1.0 Background Information

1.1 Project Title

Palermo–East Nicolaus 115-kV Transmission Line Reconstruction Project

1.2 Lead Agency Name and Address

California Public Utilities Commission (CPUC)
Energy Division
505 Van Ness Avenue
San Francisco, California 94102

1.3 Lead Agency Contact Person and Phone Number

Mr. Iain Fisher, Project Manager
Energy Division
Phone: (415) 355-5580
Email: aei@cpuc.ca.gov

1.4 Project Location

The project is located entirely within existing easements between PG&E's Palermo and East Nicolaus Substations within the unincorporated areas of Butte, Sutter, and Yuba counties, in northern California. The project route would also cross land within the City of Oroville.

1.5 Project Sponsor's Name and Address

Pacific Gas & Electric Company (PG&E)
Environmental Planning and Permitting
Land and Environmental Management Department
350 Salem Street
Chico, California 95928

1.6 General Plan Designation

The Butte, Sutter, and Yuba County general plan land use designations for the area along the project route include agricultural, agricultural residential, industrial, commercial, single and multiple family residential, and public/open space. Within the City of Oroville, the project would cross or be adjacent to properties designated for industrial land uses. The project would be located entirely within existing easements.

1.7 Zoning

The Butte, Sutter, and Yuba County zoning for the area along the project route include agricultural, agricultural residential, light commercial, light industrial, flood plain, recreational, single and medium density residential, general commercial, general industrial, and public facilities.

1.8 Description of the Project

PG&E's electric transmission system serving Butte, Yuba, and Sutter counties is comprised of 230-kV, 115-kV, and 60-kV networks and facilities. The 230-kV and 115-kV facilities, crossing the area from north to south, are part of the bulk transmission system and also serve as connections to the surrounding generation facilities including hydro generation produced around Feather River and Lake Oroville. To meet the present and forecasted electric demands for the area, PG&E (hereafter, "the applicant") is proposing several capacity and reliability improvement projects to area transmission facilities; one of the projects is the Palermo–East Nicolaus 115-kV Transmission Line Reconstruction Project between Palermo Substation near Oroville and East Nicolaus Substation south of Marysville.

1.8.1 Project Overview and Location

The subject transmission line is an existing double-circuit tower line that carries two individual 115-kV circuits between the applicant's Palermo and East Nicolaus Substations. Both circuits would be reconductored. In order to accommodate reconductoring, replacement of **some of** the existing lattice steel towers (towers) is required. The existing Milliken towers, originally constructed in the early 1900s, would not support the new conductor because of higher tension loads. The towers would be replaced with a combination of hybrid tubular steel poles (hybrid poles), tubular steel poles (TSP), and lattice steel poles (LSP). A capacity increase to the system would result from the replacement of existing copper conductor with new 1113 All Aluminum conductors for each circuit from the Palermo Substation south to Rio Oso Junction and with either 1113 all-aluminum or 457 steel-supported aluminum cable (SSAC) conductor from Rio Oso Junction to East Nicolaus Substation. The new conductor would enable an increase in the existing rating of the lines and eliminate forecasted line overloads. In addition, a limited number of towers on a single-circuit line that runs parallel to the Palermo–East Nicolaus 115-kV Transmission Line would be replaced for consistency with the spans on the Palermo–East Nicolaus 115-kV Transmission Line (project).

1.8.2 Applicant's Purpose and Need

Three Palermo–Rio Oso 115-kV lines are located in Yuba and Sutter Counties. The transmission lines range in length from 46 to 57 miles and are constructed on towers built in the early 1900s. These lines provide power to the Honcut, Pease, East Marysville, Olivehurst, Bogue, and East Nicolaus distribution substations, among others. Table 1.8-1 describes the characteristics of the three Palermo–Rio Oso 115-kV Lines.

Table 1.8-1 Palermo-Rio Oso 115-kV Lines

Transmission Line Name	Length (Miles)	Limiting Conductor Type	Summer Normal/Emergency Line Rating (Amps)
Palermo-Nicolaus-Rio Oso			
Palermo-Nicolaus	41.3	3/0 Cu	361/416
Rio Oso-Nicolaus	5.5	3/0 Cu	326/416
Palermo-Pease-Rio Oso			
Palermo-Pease	21.2	397 AAL	440/514
Pease-Rio Oso	27.7	397 AAL	440/514

Table 1.8-1 Palermo-Rio Oso 115-kV Lines

Transmission Line Name	Length (Miles)	Limiting Conductor Type	Summer Normal/Emergency Line Rating (Amps)
Palermo-Bogue-Rio Oso			
Palermo-Bogue	35.7	3/0 CU	361/416
Bogue-Rio Oso	21.4	397 AAL	440/514

In addition to providing 115-kV power to the area's electric customers, the Palermo–Rio Oso 115-kV lines also serve as an important transmission path of bulk electricity coming from nearby hydroelectric generating facilities and the California-Oregon Intertie (COI), comprised of several 500-kV power lines that were built by Western Area Power Administration, PG&E, and PacifiCorp in the early 1970s to 1990s, linking power grids in the Southwest with power grids in the Pacific Northwest.

There are several hydroelectric powerhouses in the area, particularly along Feather River between Lake Almanor and Lake Oroville. Most of them are interconnected to the 230-kV systems of the Table Mountain and Rio Oso substations and to the 115-kV system of the Palermo Substation. The power plants listed below have a total installed capacity of 287 megawatts (MW).

- Yuba County Water Agency's Deadwood Creek Powerhouse
- Oroville-Wyandotte Irrigation District's Forbestown
- Sly Creek Powerhouse
- Wood Leaf Powerhouse
- Calpine's Greenleaf I
- Calpine's Greenleaf II
- Feather River Energy Center

Power from these power plants, together with imported power from COI going through the Table Mountain Substation, is transported to load centers in Sutter and Yuba counties through the Palermo–Rio Oso 115-kV lines.

Some capacity upgrades to the Palermo–Rio Oso 115-kV circuits were made in the past including rerating some sections to a higher wind speed assumption and reconfiguring the network to balance line loadings. However, these upgrades only provided near-term capacity increase and did not eliminate the forecasted overloads.

Power flow studies indicate that if an outage were to occur on the Pease–Rio Oso 115-kV Line while the Greenleaf I generator was unavailable during high hydroelectric generation, summer peak periods, and COI import power conditions, the 115-kV circuit between the Palermo Substation and the Bogue Tap sections could exceed emergency rating by up to1 percent in 2010. The normal and emergency loads are projected to be 306 and 420 amps, respectively, whereas the current capacity of the limiting conductor on the circuit is 361 amps normally and 416 amps under emergency conditions. Projected load growth is anticipated to exacerbate the problem going forward.

An outage of the Pease–Rio Oso 115-kV Line and the Greenleaf I generator is considered a Category B disturbance by the California Independent System Operator (CAISO). Under CAISO, a Category B disturbance is either a single-element outage or the outage of a single transmission line with a generator

already out of service. Under the North American Electric Reliability Council (NERC)/Western Electricity Coordinating Council Planning Standards, a Category B contingency is an outage of a single bulk electric system element. CAISO and NERC standards require that during a single-element outage, the transmission system be capable of serving customer demand and keeping line and equipment load within emergency ratings.

Thus, if the Pease–Rio Oso Line and the Greenleaf I generator were to fail, especially during peak-demand load levels, the existing system would not be able to meet planning criteria for reliability under CAISO and NERC. This combined failure is expected to result in an overload of both the Palermo–East Nicolaus and Palermo–Bogue 115-kV lines. The overload could prevent the applicant from serving customer demand because the applicant would need to drop customer load to keep the transmission facilities within emergency ratings. CAISO Planning Standards require that the system meet performance requirements for keeping line and equipment loading within emergency ratings following a single transmission-circuit outage with one generator already out of service. Under NERC Planning Standards, the combined outage of the two facilities would be considered a Category C outage—the loss of two or more bulk electric system elements. NERC Category C outages need to meet the same system performance standards as Category B; the difference is that controlled load dropping is allowed under Category C. Load drop following a Category B disturbance/contingency is not allowed under NERC or CAISO standards.

The existing system has a maximum load-serving capability of about 322 MW with loss of the Pease–Rio Oso 115-kV Line while the Greenleaf I generator is unavailable (Figure 1.8-0). Maximum load serving capability would have been exceeded multiple times from 2005 to 2009 if the Pease–Rio Oso 115-kV Line and the Greenleaf I generator had failed (i.e., during a Category B disturbance as defined by CAISO). The potential for exceeding maximum load serving capability in the event of a CAISO Category B disturbance is forecasted to increase from 2010 and onward due to projected increases in customer demand for electricity (Figure 1.8-1). The substations in Sutter and Yuba counties, and within the sphere of influence of the City of Marysville, recorded a historical total peak load of 347 MW in the summer of 2008.

The recent economic downturn and customer conservation efforts resulted in a peak load of 346 MW in 2009. Even with the reduction of peak load, the forecasted peak demand levels are expected to rebound to their previous levels. The load increase is due to the area demographics, among other things. The proportion of domestic customers to the total customers in the area is over 80 percent. To account for this, the distribution facilities have been designed to allow for future growth due to imminent residential housing developments along State Highway 70. In the future, the load in these two counties is forecasted to grow at a rate of 5 MW or 1.5 percent per year—1 MW serves approximately 1,000 residential homes. As a result, it is forecasted that maximum load serving capability will be exceeded during every disturbance involving the combined outages of the Pease–Rio Oso 115-kV Line and the Greenleaf I generator starting in the summer of 2010 during peak-load conditions (Figure 1.8-1). Peak-load conditions generally occur during summer on-peak hours.

The applicant reported that though 2009 summer peak demand levels had not yet been released at the time of application, the project area typically experiences highest electricity demand between July and September. According to follow-up information provided by the applicant, preliminary analysis of early 2009 data indicated that on several occasions, the Palermo–East Nicolaus and Palermo–Bogue 115-kV lines were at risk of overloading had there been an outage of the Pease–Rio Oso 115-kV line while the Greenleaf I generator was out of service.

Figure 1.8-0

Yearly Peak Demand and System Capability

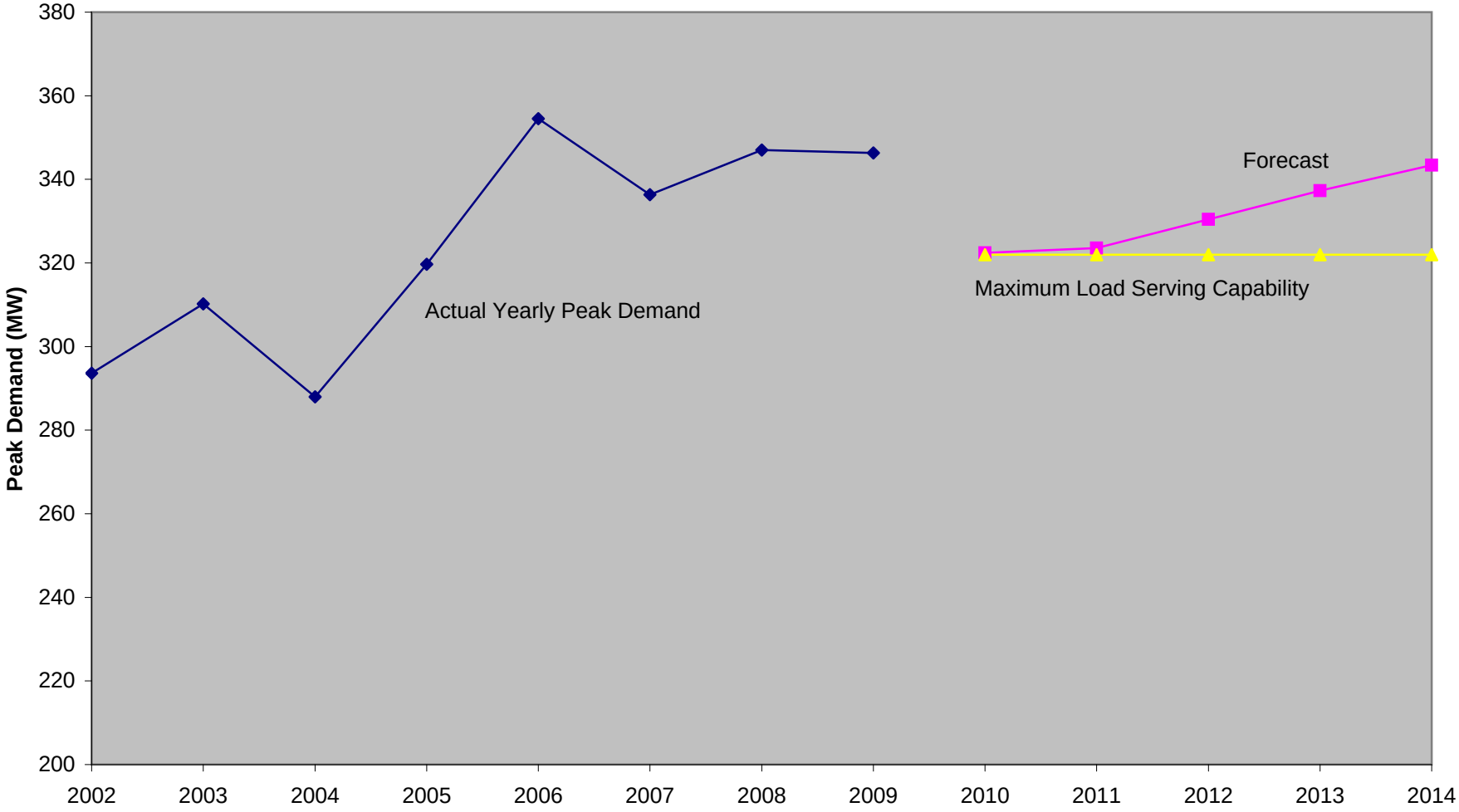

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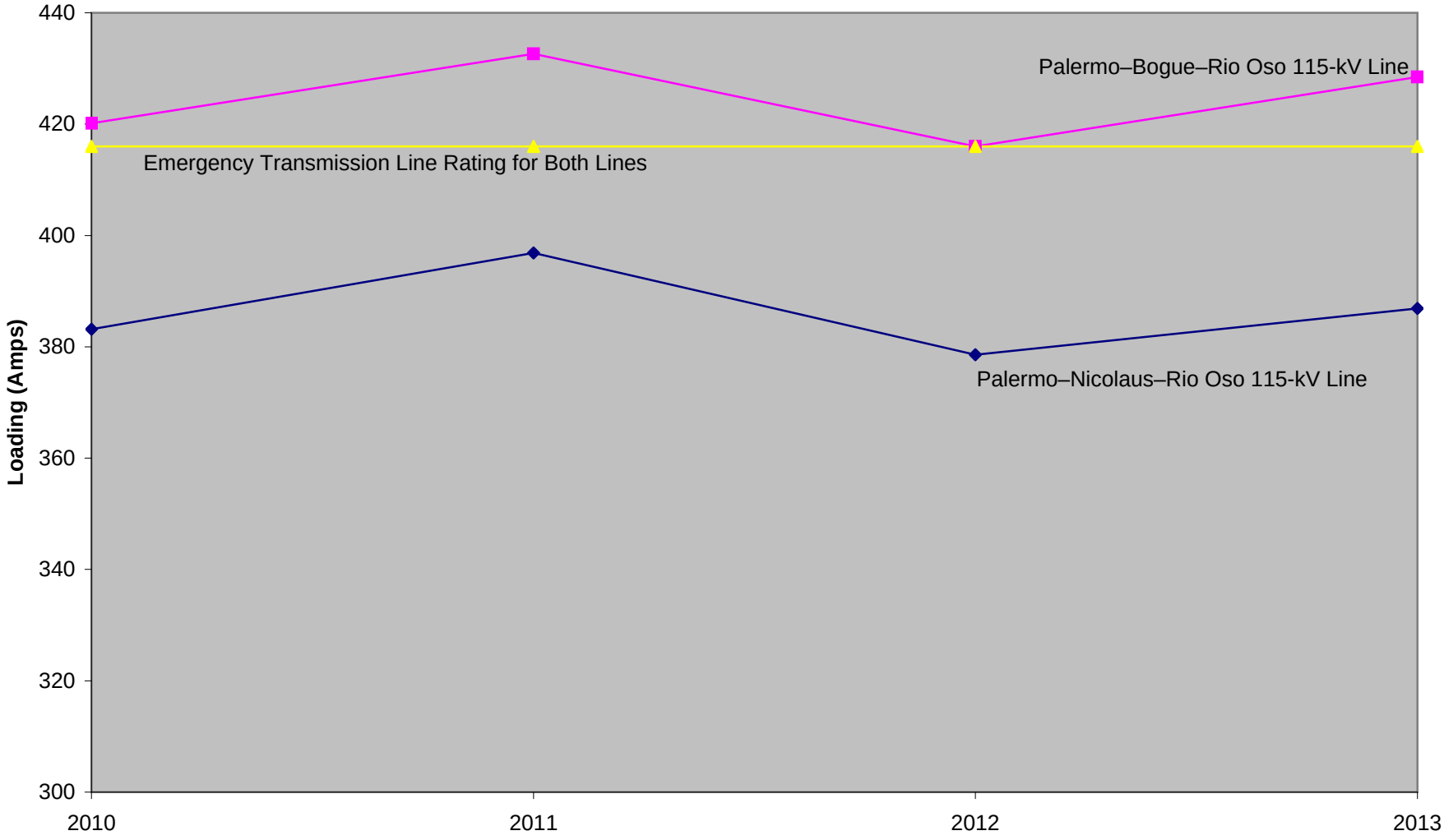
Figure 1.8-1

Forecasted Emergency Loadings on the Palermo–Rio Oso 115-kV Lines



Note: Assumes that Pease–Rio Oso 115-kV Line and the Greenleaf I Generator are unavailable.

