

## 2 PROJECT DESCRIPTION

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### 2.1 INTRODUCTION

Pacific Gas & Electric Company (PG&E) filed an application with the CPUC on January 25, 2012, for a Permit to Construct (PTC) (Application No. 12-01-012) the Santa Cruz 115-kV Reinforcement project (proposed project), deemed complete on April 24, 2012. The proposed project would provide an additional circuit between the Green Valley Substation and the Rob Roy Substation by:

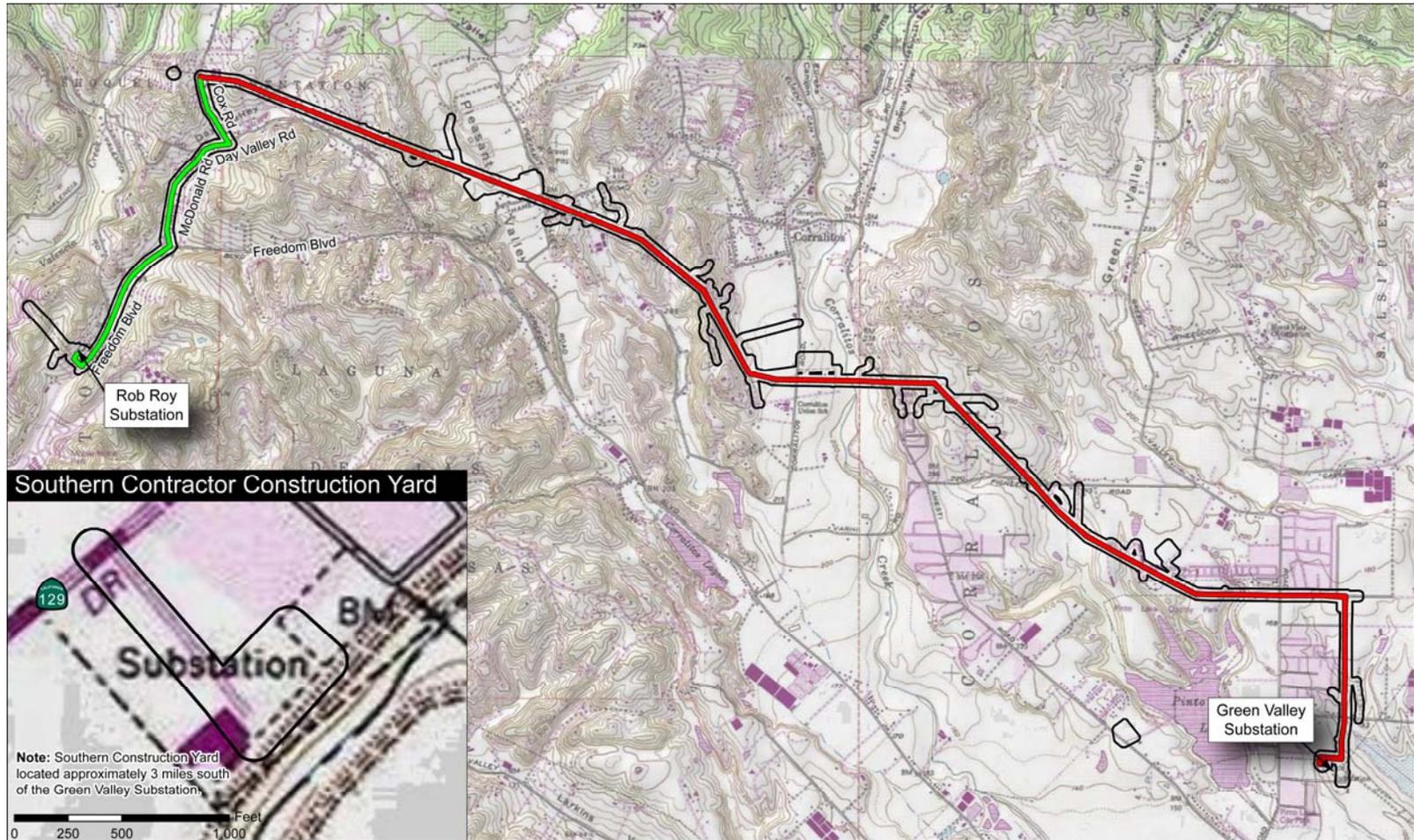
- **Northern Alignment:** Converting an existing 7.1 miles of single-circuit, 115-kV power line into a double-circuit, 115-kV power line by:
  - Replacing existing wood transmission poles with an average height of 60 feet tall with new tubular steel poles (TSP) with an average height of 90 feet tall
- **Cox-Freedom Segment:** Constructing a new, approximately 1.7-mile-long, single-circuit, 115-kV power line along an existing distribution alignment by:
  - Installing 4 new TSPs averaging 98 feet tall
  - Replacing existing distribution wood poles averaging 39 feet tall with new wood transmission poles averaging 89 feet tall
- **Rob Roy Substation:** Modifying the Rob Roy Substation and existing power lines into the substation to accommodate the new circuit and install 1 new TSP and replace existing wood structures with 3 new TSPs within the substation area, with an average height of 84 feet tall

The project corridor is shown in Figure 2.1-1. The proposed project would be located in unincorporated Santa Cruz County.

### 2.2 PROJECT OBJECTIVES

The proposed project is needed to improve the area electrical system's capacity and reliability. The existing 115-kV system serving the Santa Cruz area was constructed and put into service in the 1970s. The only upgrade since the system was built was the addition of voltage support equipment at the Paul Sweet Substation in the 1970s (Figure 2.2-2). The Rob Roy and Green Valley Substations and associated power lines have never been upgraded, while the population and demand in the service area has increased substantially since 1970. Current peak winter demand has reached 175 megawatts, which is almost 60 percent higher than the demand recorded in 1970.

Figure 2.1-1: Project Corridor



SOURCES: Esri 2013 and Panorama Environmental, Inc. 2013

Scale: 1:48,000

**LEGEND**

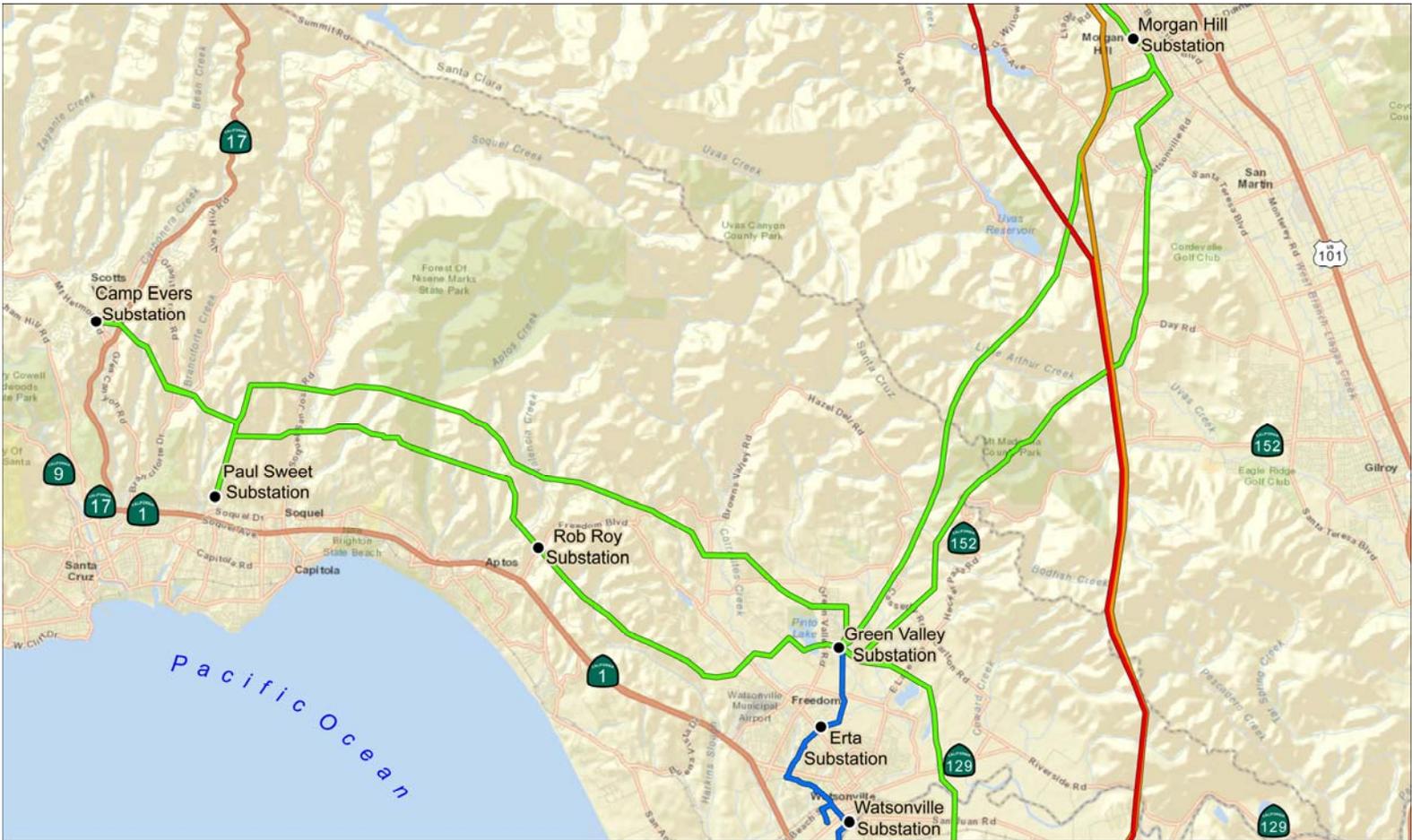
-  Project Corridor
-  Northern Alignment
-  Cox-Freedom Alignment

0 0.25 0.5 0.75 1 Mile

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Figure 2.1-2: Existing Power System in the Project Corridor Region



SOURCES: Esri 2013 and Panorama Environmental, Inc. 2013

Scale: 1:200,000

### LEGEND

- 500 kV Line
- 230 kV Line
- 115 kV Line
- 60 kV Line
- Existing Substation



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The proposed project would improve system reliability and capacity by adding another circuit between Green Valley Substation and Rob Roy Substation. The additional circuit would provide reinforcement during an outage on one of the two lines.

Several alternatives to the proposed project were considered during the planning phases of the project. CEQA does not require a review of alternatives in Initial Study/Mitigated Negative Declarations where the proposed project would result in no significant environmental impacts after mitigation (CEQA Guidelines, California Code of Regulations, Title 14, Chapter 3 (Guidelines), § 15126.6, subd. (a) and (f)(2)(A); Assigned Commissioner's Ruling dated October 16, 2001, A.01-07-004). The project corridor was chosen because it meets the proposed project's objectives and routing criteria, while having the least impacts to sensitive resources such as biological resources. A description of the alternatives considered is provided in the PEA.

