
- Fiber Stringing
- Landing Zone
- Road Crossing Work Area
- Tension Pull Site

N

0 0.5 1 Miles

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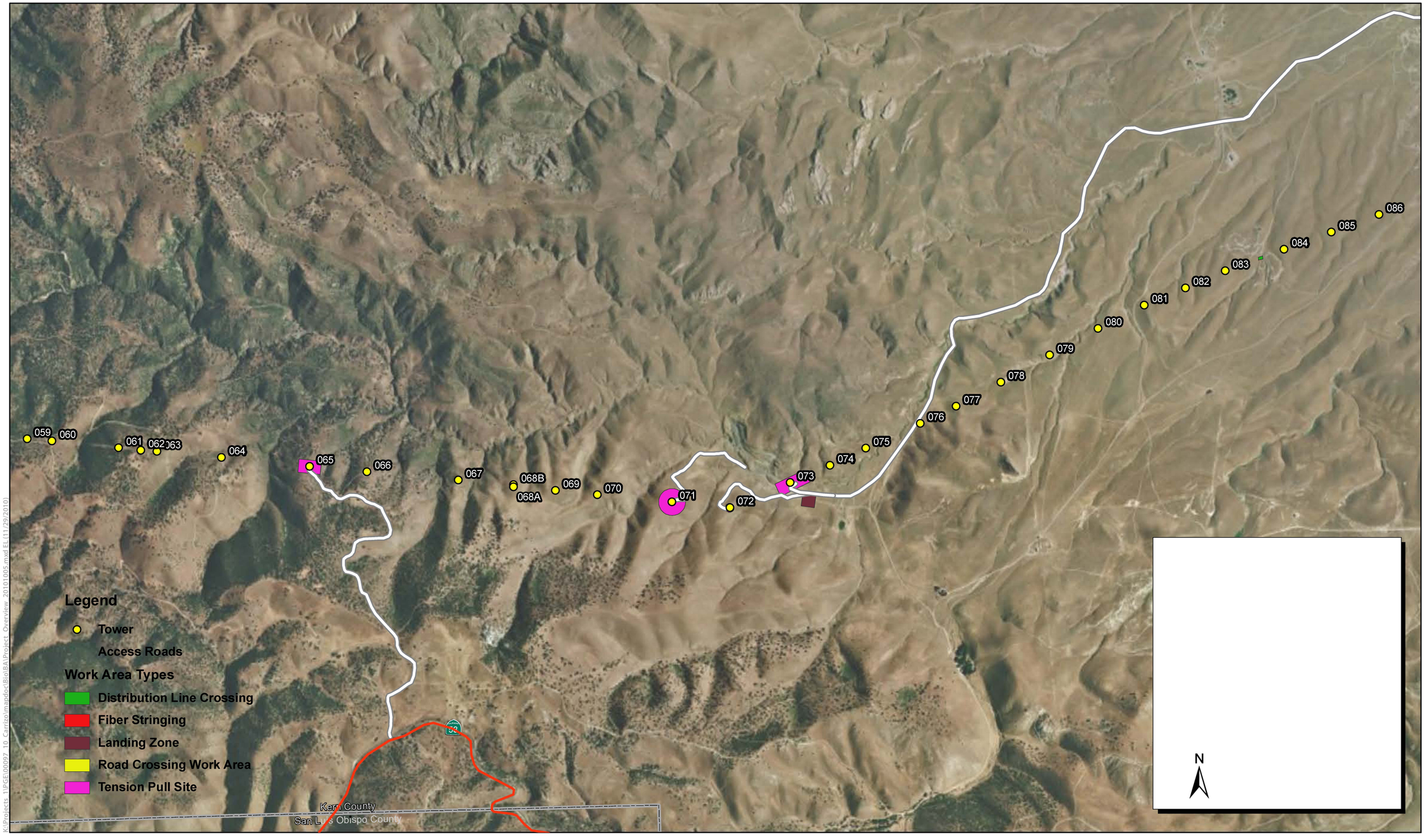
ICF INTERNATIONAL

Figure 1b
Carrizo to Midway Reconductoring Project



ICF INTERNATIONAL

N

0 0.5 1 Miles

Figure 1c
Carrizo to Midway Reconductoring Project

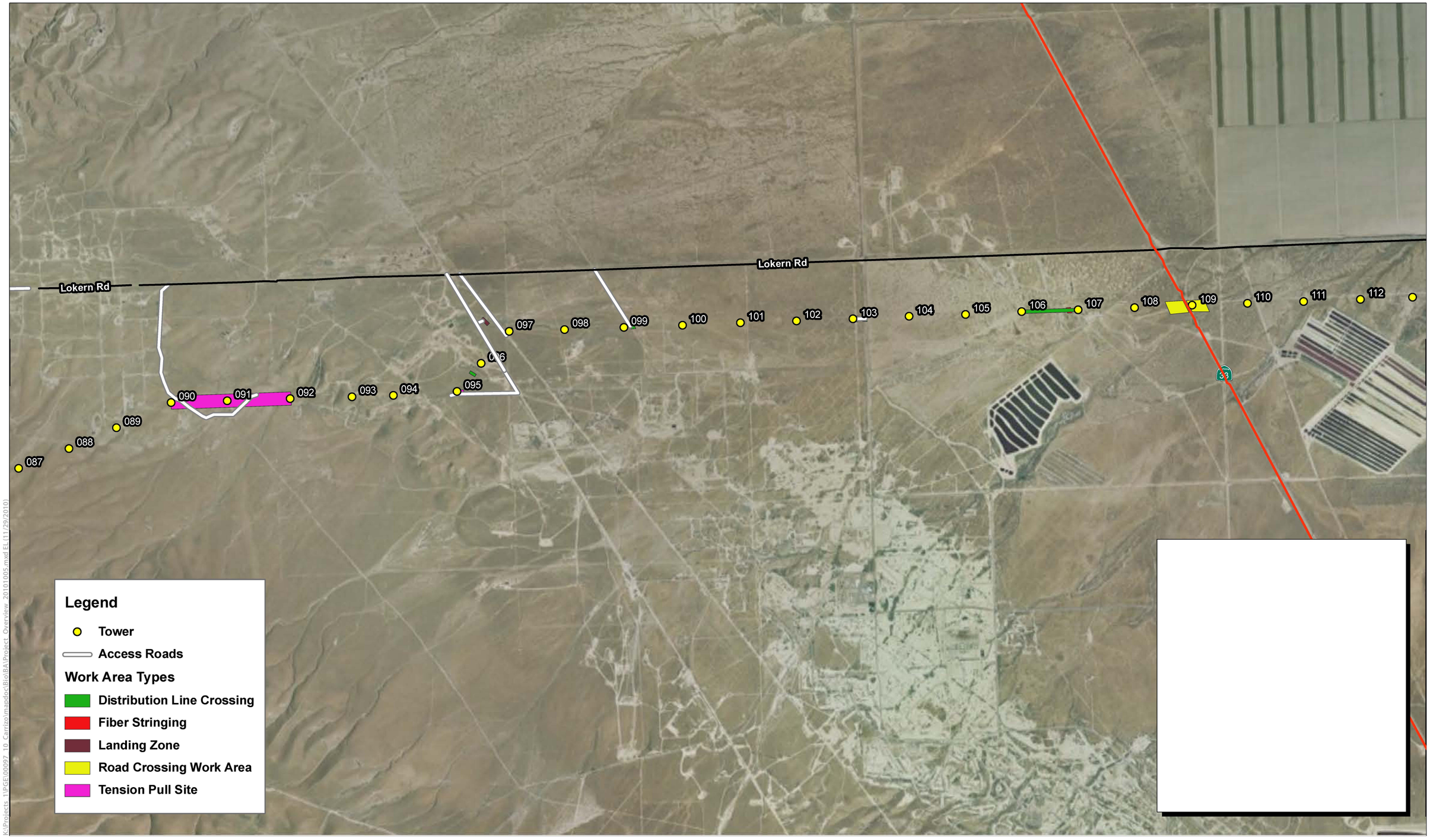


Figure 1d
Carrizo to Midway Reconductoring Project

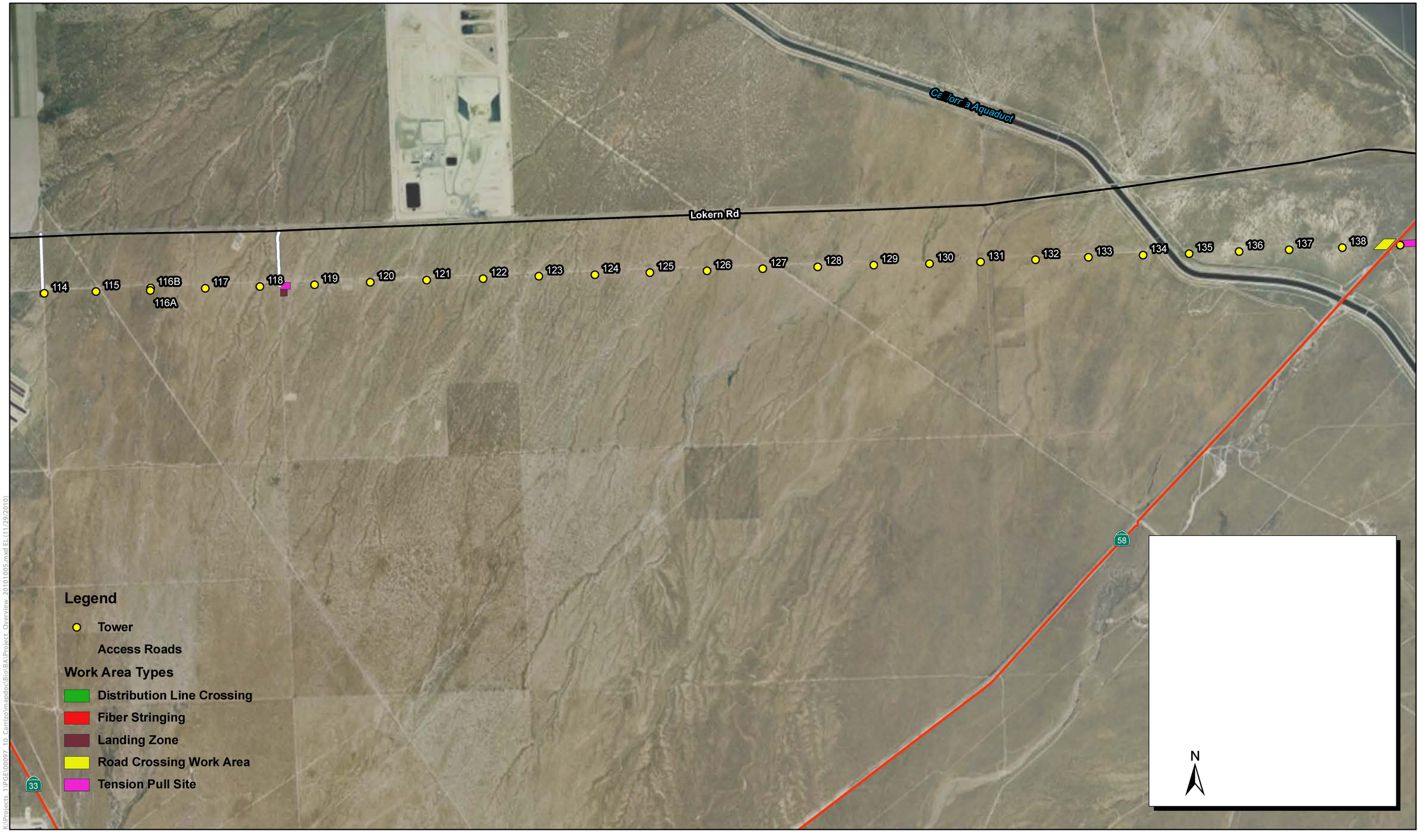


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Figure 1e
Carrizo to Midway Reconductoring Project