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With implementation of the project, reconductoring and replacement of the existing towers would result in an increase in the existing transmission line rating to 825 amps when under normal conditions and 975 amps under emergency conditions. The capacity increase would eliminate forecasted line overloads and allow the applicant to reliably serve electric customers as well as transport bulk power to load centers in Sutter and Yuba counties.

1.8.3 Project Objectives

The project is needed to improve reliability and transmission capacity in Yuba, Sutter, Butte counties to continue to provide safe and reliable electric service to customers. The applicant's local 115-kV transmission system is at risk of overloading problems should there be a loss of the Pease–Rio Oso 115-kV Line while the Greenleaf I generator is unavailable. Reconductoring the two individual 115-kV circuits between the applicant's Palermo and East Nicolaus Substations would help meet future demand, maintain compliance with applicable grid reliability criteria, and make it easier to maintain the transmission system. The basic objectives of the project include:

1. **Ensure transmission system reliability.** The main project objective is to ensure that the transmission system serving the Yuba, Sutter, and Butte county area continues to meet planning standards and criteria established by CAISO and NERC and ensure the safety and reliability of the transmission system. These planning criteria must be met by the project.
2. **Replace aging facilities.** The second objective is to replace aging and dilapidated facilities in a cost effective and environmentally sensitive manner.
3. **Implement the CAISO Board of Governor's May 21, 2008 Resolution.** The third objective is to implement the May 21, 2008 California CAISO Board of Governors' resolution approving the project for addition to the CAISO-controlled grid.

1.8.4 Project Facilities

The project would include the following:

- Replacement of existing steel towers with a combination of new hybrid tubular steel poles, tubular steel poles, and lattice steel poles on the Palermo-East Nicolaus 115-kV double-circuit transmission line.
- Replacement of a limited number of existing lattice steel towers on the adjacent single-circuit line with new steel poles for consistency with the spans on the Palermo-East Nicolaus 115-kV double-circuit transmission line.
- Conductor replacement.
- Construction of temporary access roads and limited improvements to **existing** permanent access roads.
- Revegetation of disturbed areas following construction.

Construction is expected to take 12 to 18 months. Specific details for each of these activities are presented in the following sections.

1.8.4.1 Transmission Line/Conductors

The Palermo–East Nicolaus 115-kV Transmission Line would be reconductored using new 1113 all-aluminum conductors for each circuit from the Palermo Substation south to Rio Oso Junction and with either 1113 all-aluminum or 457 SSAC conductor from Rio Oso Junction to East Nicolaus Substation.

1.8.4.2 Poles/Towers

The project would require the replacement of a majority of the existing towers on the double-circuit line and a limited number of towers on the adjacent single-circuit line. Existing towers range in height from 75 feet to 95 feet tall, with the typical height being 76 feet.

Various types of new pole designs would be used depending on site conditions. The existing towers would be replaced with a combination of hybrid tubular steel poles (hybrid poles), tubular steel poles (TSPs), and lattice steel poles (LSP). Figures 1.8-2a through 1.8-2f depict the location of proposed reconstruction. New structure designs are shown in Figure 1.8-3. Table 1.8-2 and Table 1.8-3 identify the type of pole planned for use at each location.

A typical design of the hybrid poles is shown in Figure 1.8-4. The hybrid pole is so called because it is a hybrid between conventional tubular steel and spun concrete to form a sectional composite pole design. The pole is direct buried and does not require a poured concrete foundation. It is installed by auguring the hole for the concrete lower-portion of the pole, which is approximately 35-feet long, installing the lower concrete base using a heavy crane, and then fitting the TSP onto the concrete base. The upper pole would be galvanized and dull grey colored. The hybrid poles would be approximately 80–120 feet tall.

TSPs would be used at angle, dead-end, conductor transposition,[1] and equipment (switch) poles where a stronger structure is needed. TSPs have a prefabricated steel upper-portion that is bolted to a poured-in-place concrete foundation. The pole would also be galvanized and dull grey colored. A heavy crane or helicopter would be used to install the TSPs. They would be 80–120 feet tall.

LSPs, which can be installed without a heavy crane, would be used in areas where access is limited. The poles would be approximately 85-feet tall. Similar to TSPs, the prefabricated LSPs would be installed by helicopter onto a poured-in-place foundation.

Of the existing 320 towers, approximately 265 would be replaced with steel poles, and approximately 40 would remain in place. The first ten towers from the Palermo Substation and the last nine towers into the East Nicolaus Substation would not be replaced. The total number of structures would be reduced by approximately 15. Table 1.8-2 and Table 1.8-3 provide information regarding pole types and heights for the Palermo–East Nicolaus and Palermo–Pease lines. The span lengths would be altered slightly from the existing spans as new pole placement has been designed to avoid sensitive resources.

1.8.4.3 Palermo and East Nicolaus Substations

No major work at the substations would be done as a part of this project. Minor relay replacement or setting changes may be required. All work would be within the existing substation control buildings.

[1] Conductor transposition refers to the modification of conductor orientation to improve the flow of electrical current.

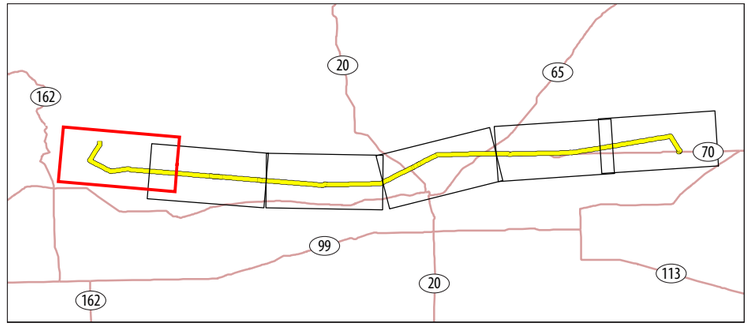
- Pole Replacement Site
- Eliminate Tower
- Existing Tower - No Structure Work
- 15 Structure numbers *(see Table 1.8-2 for details)*
- 10 Palermo - Pease Line & Structure numbers *(see Table 1.8-3 for details)*
- Work Area / Pull Site
- Helicopter Landing Zone
- Temporary Access Road
- Existing Access Road
- Transmission Line
- Cities
- County Boundary
- Urban Area: No Night Work

N

Miles

0.5 0 0.5

Aerial Photo Source: PG&E 2005, 2007



Reference: Fig. 3-2, Project Description, ***Proponent's Environmental Assessment, Palermo–East Nicolaus 115 kV Transmission Line Reconstruction Project***, ICF Jones & Stokes, February 2009

PALERMO–EAST NICOLAUS 115-KV TRANSMISSION LINE

Figure 1.8-2a

Project Description

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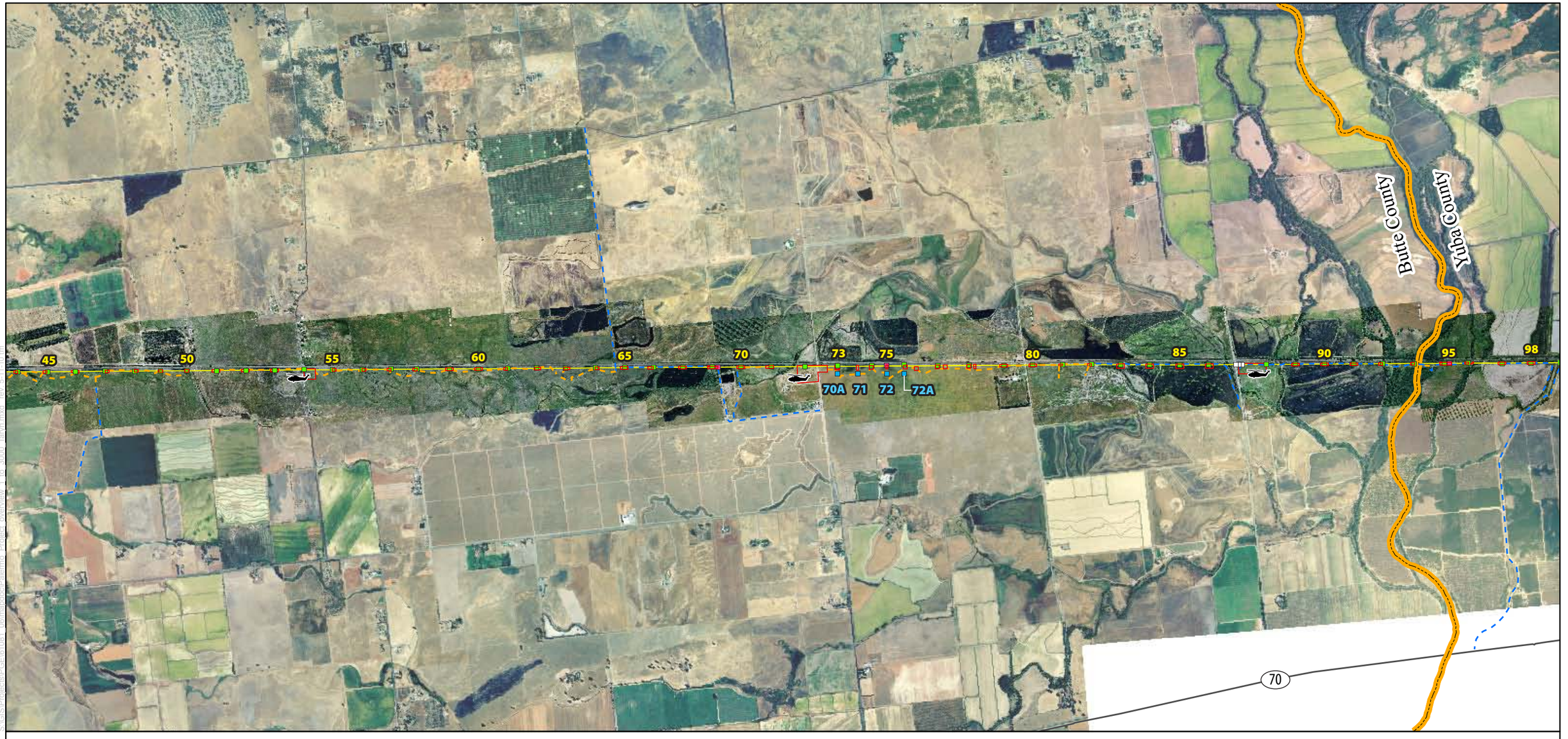


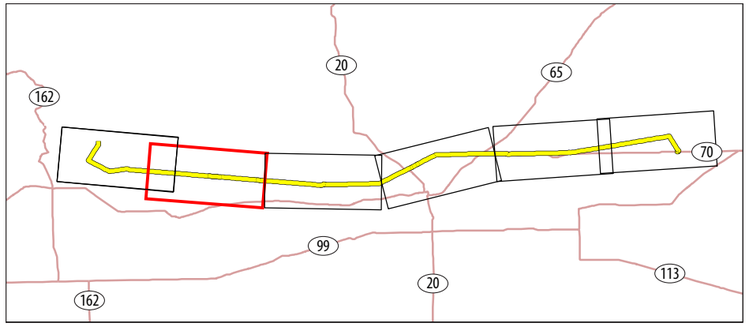
- Pole Replacement Site
- Eliminate Tower
- Existing Tower - No Structure Work
- 15 Structure numbers *(see Table 1.8-2 for details)*
- 10 Palermo - Pease Line & Structure numbers *(see Table 1.8-3 for details)*
- Work Area / Pull Site
- Helicopter Landing Zone
- Temporary Access Road
- Existing Access Road
- Transmission Line
- Cities
- County Boundary
- Urban Area: No Night Work

N

Miles

0.5 0 0.5

Aerial Photo Source: PG&E 2005, 2007



Reference: Fig. 3-2, Project Description, ***Proponent's Environmental Assessment, Palermo–East Nicolaus 115 kV Transmission Line Reconstruction Project***, ICF Jones & Stokes, February 2009

PALERMO–EAST NICOLAUS 115-KV TRANSMISSION LINE

Figure 1.8-2b

Project Description

002803.CP10.03.q2_rev01 (2010 CD Archives - Vol 4) 07/26/2010

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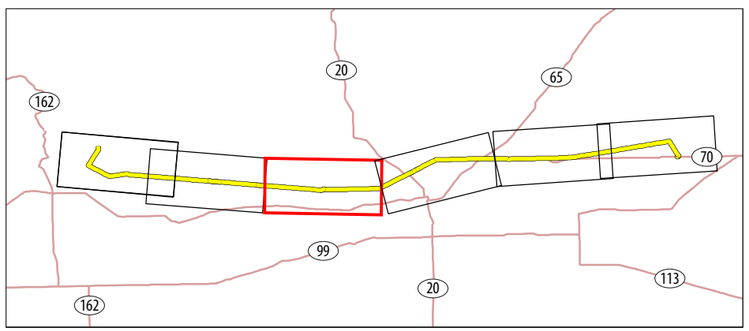
- Pole Replacement Site
- Eliminate Tower
- Existing Tower - No Structure Work
- 15 Structure numbers *(see Table 1.8-2 for details)*
- 10 Palermo - Pease Line & Structure numbers *(see Table 1.8-3 for details)*
- Work Area / Pull Site
- Helicopter Landing Zone
- Temporary Access Road
- Existing Access Road
- Transmission Line
- Cities
- County Boundary
- Urban Area: No Night Work

N

Miles

0.5 0 0.5

Aerial Photo Source: PG&E 2005, 2007



Reference: Fig. 3-2, Project Description, ***Proponent's Environmental Assessment, Palermo–East Nicolaus 115 kV Transmission Line Reconstruction Project***, ICF Jones & Stokes, February 2009