### 2.3 EXISTING SYSTEM

The existing electrical power grid consists of two single-circuit 115-kV wood pole power lines located in separate power line corridors—the Green Valley-Rob Roy-Paul Sweet Corridor on the south side of the service area, and the Green Valley-Camp Evers Corridor to the north (Figure 2.1-2). The two corridors join at the junction of the Camp Evers Tap located at the Camp Evers Substation (Figure 2.1-2). The substations that connect to these corridors include Green Valley Substation at the southeastern end, Camp Evers Substation at the northwestern end (from Camp Evers Tap), and Paul Sweet Substation and Rob Roy Substation along the southern corridor (Figure 2.1-2). All power to the area comes from Green Valley Substation, which provides almost 100 percent of the Santa Cruz area loading and serves electric power customers throughout Santa Cruz County.

Power is transmitted from the Green Valley Substation via single-circuit power lines along the Green Valley-Rob Roy-Paul Sweet Corridor and the Green Valley-Camp Evers Corridor (Figure 2.1-2). Large-scale service interruptions could occur if there are overlapping outages in the existing electricity supply system. The alternate transmission corridors become heavily loaded when an outage occurs in the existing system and power may be cut to customers to reduce this load. The threat of power outages increases during winter months when system demand is greater, and winter storms are more likely to cause damage. This situation could result in power outages and inability to supply customers during winter storm events.

### 2.4 PROJECT LOCATION

#### 2.4.1 Regional Context

The project corridor is located in unincorporated Santa Cruz County, California, northeast of Aptos and north of Watsonville, and within the unincorporated communities of Amesti, Corralitos, Day Valley, and Aptos, as shown on Figure 1.1-1. Terrain includes rolling hills, agricultural valleys and grasslands, and low ridgelines forested with mature trees. The predominant development pattern throughout the project corridor is a mix of open space, low-

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density residential, and agricultural land uses. The agricultural areas are predominantly apple orchards, berry orchards, livestock pastures, and row crops.

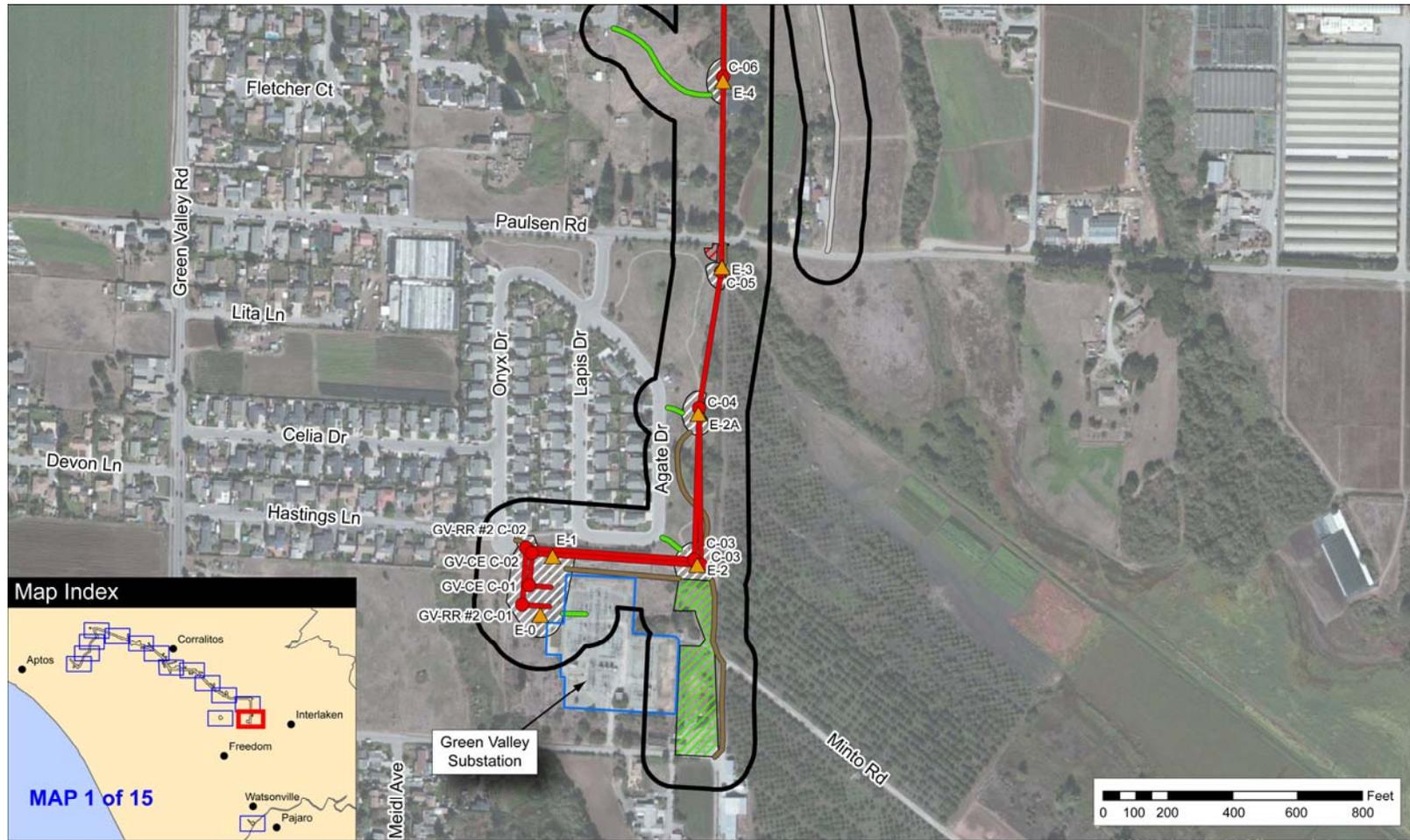
### 2.4.2 Project Corridor

The project corridor includes the proposed power line alignment and right-of-way, access roads, staging areas, landing zones, contractor storage yards, and the Rob Roy Substation. The project corridor is defined as a 150-foot buffer around all project features and on either side of the alignment (for a 300-foot total width around the power line) and 100 feet around staging and laydown areas and access roads as shown in Figures 2.4-1 through 2.4-15. The final locations of any of the proposed project features may be adjusted and moved within the project corridor based on final engineering and field conditions. Impacts of any activity within the whole project corridor, therefore, are addressed in this IS.

The existing 115-kV alignment is located in an easement. There is a building restriction on the existing easement that limits structures and uses that have the potential to conflict with the safe operation of the power line. The easement along the Northern Alignment is generally 60 feet wide. The proposed alignment may diverge from the current alignment in some areas to improve accessibility or to minimize impacts to trees or other resources. This easement may be expanded in some locations to accommodate the rebuilt line. Easement expansion would be pursued by the applicant (PG&E) through landowner agreements. Any land rights issues would be resolved in subsequent negotiations and/or condemnation proceedings in the proper jurisdiction, following the decision by the CPUC on PG&E's application. New easements would not impinge on existing structures. The present centerline of the building restriction would be maintained and expansion would occur only on an as-needed basis.

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Figure 2.4-1: Project Corridor Map 1



SOURCES: Esri 2013 and Panorama Environmental, Inc. 2013

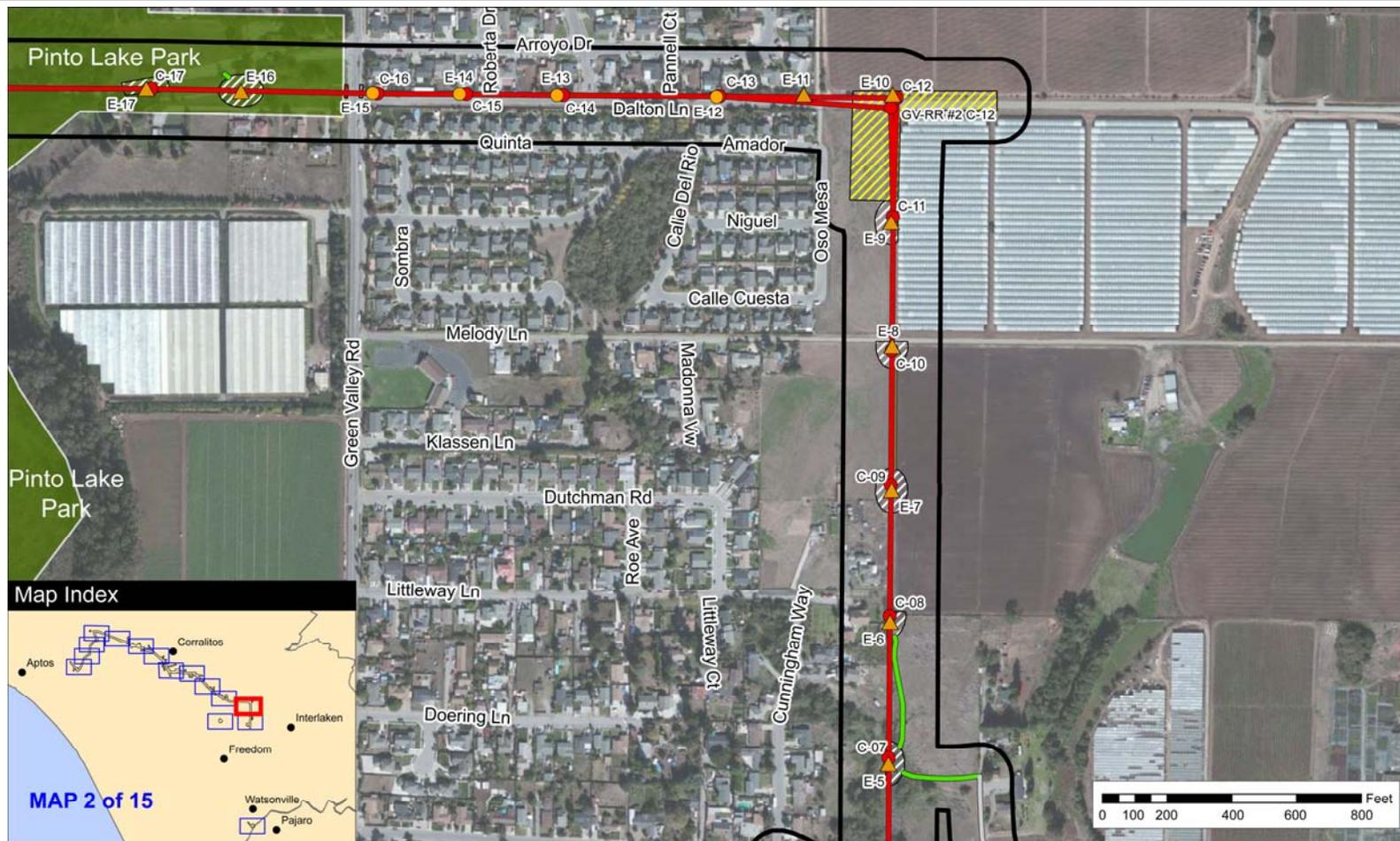
Scale: 1:6,000



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Figure 2.4-2: Project Corridor Map 2