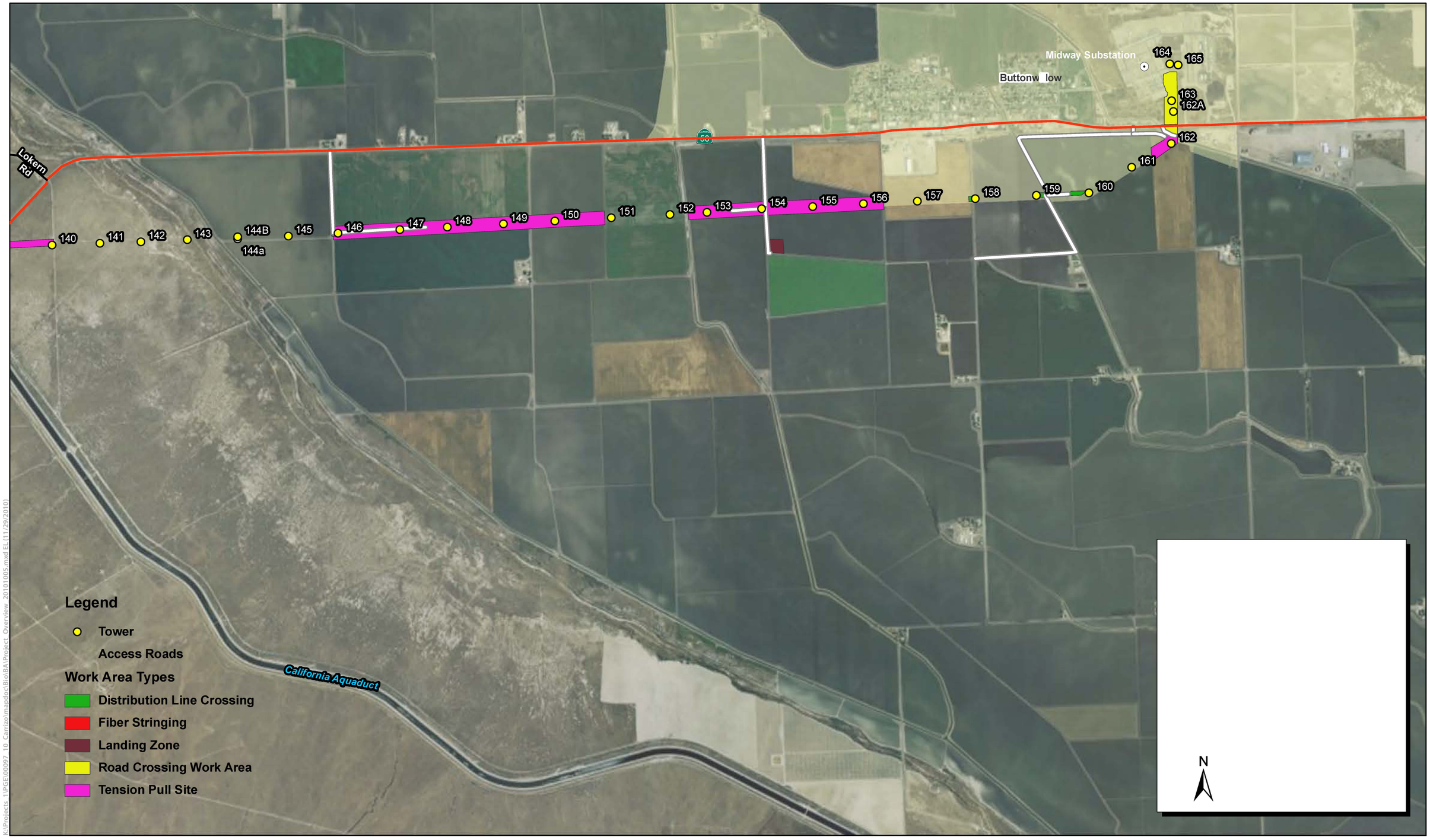

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Figure 1f
Carrizo to Midway Reconductoring Project

- Remove one existing tangent lattice tower.

Construction of new 230 kV transmission line facilities would include the following:

- Install two new tangent double-circuit, steel monopole towers midway between the existing Morro Bay–Midway 230 kV transmission line and the proposed switching station (one tangent tower would be required in each line segment), and

Heights of all proposed tower modifications and new towers would be determined based on the heights of existing conductors and the need to provide clearance above ground and to any obstructions, based on the CPUC's General Order 95 and the National Electrical Safety Code. Pending detailed engineering design, the proposed towers may be up to 150 feet in height. This height would be required if it is determined that the 230 kV interconnect lines should pass over the 115 kV line located between the switching station and the 230 kV line without modifying the existing 115 kV structures.

3.1.2 Microwave Tower and Reflector

PG&E would install an approximately 175-foot-tall microwave tower at the Solar Switching site. The microwave tower would be a self supporting lattice steel structure. The microwave antennas are typically grey, but may be painted a particular undetermined color at the discretion of San Luis Obispo County and the California Public Utilities Commission.

At least one microwave reflector would be required off-site. Depending on the final locations of the switching stations, it is possible that one microwave reflector would suffice for both switching stations. However, the number and location(s) of the microwave reflector(s) would be determined based on the final location of the switching stations. The location of the microwave reflector for the Solar Switching Station is unknown at this time. The reflector would be mounted on a structure approximately 30 feet tall and would be approximately the size of a billboard. A typical microwave reflector is approximately 10 feet by 24 to 32 feet.

3.2 Land Uses along Transmission Line Right-of-Way

The area around the transmission line corridor and switching stations is primarily undeveloped along the westernmost 30 miles of the route of the Solar-Midway segment. Only two residential structures are located near the reconductoring project, the closest of which is approximately 325 feet from the ROW. Petroleum settling ponds associated with active petroleum extraction activities are located directly adjacent to and south of the ROW at MP 22 to MP 24. Active agricultural operations occur within and adjacent to the ROW. These are grazing and dry land grain cultivation operations west of MP 30.8 and irrigated crop production east of MP 30.8. Portions of the ROW have been disturbed by vegetation management practices beneath the existing transmission line, by the construction of access roads, and by ongoing maintenance activities. Between where the line crosses SR 58 near MP 30 until it enters the Midway Substation at about MP 35, the transmission line parallels SR 58 (Jeppi Road) approximately 0.3 mile to the south of the road. Between MP 31 and MP 33.4, the highway has scattered individual homes along its northern side. From MP 33.4 until it enters the Midway Substation near MP 35, the alignment is approximately 0.3 mile south of the town of Buttonwillow, which is primarily on the north side of the highway. Existing land uses along the 35-mile transmission line are shown in Table 3-1.

Table 3-1. PG&E Reconductoring Project Existing Land Uses in Action Area

Location	Jurisdiction(s)	Land Use Classifications	Specific Land Uses
MP 0.2.7	County of San Luis Obispo	Agriculture, Public Facilities and Utilities	Tracy Lane, Grazing, Dryland Grain Production, Soda Lake Road, Unnamed Drainages
MP 2.7.10.3	County of San Luis Obispo	Agriculture	Grazing, Unnamed Drainages
MP 10.3.21.7	County of Kern	Agriculture	Grazing, Salt Creek, Lost Hills Road, Petroleum Pipeline, Temblor Creek, Unnamed Drainages
MP 21.7.22.8	County of Kern, Caltrans (State Highway 33)	Agriculture, Public Facilities and Utilities	Grazing, State Highway 33, Lost Hills Road, Natural Gas Pipeline
MP 22.8 - 30.8	County of Kern, Caltrans (State Highway 58)	Agriculture, Public Facilities and Utilities	Grazing, Crop Production, State Highway 58, Petroleum Settling Ponds and Pipelines, Natural Gas Pipeline, California Aqueduct, Unnamed Drainages
MP 30.8-35.0	County of Kern, Caltrans (State Highway 58)	Agriculture, Public Facilities and Utilities	Crop Production, West Side Canal, (Kern River Flood Canal), Unnamed Canals, Elk Grove Road, Unnamed Road, Palomas Road, Buttonwillow Drive, Mirasol Avenue, Southern Pacific Railroad, State Highway 58,Midway Substation; individual residences

3.3 Construction Methods

3.3.1 Reconductoring

In general, reconductoring is accomplished by disconnecting an old conductor and using it to pull a sock line (rope) through travelers or sheave blocks (temporary pulleys) mounted on each tower, until the sock line reaches the end of the section to be reconductored. Workers climb the tower or use a helicopter to access the tower in order to place the travelers on each tower and route the old conductor through the travelers. Once in place, the sock line is then used to pull the new conductors into place. An alternative is to connect the old conductor directly to the new conductor and use it to pull the new conductor into place.

The work would involve 20-person work crews on each end of the segment being replaced. Crews would generally be equipped with large tractor/trailer units used to feed out the new line or wind in the old line on trailer-mounted spools. Two or three utility trucks carrying tools and other materials would also be employed. One crew would set up at a “pull site” near a tower at one end of the pull, and the other crew would set up a “tension site” near a tower at the other end of the pull. As a safety precaution, ground rods (copper rods, 5/8-inch in diameter and long enough to be driven to firm

ground with approximately 1 foot protruding above ground) would be installed on each end of designated pull sites prior to pulling and tensioning work and removed once work is complete. Ground rods would also be attached to any equipment used near an energized conductor. The tensioning crew would employ a tensioner truck, which carries a large drum winch that is used to put rear tension on the conductor being pulled. Each pull is generally from 1 to 5 miles in length, and each conductor is pulled separately (one phase of each circuit per pull) until all three phases of a circuit are in place. The tensioning site crew would access the tower and disconnect the old conductor. The old conductor would be attached to a sock line or directly, to the new conductor located on spools on tensioner trucks.