PALERMO–EAST NICOLAUS 115-KV TRANSMISSION LINE

Figure 1.8-2c

Project Description

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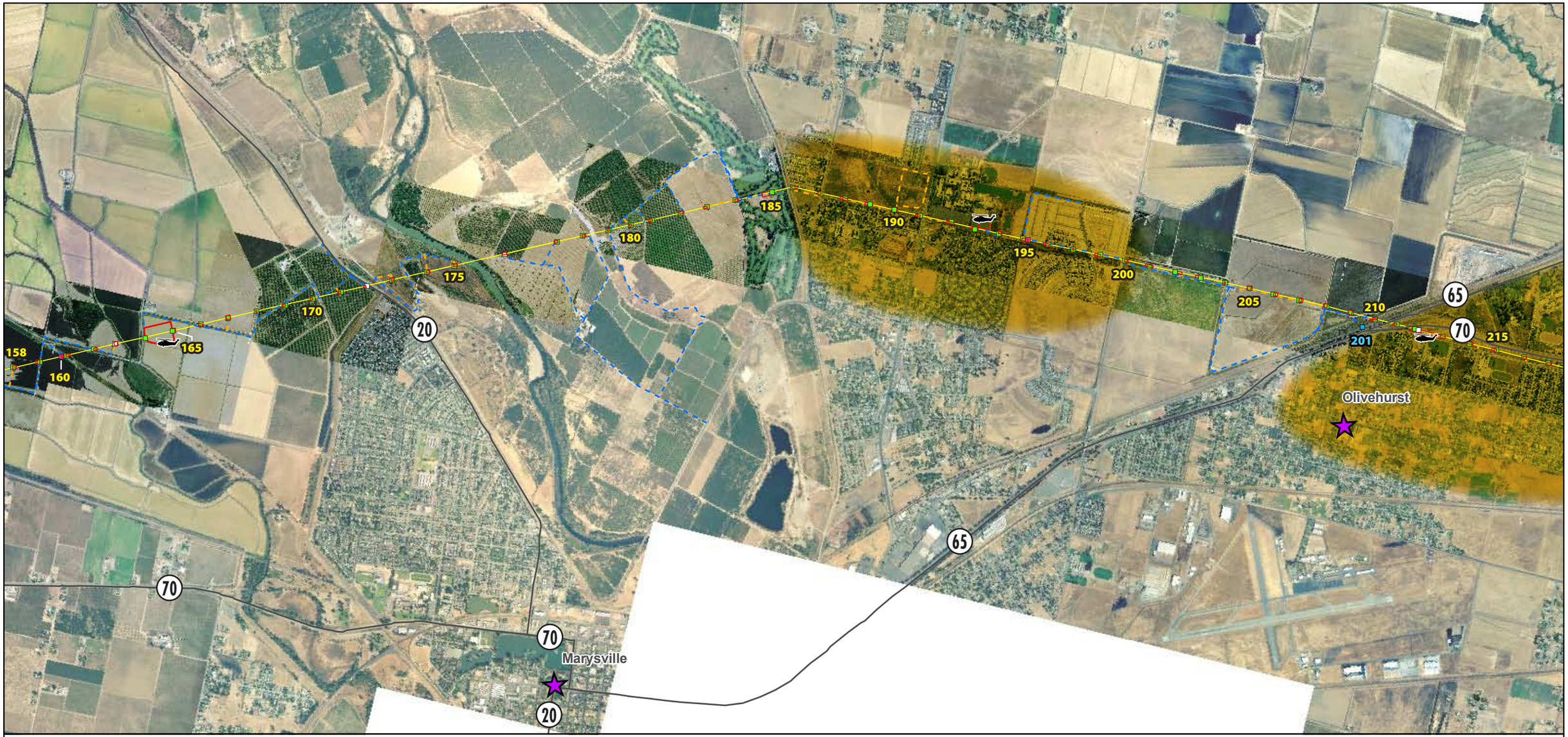


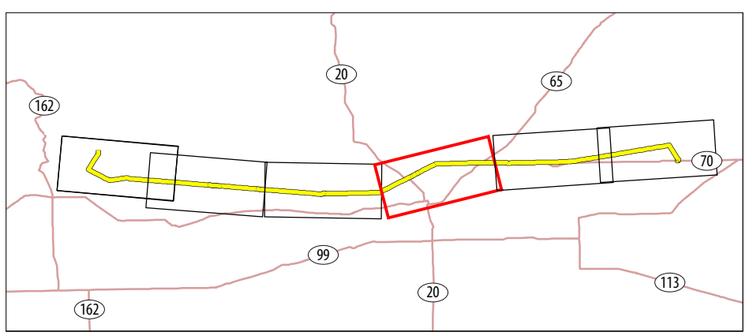
- Pole Replacement Site
- Eliminate Tower
- Existing Tower - No Structure Work
- 15 Structure numbers *(see Table 1.8-2 for details)*
- 10 Palermo - Pease Line & Structure numbers *(see Table 1.8-3 for details)*
- Work Area / Pull Site
- Helicopter Landing Zone
- Temporary Access Road
- Existing Access Road
- Transmission Line
- Cities
- County Boundary
- Urban Area: No Night Work

N

Miles

0.5 0 0.5

Aerial Photo Source: PG&E 2005, 2007



Reference: Fig. 3-2, Project Description, ***Proponent's Environmental Assessment, Palermo–East Nicolaus 115 kV Transmission Line Reconstruction Project***, ICF Jones & Stokes, February 2009

PALERMO–EAST NICOLAUS 115-KV TRANSMISSION LINE

Figure 1.8-2d

Project Description

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Pole Replacement Site

Eliminate Tower

Existing Tower - No Structure Work

15 Structure numbers *(see Table 1.8-2 for details)*

10 Palermo - Pease Line & Structure numbers *(see Table 1.8-3 for details)*

Work Area / Pull Site

Helicopter Landing Zone

Temporary Access Road

Existing Access Road

Transmission Line

Cities

County Boundary

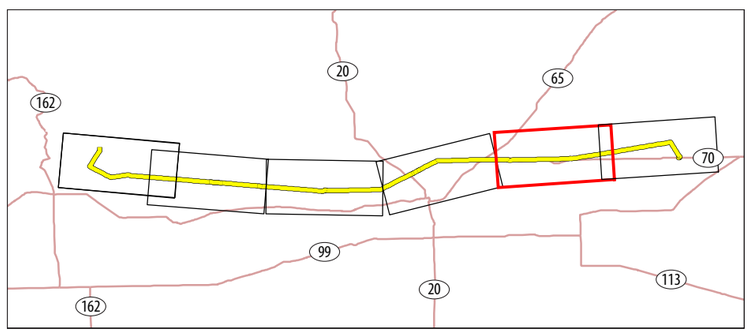
Urban Area: No Night Work

N

Miles

0.5 0 0.5

Aerial Photo Source: PG&E 2005, 2007



Reference: Fig. 3-2, Project Description, ***Proponent's Environmental Assessment, Palermo–East Nicolaus 115 kV Transmission Line Reconstruction Project***, ICF Jones & Stokes, February 2009

PALERMO–EAST NICOLAUS 115 KV TRANSMISSION LINE

Figure 1.8-2e

Project Description

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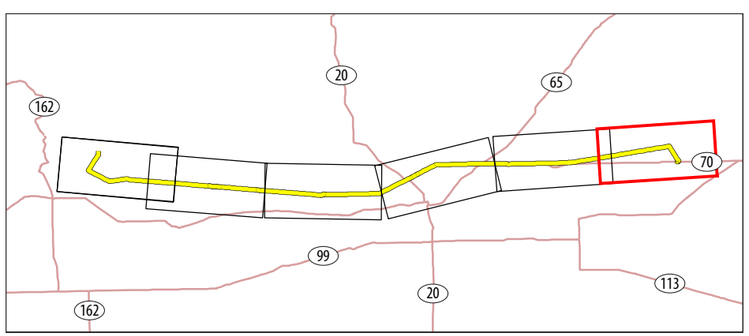
- Pole Replacement Site
- Eliminate Tower
- Existing Tower - No Structure Work
- 15 Structure numbers *(see Table 1.8-2 for details)*
- 10 Palermo - Pease Line & Structure numbers *(see Table 1.8-3 for details)*
- Work Area / Pull Site
- Helicopter Landing Zone
- Temporary Access Road
- Existing Access Road
- Transmission Line
- Cities
- County Boundary
- Urban Area: No Night Work

N

Miles

0.5 0 0.5

Aerial Photo Source: PG&E 2005, 2007



Reference: Fig. 3-2, Project Description, ***Proponent's Environmental Assessment, Palermo–East Nicolaus 115 kV Transmission Line Reconstruction Project***, ICF Jones & Stokes, February 2009

PALERMO–EAST NICOLAUS 115-KV TRANSMISSION LINE

Figure 1.8-2f

Project Description

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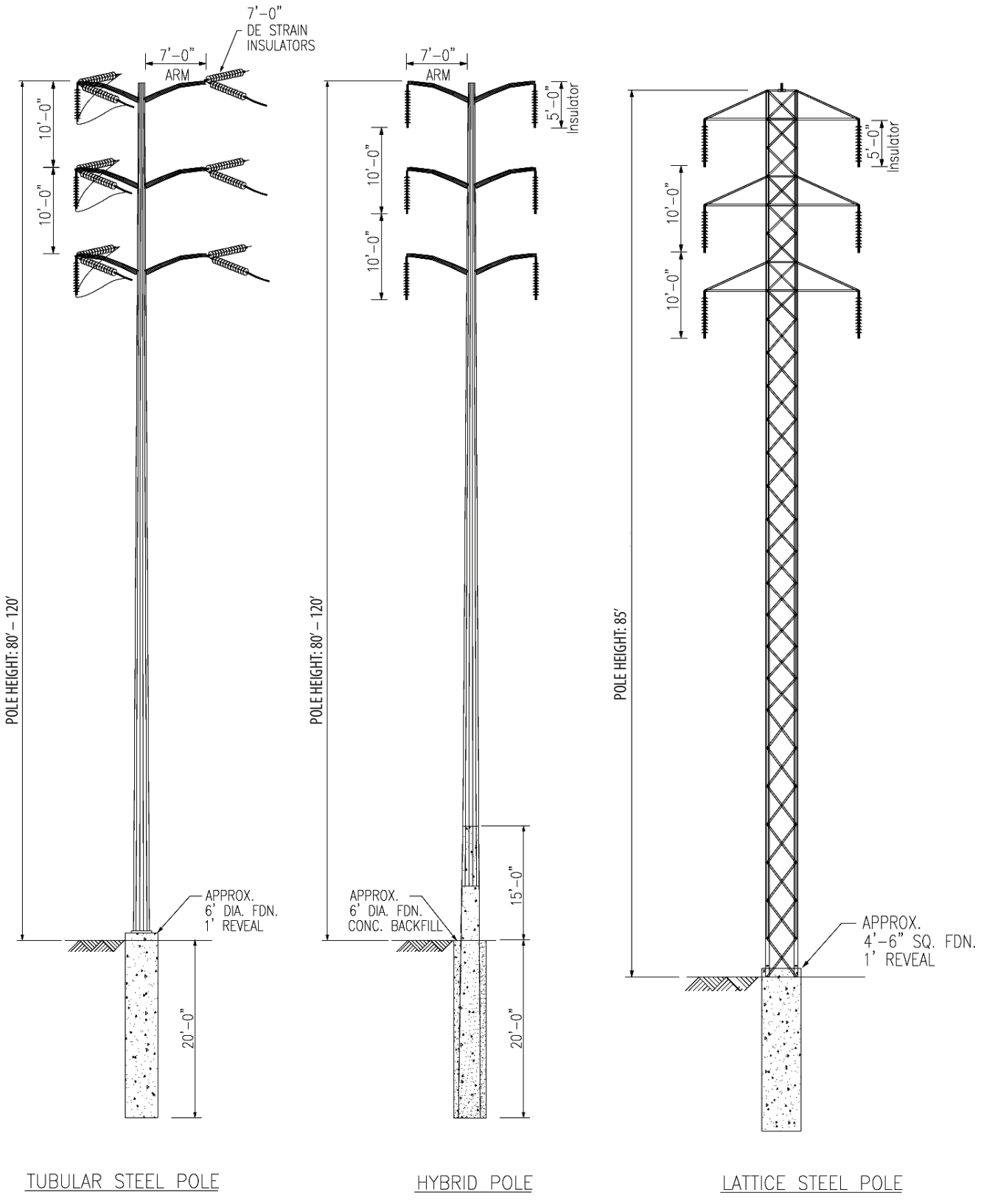
Reference: Fig. 3-3, Conceptual Structure Drawings, ***Proponent's Environmental Assessment, Palermo–East Nicolaus 115 kV Transmission Line Reconstruction Project***, ICF Jones & Stokes, February 2009



00533.08 Proj Description (12-08)

PALERMO–EAST NICOLAUS 115-kV TRANSMISSION LINE

002803.CP10.03.r (2009 CORP CD Archives - Vol 4) 06/24/2010

Figure 1.8-3

Conceptual Structure Drawings

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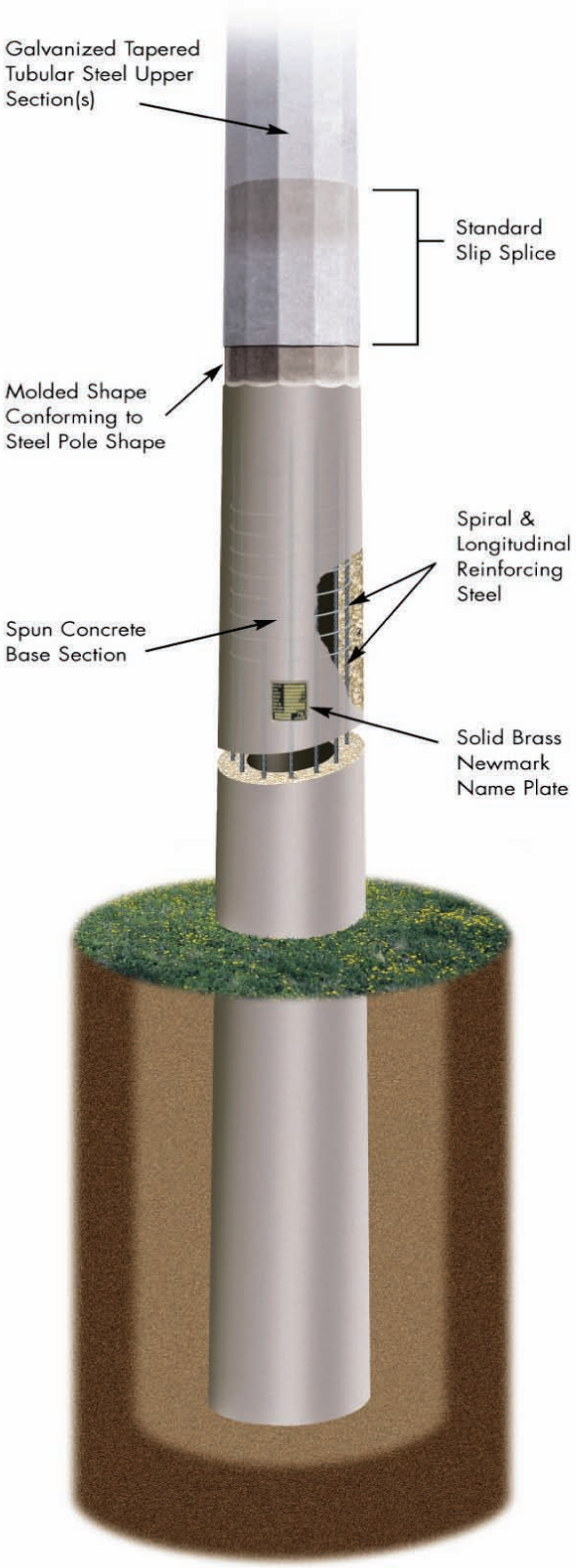
Reference: Fig. 3-4, Hybrid Pole Typical Design, ***Proponent's Environmental Assessment, Palermo–East Nicolaus 115 kV Transmission Line Reconstruction Project***, ICF Jones & Stokes, February 2009



00533.08 Proj Description (12-08)

PALERMO–EAST NICOLAUS 115-KV TRANSMISSION LINE

002803.CP10.03.s (2009 CORP CD Archives - Vol 4) 06/24/2010

Figure 1.8-4

Hybrid Pole Typical Design

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Table 1.8-2 Palermo–East Nicolaus Line Structures to be Replaced, Left in Place, or Removed