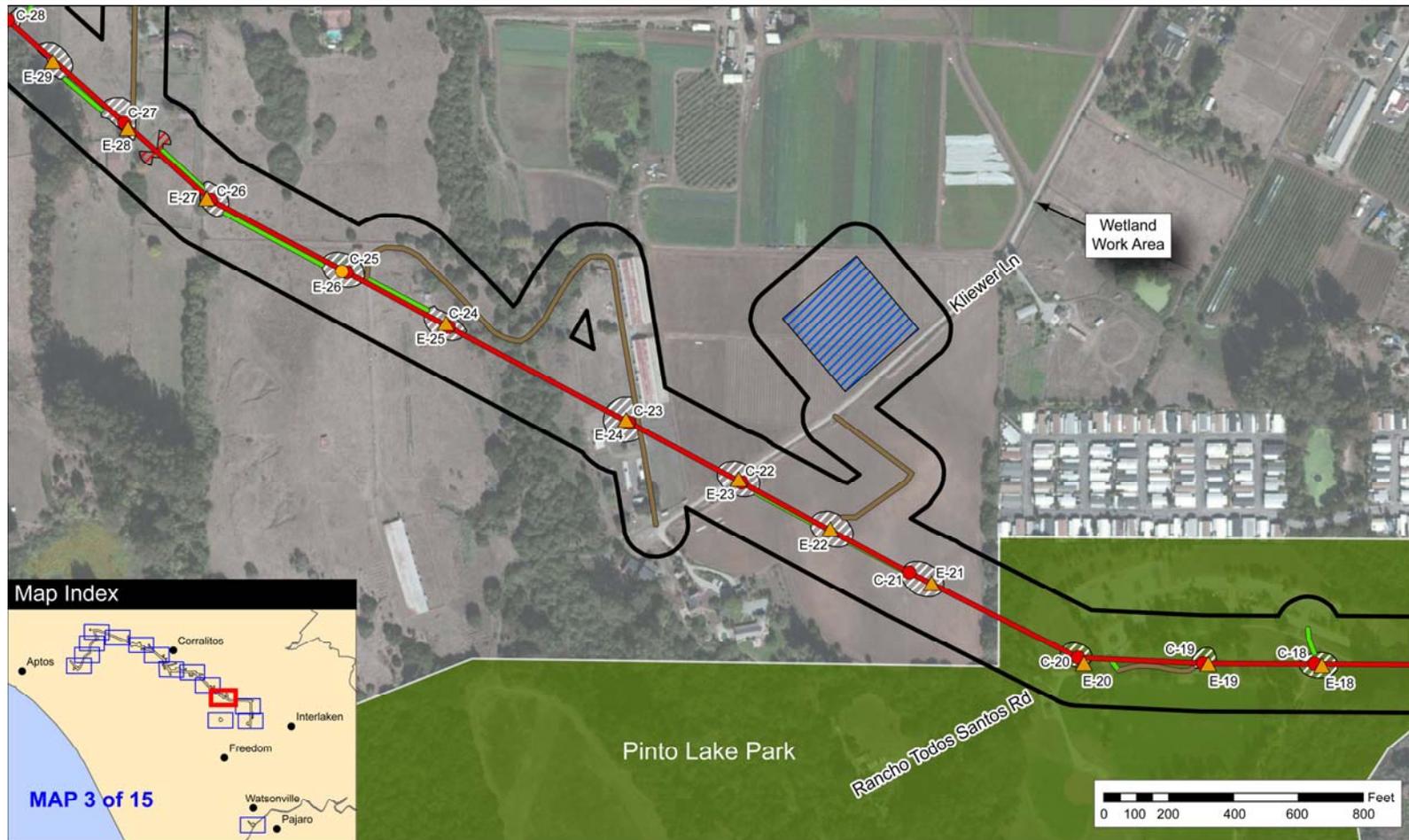
SOURCES: Esri 2013 and Panorama Environmental, Inc. 2013

Scale: 1:6,000

LEGEND	
	Project Corridor
	Northern Alignment
	Cox-Freedom Alignment
	Cox-Freedom Alignment Reconstructing Segment
	Rob Roy-Paul Sweet Alignment Retensioning Segment
	Rob Roy-Paul Sweet Alignment New Line
	Pole Work Area
	Contractor Construction Yard
	Landing Zone / Staging Area
	Tension Pull Site
	Guard Structure Work Area
	Rob Roy Substation Work Area
	Overland Access Road
	Existing Unpaved Road
	Existing Paved Road
	Improved Access Road
	Existing Pole Structure to be Removed
	Existing Pole Structure
	New Distribution Pole
	New Stub Pole
	New TSP
	New Wood Pole
	Permanent Cut and Fill Area
	Rob Roy Substation Modification Area
	Existing Substation Boundary
	Park

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Figure 2.4-3: Project Corridor Map 3



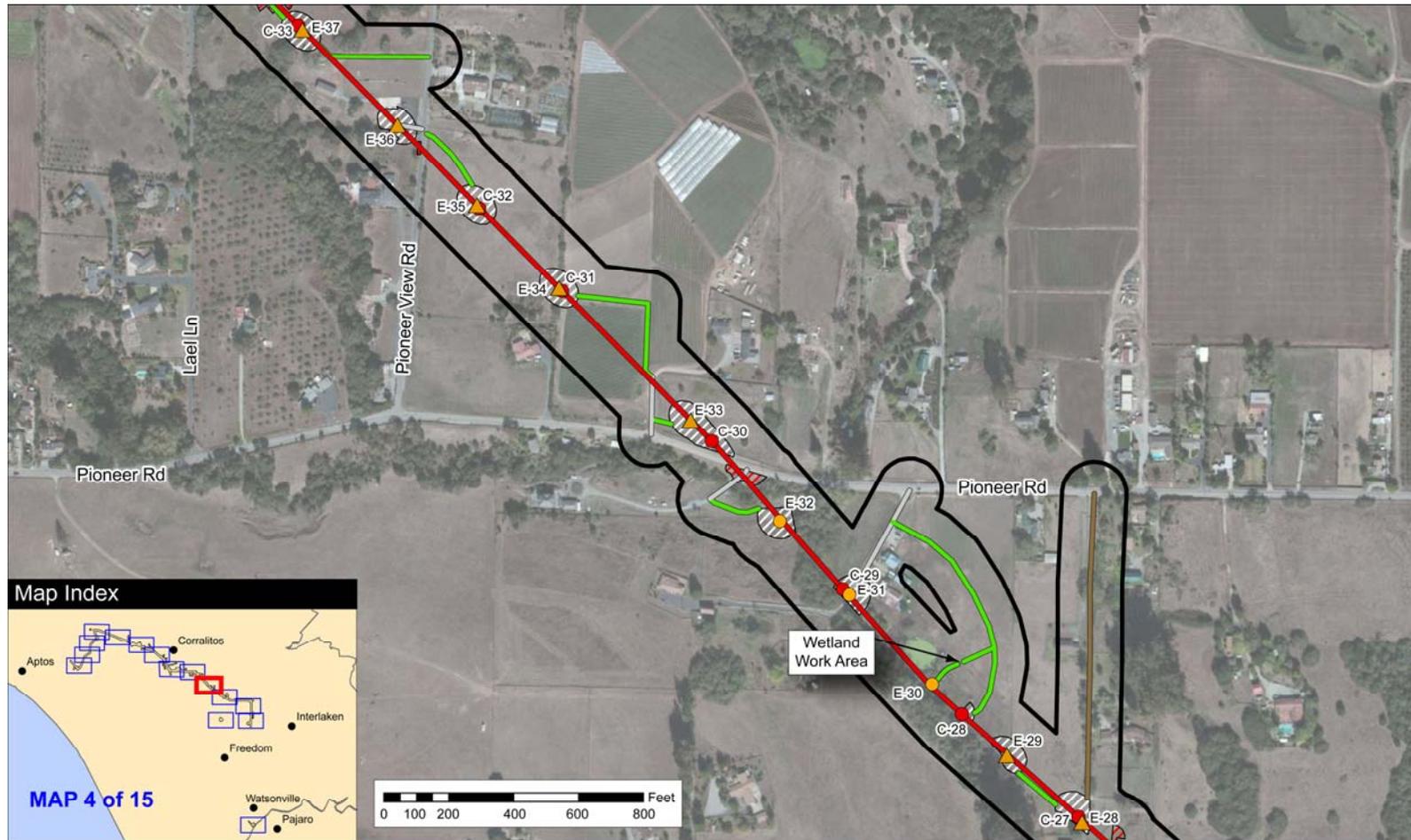
SOURCES: Esri 2013 and Panorama Environmental, Inc. 2013

Scale: 1:6,000

LEGEND	
	Project Corridor
	Northern Alignment
	Cox-Freedom Alignment
	Cox-Freedom Alignment Reconducting Segment
	Rob Roy-Paul Sweet Alignment Retensioning Segment
	Rob Roy-Paul Sweet Alignment New Line
	Pole Work Area
	Contractor Construction Yard
	Landing Zone / Staging Area
	Tension Pull Site
	Guard Structure Work Area
	Rob Roy Substation Work Area
	Overland Access Road
	Existing Unpaved Road
	Existing Paved Road
	Improved Access Road
	Existing Pole Structure to be Removed
	Existing Pole Structure
	New Distribution Pole
	New Stub Pole
	New TSP
	New Wood Pole
	Permanent Cut and Fill Area
	Rob Roy Substation Modification Area
	Existing Substation Boundary
	Park

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Figure 2.4-4: Project Corridor Map 4



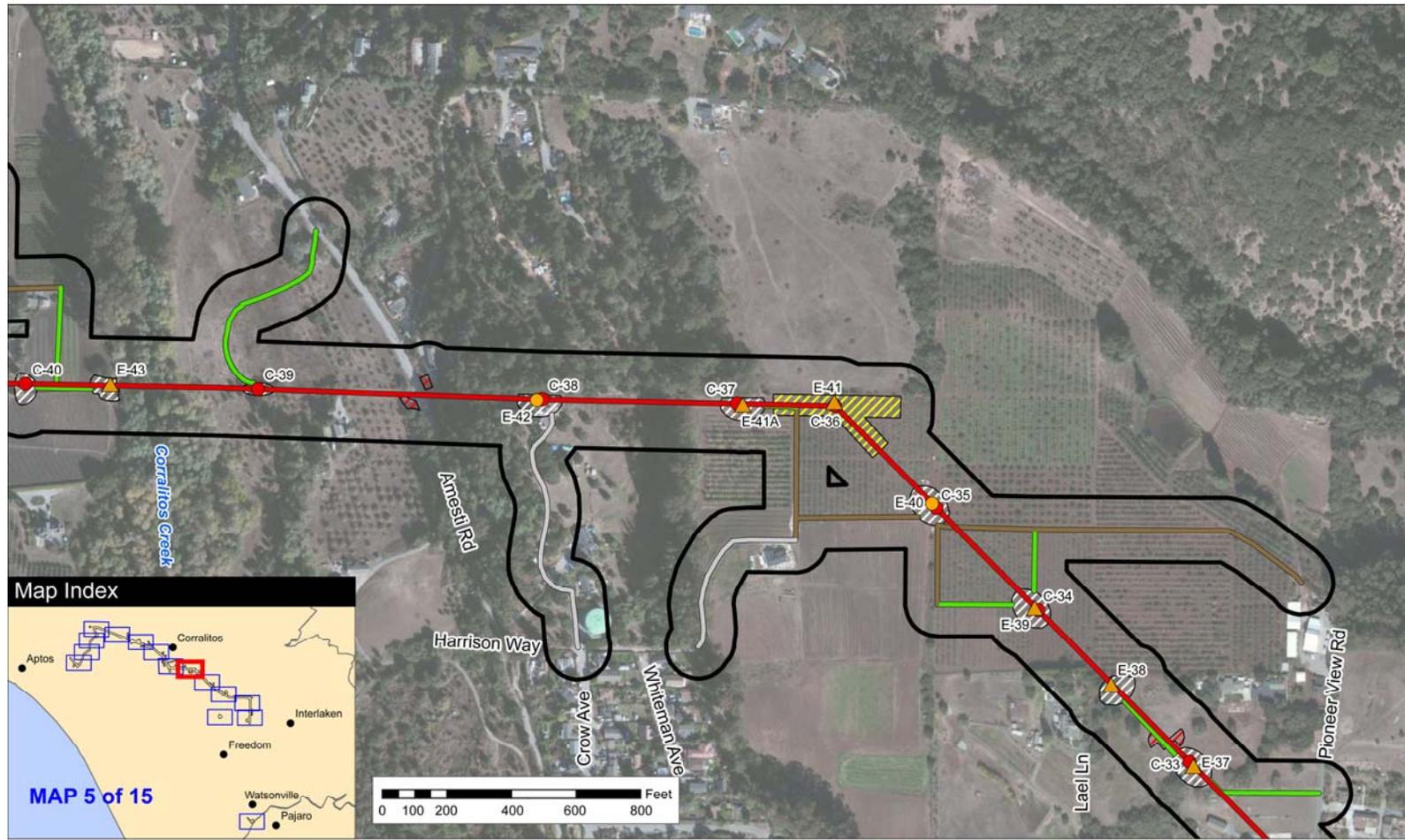
SOURCES: Esri 2013 and Panorama Environmental, Inc. 2013