The pull site crew would also climb each tower or be transported to the tower arms via helicopter, disconnect the old conductors, and attach them to take up spools on trucks below the tower. Other crews would set up temporary netting structures across busy roads and other areas as needed 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 tension sites are ready, the pulling crew would begin to wind the old conductors onto spools mounted on trucks, thereby pulling the sock line (or new conductor) through the pulleys. The tensioning crew would keep the old conductor taut, preventing it from sagging to the ground or into other objects in the ROW. If a sock line is used, once the sock line is in place, the crews would repeat the process, winding the sock line onto a take-up reel, thereby pulling the new conductor in place. Once the new conductor is in place, it would be disconnected from the pulleys, relocated to a higher position (if a cage top tower extension was installed), and permanently mounted to the end of new insulator strings.

Generally, new conductors are pulled through 1 to 5 miles of transmission towers at a time, depending on the length of conductor on the reels, the presence of angle towers, and the availability of suitable set-up locations.

Because the work is overhead between the pull and tensions sites, the potential for ground impacts is generally nonexistent between the two sites. Therefore, this analysis focuses particularly on examining potential effects at the pulling and tensioning sites and other locations that could be disturbed by truck movement or helicopter operations. Activities between the pull and tension sites are generally restricted to (1) accessing the towers (by pickup truck to the tower then climbing, by truck-mounted aerial bucket, or by helicopter) to place pulleys, remove the old conductor, and fasten the new conductor once stringing is completed; and (2) work on the tower structure to repair or replace spars that are damaged, or to replace insulators.

Figures 1a-1f show the full range of anticipated pull and tension sites along the 230 kV corridor and Table 3-2 includes preliminary estimates of ground disturbance for the work areas. Some of the criteria used in selecting the final pull and tension sites include accessibility for vehicles; presence of a flat or nearly flat land in-line along the ROW for equipment set-up; and land use, habitat, environmental, or cultural factors that may restrict work at various locations. Pulling and tensioning would normally take place at “deadend” sites, which are towers where the transmission line is physically connected to the tower rather than merely passing through 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 (where the alignment changes direction), but also can be located at towers that are in-line with the route, such as where the conductor is spanning long distances across canyons or gorges. Dead-end towers have significant structural strength and resist the forces of pulling. Pull and tension sites could also be established in-line between standard suspension towers

where needed to limit the pulling distance or to address areas that have limited access or setup restrictions. Along the route, pull and tension sites would be located approximately 1 to 6 miles apart.

During reconductoring, work crews replace the insulator strings connected to the towers. This work involves accessing the towers by climbing, truck-mounted aerial bucket, or helicopter in order to get personnel and material to the appropriate position on the tower. For the reconductoring project, depending on terrain and work required by helicopter, approximately nine landing zones would be used. Crews would then remove the old insulator strings and install new ones. The new insulators would be delivered by aerial bucket truck and trailer or by helicopter and held in place by the aerial bucket or rigging attached to the tower. The towers would also be inspected for corrosion prior to reconductoring and, if necessary, would be repaired. Repairs can include corrosion removal by mechanical means, re-galvanizing, and repainting.

Construction equipment would mostly be refueled at landing zones or construction yards along the transmission line. Equipment may be refueled along the transmission line if necessary. This would occur at least 100 feet from drainages, with secondary containment and appropriate clean up equipment onsite in case of a spill.

Once the old conductors and insulators are removed, they would be recycled or disposed of in an appropriate landfill facility.

3.3.2 Tower Replacement

For the purposes of the biological assessment, it is assumed that 10 percent of the 171 LSTs (17 towers) would be replaced. Replacement LSTs would generally be erected within 75 feet of the original tower and would be sited to avoid sensitive resources.

As pull and tension sites are generally flexible, their locations would be selected by PG&E upon completion of the biological reconnaissance surveys and cultural resources surveys for the reconductoring project to minimize impacts to sensitive resources. Figures 1a-1f show the preliminary locations of potential tension and pull sites; however, the exact locations would be developed during detailed project engineering. Depending on the terrain and the number of angles and dead-end towers, approximately 17 pull and tension sites and three construction work areas at road crossings would be used. In addition, there would be a work area at each switching station and 6 helicopter landing zones (see Table 3-2). Some pull and tension sites may also be used as staging areas and landing zones. Towers either would be constructed and erected at the tower site using a crane or constructed offsite and transported to the site by helicopter.

The new LSTs would require the installation of new tower foundations, which are typically poured concrete piers. For each lattice structure, four holes would be drilled using a truck-or track-mounted excavator equipped with augers of various sizes depending on the diameter and depth requirements of the hole to be drilled. The final depth of each foundation pier would be determined by soil and geologic conditions and by the design requirements of the tower structure. Each foundation would extend approximately 2 feet above the ground surface for bolting the tower in place.

Drilling, rock hauling, or the use of a rock anchoring or a mini-pile system may be required if solid rock is encountered. The rock anchoring or mini-pile system would be used in areas where site access is limited and sufficient rock is available for proper rock anchoring. Such anchoring systems may also be used where economically and technically justified. In environmentally sensitive areas, a

HydroVac, which uses water pressure and a vacuum, may be used to excavate material into a storage tank. In areas where it is not possible to operate large drilling equipment due to access or environmental constraints, hand digging using compressed air tools may be required. Soil excavated for foundations dug by hand would be distributed locally. At some of these sites it may be necessary to deliver and remove equipment, material, and personnel via helicopter.

At the LST component fabrication plant, structural members would be bundled and shipped by rail or truck to the construction yards, and then trucked to the individual tower sites (if the crane method is to be used) or a central assembly yard (if the helicopter method is to be used). For towers that are to be erected using the crane method, LSTs would be assembled at laydown areas at each site, and then erected and bolted to the foundations. Tower assembly would begin with the hauling and stacking of bundles of steel at tower locations. This activity would require use of several tractors with 40-foot trailers and a rough terrain forklift. After steel is delivered and stacked, crews would proceed with assembly of leg extensions, body panels, boxed sections, and bridges. The steel work would be completed by a combined erection and torquing crew with a lattice boom crane. The construction crew may opt to install insulators and travelers at this time. Ground disturbance would generally be limited to work areas around towers to be replaced, typically 200 feet by 200 feet for individual towers and 300 feet by 300 feet for centralized laydown areas or landing zones.

A minimum 80 ton crane would be used to assemble tower sections in areas where road access is available to tower sites and impacts to biological and cultural resources would be minimal. The crane pad would be set up in-line, within approximately 100 feet to the side of the existing transmission tower.

A helicopter would be used to erect towers at tower sites inaccessible by crane due to terrain or avoidance measures for sensitive resources. Use of helicopters for installation eliminates land disturbance associated with crane pads, tower site laydown areas, and vehicle traffic from steel delivery to structure sites. All construction work in remote work sites would be completed by hand with the assistance of portable compressors, portable hydraulic accumulators, portable concrete mixers, or buckets of ready-mix concrete that would be flown into the tower sites. Remote work sites would be located on disturbed land to avoid biological or cultural impacts or to land where impacts could be reduced to a less-than-significant level with appropriate measures incorporated.

Temporary guard structures would be used if necessary to protect roadways should a non-energized line fall during reconductoring. Guard structures typically consist of two or four wooden poles and cross beams attached to the tow poles. They are generally installed in pairs with a net strung between them, but in some cases a net would not be required. A line truck would be used to auger and set the wood poles. Guard structure poles would be removed following reconductoring and the holes backfilled.

The use of helicopters for the erection of LSTs would be in accordance with PG&E specifications and would be similar to methods detailed in the Code of Safe Practices (CSP Section 11), 2002 Edition, and the PG&E Helicopter Operations Manual, which was completed by PG&E and its International Brotherhood of Electrical Workers (IBEW) Union in 2002.

The operations area of the helicopters would be limited to helicopter staging areas near construction locations (landing zones) that are considered safe locations for take-off and landing and the transmission line corridor. Final siting of helicopter fly yards and staging areas would be conducted with the input of the helicopter contractor, affected private landowners, and land management agencies. Each staging area would be a maximum of 300 feet by 300 feet.

Helicopter fueling would occur at landing zones, and offsite at an existing licensed refueling facilities or airports using the helicopter contractor's fuel truck. Fueling would be supervised by the helicopter fuel service provider, and Storm Water Pollution Prevention Plan measures would be followed, as applicable. The helicopter and fuel truck would stay overnight at a local airport or at a staging area if adequate security is in place.

3.3.3 Tower Modifications

The height of approximately every other tower (approximately 85 towers) would be raised by approximately 20 feet in order to accommodate the new conductor and simultaneously satisfy conductor ground clearance requirements. The new conductor would be about the same diameter and weight as the existing conductor, but it would operate at higher operating temperatures, which would cause it to sag more than the existing conductor. In addition, certain towers may require modification of their foundations or superstructures to accommodate the new, higher-temperature conductor as the new conductor would contain a steel core that enables higher tensioning between towers.

To strengthen tower foundations, concrete from the existing footings is broken away to expose the steel reinforcements. A new/replacement concrete footing, called a grade beam, is poured between each existing footing. Superstructures are typically strengthened by replacement, modification, or addition of pieces of steel lattice, as determined by engineering analysis specific to each tower. In a worst-case situation, a new, stronger replacement tower with new foundations would need to be installed, in-line, within approximately 50 to 75 feet of the existing tower.

One of two methods is used to raise the heights of towers, including:

- Adding "mid-cage" or base extensions to the towers, or
- Adding "cage-top" extensions to the top of the tower.

The first method requires lifting the tower at the middle of the cage. A tower lift crane is staged in-line next to the tower, and its four arms are clamped to the four outside tower support legs. The tower support legs are unbolted from the lower tower section mid-cage (below the crane attachment points), the tower is lifted, and the mid-cage extension is installed. Once the mid-cage extension is installed and secured to the lower tower section, the crane is detached, leaving the tower in its new elevated position. If a tower lift crane cannot be used, tower leg extensions can be completed at ground level using a larger crane, manual construction techniques, track style equipment, or helicopters. A level area of approximately 25 by 40 feet would be graded immediately adjacent to the tower to serve as a crane pad. Temporary wood pole support(s) (shoo-fly) would be constructed adjacent to the tower to support the conductors while the crane lifts the tower. The tower extension would then be installed, the conductors replaced, and the temporary wood pole supports removed.

The second method entails installing the new extension at the top of the tower with the use of a crane or helicopter. The cage top extension is installed on the top of the tower, above all the cross arms. For the crane method, a level area of about 25 by 40 feet would be graded immediately adjacent to the tower to serve as a crane pad. Existing conductors would be left in place. During a helicopter cage top extension installation, one 230 kV circuit would remain energized and the other de-energized, but if a crane lifts the cage top into place on the tower, both 230 kV circuits would be de-energized. Once the cage top extensions are installed on a string of towers, the conductors would

be de-energized and elevated to their new position. The new insulator strings and conductor pulleys would be installed at this time to facilitate the reconductoring activities that follow. The old tower arms and insulator strings would be removed once the conductors are relocated to their new positions.