Structure Nos.	Structure Type	Proposed Structure Height (Ft.)	Urban Area [1]
1–10	Existing to remain	N/A	No
11	TSP, DE	90	No
12	Hybrid	105	Yes
13	TSP, Transp.	80	Yes
14	Existing to be removed	N/A	Yes
15	Hybrid	100	Yes
16	Hybrid	105	Yes
17	Hybrid	85	Yes
18–20	Hybrid	90	Yes
21	Hybrid	105	Yes
22	Existing to be removed	N/A	Yes
23	TSP, DE	90	Yes
24–26	Hybrid	90	Yes
27	Hybrid	85	Yes
28	Hybrid	90	Yes
29	Hybrid	95	Yes
30, 31	Hybrid	90	Yes
32	TSP, DE	85	Yes
33	Existing to be removed	N/A	Yes
34	TSP, DE	90	Yes
35	Hybrid	90	Yes
36	Hybrid	95	Yes
37	Hybrid	90	No
38	Hybrid	100	No
39	TSP, Transp.	80	No
40	Existing to be removed	N/A	No
41	Hybrid	100	No
42–45	Hybrid	90	No
46, 47	Hybrid	95	No
48	Hybrid	90	No
49	Hybrid	85	No
50	Hybrid	90	No
51	Hybrid	100	No
52, 53	Hybrid	95	No
54, 55	Hybrid	90	No
56	Hybrid	95	No
57	Hybrid	90	No
58	Hybrid	95	No
59	Hybrid	100	No
60	Hybrid	90	No
61	Hybrid	95	No
62	Hybrid	90	No

Table 1.8-2 Palermo–East Nicolaus Line Structures to be Replaced, Left in Place, or Removed

Structure Nos.	Structure Type	Proposed Structure Height (Ft.)	Urban Area [1]
63, 64	Hybrid	95	No
65	Hybrid	90	No
66	Hybrid	95	No
67	Hybrid	100	No
68	TSP, Transp.	80	No
69	Existing to be removed	N/A	No
70	Hybrid	95	No
71	Hybrid	105	No
72–74	Hybrid	100	No
75	Existing to be removed	N/A	No
76, 77	Hybrid	100	No
78, 79	Hybrid	105	No
80	TSP, SW	105	No
81	Hybrid	100	No
82	Hybrid	85	No
83–85	Hybrid	95	No
86	Hybrid	105	No
87	Existing to remain	N/A	No
88	TSP, SW	105	No
89	Hybrid	95	No
90	Hybrid	90	No
91	Hybrid	95	No
92, 93	Hybrid	100	No
94	Hybrid	95	No
95	Existing to be removed	N/A	No
96–98	Hybrid	100	No
99	TSP, Transp.	90	No
100	Hybrid	90	No
101, 102	Hybrid	95	No
103	Hybrid	90	No
104	Hybrid	95	No
105	Hybrid	90	No
106, 107	Hybrid	95	No
108	Hybrid	100	No
109	Hybrid	90	No
110, 111	Hybrid	95	No
112	Hybrid	90	No
113	Hybrid	95	No
114	Hybrid	90	No
115	Hybrid	100	No
116	Existing to be removed	N/A	No
117	Hybrid	95	No
118	Hybrid	90	No

Table 1.8-2 Palermo–East Nicolaus Line Structures to be Replaced, Left in Place, or Removed

Structure Nos.	Structure Type	Proposed Structure Height (Ft.)	Urban Area [1]
119	TSP, Transp.	90	No
120	Existing to be removed	N/A	No
121–123	Hybrid	90	No
124	Hybrid	95	No
125, 126	Hybrid	90	No
127	TSP, DE	95	No
128	Existing to be removed	N/A	No
129	TSP, DE	95	No
130–133	Hybrid	85	No
134	Hybrid	90	No
135	Hybrid	95	No
136	Hybrid	90	No
137–139	Hybrid	95	No
140	Hybrid	90	No
141	Hybrid	95	No
142	Hybrid	90	No
143	Hybrid	95	No
144	Hybrid	100	No
145	TSP, Transp.	80	No
146	Existing to be removed	N/A	No
147	Hybrid	100	No
148	Hybrid	95	No
149	Hybrid	90	No
150	Hybrid	95	No
151	Hybrid	90	No
152	Hybrid	95	No
153	Hybrid	90	No
154	Hybrid	95	No
155	Hybrid	90	No
156	TSP, DE	80	No
157, 158	Hybrid	80	No
159	Hybrid	85	No
160	Existing to be removed	N/A	No
161	Hybrid	95	No
162	Hybrid	90	No
163	Existing to remain	N/A	No
164	Hybrid	100	No
165	Hybrid	90	No
166	Hybrid	95	No
167	Hybrid	90	No
168	TSP, SW	105	No
169–171	Hybrid	90	No
172	Existing to remain	N/A	No

Table 1.8-2 Palermo–East Nicolaus Line Structures to be Replaced, Left in Place, or Removed

Structure Nos.	Structure Type	Proposed Structure Height (Ft.)	Urban Area [1]
173	Hybrid	110	No
174	Hybrid	95	No
175	TSP, DE	110	No
176	Existing to remain	N/A	No
177	TSP, DE	120	No
178	Hybrid	90	No
179	Hybrid	85	No
180	Hybrid	80	No
181, 182	Hybrid	95	No
183	Hybrid	90	No
184, 185	Hybrid	110	No
186	TSP, DE	80	Yes
187	TSP, SW	115	Yes
188–190	Hybrid	90	Yes
191, 192	Hybrid	100	Yes
193	Hybrid	85	Yes
194	TSP, Transp.	80	Yes
195	LSP	85	Yes
196	Existing to be removed	N/A	Yes
197–199	LSP	85	Yes
200, 201	Hybrid	85	Yes
202	Hybrid	90	No
203	Hybrid	80	No
204	Hybrid	85	No
205, 206	Hybrid	90	No
207, 208	Hybrid	85	No
209	Hybrid	95	No
210	TSP, SW, DE	105	No
211	TSP, DE	80	No
212	Existing to remain	N/A	Yes
213	Hybrid	90	Yes
214	TSP, SW	105	Yes
215	Hybrid	100	Yes
216	Hybrid	90	Yes
217–220	Hybrid	85	Yes
221, 222	Hybrid	95	Yes
223	Hybrid	85	Yes
224	Existing to remain	N/A	Yes
225, 226	Hybrid	90	Yes
227	Hybrid	85	No
228–234	Hybrid	90	No
235	Hybrid	95	No
236–238	Hybrid	90	No

Table 1.8-2 Palermo–East Nicolaus Line Structures to be Replaced, Left in Place, or Removed

Structure Nos.	Structure Type	Proposed Structure Height (Ft.)	Urban Area [1]
239	Hybrid	95	No
240	Hybrid	90	No
241	Hybrid	95	No
242	Hybrid	90	No
243, 245	Hybrid	95	No
246, 247	Hybrid	90	No
248	Hybrid	95	No
249, 251	Hybrid	85	No
252	Hybrid	90	No
253	Hybrid	100	No
254	TSP, DE	80	No
255	Hybrid	80	No
256, 257	TSP, DE	80	No
258	Hybrid	100	No
259, 260	Hybrid	95	No
261	Hybrid	90	No
262	Hybrid	100	No
263–264	Hybrid	90	No
265	Hybrid	90	Yes
266	Hybrid	95	Yes
267	Hybrid	90	Yes
268	Hybrid	105	Yes
269	Hybrid	85	Yes
270–273	Hybrid	90	Yes
274	TSP, DE	90	Yes
275	Existing to be removed	N/A	Yes
276	Existing to be removed	N/A	Yes
277–280	Existing to remain	N/A	No
281	Existing to remain	N/A	No
282	Hybrid	95	No
283	TSP, DE	85	No
284	Hybrid	85	No
285	Hybrid	95	No
286–290	Hybrid	90	No
291	Hybrid	100	No
292	Hybrid	100	No
293	Hybrid	90	No
294	Hybrid	100	No
295	Hybrid	95	No
296	Hybrid	90	No
297	Hybrid	95	No
298	Hybrid	100	No

Table 1.8-2 Palermo–East Nicolaus Line Structures to be Replaced, Left in Place, or Removed

Structure Nos.	Structure Type	Proposed Structure Height (Ft.)	Urban Area [1]
299	TSP, Transp.	80	No
300	~~Existing to be removed~~ No longer exists	N/A	No
301	Hybrid	100	No
302	Hybrid	95	No
303	Hybrid	95	Yes
304	Hybrid	95	Yes
305	Hybrid	120	Yes
306, 306A–I	Existing to remain	N/A	Yes

Notes:
DE = dead end
LSP = lattice steel pole
SW = switch
Transp. = conductor transposition
TSP = tubular steel pole
[1] The term *urban area* is defined in Section 1.8.5.8, Nighttime Construction. The applicant would limit nighttime work (work done after 7:00 pm and before 7:00 am) to outside of urban areas.

Table 1.8-3 Palermo–Pease Line Structures to be Replaced, Left in Place, or Removed

Structure Nos.	Structure Type	Proposed Structure Height (Ft.)	Urban Area [1]
70A	TSP, DE	80	No
71	Existing to be removed	N/A	No
71A	Hybrid	95	No
72	Existing to be removed	N/A	No
72A	TSP, DE	70	No
201	TSP, SW	75	No
214	Existing to remain	N/A	Yes
214A	TSP, SW	80	Yes
215	Existing to remain	N/A	Yes

Notes:
DE = dead end
SW = switch
TSP = tubular steel pole
[1] The term *urban area* is defined in Section 1.8.5.8, Nighttime Construction. The applicant would limit nighttime work (work done after 7:00 pm and before 7:00 am) to outside of urban areas.

1.8.5 Construction

This section describes construction methods to be used for this project. Reconstruction work on the project would include the following general types of activities:

- Structure replacement/modifications
- Temporary crossing structure installation
- Wire pulling and tensioning
- Tower demolition/removal
- Structure replacement and reconductoring work area development
- Material/equipment staging and lay-down area development
- Access to all these activity areas

Construction is expected to take 12 to 18 months. Tables 1.8-4 to 1.8-6 provide specific details about project construction.

Table 1.8-4 Site Grading and Soil Excavation

Construction Phase	Maximum Daily Grading Acres	Total Acres for Whole Project	Maximum Daily Excavation (CY)	Total Excavation (CY) for Whole Project
Construction of staging areas/helicopter landing zones and new temporary roads	1 acre	130	40	40
Existing tower removal and tower site recovery	N/A	N/A[1]	4 CY	1600 CY
Pole site excavation, concrete base construction, and new pole installation	1 acre[2]	100	160 CY[3]	16,000 CY
Transmission line installation	N/A[4]	N/A	N/A	
Staging areas/helicopter landing zones recovery	1 acre	109	N/A	

Notes:
1 Part of the area being disturbed for new construction.
2 Assumes 4 poles per day max with a 50x200 area.
3 Assumes 40 cubic yards (CY) per structure.
4 Assumes pull sites included in staging areas.

Table 1.8-5 Soil Disposal and Concrete Importing

Construction Phase	Maximum Daily Exported Soil (CY)	Total Exported Soil (CY) for Whole Project	Maximum Daily Imported Concrete (CY)	Total Imported Concrete (CY) for Whole Project
Construction of staging areas/helicopter landing zones and new temporary roads	N/A[1]	0	N/A[2]	0
Existing tower removal and tower site recovery	Included above	0	N/A	0
Pole site excavation, concrete base construction, and new pole installation	Include above	0	80 CY	3,000 CY
Transmission line installation	N/A	0	N/A	0
Staging areas/helicopter landing zones recovery	None[3]	0	None	0

Notes:
1 Minor scraping for weed abatement and grading only. Soil would not be exported.
2 No concrete but may import rock base for locations that are expected to be used during the wet months. If needed, assume 5" cover over entire area.

Table 1.8-5 Soil Disposal and Concrete Importing

Construction Phase	Maximum Daily Exported Soil (CY)	Total Exported Soil (CY) for Whole Project	Maximum Daily Imported Concrete (CY)	Total Imported Concrete (CY) for Whole Project

[3] Only grading would be required at these sites.

Table 1.8-6 On-Road Construction Equipment and Material Delivery Trucks (Except Dump Trucks for Exported Soil and Concrete Trucks for Imported Concrete)

Construction Phase	Maximum Daily Delivery Trucks	Total Delivery Trucks for the Project
Construction of staging areas/helicopter landing zones and new temporary roads	5	50
Existing tower removal and tower site recovery	5	500
Pole site excavation, concrete base construction, and new pole installation	10	1,000
Transmission line installation	5	500
Staging areas/helicopter landing zones recovery	2	20

1.8.5.1 New Structure Installation/Tower Removal

The hybrid pole design proposed for use at the majority of locations along the project alignment enables a two-part installation process that would reduce the length of time that the existing lines need to be taken out of service (line clearances). A concrete base can be installed separately from the steel top and can usually be done without taking a line clearance, although installing the upper pole segment would still require a line clearance. Each hybrid pole hole would be augured to a maximum diameter of 7.5 feet and a depth of approximately 20 feet; the pole hole would be compacted with road base and slurry after the pole is inserted.

The project would be constructed in segments to balance taking the existing lines out of service as well as environmental seasonal constraints. The poles would be 80–120 feet tall when complete and would be well suited to conditions encountered in the field (prolonged inundation and/or saturated soils associated with wetlands and rice crops).

Installation of the hybrid poles, TSPs, and LSPs involves these steps.

- Staking the pole location.
- Flagging the work area.
- Installing silt fencing (if required).
- Preparing the crane pad (if required).
- Excavating the hole (all structures would have a maximum 7.5-foot diameter excavation).
- Installing forms, rebar, and anchor bolts (for TSP and LSP structures).
- Pouring concrete.
- Removing forms.
- Placing gravel around and grooming the base area.
- Installing the new pole.

- Removing the old conductor and stringing the new conductor.
- Spreading the excess soil on site and trucking other construction materials offsite for disposal.

Hybrid poles would not require forms, rebar, and anchor bolts.

The existing lattice steel towers would be dismantled and removed upon new structure completion and transfer of conductor. A crane or helicopter would be used to take down the tower and remove it from the project area. Where removal could otherwise cause extensive environmental impacts, towers would be partially dismantled, with the bases left behind (e.g., towers with large elderberry shrubs growing within the tower footprint). Tower footings would be cut down to below ground level or left depending on the environmental sensitivity of the site.

Installation of wood poles (shoo-flys) involves these steps.

- Staking the pole location.
- Flagging the work area.
- Excavating a two to three foot diameter hole.
- Installing the pole.
- Backfilling with native spoils or gravel.
- Transferring wire and equipment.
- Removing the pole.
- Backfilling.

Pole locations would be sited to avoid environmentally sensitive areas. At each pole location, the work area would be flagged by the applicant and/or the environmental monitor prior to construction. For pole installations near wetlands, riparian habitat, or special-status plant or wildlife habitat, a biological monitor (a trained professional biologist) would approve the type and placement of environmental protections and would monitor the area during construction activities.

A work area of about a 25-foot radius around each pole would be required. Some work areas may require removal of vegetation and installation of silt fencing (e.g., during the wet season). Work areas around transmission poles generally would not require grading or surfacing. Some areas that are saturated or inundated with water for prolonged periods (e.g., wetlands and rice crops) would require dewatering to minimize impacts on wildlife during pole installation. The installation of temporary berms would be needed for some wetland and rice cropland areas to be dewatered.

1.8.5.2 Conductor Replacement

Conductor pull and tension sites would be regularly spaced along the alignment. This activity is usually the last step in the construction process and entails either stringing the new structures with pulling rope or using the existing conductor to pull the new one through. If the new conductor cannot be pulled through using the existing conductor, then a helicopter or crane can be used to install the rope onto rollers that are affixed to the end of insulators where the conductor is normally attached. The rope is flown along and snapped into each roller or placed with a crane and then is pulled onto the tension spools with the new conductor behind it.