Scale: 1:6,000

LEGEND	
	Project Corridor
	Northern Alignment
	Cox-Freedom Alignment
	Cox-Freedom Alignment Reconstructing Segment
	Rob Roy-Paul Sweet Alignment Retensioning Segment
	Rob Roy-Paul Sweet Alignment New Line
	Pole Work Area
	Contractor Construction Yard
	Landing Zone / Staging Area
	Tension Pull Site
	Guard Structure Work Area
	Rob Roy Substation Work Area
	Overland Access Road
	Existing Unpaved Road
	Existing Paved Road
	Improved Access Road
	Existing Pole Structure to be Removed
	Existing Pole Structure
	New Distribution Pole
	New Stub Pole
	New TSP
	New Wood Pole
	Permanent Cut and Fill Area
	Rob Roy Substation Modification Area
	Existing Substation Boundary
	Park

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Figure 2.4-5: Project Corridor Map 5



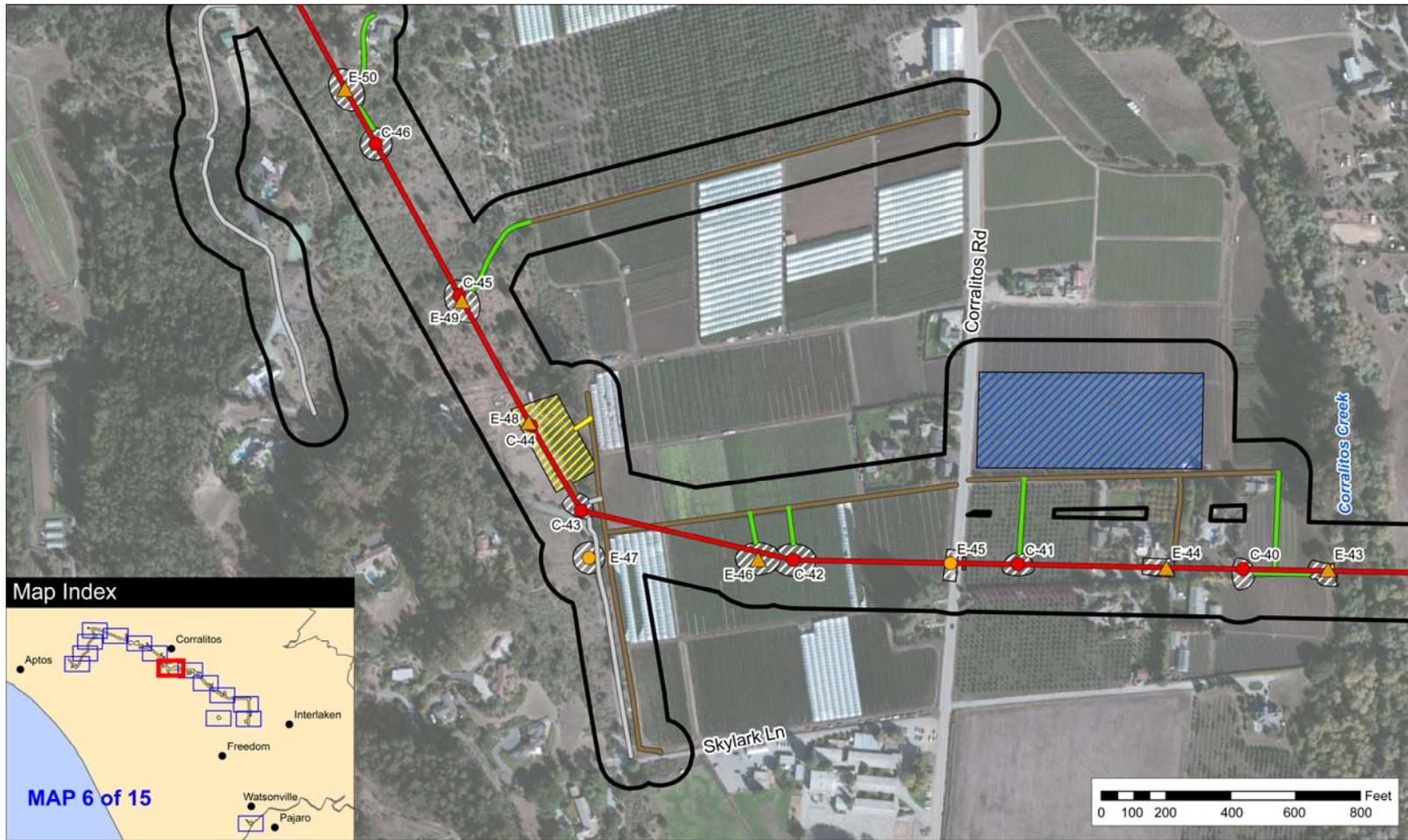
SOURCES: Esri 2013 and Panorama Environmental, Inc. 2013

Scale: 1:6,000

LEGEND	
	Project Corridor
	Northern Alignment
	Cox-Freedom Alignment
	Cox-Freedom Alignment Reconstructing Segment
	Rob Roy-Paul Sweet Alignment Retensoning Segment
	Rob Roy-Paul Sweet Alignment New Line
	Pole Work Area
	Contractor Construction Yard
	Landing Zone / Staging Area
	Tension Pull Site
	Guard Structure Work Area
	Rob Roy Substation Work Area
	Overland Access Road
	Existing Unpaved Road
	Existing Paved Road
	Improved Access Road
	Existing Pole Structure to be Removed
	Existing Pole Structure
	New Distribution Pole
	New Stub Pole
	New TSP
	New Wood Pole
	Permanent Cut and Fill Area
	Rob Roy Substation Modification Area
	Existing Substation Boundary
	Park

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Figure 2.4-6: Project Corridor Map 6



SOURCES: Esri 2013 and Panorama Environmental, Inc. 2013

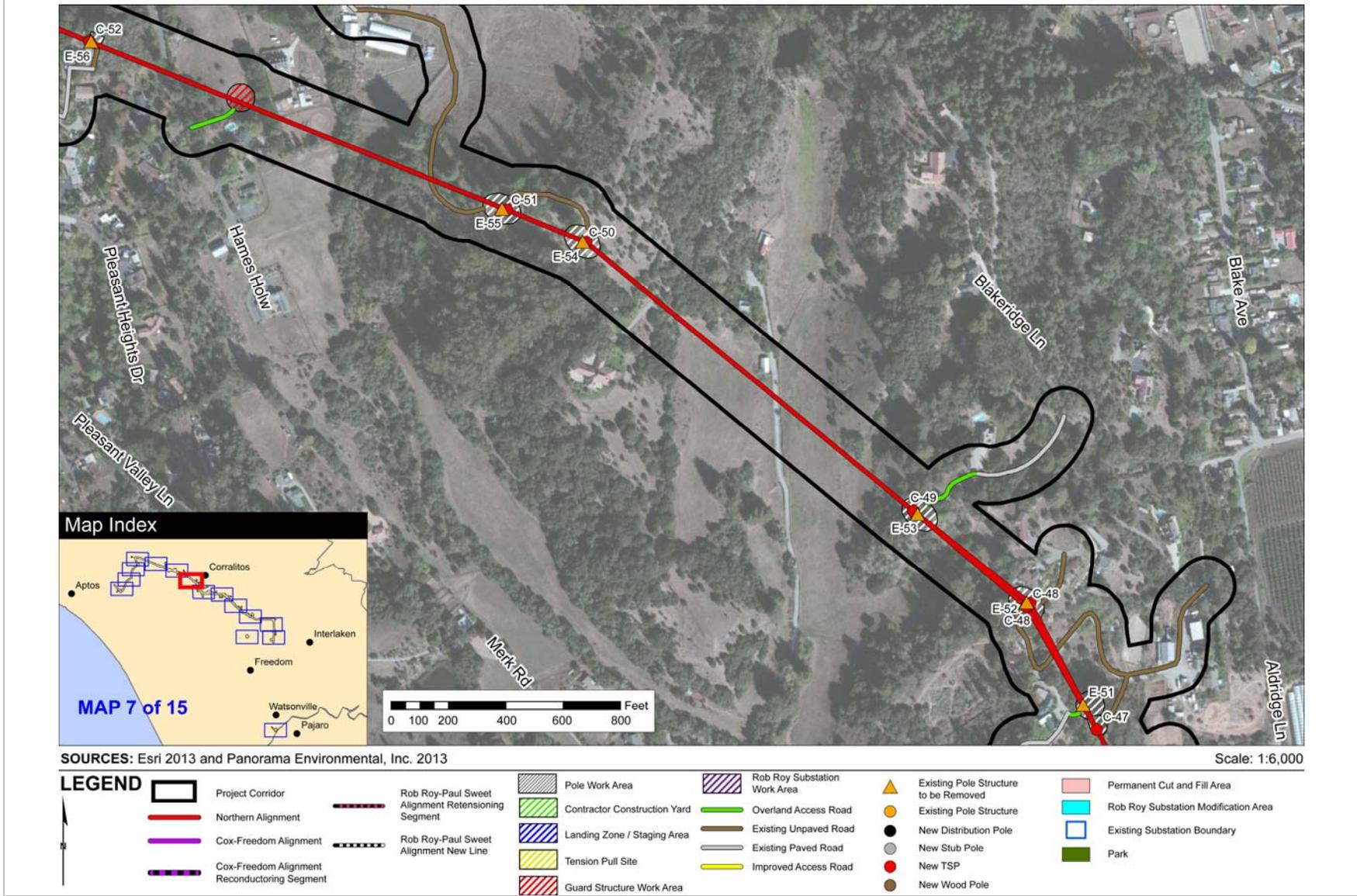
Scale: 1:6,000

**LEGEND**

- |  |   |                              |                              |                                       |                                      |
|--|---|------------------------------|------------------------------|---------------------------------------|--------------------------------------|
| Project Corridor                             | Rob Roy-Paul Sweet Alignment Retensioning Segment | Pole Work Area               | Rob Roy Substation Work Area | Existing Pole Structure to be Removed | Permanent Cut and Fill Area          |
| Northern Alignment                           | Rob Roy-Paul Sweet Alignment New Line             | Contractor Construction Yard | Landing Zone / Staging Area  | Existing Pole Structure               | Rob Roy Substation Modification Area |
| Cox-Freedom Alignment                        |   | Tension Pull Site            | Existing Unpaved Road        | New Distribution Pole                 | Existing Substation Boundary         |
| Cox-Freedom Alignment Reconductoring Segment |   | Guard Structure Work Area    | Existing Paved Road          | New Stub Pole                         | Park                                 |
|  |   |                              | Improved Access Road         | New TSP                               |                                      |
|  |   |                              |                              | New Wood Pole                         |                                      |