Complete tower replacement would occur where mid-cage, base, or cage top extensions are deemed to be too difficult.

3.3.4 Access Road Modification

Existing access roads would be maintained and widened as required for construction activities. Access roads serving towers requiring modification or replacement and roads serving associated pull and tension sites, laydown areas, and landing zones would be evaluated for vegetation removal, repair, and restoration requirements. The roads would be required to be sufficiently wide to accommodate large bucket trucks and semi-truck traffic for delivery of material and large equipment (e.g., cranes, graders, and dozers). Access roads would typically be graded with a six-wheel road grader and/or a D-6 bull dozer to a standard 10-foot width, with possible 12-foot-wide sections required at sharp road angles. Federal jurisdictional waters will be avoided and PG&E would use temporary bridges to span sensitive water crossings during the wet season. Gravel would not typically be used for the road bed except to stabilize soft underlying soils.

3.3.5 Switching Stations

Construction of the Solar Switching Station and the interconnection between the existing Morro Bay–Midway 230 kV line and the new station would be undertaken by PG&E. Construction of transmission facilities would be scheduled roughly in parallel with the switching station construction to ensure adequate transmission line capacity is available when the new switching stations become active.

Construction of the loop lines would include disturbance at locations where excavation for tower and pole locations would occur and towers and poles would be installed. Wheeled vehicles for transportation of conductor spools, and line-pulling and tensioning equipment would traverse the transmission line construction area.

3.3.6 Optical Ground Wire

A new OPGW would be installed between the Solar Switching Station and Midway Substation. The OPGW is both a static line (lightning protection) and a fiber optic communication line. It would be installed along with a pure static line on the top of the towers using a small tent-like structure for mounting to the tower tops. The static wire and OPGW would be installed at the same time the new conductors would be installed on the tower line and pulled in a similar fashion. Installation of the static wire and OPGW would be finished by the completion of the reconductoring project installation.

3.3.7 Ground Disturbance

Estimated ground disturbance associated with access roads, switching stations, tension and pull sites, land zones, line and roadway crossings, and other components are preliminarily estimated in Table 3-2 below and would be finalized during final project engineering and design.

The work areas for each of the anticipated 17 pull sites would be approximately 300 feet by 300 feet (2.1 acres each, 35.7 acres total) and would be located within the ROW outside of the existing access road footprint. Each of the switching stations would require an approximately 9-acre work area, and access roads would disturb approximately 27.2 acres. Landing zones, power line and roadway crossings, and fiber optic stringing would disturb approximately 21 additional acres.

Table 3-2. Preliminary Areas of Disturbance by Work Area

Work Area	County	Dimensions & Site Description
Solar Switching Station Work Area	SLO	600 feet x 650 feet (9.0 acres)
Tension/Pull (T/P) Sites	SLO and Kern	300 feet x 300 feet (2.1 acres) each . Approximately 22 T/P sites required (9 in SLO County and 13 in Kern County; 35.7 acres total)
Landing Zones	SLO and Kern	300 feet x 300 feet work area next to PG&E warehouse (2.1 acres) in SLO County . Triangle shape layout (4.5 acres) in SLO County . 300 feet x 300 feet (2.1 acres) in Kern County . 75 feet x 200 feet (0.3 acres) in Kern County . 150 feet x150 feet (0.5 acres) in Kern County . 300 feet x 300 feet (2.1 acres) in Kern County
Access Roads	SLO and Kern	Approximately 27.2 acres total
Single Distribution Line Crossing	Kern	50 feet x 50 feet potential disturbance (0.4 acres) each . Approximately 7 separate distribution line crossings required
Two Distribution Line Crossings	Kern	100 feet x 50 feet potential disturbance (0.6 acres) . Approximately 5 separate double distribution line crossings required
Foreign Line Crossing	Kern	100 feet x 50 feet potential disturbance (0.1 acres)
Caneras-Taft 70 kV and Temblor-Kernridge 115 kV Transmission Line Crossings	Kern	100 feet x 50 feet potential disturbance (0.1 acres)
Belridge Tap 70 kV Transmission Line Crossing	Kern	75 feet x 50 feet potential disturbance (0.1 acres)
Diablo Midway #2 500 kV Transmission Line Crossing	Kern	100 feet x 50 feet potential disturbance (0.1 acres)

Work Area	County	Dimensions & Site Description
Fiber Line Stringing	Kern	1,250 feet x 30 feet (0.9 acres)
Road Crossing Work Areas	Kern	Highway 33: 75 feet x 50 feet potential disturbance (0.1 acres) . Highway 58: 50 feet x 50 feet potential disturbance (0.1 acres) . Highway 58: 7.0 acres

Source: PG&E, 2010; updated April 9, 2010.

3.4 Construction Requirements

3.4.1 Equipment and Personnel

Reconductoring work, including tower replacement and modification, would be completed primarily by PG&E employees. Some work would likely be contracted out, including helicopter and crane operations, foundation construction, specialty transport, grading and earth work. The construction activities related to this project are expected to take approximately 20 months to complete.

The maximum estimated number of personnel required for construction labor would be approximately 50 individuals. Table 3-3 summarizes required construction equipment and its intended use for construction of access roads, laydown areas, and landing zones and the replacement or removal of towers.

3.4.2 Schedule

As described above, reconductoring work, including tower replacement and modification, is expected to last approximately 20 months. According to current plans, construction would begin in August 2011 and would be substantially complete by February 2013. Construction would proceed as follows:

- **Access road modifications.** Beginning in August 2011, access roads serving towers to be modified or replaced and associated tension and pull sites, laydown areas, and landing zones would be graded and widened, as required for construction activities. Road modifications would take approximately 1 month to complete.
- **Fly yards and staging areas.** Beginning in August 2011, crews would spend several days bringing equipment and materials to staging areas within the substations or laydown area/fly yard locations. A given fly yard would be in use during work on the corresponding section of the transmission line. Helicopters would be used for both tower modification work and replacement of conductors along the line, especially in biologically-sensitive and difficult-to access areas. Populating fly yards and staging areas would take approximately 1 month.

- **Tower work.** Beginning in August 2011, tower replacement and modification would occur along the transmission line in advance of reconductoring. The duration of tower replacement and modification work would be approximately 18 months. Construction work on towers would follow multiple steps over the course of several visits to the tower site, as described chronologically below:
    - Initial evaluation and site preparation for construction,
    - Installation of required tower extensions or tower replacement,
    - Raising of existing conductor to new conductor height on the towers,
    - Installation of travelers and insulators on all towers,
    - Reconductoring of the line,
    - Removal of travelers and placement of conductors on the insulators ("clipping" the conductors), and
    - Removal of all unused arms and associated equipment below the new conductor.

Tower work would be complete by approximately February 2013.

- **Guard structures.** From June 1, 2011, to January 1, 2012, any required guard poles (with or without nets) would be placed prior to pulling and tensioning any section of line crossing a state highway or other obstacle in which guard poles and/or nets are deemed necessary. Guard poles and nets would be placed and removed during the dry season to avoid access during the wet season in biologically sensitive areas. Guard poles and nets would be removed between or April 1, 2012, and November 1, 2012.
- **Reconductoring.** Reconductoring would occur over the course of 12 months, beginning by August 2011, and would be completed in sections as towers are raised or replaced. Because the line that would be under construction is an active transmission line, the timing of pulling and tensioning would depend on load conditions and the ability to take the line out of service. This activity would be restricted to low load conditions when line clearances could be achieved and would be complete by December 2012. In some cases, one side (one circuit) of the 230 kV line may be de-energized to enable reconductoring work on that side of the corridor while the other side (second circuit) of the 230 kV line would remain energized. Some work activities may require both circuits to be de-energized. This would be scheduled with PG&E's Transmission Operations group in coordination with the CAISO.
- **Restoration.** Restoration of any temporarily disturbed areas would occur within 1 year of disturbance for all sites. For access roads modified for construction, these would be re-established with an emphasis on long-term erosion control to support long-term operations and maintenance activities. This may involve seeding roads with a native seed mix and/or installing water bars on steep slopes. Road restoration would be in compliance with the General Construction Stormwater National Pollutant Discharge Elimination System Permit. Final restoration of all temporary work sites is expected to occur no later than December 2013.
- **Switching Station.** The area used for the Solar switching station would be cleared and graded during the start of the construction period. The station will be constructed after the site preparation activities are completed. The switching station will be completed during the first year of installation, allowing the proposed solar project to begin operation as soon as the first tracker systems or solar modules are deployed and can generate solar power.

Table 3-3. Solar-Midway 230 kV Reconductoring Equipment and Intended Use

Equipment	Use
1/2-ton pickup trucks	Transport construction personnel
3/4-ton pickup trucks	Transport construction personnel
Crew-cab trucks (3/4 to 1 ton)	Transport construction personnel
Jeep vehicles	Construction and environmental inspectors
Road grader, six wheel	Site grading
Dozer with sheepsfoot	Grading/shaping and soil compaction/tensioning support
Powered road roller	Subgrade compaction
ASV mower	Vegetation clearing
Water trucks	Dust and fire control
Cranes	Tower installation and reconductoring (one at each end)
2-ton flat bed trucks	Haul materials
Flat-bed boom truck	Haul and unload materials
Dump trucks (5 to 10 ton)	Haul spoil and import materials
Construction trucks and trailers (2 to 60 ton)	Haul materials
Tiltbed and lowboy trailers	Haul equipment
Rigging truck	Haul tools and equipment
Mechanic truck	Service and repair equipment
Shop vans	Store tools
Crawler-mounted auger	Excavate foundations
D6 and D8 Bulldozer	Site grading and excavation
Puller (semi-truck and trailer)	Pull conductor wire
Tensioner (semi-truck and trailer)	Pull conductor wire
Helicopters (Bell 500 Long Ranger, Bell 205 Huey, Sikorsky Skycrane)	Tower installation/transport , cage top transport/installation, personnel and material delivery
Semi with wire reel trailer	Haul wire
Air compressor	Operate air tools
Air tampers	Compact soil around foundations
Portable generators	Power tools for tower assembly
Fuel trucks	Refuel equipment (helicopters)
Aerial lift trucks	String conductor wire
Fork Lift	Manage and assemble material at laydown area.
2 large bucket trucks	Pulling sites, insulator replacement, reconductoring
Water Truck	Dist control and compaction at grading locations.
2 standard line bucket trucks	Reconductoring activities
Fire Suppression Equipment	Laydown Areas, Landing Zones

Chapter 4
Proposed Conservation Measures

As part of PG&E's standard best management practices (BMPs), conservation measures have been incorporated into the project design that will be implemented to avoid or minimize impacts to biological resources. PG&E also has proposed the following general and resource-specific measures to minimize potential adverse effects. These conservation measures are modeled from the conservation measures identified in PG&E's San Joaquin Valley O&M HCP.