Locations where the alignment crosses busy roadways, railroads, and other aerial utilities would first have crossing guard structures installed to keep the conductor from falling down across those areas while pulling. The existing conductor would be placed in a hoist and attached at one end to the steel tower to support the down strain load, hence removing load on the existing insulator strings. The old insulators would be removed and new insulators placed, along with conductor rollers. Rollers and insulators would be brought in by truck or helicopter to each tower site.

In sensitive areas, monitors would coordinate with ground crews to determine appropriate access. The crew may be required to access some towers on foot and by pick-up trucks, or materials may be delivered by helicopter. With the roller in place, the hoist would lower the existing conductor into the roller. When all rollers have been installed in a given section of the tower line, a cable would be attached from the puller truck to one end of the conductor; new conductor would be attached to the existing conductor at the opposite end of the pull section, and the reconductoring process would begin. The old conductor would be removed while the new conductor was simultaneously pulled in.

Once the new conductor is in place, the crews would sag the new conductor, clip it into the new insulators, and remove the rollers from the section. Helicopters would also be used to remove the rollers and to clip in the new conductor to the insulators.

The pull and tension sites may require preparation. Temporary crane pads may need to be built if the terrain would not allow for safe operation of a crane. The size of the pad would vary based on the terrain. Pull/tension sites would consist of a relatively flat area in line with the conductor. Where possible, these sites would be placed on previously disturbed areas. Minor grading may be required to establish these sites. Matting traditionally used for wetland crossings or rock would be placed if wet conditions are forecast. Disturbed areas would be recontoured and reseeded as necessary. Water baffles and other erosion control measures would be used as necessary to minimize erosion during work at the sites during the wet season.

The equipment at the pull site would be utilized for four pulls, two in one direction and two in the other. Equipment includes rope trucks or tensioners, reels of conductor to receive the old conductor as it is removed, reels of new conductor to feed out, and trucks or other equipment to handle the weight of the conductor reels and to move them on and off site.

Due to the environmental sensitivity of critical vernal pool habitat and similar areas, efforts would be made to minimize any construction impact at these locations. Whenever possible, vehicles would remain on established roadways. To the extent possible, previously disturbed areas would be utilized for access and work sites. When off-road access is necessary, vehicles and equipment would stay within designated routes and utilize construction mats. Vehicles would include pick-up trucks, tensioner and cable pullers mounted on a line truck, and a rubber-tired crane truck or helicopter. No grading would be performed at sensitive sites.

1.8.5.3 Crossing Structures

Crossing structures would be installed at all major road, railroad and other aerial utility crossings along the alignment to prevent injury or damage from the inadvertent falling of the conductor.

These structures typically consist of paired, single-Y configured pole structures, or paired wood poles with cross bracing designed to catch falling conductor; a network of cables and netting may also be tied into these poles. A line truck would be used to auger and set the required number of wooden poles on

each side of a crossing; these poles may also be guyed for stability. In some instances boom vehicles/equipment would be used instead of utility poles to catch any falling conductor.

These structures would be installed along roadsides in disturbed areas and would cause relatively little disturbance. These protective structures would be installed from paved roads whenever possible. Where this is not possible, guard and crossing structure sites would be accessed on existing dirt roads and installed in such a way to minimize soil disturbance. Following reconductoring activities, crossing structure poles would be removed, the holes backfilled, and the disturbed areas recontoured and reseeded as necessary.

Near sensitive areas, monitors would coordinate with ground crews to determine appropriate placement of structure poles. Features to be avoided would be flagged. If sensitive areas cannot be avoided, temporary footings may be used to hold the poles in place in lieu of auguring holes.

1.8.5.4 Access

Access to the staging areas would primarily be by existing major roadways suitable for truck traffic, including highways, county roads, and other major roadways.

Construction crews would use existing paved or graveled roads along most of the transmission line corridor to access tower/pole sites; these include existing paved roads and farm roads, in addition to existing maintenance access to the existing transmission lines. Where necessary, existing access roads would be widened to a maximum of 16 feet, and new, temporary, access roads would be constructed; where ground conditions allow, crew would simply follow a designated overland route that would not require improvements. In environmentally sensitive areas, new, temporary access roads would be restored to pre-construction conditions. Stream crossings would be designed as described in Table 1.8-7, below, as needed. Where restrictions on vehicular use and heavy equipment use are noted, foot traffic and helicopter use would still be acceptable.

Table 1.8-7 Proposed Stream and Wetland Crossings

Tower Access	Type of Crossing	Construction/Design	Construction Constraints
Towers 10–12	Mats/plating	Route designed to avoid/minimize impacts on identified features; crews would lay mitigation down to cross features along route that cannot be avoided (as soil conditions dictate).	Vehicular traffic and heavy equipment use would be scheduled for the dry season; crews would implement mitigation as necessary to avoid significant damage or soil compaction within features along route. If work during the wet season is required because of the construction schedule, work would only occur in the areas specified in Appendix B-2.
Towers 44–50	Mats/plating	Route designed to avoid/minimize impacts on identified features; crews would lay mitigation down to cross features along route that cannot be avoided (as soil conditions dictate).	
Towers 54–64	Mats/plating	Route designed to avoid/minimize impacts on identified features; crews would lay mitigation down to cross features along route that cannot be avoided (as soil conditions dictate).	
Towers 66–69	Repair existing road (washouts), plating	The existing roadway has been damaged by erosion and would be improved for construction; one existing narrow culvert may require plating to accommodate larger/heavier vehicles.	

Table 1.8-7 Proposed Stream and Wetland Crossings

Tower Access	Type of Crossing	Construction/Design	Construction Constraints
Towers 70–71	Mats/plating/ bridge	Mat, plate, or bridge over small seasonal stream.	
Towers 73–82	Mats/plating/ bridge	Route designed to avoid/minimize impacts on identified features; crews would lay mitigation down to cross features along route that cannot be avoided (as soil conditions dictate).	
Towers 83–86	Repair and widen existing road, plating	The existing roadway is inadequate for construction and would be temporarily improved and widened for construction; existing narrow culverts/irrigation valves may require plating to accommodate larger/heavier vehicles.	
Towers 89–96	Bridge	The existing access road has several "wet" crossings (cobble base) that may be impassible for larger/heavier construction vehicles, therefore portable bridges (that would span top of bank to top of bank) are proposed.	Vehicular traffic and heavy equipment use to be scheduled for the dry/low flow season. If bridging is not possible, construction would utilize sky crane helicopters to transport materials to job sites. If work during the wet season is required because of the construction schedule, work would only occur in the areas specified in Appendix B-2.
Towers 97–98	Plating/bridge	One existing narrow culvert may require plating to accommodate larger/heavier vehicles.	Vehicular traffic and heavy equipment use would be scheduled for the dry season; crews would implement mitigation as necessary to avoid significant damage or soil compaction within features along route. If work during the wet season is required because of the construction schedule, work would only occur in the areas specified in Appendix B-2.
Towers 117–125	Plating/bridge	Option 1: Plate across narrow irrigation canal that runs parallel to and adjacent tower line to create a work surface over canal segment at each tower site. Option 2: Create a plated crossing (or use bridge) to cross onto the east side of the tower line (across ditch) and travel up that side from tower to tower; crossings would be set up at intervals along this tower line segment to accommodate the work.	
Towers 231–276	Mats/plating	Route designed to avoid/minimize impacts on identified features; crews would lay mitigation down to cross features along route that cannot be avoided (as soil conditions dictate).	Vehicular traffic and heavy equipment use to be scheduled for dry season; crews would implement mitigation as necessary to avoid significant damage or soil compaction within features along route. Many of the previously identified features along this segment of line have been eliminated or severely altered by recent highway and levee construction projects; an existing access is now present along the tower bases. If work during the wet season is required because of the construction schedule, work would only occur in the areas specified in Appendix B-2.

Table 1.8-7 Proposed Stream and Wetland Crossings

Tower Access	Type of Crossing	Construction/Design	Construction Constraints
Towers 288–291	Mats/plating	Route designed to avoid/minimize impacts on identified features; crews would lay mitigation down to cross features along route that cannot be avoided (as soil conditions dictate).	As the construction schedule allows, vehicular traffic and heavy equipment use to be scheduled for dry season; crews would implement mitigation as necessary to avoid significant damage or soil compaction within features along route. If work during the wet season is required because of the construction schedule, work would only occur in the areas specified in Appendix B-2.

Encroachment permits would be obtained from the California Department of Transportation (Caltrans) and the appropriate counties for crossing of jurisdictional roadways or highways. In addition, a Stormwater Pollution Prevention Plan (SWPPP) would be written for the entire project as described in APM HYDRO-1, and workers would receive written and tailboard instructions on the plan.

Traffic control may be required for work along major roadways. All required permitting and notification would be made to comply with permit conditions. Occasionally, it may be necessary to temporarily close one lane of traffic, and appropriate traffic control and safety measures would be taken. A traffic control plan would be prepared according to Caltrans requirements and submitted for approval by the local County Public Works Departments.

Helicopters (light and heavy duty) would be used to remove and deliver structures, materials, equipment, concrete, and workers to pole locations and to other locations where vehicular access is difficult because of topography and vegetation. Helicopters would be used to install poles in locations where overland access would not be possible or difficult due to terrain. Prior to construction, laydown/staging/helicopter landing areas would be prepared to provide space for materials delivery, storage, and preparation; equipment storage; and crew parking as shown in Table 1.8-8. Helicopters would use the temporary landing areas to pick up and drop off crew and materials as well as to stage and refuel.

Table 1.8-8 Laydown, Staging, Landing, and Pull Sites

Type of Construction Site	Area per Site	Number of Sites
Laydown / Staging / Helicopter Landing [1]	1.24–7.41 acres	16
Pull Sites	0.27–2.4 acres	16

Note:
[1] A minimum area of 200 by 200 feet would be required within the staging area for helicopter clearance.

Laydown, Staging, Helicopter Landing, and Pull Sites

Various pull and tension sites are planned along the project alignment (Table 1.8-8). Figures 1.8-2a to 1.8-2f and Appendix B-1 identify work areas, including pull and tension sites.

Prior to transmission line construction, approximately 16 laydown/staging/helicopter landing zone areas roughly 1.24 acres each would be prepared to provide space for materials delivery, storage, and preparation; equipment storage; crew parking prior to installation. If construction activities were to take place during winter, areas would be winterized to allow for construction activities to proceed. Upon completion of the project, the areas would be left as agreed to by the property owner. The site layouts would be approved by the project's environmental monitor, and work crew activities would follow all of

the applicant's environmental guidelines. Staging areas would be set back at least 50 feet from streams, creeks, or other water bodies to avoid impacts to riparian habitat.

1.8.5.5 Cleanup and Post-Construction Restoration

Crews would be required to maintain clean work areas as they proceed along the line and would be instructed that no debris may be left behind at any stage of the project. The cleanup and restoration process would include reseeding disturbed areas to restore the landscape. In many cases, the land would be left for replanting of crops by landowners/land managers of agricultural lands.

Once the cleanup has been completed, on a case by case basis, the work areas would be inspected on foot with the specific property owners to make sure that their concerns have been addressed. When all construction is completed, there would be a final walk down of the work areas with the crews and the biological monitor to ensure that proper cleanup and landscape restoration has been carried out. The final walk down would include access roads, pull sites, landing zones, staging areas, and pole locations.

Project Damage Assessment and Resolution Program

As part of the applicant's Project Damage Assessment and Resolution Program and per the applicant's right-of-way joint use policy, farmers would be fully compensated for the temporary loss of the portion of their land affected by the project; furthermore, any damage to or removal of orchard trees would also be fully compensated.

1.8.5.6 Construction Workforce and Equipment

Equipment that may be used includes: a line truck, water truck, four-wheel–drive pick-ups, 70-ton crane, helicopter, auger, bulldozer, hand tools, rope truck for reconductoring, and a truck-mounted rope puller and conductor tensioner. Project construction would require an excavation crew, a light-duty helicopter crew, a heavy-duty helicopter crew, a pole crew, line crew, substation crew, and environmental monitor. Table 1.8-9 describes the maximum number of construction workers needed daily for each construction phase. Table 1.8-10 describes the roles of each crew.

Table 1.8-9 Construction Workers

Construction Phase	Maximum Daily Workers
Construction of staging areas/helicopter landing zones and new temporary roads	30
Existing tower removal and tower site recovery	30
Pole site excavation, concrete base construction, and new pole installation	50
Transmission line installation	30
Staging areas/helicopter landing zones recovery	20

Table 1.8-10 Crews Expected To Be Used during Project Construction

Crew	Roles
Excavation	The excavation crew would be a contract crew to PG&E responsible for development of the staging areas, access roads, and pull sites. In addition, the excavation crew would perform construction cleanup activities.
Light-duty helicopter	The light-duty helicopter crew would be a contract crew to PG&E responsible for Federal Aviation Administration (FAA) permits, the helicopter (including maintenance and refueling), transporting work crews and materials to pole sites, and removal and installation of the sock line, as needed.
Heavy-duty helicopter	The heavy-duty helicopter crew would be a contract crew to PG&E responsible for FAA permits, the helicopter (including maintenance and refueling), transporting new poles to pole sites, and installation of poles using a sky crane, as needed.

Table 1.8-10 Crews Expected To Be Used during Project Construction

Crew	Roles
Tower	The tower crew (either a PG&E or contract crew) would be responsible for the excavation contractor, the heavy-duty helicopter contractor, the light-duty helicopter contractor, the development of pole-related staging areas, installation of steel pole foundations, and installation of transmission line steel poles.
Line	The line crew (either a PG&E or contract crew) would be responsible for managing an excavation crew and a light-duty helicopter crew, development of line-related staging areas, establishment of pull and tension sites, installation of rollers and crossbeams, removal/installation of the sock line, replacement of wood poles, and installation of new conductor.
Environmental and biological monitors	The environmental monitor would be a contractor to PG&E and would be responsible for inspection of all project construction activity, including inspection of work sites prior to the start of construction activity, monitoring of activities and cleanup, preparing and submitting California Public Utilities Commission (CPUC) compliance reports, and otherwise ensuring compliance with the CPUC Permit to Construct. If warranted, a qualified biological monitor would be used in areas with sensitive biological resources.

Table 1.8-11, Table 1.8-12, and Table 1.8-13 present specific information regarding equipment expected to be used during project construction.

Table 1.8-11 Equipment Expected To Be Used during Project Construction

Type of Equipment	Use
Aerial lifts	Remove old conductor and install new
Backhoe	Excavate foundations, spoil removal, backfill
Boom truck	Erect structures
Low Drill	Auger foundations
Concrete mixer truck	Haul concrete
Crane	Erect structures
Crew-cab truck/pick-ups	Transport personnel, tools, and materials
Dump truck	Haul material
Equipment/tool vans and cargo containers	Tool storage
Grooming/grading equipment: Dozer, water truck, line truck, loader, grader, rock transport, roller	Road construction (staging, pull sites): Move/compact soils, compact soils and control dust, properly pitch road for run-off, deliver road base for access roads, staging areas, and pull sites, compact road and surfaces
Helicopters (light and heavy duty)	Erect poles, install sock line, haul materials, equipment, and people
Hole auger	Excavate holes
Line truck and trailer	Haul conductor, poles, equipment, materials, and people, and to install pole/conductor
Materials storage units	Store material/tools
Mobile offices	Supervision and clerical office
Puller	Install conductor
Reel dolly	Install and move conductor
Tensioner	Install conductor

Table 1.8-12 On-Site Construction Equipment and Usage

Construction Phase	Equipment Type and Pieces	Operation Hours/Day	Total Operation Days for Whole Project
Construction of staging areas/helicopter landing zones and new temporary roads	D-8 or similar bulldozer, grader, loader, backhoe, dump truck, line truck and pick-up truck	12 hrs	120

Table 1.8-12 On-Site Construction Equipment and Usage

Construction Phase	Equipment Type and Pieces	Operation Hours/Day	Total Operation Days for Whole Project
Existing tower removal and tower site recovery	Backhoe, bulldozer, grader, line truck, dump truck, crane, helicopter and pick-up truck	12 hrs	120
Pole site excavation, concrete base construction, and new pole installation	Digger, backhoe, crane, concrete truck, dump truck, line trucks, helicopter and pick-up truck	12 hrs	300
Transmission line installation	Crane, line truck, pick-up truck and helicopter	12 hrs	200
Staging areas/helicopter landing zones recovery	D-8 or similar bulldozer, grader, loader, backhoe, dump truck , line truck and pick-up truck	12 hrs	100

Table 1.8-13 Helicopter Usage

Construction Phase	Helicopter Type	Pieces and Type/Make	Operation Hours/Day	Total Hours for Project
Existing tower removal and tower site recovery	Heavy Duty Light Duty	2-Bell 214 2-Hughes 500	4 Hours 4 Hours	200 640
Pole site excavation, concrete base construction, and new pole installation	Heavy Duty Light Duty	1-Bell 214 2-Hughes 500	4 Hours 4 Hours	400 800

1.8.5.7 Construction Schedule

Table 1.8-14 provides a summary of the currently proposed construction schedule phases for the project. The construction period for the transmission line is expected to last approximately 12–18 months. Project construction would be performed in approximately six geographic stages along the line, with each stage ranging from one to three months in duration.