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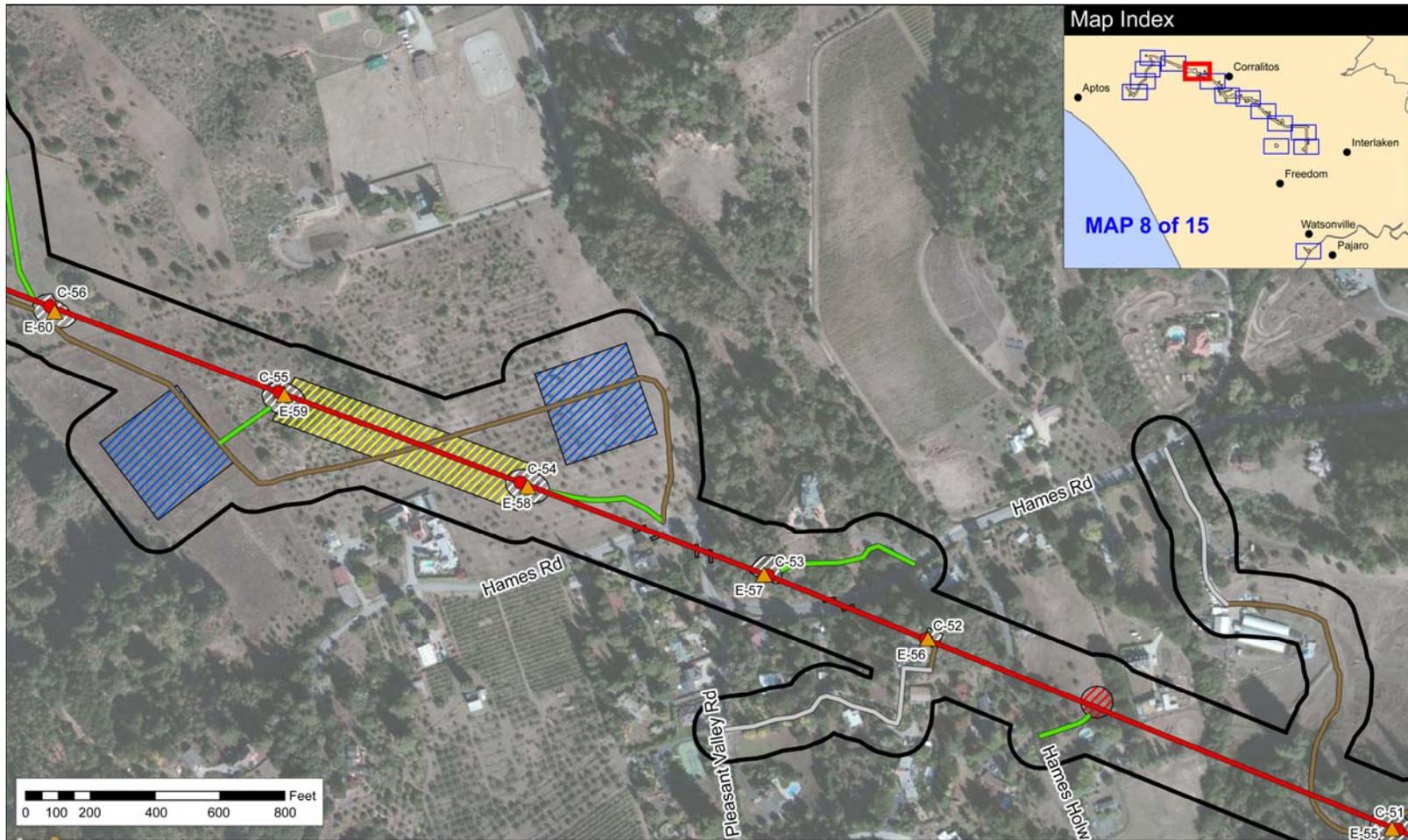
Figure 2.4-7: Project Corridor Map 7



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Figure 2.4-8: Project Corridor Map 8



SOURCES: Esri 2013 and Panorama Environmental, Inc. 2013

Scale: 1:6,000

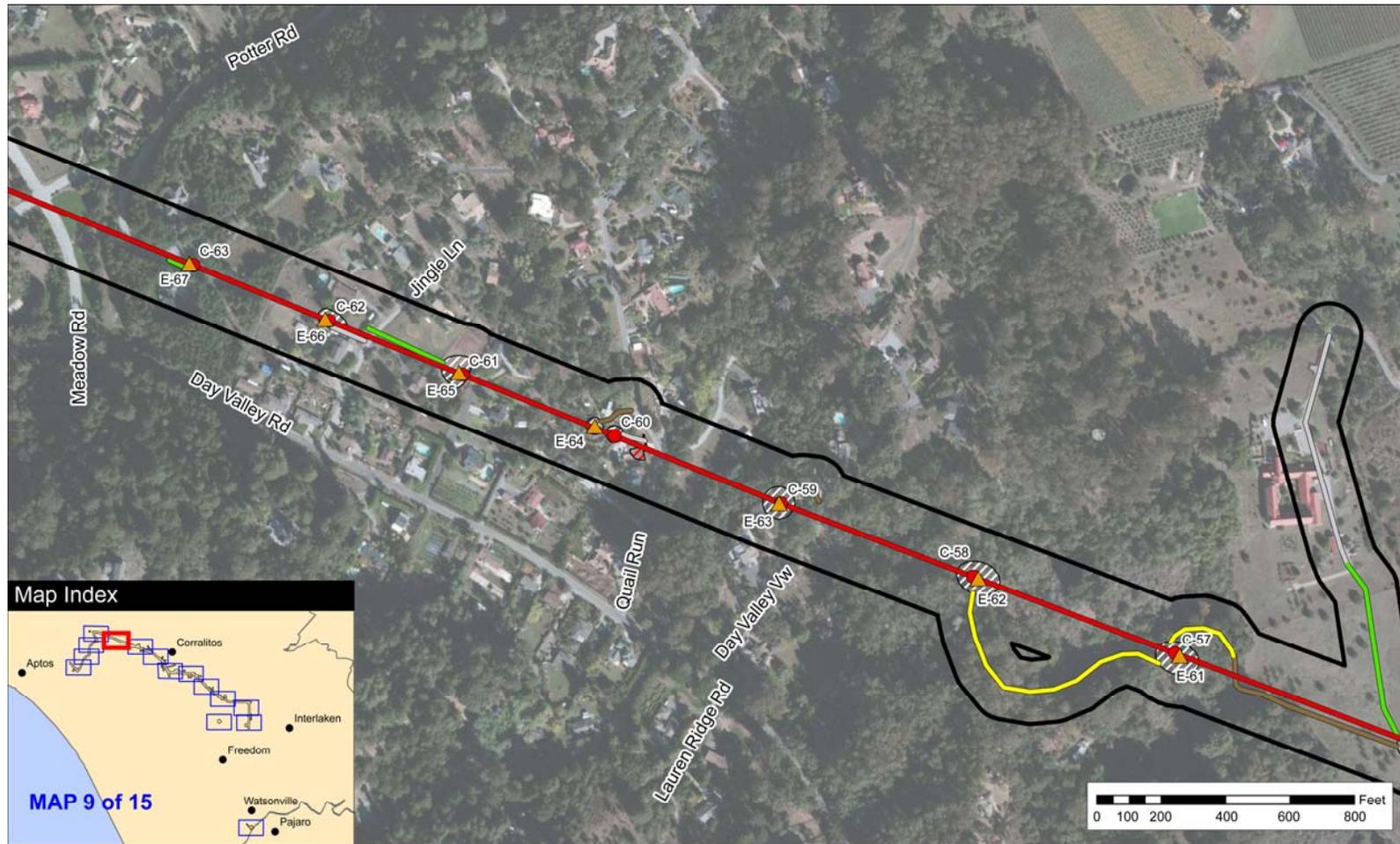
### LEGEND

Project Corridor	Rob Roy-Paul Sweet Alignment Retensioning Segment	Pole Work Area	Rob Roy Substation Work Area	Existing Pole Structure to be Removed	Permanent Cut and Fill Area
Northern Alignment	Rob Roy-Paul Sweet Alignment New Line	Contractor Construction Yard	Overland Access Road	Existing Pole Structure	Rob Roy Substation Modification Area
Cox-Freedom Alignment		Landing Zone / Staging Area	Existing Unpaved Road	New Distribution Pole	Existing Substation Boundary
Cox-Freedom Alignment Reconductoring Segment		Tension Pull Site	Existing Paved Road	New Stub Pole	Park
		Guard Structure Work Area	Improved Access Road	New TSP	
				New Wood Pole	

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Figure 2.4-9: Project Corridor Map 9