4.1 General Measures

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

- An environmental awareness education program will be conducted by a qualified biologist for construction crews prior to initiating construction of the proposed action. The program will be conducted for new crew members throughout the duration of the project. The education program will include information about potentially occurring federally listed species (i.e., Kern mallow, valley elderberry longhorn beetle, blunt-nosed leopard lizard, California condor, giant kangaroo rat, Tipton kangaroo rat, and San Joaquin kit fox), a review of conservation measures that are being implemented during project construction, and the consequences for noncompliance with environmental laws.
- A qualified biologist will monitor all ground-disturbing construction activity in sensitive areas and near designated resources within the action area. All monitors will be biologists with formal training. The resumes of all biological monitors will be submitted to USFWS for approval. The qualified biological monitor will train an individual or individuals to act as work site construction monitor(s) to assist the qualified biological monitor with overseeing remaining work at work areas after ground-disturbing activities are completed. The biological monitor will have the ability to stop or redirect work activities to ensure protection of sensitive resources and compliance with all environmental permits and conditions of the proposed action. The biological monitor will complete a daily log summarizing activities and environmental compliance, and will prepare a weekly report summarizing the monitoring activities and environmental compliance for the activities performed within the action area. This report will be submitted to the PG&E biologist. The biological monitor will also be the initial contact person for any employee who might inadvertently injure or kill a federally listed species or who finds a dead, injured, or entrapped individual. A communication protocol will be established between the biological monitor, PG&E, and the agencies. The monitor's name and number will be provided to USFWS prior to the initiation of ground-disturbing activities.
- Vehicles will be restricted to established roadways and approved access routes and staging areas within the action area. Cross-country access routes will be clearly marked in the field with appropriate flagging and signs as necessary.
- A vehicle speed limit of 15 miles per hour will be enforced on all non-public access roads.

- All vehicles will be brought into the work areas cleaned and free of weeds prior to entry.
- Staging areas will be set back at least 50 feet from streams, creeks, or other water bodies to avoid impacts on sensitive habitat. All fueling of vehicles will occur at least 100 feet from wetlands and other water bodies.
- If federally listed species are encountered during construction work, activities that could cause direct harm to the species, as determined by the biological monitor will cease until the animal is removed and relocated, or allowed to leave the work site by the USFWS-approved biologist. USFWS and CDFG will be notified within 24 hours of the encounter.
- Photographic documentation of preconstruction habitat conditions will occur at all major work areas, including staging areas, landing zones, and tension/pull sites, prior to the start of construction and immediately after construction activities are performed.
- Construction personnel will not bring firearms or pets to any project-related work areas and will not leave trash on the project site during construction.
- A litter control program will be instituted at each of the work areas. All workers will ensure that their food scraps, paper wrappers, food containers, cans, bottles, and other trash are deposited in covered or closed trash containers. The trash containers will be removed from the work areas at the end of each work day. After completion of the proposed action, all construction materials will be removed from each of the work areas.
- To prevent the inadvertent entrapment of federally listed species during the proposed action, all excavated, steep-walled holes and trenches more than 6 inches deep will be covered at the end of each work day by plywood or similar materials or escape ramps will be installed. In situations where the trenches or holes cannot be covered, earthen escape ramps will be dug into the sides of trenches. All holes and trenches will be thoroughly inspected at the start of each workday for trapped animals before they are filled. If at any time a trapped listed animal is discovered, escape ramps or other appropriate structures will be placed to allow the animal to escape. USFWS will be notified of the incident by telephone and electronic mail within 1 working day.
- A set of BMPs will be developed to control erosion during construction and will be detailed in the project-specific Storm Water Pollution Prevention Plan (SWPPP). All temporarily disturbed areas will be restored as necessary. A project-specific Restoration Plan detailing specific revegetation plans, monitoring guidelines, and success criteria, will be developed as part of the Habitat Mitigation Plan (see below). Together, the SWPPP and Restoration Plan will facilitate the restoration of construction areas and will contain information on site-specific implementation plans.
- Temporary construction disturbances and other types of project-related disturbances to federally listed species will be minimized to the maximum extent practicable and confined to designated work areas. To minimize temporary disturbances, all sensitive habitats will be delineated with highly visible flagging or fencing in order to prevent encroachment of construction personnel and equipment during work activities. At no time will equipment or personnel be allowed to adversely affect areas outside of project work areas, staging areas, or landing zones without authorization from USFWS.
- PG&E will prepare a Habitat Mitigation Plan, which will contain mitigation plans for listed species (Kern mallow, blunt-nosed leopard lizard, giant kangaroo rat, Tipton kangaroo rat, and San Joaquin kit fox) as well as a restoration plan for sensitive habitats. The purpose of the

Habitat Mitigation Plan will be to provide more detailed information on those measures that will result in the restoration of areas temporarily affected by the proposed action. The Habitat Mitigation Plan will be submitted to USFWS for review prior to the start of construction. The purpose of the Habitat Mitigation Plan is to provide more detailed information on the measures that PG&E will implement to restore areas temporarily affected by the proposed project. The Habitat Mitigation Plan will include how restoration at the work areas will be completed and will include success criteria to ensure that restoration of the work areas is successful.

4.2 Kern Mallow

The following conservation measures are proposed as part of the proposed action to directly or indirectly minimize or eliminate potential adverse effects specific to Kern mallow associated with direct or indirect effects of the proposed action.

- To the extent feasible, areas providing suitable habitat for Kern mallow will be avoided. During the habitat assessment, biologists identified certain tension/pull site and landing zones that PG&E proposed that were in areas with substantial populations of Kern mallow. Biologists recommended that these work areas be moved to areas without known populations of Kern mallow. As a result, PG&E agreed to move these tension/pull sites and landing zones to areas without known populations of Kern mallow.
- Some of the work areas were not previously surveyed for the presence of Kern mallow. Surveys for the presence of Kern mallow, according to the most recent agency protocols, will be conducted prior to any construction activities occurring in work areas that were not previously surveyed for Kern mallow. Global positioning system (GPS) coordinates will be taken of newly discovered populations within work areas.
- If populations of Kern mallow are located within work areas, these populations will be avoided to the greatest extent feasible. Populations that can be avoided will be flagged for avoidance prior to the start of construction and a biological monitor will be present to ensure compliance with off-limit areas. Indirect impacts to Kern mallow populations will be minimized by creation of a buffer zone around known populations. The buffer zone will be determined by a qualified biologist in consultation with the USFWS and will be of sufficient size to eliminate potential disturbance that may negatively affect the population. The buffer zone will depend on the proposed action on immediate adjacent lands and will include consideration of the plants' ecological requirements.
- If habitat occupied by Kern mallow will be temporarily impacted, the upper 4 inches of topsoil will be stockpiled separately during excavations or scraping, so that it can be used to re-seed the affected areas during restoration according to the Habitat Mitigation Plan.

4.3 Valley Elderberry Longhorn Beetle

The following conservation measures are proposed as part of the proposed action to directly or indirectly minimize or eliminate potential adverse effects associated with direct or indirect effects specific to VELB.

Direct impacts on VELB will be avoided by PG&E ensuring that no road improvement activities occur within 20 feet of the elderberry shrubs. Suitable habitat is considered all elderberry stems larger than 1 inch in diameter when measured at ground-level. Improvements to the access road where the elderberry shrubs were observed will be designed or selected such that elderberry shrubs are avoided whenever possible.

- A qualified biologist will survey for the presence of elderberry plants within 20 feet of the work area and will flag all elderberry shrubs with stems measuring 1 inch or greater in the vicinity of the access route to Tension/Pull Site at Tower 65;
- Orange fencing will be erected at least 20 feet from the shrubs to ensure that no road improvement activities occur within 20 feet of the shrubs;
- Field workers will be briefed on the location of elderberry plants in or near the work area and will review appropriate avoidance, protection, and minimization measures outlined in USFWS' Conservation Guidelines for Valley Elderberry Longhorn Beetle (1999);
- Ground disturbing activities will include erosion control measures that prevent soil from leaving the work area or encroaching on an elderberry shrub;
- PG&E will utilize a water truck to spray the access road during vehicle travel to keep fugitive dust to a minimum.

4.4 Blunt-Nosed Leopard Lizard

The following conservation measures are proposed as part of the proposed action to directly or indirectly minimize or eliminate potential adverse effects specific to blunt-nosed leopard lizards associated with direct or indirect effects of the proposed action.

- To the extent feasible, areas providing suitable habitat for blunt-nosed leopard lizard will be avoided. During the habitat assessment, biologists identified certain work areas for tension/pull sites and landing zones that PG&E proposed that were in areas that could significantly affect blunt-nosed leopard lizards because (1) the lizards are known to occur in the work areas based on previous observations or CNDDB records; (2) the large number of burrows occurring within the proposed work areas; and (3) the relatively high density of the shrubs would have made it extremely difficult to see all of the burrows. Biologists recommended that these work areas be moved. As a result, PG&E agreed to move these tension/pull sites and landing zones to areas with significantly fewer burrows and less dense shrubs, thus allowing for greater avoidance of burrows.
- Prior to any ground disturbing activities occurring within suitable habitat, protocol blunt-nosed leopard surveys will occur in those work areas. The work areas that occur within suitable blunt-nosed leopard habitat will be fenced using material that blunt-nosed leopard lizards cannot climb immediately following the protocol surveys. The protocol surveys (involving 17 separate surveys) will be conducted to determine whether blunt-nosed leopard lizards occur within the fenced area. If blunt-nosed leopard lizards do occur, these active burrows will be avoided by a 50-foot buffer. If necessary, a CDFG or USFWS representative will be contacted so that the lizards may be passively relocated.
- When construction vehicles must travel off existing access roads located within suitable habitat, a qualified biologist will walk ahead of the vehicles and identify a route for the vehicles to follow

that will avoid burrows to the greatest extent practicable. To avoid direct mortality of blunt nosed leopard lizards when working in suitable habitat, plywood boards will be placed to cover suitable burrows that occur along the vehicle access routes. These boards will be removed immediately after the construction vehicles have driven over them. To the greatest extent possible, the construction vehicles will avoid parking on burrows.