Table 1.8-14 Average Duration of Construction Phases

Construction Phase	Average Duration (Days) for Each Segment
Construction of staging areas/helicopter landing zones and new temporary roads	30 days
Existing tower removal and tower site recovery	Would be done in stages, top portion of the tower would be removed when new structures are built; the remainder of the tower and foundations would be removed later, 3 days per tower, followed by site remediation as required.
Pole site excavation, concrete base construction, and new pole installation	Foundations for TSPs require 5 days per, then return to install new pole about 2 days. Hybrid poles- install concrete bottom 1 day and then return to install steel top and transfer conductors- 1 day per.
Transmission line installation	Conductoring requires two to four weeks per phase.
Staging areas/helicopter landing zones recovery	Assume one week per site.

The construction schedule would be determined by the project's environmental requirements and electric line clearance restrictions. Pending the outcome of environmental review and permitting, construction activities are proposed to begin late 2010 or early spring 2011. It is anticipated (due to the various environmental and operational restrictions) that construction would occur year round but would be seasonal along certain portions of the project alignment. Up to ten or more construction crews (one crew per structure installation/removal site) may be working on the project at any time in order to meet the project construction schedule.

1.8.5.8 Nighttime Construction

In some areas, work would be conducted at night to reduce impacts from temporary electrical outages that would be required for project construction. The applicant would limit nighttime work (work done after 7:00 pm and before 7:00 am) to outside of *urban areas* (Figures 1.8-2a to 1.8-2f, Tables 1.8-2 and 1.8-3). To ensure that there would not be substantial effects on wildlife, lighting would be restricted to those areas necessary for worker safety and task execution, would be directional and shielded as feasible to avoid intrusion into non-necessary work areas and adjacent habitat, and would be situated to avoid light trespass on aquatic habitat.

The applicant has stated that the only construction activities that would occur at night would be those required to raise towers **(potentially including the demolition of existing structures and excavation to prepare for placement of the new towers)**. A maximum of three crews would work simultaneously with each crew raising one tower. The crews would work in 12-hour shifts. The majority of construction staging activities, including onsite and offsite vehicle movement, would occur during the day. Nighttime construction would only occur from June 1st to October 1st.

Urban Areas

The applicant identified urban areas based on an evaluation of aerial photographs, zoning maps, and general plan maps (Figures 1.8-2a to 1.8-2f, Tables 1.8-2 and 1.8-3). Field survey data was considered to account for changes along the project route since the aerial photographs were taken. For the purposes of this Initial Study, areas were designated as urban if they had:

1. A concentration of more than two residential units that each fronted a street in an area of single family residential density;
2. At least five residential units per acre;
3. A zoning or general plan designation of residential; or
4. Single residences on large lots that did not appear to be used for routine agricultural production and were located near other residential lots.

Shielding

Nighttime construction lighting would be shielded with cutoffs or shades. There would be two primary types of lights used for nighttime construction. For general work-area illumination, the applicant would use mobile light towers. These types of towers are generally directional and are shielded on the sides and back. For illumination of specific work areas, the applicant would use directional spotlights that the applicant anticipates would be shielded on the sides. The applicant would consult with onsite biological experts and monitors to position and direct lights to minimize intrusion on adjacent sensitive habitats to the extent feasible with regard to workplace safety.

1.8.6 Operation and Maintenance

The regular inspection of transmission lines, instrumentation, and control and support systems is critical for safe, efficient, and economical operation of electric transmission facilities. Early identification of items needing maintenance, repair, or replacement would ensure continued safe operation of the project and continued reliable service to the uniform process used for transmission lines.

No additional maintenance is required as a result of the project beyond the existing ongoing maintenance. The existing maintenance process involves three types of inspections: aerial inspection, ground inspection, and climbing (aerial and climbing only if there was a problem or a ground inspection indicates the need for a closer inspection). The frequency of inspection may vary depending on factors such as the age of the system, pole type, vegetation conditions, and other factors. For the transmission lines, it is generally assumed that the applicant's troublemen would inspect all structures from the ground annually for corrosion, misalignment, deterioration, and foundation failures. In addition, ground inspection would occur on selected lines to check the condition of hardware, insulators, and conductors. Inspection would include checking conductors and fixtures for corrosion, breaks, broken insulators, and failing splices. The applicant would conduct inspections by driving to the poles in a pick-up truck where feasible.

Troublemen would use an all-terrain vehicle or go by foot where needed to minimize surface disturbance and in certain areas where access is difficult. Aerial inspection using helicopters may be conducted (if conditions indicate the need) annually using infrared technology. Any specific access requirements that may result from right-of-way negotiations with property owners would be documented and provided to the troublemen with instructions to comply with these access requirements during inspection and maintenance. (For more detail, please refer to the applicant's Overhead Line Inspection Guideline).

Maintenance of the transmission line would be generally on an as-needed basis, when the troublemen discover something needing repair or in response to an emergency situation. Specific access requirements that may result from right-of-way negotiations with property owners would be documented and provided to the transmission line troublemen, with instructions to comply with these access requirements during inspection and maintenance.

The applicant's vegetation management inspector would inspect and document vegetation conditions annually. Where needed, vegetation inspections may be conducted more frequently.

1.8.7 Project Design Considerations/Applicant Proposed Measures (APMs)

As part of the applicant's standard construction practices, environmental commitments have been incorporated into the project design and would be implemented to avoid or minimize impacts. The applicant has proposed resource-specific measures to ensure that potential impacts are less than significant. These applicant-proposed measures (APMs) are included in Table 1.8-15.

1.9 Surrounding Land Uses and Setting

The project setting is primarily rural, with surrounding agricultural fields and low density residential within the unincorporated areas of Butte, Yuba, and Sutter counties in northern California. The cities of Oroville, Marysville, Yuba, and Olivehurst surround the project. The approximately 45 mile project route crosses the following water features from north to south: Wyandotte Creek, North Honcut Creek, South Honcut Creek, Jack Slough, Yuba River, Reeds Creek, Dry Creek and Bear River. The project is located entirely within existing easements.

Table 1.8-15 Applicant Proposed Measures (APMs)

APM AIR-1	Implement best management practices to reduce construction tailpipe emissions. The applicant would implement all applicable and feasible measures to reduce tailpipe emissions from diesel-powered construction equipment. This requirement would be incorporated into the construction contract for the Project. Applicable and feasible measures include: • Maximize use of diesel construction equipment meeting CARB's 1996 or newer certification standard for off-road heavy-duty diesel engines. • Use emission control devices at least as effective as the original factory-installed equipment. • Locate stationary diesel-powered equipment and haul truck staging areas as far as practicable from sensitive receptors. • Substitute gasoline-powered for diesel-powered equipment when feasible. • Use alternatively fueled construction equipment on site where feasible, such as compressed natural gas (CNG), liquefied natural gas (LNG), propane, or biodiesel. • In the event that line-stringing activities would be required during peak ozone season, ground equipment would be used in place of helicopters, where practicable.
APM AIR-2	Implement mitigation measures for construction fugitive dust emissions. The applicant would implement all applicable and feasible fugitive dust control measures required by FRAQMD and BCAQMD including those listed below. This requirement would be incorporated into the construction contract for the Project. Applicable and feasible measures include: • Watering all active construction sites at least twice daily in dry conditions, with the frequency of watering based on the type of operation, soil, and wind exposure. • Prohibit all grading activities during periods of high wind (over 20 miles per hour). • On-site vehicles limited to a speed that minimizes dust emissions on unpaved roads. • Cover all trucks hauling dirt, sand, or loose materials. • Cover inactive storage piles. • Install wheel washers at the entrance to construction sites for all exiting trucks. • Sweep streets if visible soil material is carried out from the construction site. • Post a publicly visible sign with the telephone number and person to contact regarding dust complaints. This person would respond and take corrective action within 48 hours. The phone number of the FRAQMD and BCAQMD also would be visible to ensure compliance with FRAQMD and BCAQMD rules regarding nuisance and fugitive dust emissions. • Limit the area under construction at any one time.

Table 1.8-15 Applicant Proposed Measures (APMs)

APM AIR-3	Minimize greenhouse gas emissions during construction. The applicant would incorporate the following measures into the construction contract to reduce greenhouse gas (and other air pollutant) emissions: • Encourage the use of biodiesel fuel for diesel-powered equipment and vehicles. • Encourage construction workers to carpool. • Encourage recycling construction waste.
APM AIR-4	Implement SMMs. The applicant would implement all feasible SMMs, including: • A fugitive dust control plan would be prepared and submitted to the FRAQMD and BCAQMD prior to the start of construction work. • Construction equipment exhaust emissions shall not exceed FRAQMD Rule 3.0, Visible Emissions or BCAQMD Rule 201, Visible Emissions. Operators of vehicles and equipment found to exceed opacity limits shall take action to repair the equipment within 72 hours or remove the equipment from service. • The primary contractor shall be responsible to ensure that all construction equipment is properly tuned and maintained prior to and for the duration of onsite operation. • Minimize idling time to 5 minutes. • When possible, utilize existing power sources (e.g., power poles) or clean fuel generators rather than temporary power generators. • Develop a traffic plan to minimize traffic flow interference from construction activities. The plan may include advance public notice of routing, use of public transportation, and satellite parking areas with a shuttle service. Schedule operations affecting traffic for off-peak hours. Minimize obstruction of through-traffic lanes. Provide a flag person to guide traffic properly and ensure safety at construction sites. During construction, demonstrate to the CPUC-designated environmental monitor that the required local permits were obtained for all roadway encroachment locations. • Portable engines and portable engine-driven equipment units used at the project work site, with the exception of on-road and off-road motor vehicles, may require CARB portable equipment registration with a state or local air district permit. The owner/operator shall be responsible for arranging appropriate consultations with CARB or the local air district to determine registration and permitting requirements prior to equipment operation at the site.
APM AIR-5	Implement all Appropriate BAMMs. The applicant would implement all feasible BAMMs. These measures include the following: • The applicant would assemble a comprehensive inventory list (i.e. make, model, engine year, horsepower, emission rates) of all heavy-duty off-road (portable and mobile) equipment (50 horsepower [hp] and greater) that would be used an aggregate of 40 or more hours for the construction project. • The applicant would provide a plan for approval by FRAQMD and BCAQMD demonstrating that heavy-duty (equal to or greater than 50 hp) off-road equipment to be used in the construction project, including owned, leased and subcontractor vehicles, would achieve a project wide fleet-average 40 percent NOx reduction and 45 percent particulate reduction compared to the most recent ARB fleet average at time of construction. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology (Carl Moyer Guidelines), after-treatment products, voluntary offsite mitigation projects, provide funds for air district offsite mitigation projects, and/or other options as they become available. The FRAQMD and BCAQMD would be contacted to discuss alternative measures.

Table 1.8-15 Applicant Proposed Measures (APMs)

	• An operational water truck would be onsite at all times to apply water to control dust as needed to prevent dust impacts offsite. • No open burning of removed vegetation during infrastructure improvements. Vegetative material should be chipped or delivered to waste to energy facilities.
APM AIR-6	Avoid concurrent daytime and nighttime construction emissions. To reduce impacts at any one location, daytime project construction work would not be allowed on the day proceeding or on the day after nighttime project construction work that occurs in the same air district as the daytime construction work.
APM BIO-1	Conduct a preconstruction tree survey and avoid or compensate for tree removal. Prior to construction, the applicant would conduct a tree survey to map and identify any protected trees in the Project that may be affected by the project. If feasible, the identified trees would be avoided during construction. If avoidance is not feasible, trees would be replaced or compensation would be provided, as stipulated in applicable local regulations.
APM BIO-2	Implement general protection measures for wetlands and other waters. During construction, the applicant would implement the following general measures to minimize or avoid impacts on wetlands and other waters: • Establish exclusion zones and minimize the amount of area disturbed to the minimum amount necessary to complete the work. • Restrict travel to established and temporary roads and work areas. • Restrict construction personnel and equipment from entering fenced protected areas. • Conduct all fueling of vehicles at least 100 feet from water bodies and 250 feet from wetlands and vernal pools. • To the extent feasible, complete road construction in wetlands and other waters in the dry season, generally from June 1 to October 15. If it is not feasible to complete road construction work during the dry season, appropriate erosion control measures for the site would be used. Additionally, the applicant or its contractor would prepare and implement a SWPPP to prevent construction-related erosion and sediments from entering nearby waterways. The SWPPP would include a list of BMPs to be implemented in areas with potential to drain to any water body in Butte, Yuba, or Sutter Counties. These BMPs would be selected to achieve maximum sediment removal and represent the best available technology (BAT) that is economically achievable. (See APM HYDRO-1).
APM BIO-3	Conduct mandatory contractor/worker awareness training for construction personnel. Before the start of construction activities, the applicant shall ensure that a qualified biologist would conduct mandatory contractor/worker awareness training for construction personnel. The awareness training would be provided to all construction personnel to brief them on the need to avoid impacts on wetlands and on the penalties for not complying with biological mitigation requirements. If new construction personnel are added to the project, the contractor would ensure that the personnel receive the mandatory training before starting work.
APM BIO-4	Install construction barrier fencing to protect wetlands and other waters adjacent to the project area. The applicant or its contractor would install construction barrier fencing that clearly identifies wetlands that are to be avoided. Wetlands located within work areas would be fenced off to avoid disturbance in these areas. Before construction, the construction contractor would work with the project engineer and a resource specialist to identify the locations for the barrier fencing and would place stakes around the wetland areas to indicate their locations. The protected area would be designated an environmentally sensitive area and clearly identified on the construction specifications. Temporary fences would be furnished, constructed, maintained,