SOURCES: Esri 2013 and Panorama Environmental, Inc. 2013

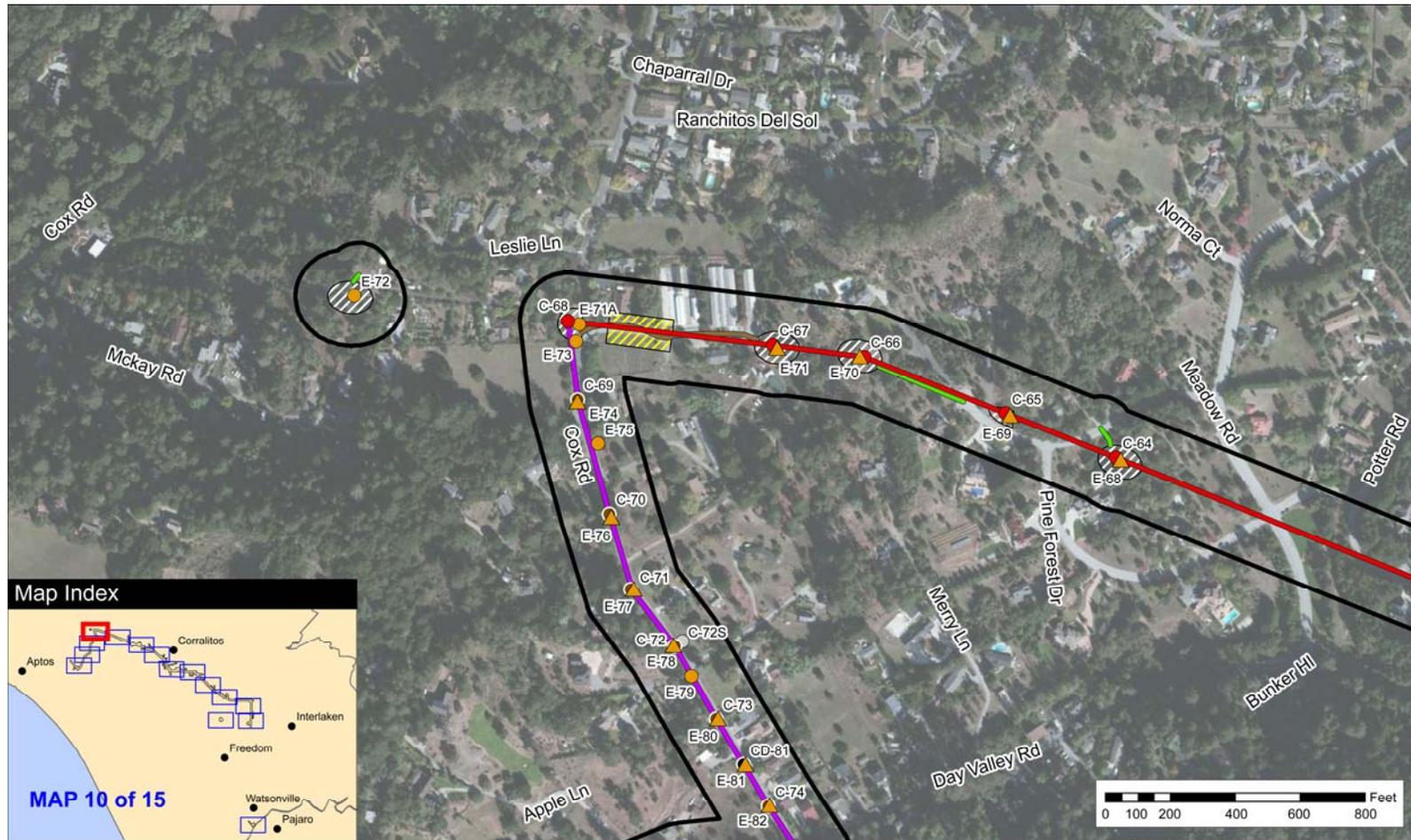
Scale: 1:6,000

LEGEND	
	Project Corridor
	Northern Alignment
	Cox-Freedom Alignment
	Cox-Freedom Alignment Reconductoring Segment
	Rob Roy-Paul Sweet Alignment Retensioning Segment
	Rob Roy-Paul Sweet Alignment New Line
	Pole Work Area
	Contractor Construction Yard
	Landing Zone / Staging Area
	Tension Pull Site
	Guard Structure Work Area
	Rob Roy Substation Work Area
	Overland Access Road
	Existing Unpaved Road
	Existing Paved Road
	Improved Access Road
	Existing Pole Structure to be Removed
	Existing Pole Structure
	New Distribution Pole
	New Stub Pole
	New TSP
	New Wood Pole
	Permanent Cut and Fill Area
	Rob Roy Substation Modification Area
	Existing Substation Boundary
	Park

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Figure 2.4-10: Project Corridor Map 10



SOURCES: Esri 2013 and Panorama Environmental, Inc. 2013

Scale: 1:6,000

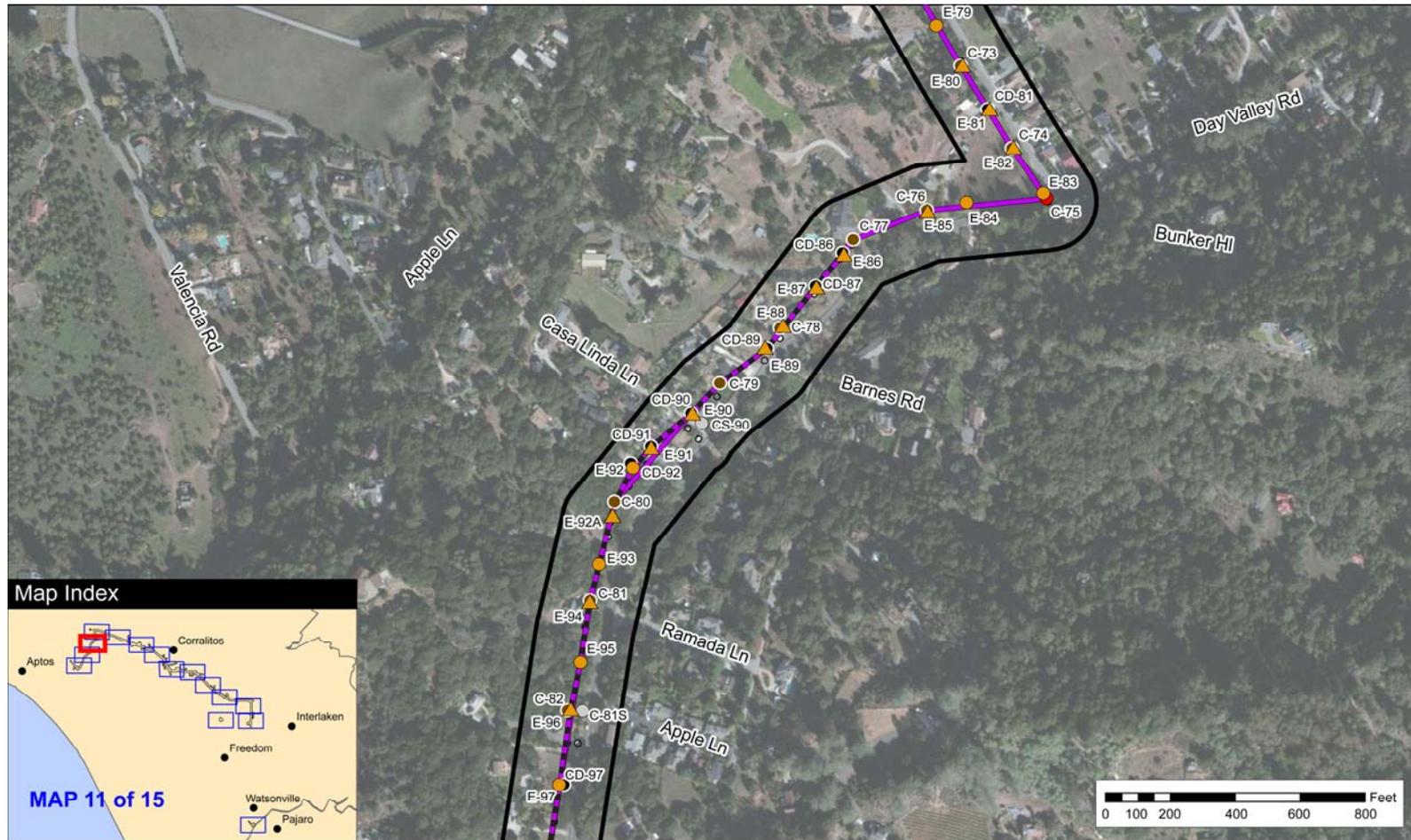
LEGEND	
	Project Corridor
	Northern Alignment
	Cox-Freedom Alignment
	Cox-Freedom Alignment Reconstructing Segment
	Rob Roy-Paul Sweet Alignment Retensioning Segment
	Rob Roy-Paul Sweet Alignment New Line
	Pole Work Area
	Contractor Construction Yard
	Landing Zone / Staging Area
	Tension Pull Site
	Guard Structure Work Area
	Rob Roy Substation Work Area
	Overland Access Road
	Existing Unpaved Road
	Existing Paved Road
	Improved Access Road
	Existing Pole Structure to be Removed
	Existing Pole Structure
	New Distribution Pole
	New Stub Pole
	New TSP
	New Wood Pole
	Permanent Cut and Fill Area
	Rob Roy Substation Modification Area
	Existing Substation Boundary
	Park

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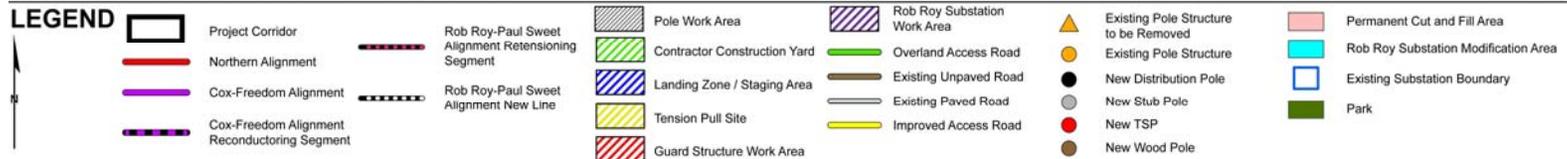
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Figure 2.4-11: Project Corridor Map 11



SOURCES: Esri 2013 and Panorama Environmental, Inc. 2013

Scale: 1:6,000

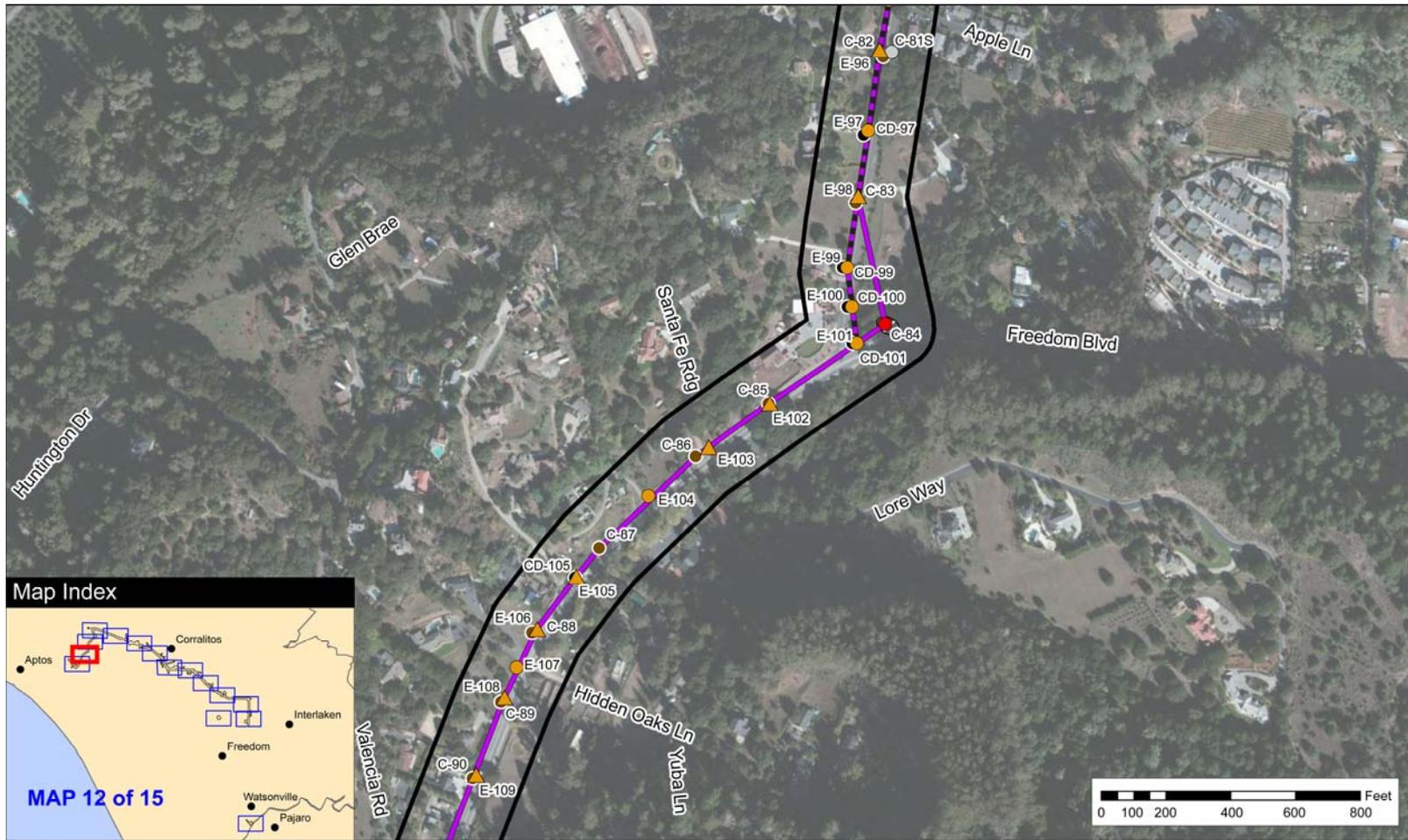


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Figure 2.4-12: Project Corridor Map 12