- If guard crossing poles need to be established within suitable blunt-nosed leopard lizard habitat, a biologist will work with construction crews to ensure that the poles are sited to avoid burrows. When removal of shrubs is necessary to allow vehicle access, it is recommended that the shrubs be removed by hand.
- Surface-disturbing activities will be designed to minimize or eliminate effects to rodent burrows that may provide suitable hibernating and aestivation habitat. Areas with a high concentration of burrows will be avoided by surface-disturbing activities to the maximum extent practicable. In addition, when a concentration of burrows is present in a project site, the area will be staked or flagged to ensure that work crews are aware of their location and to facilitate avoidance of the area.
- A preconstruction survey will be conducted each day immediately preceding construction activity that occurs in designated blunt-nosed leopard lizard habitat or in advance of any activity that may result in take of this species. Vehicles will be inspected each morning before they are moved.
- All suitable habitat for blunt-nosed leopard lizard that is temporarily affected by project-related activities will be restored to pre-project conditions. Site-specific restoration measures and success criteria will be outlined in the Restoration Plan, which will be part of the overall Habitat Mitigation Plan developed for the project.

4.5 California Condor and Golden Eagle

The following conservation measures are proposed as part of the proposed action to directly or indirectly minimize or eliminate potential adverse direct or indirect effects of the proposed action specific to California condors and golden eagles.

- All transmission and sub-transmission towers and poles will be designed to be raptor-safe in accordance with PG&E's Avian Protection Plan (PG&E 2007). This will include:
  - Increasing separation of cables to achieve adequate distance for the California condor,
  - Covering energized parts and/or covering grounded parts with materials appropriate for providing incidental contact protection for birds, and
  - Install perch guards on distribution line poles to discourage raptors from perching on the poles.
- All fuels, fluids, and components with hazardous materials/wastes will be handled in accordance with applicable regulations. All such materials will be kept in segregated storage with secondary containment as necessary. Records of storage and inspection will be maintained and will provide for proper offsite disposal. Hazardous materials will be stored in a neat, orderly manner in their appropriate containers in an enclosed and secured location such as portable outdoor hazardous materials storage cabinets equipped with secondary containment to prevent

contact with rainwater. The portable hazardous materials storage cabinets may be moved with each block of development, as deemed necessary.

- Project personnel shall collect all litter, small artificial items, and food waste from the action area on a regular basis.

4.6 Giant Kangaroo Rat and Tipton Kangaroo Rat

The following conservation measures are proposed as part of the proposed action to directly or indirectly minimize or eliminate potential adverse effects specific to giant kangaroo rats and Tipton kangaroo rats.

- To the extent feasible, areas providing suitable habitat for giant kangaroo rat and Tipton kangaroo rat will be avoided. During the habitat assessment, biologists identified certain tension/pull sites and landing zones that PG&E proposed that were in areas that could significantly affect giant kangaroo rats and Tipton kangaroo rats because (1) the kangaroo rats are known to occur or have a high probability of occurring in the work areas based on previous observations and CNDDB records; (2) the large number of burrows occurring within the proposed work areas; and (3) the relatively high density of the shrubs would have made it extremely difficult to see all suitable burrows. Biologists recommended that these work areas be moved. As a result, PG&E agreed to move these tension/pull sites and landing zones to areas with significantly fewer burrows and much less dense shrubs, thus allowing for greater avoidance of burrows.
- When construction vehicles must travel off existing access roads within suitable habitat, a qualified biologist will walk ahead and identify a route for the vehicles to follow that will avoid burrows to the greatest extent practicable. To minimize direct mortality to giant kangaroo rats and Tipton kangaroo rats when working in suitable habitat, plywood boards will be placed to cover suitable burrows that occur along the vehicle access routes. These boards will be removed immediately after the construction vehicles have driven over them. To the greatest extent possible, the construction vehicles will avoid parking on burrows.
- If guard crossing poles need to be established within suitable giant kangaroo rat or tipton kangaroo rat habitat, a biologist will work with construction crews to ensure that the poles are sited to avoid burrows. When removal of shrubs is necessary to allow vehicle access, it is recommended that the shrubs be removed by hand.
- If occupied or potentially occupied burrows cannot be avoided, a qualified biologist will stake and flag a work-exclusion zone of at least 30 feet around active burrows prior to covered activities at the job site and remain onsite as a biological monitor. If work must proceed in the exclusion zone, PG&E will pursue techniques to minimize direct mortality. These will include having approved biologists, holding a current ESA 10(a)(1)(A) handling permit for giant kangaroo rats and/or Tipton kangaroo rats, trap and hold species in captivity, and excavating and closing burrows. The trapping and removal of giant kangaroo rats and Tipton kangaroo rats will occur prior to any ground disturbing activities in suitable habitat. In areas that are temporarily disturbed, the approved biologist will release the mammals to areas where they were trapped as soon as possible when the work is complete and habitat is restored.

4.7 San Joaquin Kit Fox

The following conservation measures are proposed as part of the proposed action to directly or indirectly minimize or eliminate potential adverse direct or indirect effects of the proposed action specific to San Joaquin kit fox.

- A qualified biologist(s) will conduct preconstruction den surveys no more than 14 days prior to the initiation of work activities in a given area, to ensure that potential kit fox dens are not disrupted by work activities. If potential dens are located within the survey area, the entrance of the dens will be monitored for 3 consecutive nights with tracking medium or an infrared-beamed remote camera prior to the initiation of work activities to determine the status of the potential dens. If San Joaquin kit fox activity is observed at the den during this period, the den will be monitored for at least 5 consecutive days from the time of the observation to allow any resident kit fox to move to another den during its normal activity. Use of the den can be discouraged during this period by partially plugging its entrance(s) with soil in such a manner that any resident animals can escape easily. Only when the den is determined to be unoccupied may the den be excavated under the direction of a qualified biologist. If the animal is still present after 5 or more consecutive days of monitoring, the den may be excavated when, in the judgment of the qualified biologist, it is temporarily vacant (i.e., during the animal's normal foraging activities). USFWS and CDFG encourage hand excavation, but realize that soil conditions may necessitate the use of excavating equipment. Extreme caution will be exercised under these circumstances. Destruction of the den will be accomplished by careful excavation until it is certain that no San Joaquin kit fox or other animals are present. The den will be fully excavated, filled with dirt, and compacted to ensure that kit foxes cannot reenter or use the den during construction period. If at any point during the excavation a San Joaquin kit fox is discovered inside the den, the excavation will cease immediately and monitoring of the den described above will be resumed. Destruction of the den may be completed when, in the judgment of a qualified biologist, the animal has escaped from the partially destroyed den.
- Should it be determined that a den site within a work area is a natal den, destruction of the den will not be permitted until the pups and adults have vacated and then only after consultation with USFWS and CDFG. Project activities at the location of the natal den will be postponed to avoid disturbance.
- Exclusion zones will be established around suitable dens and construction activities will be greatly restricted within these exclusion zones. The radius of these zones will follow current standards or will be as follows:
- Potential den – 50 feet
- Known den – 100 feet
- Natal/pupping den – to be determined on a case-by-case basis in coordination with USFWS and CDFG
- Atypical den – 50 feet
- San Joaquin kit foxes are attracted to den-like structure such as pipes and may enter stored pipe, becoming trapped or injured. All pipes, culverts, or similar structures with a diameter of 4 inches or greater that are stored near the work areas for 1 or more overnight periods must be thoroughly inspected for kit foxes before the structure is subsequently buried, capped, or otherwise moved in any way. If a kit fox is discovered inside a pipe, that section of pipe will not

be moved until USFWS has been consulted by phone. If necessary, and under direct supervision of a USFWS-approved biologist, the pipe may be moved once to remove it from the path of repair activity, until the fox has escaped.

- All trenches will be covered at the end of each work day, or escape ramps will be installed in the trench at regular intervals to allow San Joaquin kit fox and other animals that fall in the trench means of escape.
- PG&E will restore all areas identified as San Joaquin kit fox habitat that are temporarily disturbed by work activities to pre-project conditions within 12 to 18 months of completion of the proposed action, according to pre-defined vegetative success criteria. Success criteria and the methods used to attain them will be outlined as part of the Habitat Mitigation Plan.

4.8 Compensation

Although PG&E will avoid and minimize effects to the extent practicable, some take of habitat is likely to result from project-related activities. To reduce potential impacts on sensitive habitats and species, PG&E will fund the acquisition, enhancement, and maintenance of habitat to conserve and promote the recovery of sensitive species within the action area. The approach to compensation, determination of compensation needs, compensation mechanisms, and attributes and management of compensation land are discussed below.

4.8.1 Compensatory Conservation Strategy

The primary goal of the proposed project's conservation strategy is to ensure that the proposed project has no net adverse effect to populations of the federally listed species that will be potentially affected by the proposed project. This goal will be accomplished through the following:

- PG&E will focus on acquiring habitat in the northern Carrizo Plain for temporary and permanent impacts to habitat for giant kangaroo rat, and San Joaquin kit fox that occur in San Luis Obispo County. This may be done in conjunction with First Solar who is also proposing to acquiring habitat in the northern Carrizo Plain to compensate for impacts associated with their solar project.
- PG&E will focus on purchasing credits at a suitable bank in western Kern County for temporary impacts to suitable habitat for Kern mallow, blunt-nosed leopard lizard, giant kangaroo rat, Tipton kangaroo rat, and San Joaquin kit fox. If a bank is not available, PG&E will contribute monies for habitat restoration and preservation to the Center for Land Management or other conservation entity. The amount that will be given will be determined through consultation with the USFWS and CDFG.

Preactivity surveys will verify the suitable habitat assumptions made in this biological assessment at each of the work areas. Post-construction surveys will be conducted to determine the actual area of disturbances that occurred at each of the work areas. Compensation will be based on these post-construction acreages. All temporary losses of suitable habitat will be mitigated at a 0.5:1 ratio. The compensation for impacts to multiple species can be done simultaneously as long as those lands support all those species.

Prior to the initiation of the proposed project activities, PG&E will provide an irrevocable letter of credit, in a form approved by USFWS and CDFG , to ensure funding for the performance of all

required mitigation, including site preparation, re-vegetation, restoration, and enhancement activities, maintenance activities (e.g., mulching, weeding, and watering), monitoring and reporting activities, and long-term management.

Chapter 5
Analysis of Effects

5.1 Kern Mallow

5.1.1 Direct Effects

Planned construction activities in staging areas, pull sites, and temporary access roads are anticipated to temporarily affect 0.11 acre of suitable habitat for Kern mallow in Kern County.

Direct effects to populations of Kern mallow are anticipated on those work areas where populations are known to occur and could occur if individuals are present in work areas not yet surveyed. Individual Kern mallow plants could be lost due to trampling or earth moving. Construction activities could result in removal or modification of Kern mallow seed banks through grubbing and clearing of work sites. Increase of fugitive dust during construction due to movement of vehicles in work areas and on access roads could reduce survivorship and productivity of individual plants close to dust sources by decreasing photosynthetic output, reducing transpiration, and adversely affecting reproductive success.

Conservation measures described in Chapter 4 will be implemented to avoid and minimize direct effects on populations of Kern mallow and compensate for temporary impacts to suitable Kern mallow habitat.