Table 1.8-15 Applicant Proposed Measures (APMs)

	and removed as shown on the plans, as specified in the special provisions, and as directed by the project engineer.
APM BIO-5	Restore temporarily impacted wetlands and other waters to pre-construction condition. • Minimize ground disturbance wherever possible. • Remove construction materials. • Save and replace topsoil and re-grade where necessary to pre-construction topographic contours. • Re-seed with native local weed-free seed source in highly disturbed areas.
APM BIO-6	Monitor during and after disturbance in wetlands and other waters. • Monitor to avoid travel through wetlands and other waters wherever possible. • Monitor to assure that restoration to pre-construction condition is completed. • Monitor to make sure no noxious weed species are introduced. A Noxious Weed Survey was conducted prior to project initiation which contains a list of pre-existing weeds of concern. If weeds are introduced or spread initiate a treatment plan. • The length of time period for monitoring will be determined in consultation with resource agencies, with a 5 year monitoring period likely to be required.
APM BIO-7	Compensate for permanent impacts on wetlands and other waters caused by new structures. Within the project study area there would be 56 new structures placed in wetlands and other waters. The placement of the new structures would result in a total of 0.054 acres of permanent impacts on wetlands and other waters. The applicant would compensate for permanent impacts on wetlands and other waters to ensure no net loss of wetland habitat functions and values. The compensation would be provided at a minimum ratio of 1:1 (1 acre restored or created for every acre filled), but final compensation ratios would be based on site-specific information and determined through coordination with 1) the U.S. Army Corps of Engineers (USACE), in consultation with the U.S. Fish and Wildlife Service (USFWS) for the Section 404 and Section 7 permit process; and 2) the California Department of Fish and Game (DFG) for the 2081 permit and Streambed Alteration Agreement. Compensation may be a combination of onsite restoration, offsite restoration and creation, and mitigation credits. Onsite creation will not be considered. The applicant would retain an environmental consultant with the appropriate design/engineering experience (e.g., restoration ecologist, hydrologic engineer, landscape architect) as needed to evaluate the project study area and determine if onsite wetland habitat restoration/creation is feasible.
APM BIO-9	Avoid impacts on special-status plants. Wherever possible, the project components would be redesigned to avoid impacts to special-status plants. The applicant would, under the direction of a qualified botanist and to the extent possible, adjust the location of work areas, access roads, and other project components to completely avoid impacts on brown fox sedge and other special-status plants that may be located within the study area prior to construction. If this avoidance measure is not feasible, the applicant would implement APM BIO-10 (Minimize impacts on special-status plants) and APM BIO-11 (Compensate for the loss of special-status plants).
APM BIO-10	Minimize impacts on special-status plants. If full avoidance of fox sedge and other special-status plants identified in the project area is not possible during construction, the applicant would minimize impacts by limiting the work area to the smallest area necessary to complete the work and would establish avoidance areas. Avoidance areas would be clearly staked and flagged in the field by a qualified botanist prior to construction. Where temporary disturbance is necessary, the applicant would conduct project activities and necessary ground disturbance in a manner that is consistent with the successful reestablishment of the species to the

Table 1.8-15 Applicant Proposed Measures (APMs)

	extent feasible. A list of specific actions necessary to ensure successful reestablishment of the species following temporary disturbance, and the locations where these actions would be implemented, would be prepared by a qualified botanist prior to construction and implemented during construction. The environmental awareness education program should include information on the location of special-status plants in the project area and the measures that would be implemented to avoid or minimize impacts on the plants.
APM BIO-11	Restore habitat for special-status plants disturbed during construction. If impacts on special-status plants are unavoidable, the applicant would develop a special status plant restoration plan in consultation with DFG and with the USFWS as well in the event that a federally listed plant is found. No impacts to special-status plants would be allowed until agency requirements are determined and implemented. The specific actions necessary would depend on the biology of the species in question and the type of impact; however, the actions would be designed to ensure successful reestablishment of the species following disturbance. The plan would be prepared by a qualified botanist prior to construction and would indicate when and where the actions would be implemented during construction. The plan would include a restoration and reseeding plan specific to the special-status plant habitat which was disturbed.
APM BIO-12	Implement management practices to control the introduction and spread of invasive plants. Prior to construction, the applicant would identify the location of noxious weed species of concern within areas that would be disturbed as part of the project. Appropriate management practices would be designed by a botanist and implemented during construction to reduce the likelihood of spreading already established weeds into new areas or increasing their abundance, and of introducing new weed species to the project area. The SWPPP to be prepared for the project would include best management practices (BMPs) such as using construction equipment that has been cleaned of soil and plant parts, including seeds, before entering the project area; using weed-free straw for erosion control, weed free gravel or fill for road construction, and revegetating with appropriate seed mixes that may include native species and/or sterile nurse crops. A post-construction survey for new weeds in areas that were disturbed during construction would also be conducted. If weed populations not previously found adjacent to project-disturbed areas were found following construction, they would be controlled using the most effective and least environmentally harmful methods. Implementing the management practices described above would reduce potentially significant impacts from invasive plants to a less-than-significant level.
APM BIO-13	Avoid or minimize effects on valley elderberry longhorn beetle during construction. Direct impacts to VELB would be avoided when feasible by minimizing the amount of suitable habitat that would be trimmed or removed. Suitable habitat is considered all elderberry stems greater than one-inch in diameter when measured at ground-level. Work areas and structure locations would be designed or selected such that elderberry shrubs are avoided whenever possible. The transmission line and construction area would avoid potential impacts by spanning riparian forest vegetation along the Yuba River and Bear River where many of the elderberry shrubs in the study area are located. Additional shrubs within the study area are separated from potential project effects by a distinct barrier, such as a railroad or canal. Potential impacts to 44 elderberry shrubs located within 100 feet of the project area but greater than 20 feet from the project area would be avoided through project design and implementation of BMPs. These shrubs are subject to potential indirect impacts from project construction; however, reconstruction and maintenance activities would not require ground disturbance within 20 feet of the drip-lines of these shrubs. The applicant does not expect impacts to VELB habitat located greater than 20 feet from the transmission facilities or project access routes. Potential impacts to 26 elderberry shrubs located within 20 feet of the project area would be minimized through implementation of these measures and as detailed in the Valley Elderberry Longhorn Beetle Conservation Program (PG&E 2003). • A qualified biologist would survey for the presence of elderberry plants within 20 feet of the work area and mark the minimum set-back distance with construction flagging. • Field workers would be briefed on the location of elderberry plants in or near the work area and would

Table 1.8-15 Applicant Proposed Measures (APMs)

	review the appropriate avoidance, protection, and minimization measures.
	• Ground-disturbing activities would include erosion control measures that prevent soil from leaving the work area or encroaching on an elderberry shrub. • A qualified biologist would survey all project access roads prior to conducting routine road maintenance or road grading. Construction vehicles would avoid traveling near elderberry shrubs that are located within 20 feet of an existing or temporary access road. Shrub numbers 1, 3-11, 26, and 55 are located directly beneath existing transmission towers. Most of these shrubs are greater than 25 feet in height, having grown up through and around portions of the tower structures. To avoid potential impacts from traditional demolition, these towers would be dismantled and removed only to ground level where feasible. Where the elderberry shrub has grown into or is entwined with the tower to the extent where the tower cannot be removed completely without trimming the shrub, that portion of the tower would be left in place. In order to protect public safety, the applicant's BMPs call for removal of non-functional facilities. Therefore, this measure would be implemented to the extent feasible without jeopardizing public safety. In general, metal tower structures would be dismantled and removed from the site while concrete footings would remain in place or be dismantled to ground-level.
APM BIO-14	Compensate for loss of valley elderberry longhorn beetle habitat and potential loss of individuals. The applicant would compensate for permanent and temporary loss of habitat and potential loss of individual VELB through participation in the Valley Elderberry Longhorn Beetle Conservation Program (PG&E 2003). The program was developed to compensate for trimming approximately 250 elderberry plants and removing approximately 20 plants per year. The applicant would continue to fund the recovery of VELB and increase habitat through acquisition, restoration, or protection of lands in areas that provide the greatest conservation to the species. Habitat locations identified during technical studies for the project would be added to the applicant's database or VELB habitat. Elderberry shrub locations and project activities would be incorporated in the applicant's biennial monitoring report.
APM BIO-15	Avoid or minimize impacts on habitat for vernal pool species during construction. The applicant would implement measures that would substantially reduce the risk of incidental take of vernal pool fairy shrimp, vernal pool tadpole shrimp, and western spadefoot in the project area. Prior to and during construction, the applicant would perform the following actions: • Where feasible, the project would be designed to avoid direct and permanent impacts to vernal pool species and their habitat; new structures would be located outside of suitable habitat features; and work areas and access routes would be designed to avoid vernal pool habitats. • Where existing towers are located within a suitable habitat feature, the removal of those towers would be conducted in a way that minimizes potential ground disturbance. Lattice towers would be removed from habitat using a helicopter or crane lift so that construction equipment would not enter the habitat area. Existing foundations proposed to be removed from habitat would be demolished only to ground level to avoid unnecessary ground disturbances. • Conduct a preconstruction survey for Western spadefoot and monitor construction activities within suitable aquatic habitat. A USFWS-approved biologist would conduct a preconstruction survey in suitable habitat no more than 48 hours before construction and would be onsite during construction activity in potential aquatic habitat. The construction area would be resurveyed whenever there is a lapse in construction activity of two weeks or more. If a Western spadefoot is encountered within the construction work area, the biologist would relocate the frog to a suitable aquatic habitat, outside the construction area. For each spadefoot encountered, the biologist would submit a completed CNDDB field survey form

Table 1.8-15 Applicant Proposed Measures (APMs)

	(or equivalent) to DFG no more than 90 days after completing the last field visit to the project site. • Temporary construction disturbances to vernal pools, seasonal wetlands, and ponds would be minimized to the extent practicable. All project-related vehicle traffic would be restricted to established roads, temporary access roads, or designated construction areas. • Ground-disturbing activities within 250 feet of suitable aquatic habitat would be conducted during the dry season (generally May 1 to October 15) where possible. Work areas where ground disturbing activities would likely be required during the wet season are shown in Appendix B-2. • If construction activities occur during the wet season, temporary silt fencing should be installed at the limits of the affected work areas to prevent amphibians from moving into the work areas. The location of the fencing would be determined by the environmental monitor and the construction supervisor. • An environmental monitor would monitor construction activities within 250 feet of suitable aquatic habitat for vernal pool species. • Plastic monofilament netting (erosion control matting) or similar material would not be used for erosion control or other purposes in the construction area because amphibians may become entangled or trapped in it. Acceptable substitutes include coconut coir matting or hydro-seeding. • The applicant would implement BMPs to prevent sediment from entering aquatic habitat near the work areas. Measures include silt fencing, sterile hay bales, no cleaning of equipment in drainages or other wetlands, and temporary sediment disposal. • Within 1 week of completion of the project, all habitats subject to temporary ground disturbances would be re-contoured, if appropriate in the opinion of the onsite biologist, and re-vegetated to promote restoration of the area to natural conditions.
APM BIO-16	Compensate for impacts to habitat for vernal pool fairy shrimp and vernal pool tadpole shrimp. Consistent with the USFWS's existing programmatic consultation for vernal pool crustaceans, direct impacts on aquatic habitat for federally listed vernal pool crustaceans will be compensated through habitat preservation at a 2:1 ratio, and creation at a 1:1 ratio. The habitat preservation and creation will be achieved at a USFWS-approved conservation bank, or other location with comparable conservation values, subject to USFWS approval. Adequate funding, monitoring, and adaptive measures will be incorporated into the compensation program that will ensure the protected habitat is conserved in perpetuity.
APM BIO-17	Minimize potential impacts on giant garter snake during construction within suitable habitat. To avoid and minimize impacts on giant garter snake, the applicant would implement the following measures: • As feasible, construction activity within giant garter snake aquatic and upland habitat in and around agricultural ditches would be conducted within the active period for giant garter snakes (between May 1 and October 1). Depending on weather conditions and consultation with USFWS and DFG, it may be possible to extend the construction period into mid or late October. This would reduce direct impacts on the species because the snakes would be active and may respond to construction activities by moving out of the way. • Prior to any construction within suitable giant garter snake aquatic habitat (agricultural ditches), the habitat would be dewatered and must remain dry for at least 15 consecutive days after April 15 and prior to excavating or filling of dewatered habitat. • A USFWS-approved biologist would conduct a preconstruction survey in suitable habitat no more than 24 hours before construction and would be onsite during construction activity in potential aquatic and upland habitat. The construction area would be resurveyed whenever there is a lapse in construction activity of two weeks or more. • If a giant garter snake is encountered within the construction work area, construction activities must cease until the snake moves out of the work area unassisted. Capture and relocation of trapped or

Table 1.8-15 Applicant Proposed Measures (APMs)

	injured individuals can only be attempted by USFWS-permitted personnel. The applicant or its contractors would notify USFWS within 24 hours and submit a report, including dates, locations, habitat description, and any corrective measures taken to protect the snake(s) encountered. For each giant garter snake encountered, the biologist would submit a completed CNDDB field survey form (or equivalent) to DFG no more than 90 days after completing the last field visit to the project site. • Construction personnel would participate in a USFWS-approved worker environmental awareness program. A qualified biologist would inform all construction personnel about the life history of giant garter snake and the terms and conditions of the BO. Proof of this instruction would be submitted to USFWS Sacramento field office. • To ensure that construction equipment and personnel do not affect giant garter snake aquatic habitat outside the construction work area, orange barrier fencing would be erected to clearly delineate the aquatic habitat to be avoided. • A post-construction compliance report prepared by a qualified biologist would be forwarded to the chief of the Endangered Species Division of USFWS Sacramento field office within 60 days after completion of the Project. This report would include dates that construction occurred, pertinent information about the applicant's success in implementing project mitigation measures, an explanation of any failures to implement mitigation measures, any known project impacts on federally listed species, any occurrences of incidental take of federally listed species, and any other pertinent information.
APM BIO-18	Compensate for loss of aquatic and upland habitat for giant garter snake. Any giant garter snake habitat temporarily impacted by project related activities will be restored to pre-project conditions within the same season or, at most, the same calendar year. PG&E will conduct one year of monitoring consistent with a habitat monitoring plan to include measurable criteria for restoration success, and a defined restoration and monitoring timeline. A monitoring report will be due to USFWS and DFG one year from the restoration implementation, including photo-documentation with pre- and post-project photos, and other information as specified in the monitoring plan. To compensate for the permanent loss of 0.12 acre of suitable habitat for giant garter snake, PG&E will purchase off-site giant garter snake habitat credits at a 3:1 ratio from a USFWS- and DFG- approved conservation bank.
APM BIO-19	Conduct a preconstruction survey for western pond turtles and monitor construction activities within suitable aquatic and upland habitat. To avoid construction-related impacts on northwestern pond turtles, the applicant would retain a qualified wildlife biologist to conduct a preconstruction survey for western pond turtles no more than 48 hours before the start of construction in work areas that are within suitable upland habitat (grasslands within 1,300 feet of aquatic habitats). The preconstruction survey would be conducted in conjunction with giant garter snake and western spadefoot surveys. The wildlife biologist would look for adult pond turtles, in addition to nests containing pond turtle hatchlings and eggs. If an adult western pond turtle is located in the construction area, the biologist would move the turtle to a suitable aquatic site, outside the construction area. If an active pond turtle nest containing either pond turtle hatchlings or eggs is found, the applicant would consult DFG to determine and implement appropriate avoidance measures, which may include a "no-disturbance" buffer around the nest site until the hatchlings have moved to a nearby aquatic site.
APM BIO-20	Conduct preconstruction surveys for active burrowing owl burrows. DFG (1995) recommends that preconstruction surveys be conducted at all construction sites (except paved areas) in the project study area and in a 250-foot-wide buffer zone around the construction site to locate active burrowing owl burrows. The applicant would retain a qualified biologist to conduct preconstruction surveys for active burrows according to the DFG guidelines. Surveys typically include a nesting season survey and a wintering season survey. The surveys would cover all affected areas, including the transmission line route, staging areas, pull sites, and areas of access road improvements where ground disturbance is required. If no burrowing owls are detected, no further mitigation is required. If active burrowing owl burrows are