SOURCES: Esri 2013 and Panorama Environmental, Inc. 2013

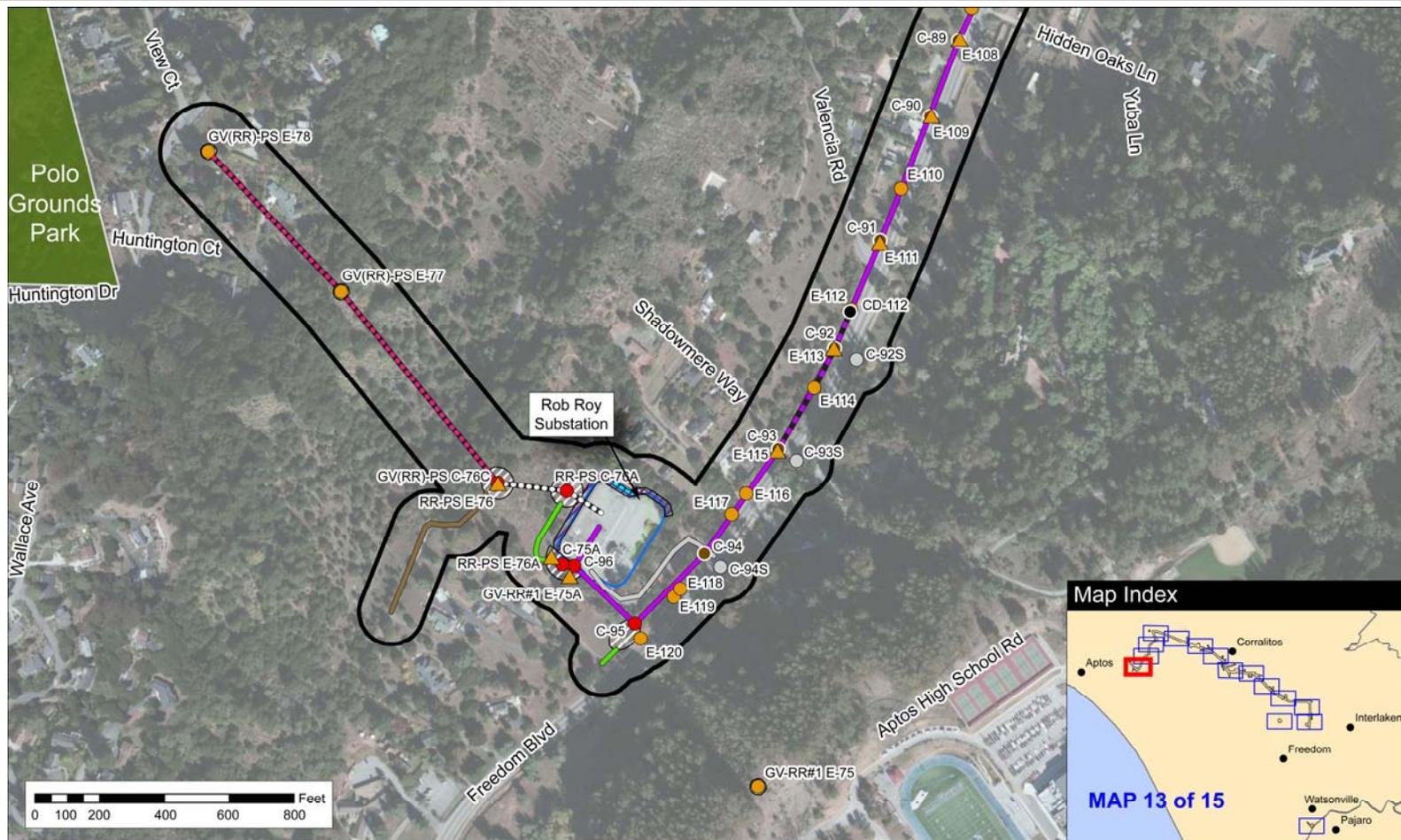
Scale: 1:6,000

LEGEND	
	Project Corridor
	Northern Alignment
	Cox-Freedom Alignment
	Cox-Freedom Alignment Reconductoring Segment
	Rob Roy-Paul Sweet Alignment Retensioning Segment
	Rob Roy-Paul Sweet Alignment New Line
	Pole Work Area
	Contractor Construction Yard
	Landing Zone / Staging Area
	Tension Pull Site
	Guard Structure Work Area
	Rob Roy Substation Work Area
	Overland Access Road
	Existing Unpaved Road
	Existing Paved Road
	Improved Access Road
	Existing Pole Structure to be Removed
	Existing Pole Structure
	New Distribution Pole
	New Stub Pole
	New TSP
	New Wood Pole
	Permanent Cut and Fill Area
	Rob Roy Substation Modification Area
	Existing Substation Boundary
	Park

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Figure 2.4-13: Project Corridor Map 13



SOURCES: Esri 2013 and Panorama Environmental, Inc. 2013

Scale: 1:6,000

### LEGEND

	Project Corridor		Rob Roy-Paul Sweet Alignment Retensioning Segment		Pole Work Area		Rob Roy Substation Work Area		Existing Pole Structure to be Removed		Permanent Cut and Fill Area
	Northern Alignment		Rob Roy-Paul Sweet Alignment New Line		Contractor Construction Yard		Overland Access Road		Existing Pole Structure		Rob Roy Substation Modification Area
	Cox-Freedom Alignment		Rob Roy-Paul Sweet Alignment New Line		Landing Zone / Staging Area		Existing Unpaved Road		New Distribution Pole		Existing Substation Boundary
	Cox-Freedom Alignment Reconstructing Segment		Rob Roy-Paul Sweet Alignment New Line		Tension Pull Site		Existing Paved Road		New Stub Pole		Park
			Guard Structure Work Area		Improved Access Road		New TSP		New Wood Pole		

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Figure 2.4-14: Project Corridor Map 14



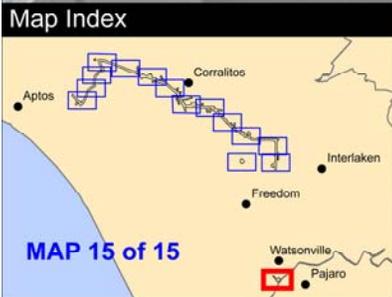
SOURCES: Esri 2013 and Panorama Environmental, Inc. 2013

Scale: 1:6,000

LEGEND	
Project Corridor	Contractor Construction Yard
Northern Alignment	Landing Zone / Staging Area
Cox-Freedom Alignment	Tension Pull Site
Cox-Freedom Alignment Reconductoring Segment	Guard Structure Work Area
Rob Roy-Paul Sweet Alignment Retensioning Segment	Pole Work Area
Rob Roy-Paul Sweet Alignment New Line	Rob Roy Substation Work Area
Pole Work Area	Overland Access Road
Landing Zone / Staging Area	Existing Unpaved Road
Tension Pull Site	Existing Paved Road
Guard Structure Work Area	Improved Access Road
Existing Pole Structure to be Removed	Existing Pole Structure
Existing Pole Structure	New Distribution Pole
New Distribution Pole	New Stub Pole
New TSP	New Wood Pole
Permanent Cut and Fill Area	Rob Roy Substation Modification Area
Rob Roy Substation Modification Area	Existing Substation Boundary
Existing Substation Boundary	Park

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Figure 2.4-15: Project Corridor Map 15



SOURCES: Esri 2013 and Panorama Environmental, Inc. 2013

Scale: 1:6,000

LEGEND	
	Project Corridor
	Northern Alignment
	Cox-Freedom Alignment
	Cox-Freedom Alignment Reconstructing Segment
	Rob Roy-Paul Sweet Alignment Retensioning Segment
	Rob Roy-Paul Sweet Alignment New Line
	Pole Work Area
	Contractor Construction Yard
	Landing Zone / Staging Area
	Tension Pull Site
	Guard Structure Work Area
	Overland Access Road
	Existing Unpaved Road
	Existing Paved Road
	Improved Access Road
	Rob Roy Substation Work Area
	Existing Pole Structure to be Removed
	Existing Pole Structure
	New Distribution Pole
	New Stub Pole
	New TSP
	New Wood Pole
	Permanent Cut and Fill Area
	Rob Roy Substation Modification Area
	Existing Substation Boundary
	Park

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Table 2.4-1 identifies the areas along the Northern Alignment where additional right-of-way is anticipated.

Table 2.4-1: Anticipated ROW Modifications				
Northern Alignment				
Span Location		ROW Width (feet)		Proposed ROW Modifications
Starting Pole	Ending Pole	Existing	Proposed	
C-16	C-17	49	60	Increase ROW width by approximately 11 feet to the south
C-17	C-18			
C-18	C-19			
C-31	C-32	60	67	Increase ROW width by approximately 7 feet to the southwest where the ROW crosses 225 and 285 Pioneer View Road
C-32	C-33	60 at 285 Pioneer View Road and 40 north of 285 Pioneer Road	60	Increase ROW width by approximately 20 feet within the field/orchard located north of 285 Pioneer View Road
C-33	C-34			
C-41	C-42	52	52	This span is located within a new alignment; therefore, an approximately 52-foot-wide ROW would be required, and the existing ROW would be quitclaimed, resulting in no net increase in ROW
C-52	C-53	60	70	Increase in ROW width by approximately 5 feet on both sides of the existing ROW
C-53	C-54			
C-54	C-55			
C-55	C-56			
Cox Freedom Segment				
<p>The easement along the Cox-Freedom Segment is generally 40 feet wide. Some additional overhang easements may be required along the Cox-Freedom segment. An overhang easement of 10 feet on adjacent properties may be required in limited locations. These overhang easements would fall within the existing restricted building setback zones and, therefore, would not impact existing structures. Expanded easements would not affect environmental resources because no construction of structures or occurrence of other physical activity would be involved in expanding easements.</p>				

## 2.5 PROJECT COMPONENTS

### 2.5.1 New Power Line Poles

#### **Northern Alignment**

Approximately 7.1 miles of the Northern Alignment would be rebuilt by converting the existing single-circuit 115-kV power line to a double-circuit 115-kV power line. The existing single-circuit wood poles would be replaced with double-circuit TSPs. PG&E would remove several poles (as identified in Table 2.5-1) and top<sup>1</sup> other poles. Existing poles range from single to triplicate wood structures and range in size from 35 to 77 feet tall. The new TSPs would have a maximum height of approximately 105 feet, and would have span lengths between approximately 250 and 1,600 feet.