5.1.2 Indirect Effects

Noxious weeds could be spread within the project work areas if construction equipment is contaminated with noxious weed seeds. Noxious weeds could adversely affect populations of Kern mallow by increased competition for soil nutrients, competition for growing space, and decreasing photosynthetic output.

Soil compaction, erosion, and sedimentation resulting from construction activities may indirectly affect populations of Kern mallow by altering soil conditions and then what are the effects on Kern mallow due to alteration of soil conditions.

5.2 Valley Elderberry Longhorn Beetle

5.2.1 Direct Effects

Road improvements on the access Tower 65 could directly impact elderberry shrubs by smothering shrubs with soil that is pushed down-slope from the access road which in turn could adversely affect valley elderberry longhorn beetle. Direct effects to valley elderberry longhorn beetle could occur if these shrubs were lost or greatly stressed due to construction activities. All of the conservation measures described in Chapter 4 will be implemented to avoid and minimize direct effects on valley

elderberry longhorn beetle. PG&E will ensure that no road improvements occur within 20 feet of the elderberry shrubs to avoid any direct impacts to the elderberry shrubs.

5.2.2 Indirect Effects

Indirect effects to valley elderberry longhorn beetle could result from increased fugitive dust during and changes in hydrology due to movement of vehicles on the access roads. Fugitive dust could reduce survivorship and productivity of the elderberry shrubs by decreasing photosynthetic output, reducing transpiration, which could affect the health of the shrub and may lead to the death of the shrub. This in turn could directly affect valley elderberry longhorn beetle. PG&E will utilize a water truck to spray the access road during travel on the access road to keep the fugitive dust to a minimum.

5.3 Blunt-Nosed Leopard Lizard

5.3.1 Direct Effects

Planned construction activities in staging areas, pull sites, and temporary access roads are anticipated to temporarily affect 20.15 acres of suitable habitat for blunt-nosed leopard lizards in Kern County and temporarily affect 4.12 acres of suitable habitat in San Luis Obispo County.

Direct effects will include injury or mortality if blunt-nosed leopard lizards are hit by construction equipment or vehicles. Blunt-nosed leopard lizards are more likely to be hit by vehicles or construction equipment when weather is cool, causing blunt-nosed leopard lizards to be less active because of low body temperature.

Direct mortality could result by entombment of blunt-nosed leopard lizards in burrows that may collapse during construction activity.

Installation of buried power and communication cables in suitable habitat could directly affect blunt-nosed leopard lizards by creating impassable barriers between burrows and foraging areas. Additionally, blunt-nosed leopard lizards could fall into deep, steep-walled trenches and not be able to escape. The lizards would be vulnerable to predation, starvation, or entombment.

All of the conservation measures described in Chapter 4 will be implemented to avoid and minimize direct effects on blunt-nosed leopard lizards and compensate for potential temporary impacts to suitable blunt-nosed leopard lizard habitat.

5.3.2 Indirect Effects

Potential indirect temporary habitat loss or degradation could result from habitat disturbances that increase the likelihood of colonization by invasive weeds. Blunt-nosed leopard lizards need open areas in which to bask, move, and catch prey. Invasive weeds often out-compete with native plants and can establish themselves in open areas. These open areas can become over-run with invasive plants, which make the movement of blunt-nosed leopard lizards and the ability to catch prey much more difficult Implementation of conservation measures to discourage the introduction of weeds would reduce the potential of invasive weeds colonizing suitable blunt-nosed leopard lizard habitat.

Blunt-nosed leopard lizards may be passively displaced from work sites and adjacent occupied habitat by human activity and noise associated with construction activities. Such temporary displacement could be considered take by harassment under the federal ESA.

5.4 California Condor and Golden Eagle

5.4.1 Direct Effects

Construction activities associated with the project are expected to temporarily directly affect foraging habitat for California condor and golden eagle, although the amount of foraging habitat that will be affected is small compared to the amount of foraging habitat that is available in the Carrizo Plain (roughly 20 acres of compared to 1,000s of acres of suitable foraging habitat). The project entails reconductoring of an existing power line that has existed as part of the landscape for approximately 50 years. The new reconductor will not change the location of this line nor will it change the configuration of the line. All of the conservation measures described in Chapter 4 will be implemented to avoid and minimize direct effects to individual California condors and golden eagles.

5.4.2 Indirect Effects

Project construction activities could potentially introduce microtrash (i.e. glass, plastic trash, and small pieces of metal). Condors are very inquisitive birds and have been known to collect microtrash. This waste is either ingested or brought back to nest sites where young condors ingest the material. This can lead to mortality of adults and young birds in the nest. Additionally, vehicle use and maintenance can result in the spill of toxic fluids. Ingestion of toxic fluids by condors and golden eagles can result in death. The potential for these impacts will be avoided or minimized with implementation of conservation measures indentified in Chapter 4 that are incorporated into the project.

5.5 Mountain Plover

5.5.1 Direct Effects

Construction activities associated with the project are expected to temporarily directly affect foraging habitat for mountain plovers, although the amount of foraging habitat that will be affected is small compared to the amount of foraging habitat that is available in the Carrizo Plain (roughly 20 acres of compared to 1,000s of acres of wintering habitat). Construction activities will not affect nesting mountain plovers because mountain plovers do not nest in California,

5.5.2 Indirect Effects

No indirect effects to mountain plovers will occur as a result of the project.

5.6 Giant Kangaroo Rat and Tipton Kangaroo Rat

5.6.1 Direct Effects

Planned construction activities in staging areas, pull sites, and temporary access roads within the action area are anticipated to temporarily affect 17.48 acres of suitable giant kangaroo rat habitat in Kern County and temporarily affect 4.12 acres of suitable habitat in San Luis Obispo County.

Planned construction activities in staging areas, pull sites, and temporary access roads are anticipated to temporarily affect 0.22 acres of suitable Tipton kangaroo rat habitat in Kern County.

In giant kangaroo rat precincts or Tipton kangaroo rat burrow complexes that will be impacted to the extent that mortality of individuals will occur, individuals will be trapped and kept to be released once construction activities have been completed and habitat restored. There is potential for injury or mortality of individuals during this process.

Direct effects will include injury or mortality if giant kangaroo rats or Tipton kangaroo rats are hit by construction equipment or vehicles. The extent to which giant kangaroo rats and Tipton kangaroo rats are susceptible to vehicular strikes is dependent on the extent of nighttime construction. More frequent nighttime construction activities in suitable giant kangaroo rat and Tipton kangaroo rat habitat could result in greater potential direct take of giant kangaroo rats and Tipton kangaroo rats by running them over with construction equipment and personal vehicles traveling to and from the work areas.

Direct mortality could result by entombment of giant kangaroo rats or Tipton kangaroo rats in burrows that may collapse during construction activity.

Vehicles and construction equipment could damage vegetation and degrade food resources.

Installation of buried power and communication cables in suitable habitat could directly affect giant kangaroo rat or Tipton kangaroo rats by creating impassable barriers between burrows and foraging areas within the action area. Additionally, giant kangaroo rats or Tipton kangaroo rats could fall into deep, steep-walled trenches and not be able to escape. The kangaroo rats would be vulnerable to predation, starvation, or entombment.

All of the conservation measures described in Chapter 4 will be implemented to avoid and minimize direct effects on giant kangaroo rats and Tipton kangaroo rats and compensate for permanent and temporary impacts to suitable giant kangaroo rat habitat and temporary impacts to suitable Tipton kangaroo rat habitat.

5.6.2 Indirect Effects

Giant kangaroo rats or Tipton kangaroo rats displaced from the action area due to disturbance-related construction activities may increase competition for prey and living spaces with kangaroo rats in other areas.

There is potential for increased predation of giant kangaroo rats or Tipton kangaroo rats by red foxes, coyotes, or domestic dogs that might be attracted to food scraps and other trash discarded within the work areas by construction personnel.

The use of pesticides or rodenticides to control noxious weeds or rodents within work areas could result in poisoning giant kangaroo rats or Tipton kangaroo rats.

Spills or leaks of vehicle fluids, lubricants, or other toxic fluids could result in poisoning of giant kangaroo rats or Tipton kangaroo rats, their seed base, or their habitat.

5.7 San Joaquin Kit Fox

5.7.1 Direct Effects

Planned construction activities in staging areas, pull sites, and temporary access roads are anticipated to temporarily affect 20.15 acres of suitable San Joaquin kit fox habitat in Kern County and temporarily affect 4.12 acres of suitable habitat in San Luis Obispo County within the action area.

Direct effects will include injury or mortality if San Joaquin kit foxes are hit by construction equipment or vehicles. The extent to which San Joaquin kit foxes are susceptible to vehicular strikes depends on the extent of nighttime construction.

Construction activities could result in disturbance of active dens close to work areas or destruction of active dens within work areas.

San Joaquin kit foxes could fall into deep, steep-walled trenches dug for the installation of buried power and communication cables and not be able to escape. The kit foxes would be vulnerable to predation, starvation, or entombment.

Noise generated by construction activities could temporarily exceed the hearing sensitivity thresholds of San Joaquin kit foxes. Even temporary loss or reduction of hearing ability could negatively affect foraging success as San Joaquin kit foxes primarily rely on hearing to locate prey and detect predators. Noise and human activity in work areas may also cause kit foxes to permanently emigrate from work sites, and possibly enter areas where they would be more susceptible to predation (areas with fewer escape burrows) or to areas with lower prey base.

All of the conservation measures described in Chapter 4 will be implemented to avoid and minimize direct effects on San Joaquin kit foxes and compensate for permanent and temporary impacts to suitable habitat for San Joaquin kit foxes.

5.7.2 Indirect Effects

Kit foxes displaced from the project area due to disturbance-related construction activities may increase competition for prey and living spaces with kit foxes in other areas.

There is potential for increased predation of San Joaquin kit foxes by red foxes, coyotes, or domestic dogs that might be attracted to food scraps and other trash discarded within the action area by construction personnel.

The use of pesticides or rodenticides to control noxious weeds or rodents could result in secondary poisoning of San Joaquin kit foxes.

Spills or leaks of vehicle fluids, lubricants, or other toxic fluids could result in poisoning of kit foxes, their prey, or their habitat.

5.8 Critical Habitat

Critical habitat has not been designated for Kern mallow, blunt-nosed leopard lizard, giant kangaroo rat, Tipton kangaroo rat, and San Joaquin kit fox. Therefore, no adverse effects to critical habitat for these species will occur as a result of the proposed action.

Critical habitat that has been designated for valley elderberry longhorn beetle is located along the lower American River in Sacramento. No designated critical habitat for valley elderberry longhorn beetle is located in or in near the action area. Therefore, the Project will not affect critical habitat for valley elderberry longhorn beetle.

The nearest designated critical habitat for California condor is the East Unit of the Hi Mountain-Beartrap Condor Area, approximately 7.1 miles west of the western end of the action area, where captive-raised condors were formerly released. Therefore, the Project will not affect critical habitat for California condor because none of the proposed project activities will occur within designated critical habitat.