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	detected, the applicant would implement APM BIO-21 (Implement DFG guidelines for burrowing owl mitigation, if necessary).
APM BIO-21	Implement DFG (1995) guidelines for burrowing owl mitigation, if necessary. The applicant would implement the following measures based on DFG Guidelines if active owl burrows are located within 250 feet of the project area. • Occupied burrows would not be disturbed during the nesting season (February 1–August 31). PG&E would consult with DFG to determine the appropriate no disturbance buffer around active burrows, if owls are located near the project area. • When destruction of an occupied burrow is unavoidable during the non-breeding season (September 1–January 31), unsuitable burrows would be enhanced (enlarged or cleared of debris) or new burrows created by installing artificial burrows at a ratio of 2:1 on protected lands approved by DFG. Newly created burrows would follow guidelines established by DFG. • If owls must be moved away from the project construction area, passive relocation techniques, such as installing one-way doors at the burrow entrance, would be used instead of trapping the owls. At least 1 week would be necessary to accomplish the passive relocation and allow the owls to acclimate to alternative burrows. • If active burrowing owl burrows are found and the owls must be relocated, the applicant would offset the loss of foraging and burrow habitat in the project construction area by acquiring and permanently protecting a minimum of 6.5 acres of foraging habitat per occupied burrow identified in the project construction area. The protected lands should be located adjacent to the occupied burrowing owl habitat in the project construction area or at another occupied site near the project construction area. The location of the protected lands would be determined in coordination with DFG. The applicant also would prepare a monitoring plan and provide long-term management and monitoring of the protected lands. The monitoring plan would specify success criteria, identify remedial measures, and require an annual report to be submitted to DFG. • Avoidance would be the preferred method of addressing potential impacts. Avoidance would involve preventing disturbance within 160 feet of occupied burrows during the nonbreeding season (September 1–January 31) or within 250 feet during the breeding season. Avoidance also requires that at least 6.5 acres of foraging habitat (calculated based on an approximately 300-foot foraging radius around an occupied burrow), contiguous with occupied burrow sites, be permanently preserved for each pair of breeding burrowing owls or single unpaired resident bird. The configuration of the protected site would be submitted to DFG for approval.
APM BIO-22	Conduct tree trimming, vegetation removal, and, if possible, tower removal during the non-breeding season. To avoid removal of active nests, tree trimming, vegetation removal, and removal of towers with active nests or in close proximity to areas with active nest sites, should be conducted during the non-breeding season (generally August 16 through February 28).
APM BIO-23	Conduct preconstruction surveys for active special-status and non-special-status raptors and migratory birds. Construction activities are anticipated to occur mainly during the nesting season for migratory birds and raptors (March 1–August 15). The applicant would retain a qualified wildlife biologist to conduct preconstruction surveys for nesting birds, for all construction activities that occur within or near suitable breeding habitat. Due to the long linear nature of the project, construction activities would be conducted in distinct sections of the transmission line. The preconstruction surveys would be conducted for each section no more than 1 week prior to the start of construction activities in that section. Surveys would cover all affected areas, which is the transmission line route, staging areas, pull sites, and areas of access road improvements where ground disturbance or vegetation clearing is required. Preconstruction surveys would be repeated if

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	construction activities are dormant in a section for longer than 1 week. If surveys indicate that migratory bird or raptor nests occur in areas that would be directly affected by construction activities, a no-disturbance buffer would be established around the nest site to avoid disturbance or destruction of the nest site until after the breeding season or until a wildlife biologist determines that the young have fledged. Generally, the buffer zones are 50–100 feet for nesting passerine birds, 300 feet up to 2,640 feet for nesting raptors, and 500 feet up to 2,640 feet for golden eagles. However, the extent of these buffers would be determined through coordination with DFG and would depend on the level of noise or construction disturbance, line of sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographical or artificial barriers. These factors would be analyzed to make an appropriate decision on buffer distances. All active nests occurring in or near the project area would be monitored during construction by the onsite monitor for signs of stress. If the onsite monitor determines that birds on the nest are stressed, construction would be halted and PG&E would contact DFG to determine a further course of action.
APM BIO-24	Avoid disturbance of active nests by helicopter use. Use of helicopters would be restricted to necessary trips to install and remove poles, install transmission lines, and deliver and remove equipment to areas lacking vehicle access. If active nests occur under planned helicopter flight paths, coordination with DFG would be required to determine whether modification of the flight path is necessary to avoid disturbance of active nests.
APM CR-1	Stop work if previously unknown cultural resources are discovered. If buried cultural resources such as chipped or ground stone, historic debris, or building foundations are inadvertently discovered during site preparation or construction activities, work would stop in that area and within 100 feet of the find until a qualified archaeologist can assess the significance of the find and, if necessary, develop appropriate treatment measures in consultation with the applicant and other appropriate agencies. (With the archaeologist's approval, work may continue on other portions of the site.) The applicant would be responsible for ensuring that the archaeologist's recommendations for treatment are implemented.
APM CR-2	Stop work if previously unknown paleontological resources are discovered. Training should be conducted for construction personnel, and work should be ceased if paleontological resources are encountered. Construction is defined to include any excavation, paving, building construction, or landscaping.
APM CR-3	Stop work if human remains are discovered. If human remains are encountered during site preparation or construction, work would stop within a 100-foot radius of the find and the county coroner would be notified immediately, as required by state law *(California Health and Safety Code [CHSC]. 7050.5)*. A qualified archaeologist also would be notified immediately. If the county coroner determines that the remains are Native American, the coroner would contact the NAHC, pursuant to *CHSC 7050.5[c]*. There would be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie human remains until the county coroner has determined that (1) no investigation of the cause of death is required; and (2) if the remains are of Native American origin, the descendants of the deceased Native Americans have made a recommendation to the landowner or the person responsible for the excavation work for means of treating or disposing of with appropriate dignity the human remains and any associated grave goods as provided in *PRC 5097.98*—unless the NAHC was unable to identify a descendant or the descendant failed to make a recommendation within 48 hours after being notified by the commission.
APM GEO-1	Incorporate measures identified in geotechnical report/use of standard engineering practices to mitigate for individual site specific and design-specific hazards. For overhead transmission lines, tower replacement(s), and any other associated project activities, site-specific, design-level geotechnical investigations would be performed at specific locations where required to evaluate the potential for the presence of soft and/or loose soils, unstable slopes, surface fault rupture, ground

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	shaking, liquefaction hazard, slope stability in the vicinity of river crossings, and expansive soils. Where significant potential for these hazards exists, pole locations would be adjusted when possible in order to minimize any potential for damage.
APM HAZ-1	Implement a Spill Prevention Plan. A Spill Prevention Plan would be implemented for each staging area, and workers would receive written instructions and training on the plan. This plan would include: • A Hazardous Substance Control and Emergency Response Plan addressing preparations for quick and safe cleanup of accidental spills. The plan would prescribe hazardous materials handling procedures for reducing the potential for a spill during construction, and include an emergency response program. The plan would identify areas where refueling and vehicle maintenance activities and storage of hazardous materials would be permitted. • An Environmental Training and Monitoring Program to communicate environmental concerns and appropriate work practices, including spill prevention, emergency response measures, and applicable best management practices to all construction and operations personnel. A monitoring program would be implemented to ensure that the plans are followed during project construction.
APM HAZ-2	Conduct construction soil sampling and testing if soil contamination is suspected. The applicant would conduct soil sampling along the project alignment, as needed, before construction begins. Soil information would be provided to construction crews, to inform them about soil conditions and potential hazards. In the event that contaminated soil is encountered during excavation activities along the transmission line alignment, work would be stopped and the soil would be segregated and tested to determine appropriate disposal and treatment options. If the soil test results positive for hazardous materials, the soil would be properly handled, transported, and disposed of in accordance with federal, state, and local regulations.
APM HAZ-3	Conduct groundwater sampling and testing if suspected contaminated groundwater is encountered during construction. If suspected contaminated groundwater is encountered in the proposed project construction areas, samples would be collected and submitted for analysis of petroleum hydrocarbons, metals, volatile organic compounds, and semi-volatile organic compounds. If necessary, groundwater would be collected during construction, contained, and disposed of in accordance with all applicable regulations. In addition to APM HAZ-1, APM HAZ-2, and APM HAZ-3, Mitigation Measures MM HAZ-1 (Additional Investigation of Contaminated Sites along the Project Alignment) and MM HAZ-2 (Contaminated Soil and Groundwater Contingency Plan) are proposed to be implemented to reduce potential impacts associated with significant hazard to the public or the environment through exposure to contaminated sites.
APM HAZ-4	Develop and Implement a Helicopter Lift Plan. The applicant would require the helicopter vendor to prepare a Helicopter Lift Plan for approval by the FAA prior to any construction helicopter operations. Any specific transportation needs (e.g., temporary road closures) would be identified in the Plan and would be coordinated with the appropriate jurisdictions.
APM HAZ-5	Prepare a Health and Safety Plan. The applicant would prepare a Health and Safety Plan that would address emergency medical services to be provided in case of an emergency. The Plan would list procedures, specific emergency response, and evacuation measures to be followed during emergencies. The applicant would prepare this manual and distribute it to all the applicant and contract workers involved in the project prior to construction and during operation of the proposed project. The applicant would provide project maps to emergency personnel, which describe tower and pole locations as well as access roads, to ensure proper emergency response to all parts of the proposed project alignment.

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APM HAZ-6	Develop and Implement a Fire Risk Management Plan. The applicant follows a standard practice of developing and implementing a Fire Risk Management Plan that addresses fire-suppression equipment and procedures to be used during construction and training of construction and maintenance crews. Additionally, fire suppression equipment and materials would be kept adjacent to all areas of work and in staging areas, and would be clearly marked. Detailed information for responding to fires would be provided in the project's Fire Risk Management Plan. Information contained in the Plan and location of fire-suppression materials and equipment would be included as part of the employee environmental training discussed in APM HAZ-1. Furthermore, water tanks would be sited in the project area to protect against fire, and all vehicles shall carry fire suppression equipment. The applicant would contact and coordinate with local and county fire departments to determine the minimum amounts of fire equipment to be carried on the vehicles and appropriate locations for the water tanks.
APM HYDRO-1	Prepare and implement a storm water pollution prevention plan. The applicant or its contractor would prepare and implement an SWPPP to prevent construction-related erosion and sediments from entering nearby waterways. The SWPPP would include a list of BMPs to be implemented in areas with potential to drain to any water body in Butte, Yuba, or Sutter Counties. These BMPs would be selected to achieve maximum sediment removal and represent the BAT that is economically achievable. BMPs to be implemented as part of the project-specific SWPPP may include, but are not limited to, the following control measures. • Temporary erosion control measures (such as silt fences, staked straw bales/wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, grass buffer strips, high infiltration substrates, grassy swales, and temporary revegetation or other ground cover) would be employed to control erosion from disturbed areas. • Drainage facilities in downstream offsite areas would be protected from sediment using BMPs acceptable to Butte, Sutter, and Yuba Counties and the CVRWQCB. • Pervious/porous pavement would be used to reduce runoff when economically feasible. The pavement is a unique cement-based concrete product with a porous structure, which allows rainwater to pass directly through the pavement and into the soil. Vegetative cover would be established on the disturbed areas as soon as possible after disturbance. Final selection of BMPs would be subject to review by the applicant.
APM HYDRO-2	Develop and implement a spill prevention control and countermeasure plan. The applicant or its contractor would develop and implement an SPCCP to minimize the potential for, and effects of, spills of hazardous, toxic, or petroleum substances during all construction activities. The SPCCP would be completed and included in the SWPPP before any construction activities begin. The applicant would routinely inspect the construction areas to verify that the control measures specified in the SPCCP are properly implemented and maintained. The applicant would notify its contractors immediately if there is a noncompliance issue and would require compliance. If an appreciable spill occurs, a detailed analysis would be performed by a registered environmental assessor to identify the likely cause of contamination. This analysis would conform to American Society for Testing and Materials (ASTM) standards and would include recommendations for reducing or eliminating the source or mechanisms of contamination. Based on this analysis, the applicant and its contractors would select and implement additional measures to control contamination, with a performance standard that groundwater quality and surface water quality must be returned to baseline conditions.
APM HYDRO-3	Perform a drainage study and comply with setback requirements and county standards. A drainage study would be performed for all of the areas that require grading and new roadways in addition to placement of tower footings in the 100-year floodplain. The drainage study would include calculations for the potential increases in stormwater runoff from related construction activities. The study would also include drainage improvements to minimize the risk of flooding to downstream areas based on any potential increase

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	in flood areas from the proposed project. The applicant would incorporate the recommendations for the drainage study into construction plans and would comply with county standards for construction in 100-year floodplains.
APM NOISE-1	Employ noise-reducing construction practices during temporary reconstruction activities. The applicant would employ noise-reducing construction practices so that noise produced by construction activities is in compliance with applicable local noise level standards and ordinances where feasible. Measures to be implemented may include but are not limited to the measures listed here. • Ensure that all equipment is equipped with mufflers that meet or exceed factory new equipment standards. • Locate stationary equipment as far as practical from noise sensitive receptors. • Limit unnecessary engine idling. • Use equipment that is specifically designed for low noise emissions and employ equipment that is powered by electric or natural gas engines as opposed to those powered by diesel or gasoline reciprocating engines. • In the vicinity of noise-sensitive receptors, use cranes wherever feasible as opposed to helicopters to install poles and replace transmission towers. • Design helicopter flight paths over land use areas that are not noise sensitive (i.e. agricultural and vacant). • Locate helicopter staging areas as far from residential locations as is practical. • Limit all construction activity in urban areas to the hours of 7 a.m. to 7 p.m. Monday through Saturday. • Use temporary enclosures or noise barriers (i.e. wood and/or noise blankets) around loudest pieces of equipment when practical and necessary. • Notify communities and neighborhoods that would be most heavily impacted by construction activities, including but not limited to written notice and the posting of signs with contractor contact number on construction site fences. Signs would also include contact details for the PG&E noise complaint officer for the project. • Locate vehicle access roads as far from noise sensitive receptors as practical. • Schedule construction activities that would occur within 300 feet of schools and learning institutions (such as Yuba Community College) on days when classes are not in session. • PG&E proposes that night work not occur in urban areas or areas with substantial concentrations of residences.
APM PS-1	Maintain secured facilities during construction activities. The applicant would implement the following measures during construction activities. • All unattended equipment would be locked and secured at the most secure locations available. • Contract security would be made available for use at active pull/tension sites, lay-down, and storage areas outside work hours. • All open holes would be covered and secured once activity at that location stops (after hours). • Anchor bolts on foundations without structures would be capped. • Safety structures would be placed at road crossings during overhead wire installation activity to protect traffic and pedestrians.

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APM TRAN-1	Restriction of Simpson Lane during p.m. peak hours. During p.m. peak hours, Simpson Lane shall not be used by the project for construction related activities.
APM USS-1	Conduct a pre-construction records search/field survey to identify specific locations of water wells and well fields. To ensure minimal disturbance or alteration of water wells or well fields within the project alignment, PG&E would conduct a pre-construction records search and field survey to identify specific locations of water wells and well fields.
APM USS -2	Notify underground service alert at least 14 days prior to initiation of construction activities in the underground portion of the power line. The applicant would ensure that Underground Service Alert is notified at least 14 days prior to initiation of construction activities of the underground portion of the power line. Underground Service Alert verifies and physically marks the location of all existing underground utilities in the area of anticipated construction activities to prevent accidental disturbance.

1.10 Other Public Agencies Whose Approval is Required

The applicant has submitted an application for a Permit to Construct (Application No. A. 09-02-023) from the CPUC pursuant to Public Utilities Code Section 1001 and General Order 131-D. Although the CPUC has exclusive authority to issue a Permit to Construct, CPUC General Order 131-D, Section III C requires that, "the utility to communicate with, and obtain the input of, local authorities regarding land use matters and obtain any non-discretionary local permits." Permits, approvals, and notifications involving the following agencies have been identified for the project:

- U.S. Army Corps of Engineers (Endangered Species Act Section 7 consultation, CWA 404 Nationwide Permit 12)
- Department of Fish and Game and California Endangered Species Act (DFG code 2081 incidental take permit for giant garter snake and Swainson's hawk)
- Department of Fish and Game (1600 Permit)
- State Lands Commission (leases for river crossings)
- State Water Resources Control Board (CWA 402, National Pollutant Discharge Elimination System)
- Central Valley Regional Water Quality Control Board (Clean Water Act [CWA] 401)
- Central Valley Flood Protection Board (permit)
- Caltrans (encroachment permit for State Highway 20 crossing)
- Butte County (encroachment permit)
- Sutter County (encroachment permit)
- Yuba County (encroachment permit)
- Butte County Air Quality Management District (demolition notification/permit and fugitive dust control plan)

- Feather River Air Quality Management District (demolition notification/permit and fugitive dust control plan)
- City of Marysville (encroachment permit)
- City of Oroville (encroachment permit)
- Western Pacific / Union Pacific Railroad (encroachment permit)

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