5.9 Interrelated Actions

PG&E's Carrizo-Midway 230kV Power Line Reconductoring Project is interrelated to the Topaz Project because PG&E would not need to reconductor the transmission line were it not necessary to do so to accommodate the final 150 megawatts of power to be generated by the Topaz Project and the power that would be generated by another proposed solar project in the region.. First Solar has prepared a biological assessment that describes its project and identifies their project impacts to federally listed plant and wildlife species (Althouse and Meade, Inc. November 2010). First Solar has included mitigation measures to avoid and minimize direct and indirect affects to federally listed plant and wildlife species and has proposed to compensate for temporary and permanent impacts to habitat for these species. The mitigation measures identified in this biological assessment are similar to those proposed in First Solar's biological assessment for those species that would be affected by PG&E's reconductoring project and the Topaz Project. PG&E has also include mitigation measures to avoid and minimize impacts to species that are not addressed in First Solar's biological assessment because they either only occur in Kern County (Kern mallow, valley elderberry longhorn beetle, and Tipton kangaroo rat) and has proposed compensatory mitigation for temporary impacts to habitat in Kern County.

5.10 Interdependent Actions

An interdependent action is one with no independent utility apart from the action under consultation. No interdependent actions are associated with the proposed action.

5.11 Cumulative Effects

Cumulative effects as defined in the Section 7 implementing regulations include the effects of future state, tribal, local, or private actions that are reasonably certain to occur in the action area considered in the biological opinion. Effects of future federal actions that are unrelated to the proposed action are not considered cumulative impacts in the Section 7 consultation process.

The proposed Carrizo-Midway 230 kV Power Line Reconductoring Project, in combination with other projects in the area and other activities that affect the species that are affected by this project, could contribute to cumulative effects on vegetation communities, common plant and animal species, and federally listed plant and animal species. The geographic extent for the analysis of cumulative impacts related to biological resources includes the Carrizo Plain and the larger Ciervo-Panoche region, including areas of western Fresno County, regions of western Kern County in the San Joaquin Valley, eastern San Luis Obispo County, and northern Santa Barbara County. The areas included in this cumulative analysis contain suitable and occupied habitat for species potentially affected by the Carrizo-Midway 230 kV Reconductoring Project, including the San Joaquin kit fox, giant kangaroo rat, Tipton kangaroo rat, California condor, blunt-nosed leopard lizard, and Kern mallow. Each of these locations may also support core, critical, or unique populations essential to recovery and long-term survival of these species (U.S. Fish and Wildlife Service 1996, 1998, 2010a, 2010b, 2010c, 2010d).

Between 1987 and 2006, approximately 120 projects were permitted by USFWS for take of blunt-nosed leopard lizards. These projects impacted approximately 21,200 acres of suitable habitat for blunt-nosed leopard lizard (U.S. Fish and Wildlife Service 2010a). Between 1987 and 2008, USFWS authorized permanent alteration of more than 6,300 acres and temporary disturbance of nearly 3,000 acres of giant kangaroo rat habitat (U.S. Fish and Wildlife Service 2010b). Since 1988, USFWS evaluated 50 projects affecting Tipton kangaroo rats. These projects resulted in permanent impacts to 14,824 acres and temporary impacts to 5,896 acres of suitable habitat (U.S. Fish and Wildlife Service 2010c). Projects permitted by USFWS between 1988 and 2007 have resulted in permanent alteration of over 118,000 acres of San Joaquin kit fox habitat (with an additional 20,000 acres affected by temporary disturbance) for large-scale water storage and conveyance, urban development, agriculture, oil and gas development, and other developments (U.S. Fish and Wildlife Service 2010d). This loss of habitat is substantial and yet includes only the loss of habitat to large projects that required and received environmental review by federal and state resource agencies.

The continued incremental loss of habitat to smaller-scale land conversion is more difficult to quantify and yet may be as substantial or even more substantial. It is apparent that a significant portion of the remaining occupied habitat for these species is on private land and is highly vulnerable to incompatible land use; although typically smaller scale, collectively, incompatible land uses may result in significant and often undetermined cumulative effects.

Chapter 6
Conclusion and Determination

The Carrizo-Midway 230 kV Reconductoring Project will result in the temporary loss of Kern mallow habitat. The project also will result in the permanent loss of denning, foraging, and dispersal habitat for San Joaquin kit fox and will temporarily affect habitat potentially used by blunt-nosed leopard lizards, giant kangaroo rats, Tipton kangaroo rats, and San Joaquin kit foxes for denning, foraging, and dispersal. The project also will affect potential foraging habitat for California condors and could affect elderberry shrubs that provide suitable habitat for valley elderberry longhorn beetles.

Through project design and implementation of conservation measures, the project will avoid or minimize effects to these species to the greatest extent practicable. Furthermore, with implementation of conservation measures, many of which were modeled from PG&E's San Joaquin Valley O&M HCP, the project is not expected to contribute to cumulative impacts to these species.

6.1 Kern Mallow

PG&E has designed its project to avoid Kern mallow to the greatest extent practicable. However, because the project will occur in habitat with known populations of Kern mallow, there is potential for loss of individuals during construction. A take permit for Kern mallow is requested because the proposed action is likely to adversely affect Kern mallow. PG&E will avoid and minimize direct and indirect effects on populations of Kern mallow through implementation of conservation measures described in Chapter 4 of this BA.

6.2 Valley Elderberry Longhorn Beetle

Direct effects on valley elderberry longhorn beetles will be avoided through implementation of conservation measures described in Chapter 4 of this BA. Therefore, the project will not adversely affect valley elderberry longhorn beetles.

6.3 Blunt-Nosed Leopard Lizard

PG&E has designed its project to avoid blunt-nosed leopard lizards to the greatest extent practicable. However, because the project will affect suitable habitat for blunt-nosed leopard lizards a take permit for blunt-nosed leopard lizard is requested because the proposed action is likely to adversely affect blunt-nosed leopard lizards. PG&E will avoid direct take and minimize direct impacts to suitable blunt-nosed leopard lizard habitat and indirect effects to blunt-nosed leopard lizards through implementation of conservation measures described in Chapter 4 of this BA.

6.4 California Condor and Golden Eagle

The project will exchange the conductors on an existing power line that has been part of the landscape for approximately 50 years without changing the location of the line. PG&E will also implement guidelines in its Avian Protection Plan. Therefore the project will not adversely affect individual California condors or golden eagles. The project will directly affect California condor and golden eagle foraging habitat, though the amount of foraging habitat that will be affected is small compared to the amount of foraging habitat that is available in the Carrizo Plain. Furthermore, the loss of foraging habitat will not affect the recovery of the California condor due to the extent of available foraging habitat that is available.

6.5 Mountain Plover

Direct effects to suitable mountain plover habitat will be minimal and will be temporary. The amount of habitat that will be affected is small compared to the amount of habitat that is available in the Carrizo Plain. Construction activities will not affect nesting mountain plovers because mountain plovers do not nest in California, Therefore, the project will not adversely affect mountain plovers.

6.6 Giant Kangaroo Rat and Tipton Kangaroo Rat

PG&E has designed its project to avoid giant kangaroo rats and Tipton kangaroo rats to the greatest extent practicable. However, because the project will affect suitable habitat for giant kangaroo rats and Tipton kangaroo rats and there is potential for loss of individuals during construction, a take permit for giant kangaroo rat and Tipton kangaroo rat is requested because the proposed action is likely to adversely affect giant kangaroo rats and Tipton kangaroo rats. PG&E will avoid and minimize direct and indirect effects to giant kangaroo rats and Tipton kangaroo rats through implementation of conservation measures described in Chapter 4 of this BA.

6.7 San Joaquin Kit Fox

PG&E has designed its project to avoid San Joaquin kit foxes to the greatest extent practicable. PG&E will avoid and minimize direct and indirect effects to San Joaquin kit foxes through implementation of conservation measures described in Chapter 4 of this BA. However, because the project will affect suitable habitat for San Joaquin kit fox and there is potential for loss of individuals during construction, a take permit for San Joaquin kit fox is requested because the proposed action is likely to adversely affect San Joaquin kit foxes.

Appendix A

Species List for the Carrizo-Midway 230kV Power Line Reconductoring Project in Kern and San Luis Obispo Counties, California

These buttons will not appear on your list.

Revise Selection

Print this page

Print species list before going on to letter.

Make Official Letter

U.S. Fish & Wildlife Service

Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 100928094942

Database Last Updated: April 29, 2010

Quad Lists

Listed Species

Invertebrates

- Branchinecta longiantenna
  - longhorn fairy shrimp (E)
- Branchinecta lynchi
  - vernal pool fairy shrimp (T)
- Desmocerus californicus dimorphus
  - valley elderberry longhorn beetle (T)

Fish

- Hypomesus transpacificus
  - delta smelt (T)

Amphibians

- Ambystoma californiense
  - California tiger salamander, central population (T)
- Rana draytonii
  - California red-legged frog (T)

Reptiles

- Gambelia (=Crotaphytus) sila
  - blunt-nosed leopard lizard (E)
- Thamnophis gigas
  - giant garter snake (T)

Birds

- Gymnogyps californianus
  - California condor (E)

Mammals

- Dipodomys ingens
  - giant kangaroo rat (E)
- Dipodomys nitratoides nitratoides
  - Tipton kangaroo rat (E)
- Sorex ornatus relictus
  - Buena Vista Lake shrew (E)
- Vulpes macrotis mutica
  - San Joaquin kit fox (E)

Plants

- Caulanthus californicus
  - California jewelflower (E)
- Eremalche kernensis
  - Kern mallow (E)
- Monolopia congdonii (=Lembertia congdonii)
  - San Joaquin woolly-threads (E)

Quads Containing Listed, Proposed or Candidate Species:

BUTTONWILLOW (241B)

LOKERN (242A)

BELRIDGE (242B)

CARNEROS ROCKS (243A)

MCKITTRICK SUMMIT (243D)

LA PANZA NE (244A)

County Lists

No county species lists requested.

Key:

- (E) Endangered - Listed as being in danger of extinction.
- (T) Threatened - Listed as likely to become endangered within the foreseeable future.
- (P) Proposed - Officially proposed in the Federal Register for listing as endangered or threatened.
- (NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.
- Critical Habitat - Area essential to the conservation of a species.
- (PX) Proposed Critical Habitat - The species is already listed. Critical habitat is being proposed for it.
- (C) Candidate - Candidate to become a proposed species.
- (V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
- (X) Critical Habitat designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, or may be affected by projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist and/or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list.
See our Protocol and Recovery Permits pages.

For plant surveys, we recommend using the Guidelines for Conducting and Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

> Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal consultation with the Service.
- During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.
- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.
- Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our Map Room page.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. More info

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6580.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be December 27, 2010.