The TSPs would be placed in line with the existing conductor and typically within 20 feet of the existing wood poles.<sup>2</sup> The TSPs would have an approximate diameter of 4 feet at the base and 2 feet at the top. Tangent poles would be used when the pole alignment continues in a generally straight line, and angle poles would be used when the run of poles changes direction. Typical drawings of each type of pole that would be installed are provided in Figure 2.5-1. Tangent and angle pole heights would range from approximately 54 to 105 feet. TSPs would be pre-weathered in a rust color.

#### **Cox-Freedom Segment**

The Cox-Freedom segment would include installation of 1.7 miles of single-circuit 115-kV power line using new TSPs and wood poles along the existing distribution line alignment. The existing distribution line would be collocated on the new poles where distribution poles would be replaced. TSPs and wood poles would be placed at span lengths of approximately 200 to 550 feet, skipping over intermediate distribution poles. New wood poles and TSPs would replace existing wood distribution poles, as specified in Table 2.5-1. The new poles would generally be in-line with the existing distribution line and within 20 feet of the wood poles being replaced.

TSPs would typically be used at angle points where the transmission line must change direction, whereas wood poles would typically be installed in locations where the alignment is generally straight. TSPs may be used in place of wood poles along the alignment if requested by

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<sup>1</sup> Topping a pole involves removing the existing 115-kV conductors and hardware, removing the top of the pole, and leaving the existing distribution underbuild intact. Pole topping is discussed in more detail in Construction Methods.

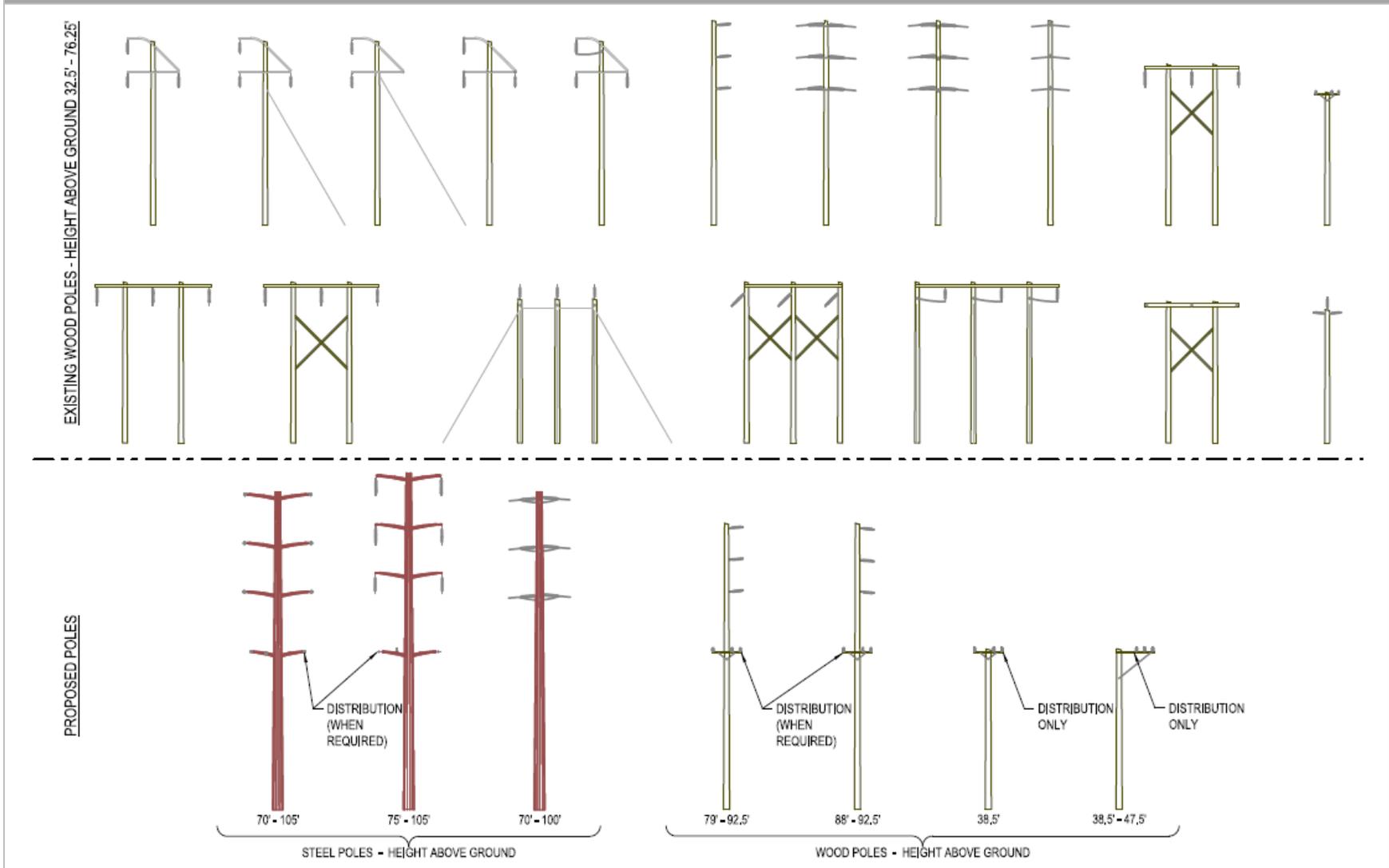
<sup>2</sup> Pole locations are based upon preliminary engineering data. The final pole locations would be determined during final engineering. In some areas the proposed poles may be located more than 20 feet from existing locations to avoid sensitive resources, to address local terrain conditions, or to comply with engineering considerations. In locations where a large change of conductor direction is required, two TSPs separated by up to 45 feet may be used.

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Table 2.5-1: Proposed Project Pole Summary				
Action/Project Component	TSP <sup>1</sup>	Wood <sup>1</sup>	Stub <sup>1</sup>	Wood Distribution <sup>1</sup>
<b>Add</b>				
Northern Alignment	72	0	0	0
Cox-Freedom Segment	3	24	5	11
Rob Roy Substation Connections	4	0	0	0
<b>Total<sup>2</sup></b>	79-86	24-26	5-6	11-12
<b>Remove</b>				
Northern Alignment	0	61	0	0
Cox-Freedom Segment	0	25	0	2
Rob Roy Substation Connections	1	0	0	0
<b>Total<sup>2</sup></b>	1	86-95	0	2
<b>Retain</b>				
Northern Alignment	0	0	0	0
Cox-Freedom Segment	0	8	0	11
Rob Roy Substation Connections	0	0	0	0
<b>Total<sup>2</sup></b>	0	8-9	0	11-12
<b>Top</b>				
Northern Alignment	0	10	0	0
Cox-Freedom Segment	0	0	0	0
Rob Roy Substation Connections	0	0	0	0
<b>Total<sup>2</sup></b>	0	10	0	0
<i>Notes</i>				
<sup>1</sup> Pole numbers are approximate and may change after final engineering. <sup>2</sup> Due to final engineering additional poles may be required. The maximum number of poles that could be added is presented in this table and analyzed in this IS.				

2: Project Description

Figure 2.5-1: Typical Pole Drawings



Source: PG&E 2012

## 2: Project Description

the landowner or to accommodate specific site conditions. In locations where additional support for wood poles is required due to line tension or local terrain, stub poles and guy wires would be installed. Up to four guy wires may be installed per pole. Three wood poles near the intersection of Cox Road and Day Valley Road would be relocated at least 5 feet back from the road pavement. All TSPs would be set back at least 20 feet from the edge of road pavement.

### **New Rob Roy Substation Connections**

One new TSP would be installed and two existing poles would be replaced with TSPs to facilitate connecting two existing power lines to the modified Rob Roy Substation. The new TSPs would be similar to those installed along the Northern Alignment.

Table 2.5-1 summarizes the proposed pole replacement that would occur for the entire project.

### **2.5.2 Conductor**

#### **Northern Alignment**

Each TSP would be configured to carry six individual 954 thousand-circular-mil (kcmil)<sup>3</sup> (1.124-inch-diameter) all-aluminum conductor (AAC) "Magnolia" conductors (the "wire" or "line"). Three conductors would be installed on each side of the TSPs and would be arranged in a vertical configuration for raptor protection. The overhead conductor would be attached to the transmission poles using six non-reflective grey porcelain insulators installed on each TSP. The new conductors would be installed with a minimum vertical and horizontal separation of approximately 8 feet. In accordance with CPUC General Order 95, the lowest conductor would be installed at least 30 feet above the ground.

The project design reflects the guidelines in the following documents<sup>4</sup>:

- Mitigating Bird Collisions with Power Lines: The State of the Art in 1994–Avian Power Line Interaction Committee (APLIC), 1994
- Avian Protection Plan Guidelines–APLIC and U.S. Fish and Wildlife Service, April 2005
- Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006–APLIC, 2006

The 115-kV conductor separation at the TSPs along the Northern Alignment meets the APLIC recommendation of 71 inches horizontal spacing and 51 inches vertical separation (PG&E 2013).

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<sup>3</sup> A circular mil is a unit equal to the area of a circle whose diameter is 1 mil (0.001 inch); this terminology is used chiefly in specifying cross-sectional areas of round conductors. One kcmil is a thousand circular mils.

<sup>4</sup> No 115-kV insulators have been manufactured that meet the recommended 71-inch horizontal phase to ground clearance guideline. As a result, the proposed project would not conform to this suggested guideline.

## 2: Project Description

Distribution phase jumper wires and dead-end insulators would be covered with bird-safe materials on two TSPs with dead-ended distribution underbuild on steel crossarms (PG&E 2013). Center phases at each wood pole with distribution on the Cox-Freedom segment would be covered per APLIC recommendations (PG&E 2013).

### **Cox-Freedom Segment**

The Cox-Freedom Segment would also utilize three individual 954-thousand-circular-mil kcmil AAC “Magnolia” conductors. The existing distribution conductors that would be collocated on the new poles are generally 2-gauge copper or 715.5-kcmil aluminum with diameters of approximately 0.414 inches and 0.974 inches, respectively. The Cox-Freedom Segment conductors would be attached to the power poles using three non-reflective grey composite or porcelain insulators at each pole. The conductors would be separated by a minimum vertical distance of 8 feet. The lowest power line conductor would be installed at least 25 feet above the ground. In instances where distribution conductors are collocated on the power line poles, the distribution conductors would be installed approximately 8 feet below the lowest 115-kV conductor; a minimum ground clearance of 25 feet would be maintained for the distribution conductors in accordance with General Order 95.

Two distribution line segments along the Cox-Freedom Boulevard Segment would also be reconducted (Figures 2.4-11 through 2.4-13). The two segments are from Pole E-86 to Pole E-101 and from Pole E-112 to Pole C-89.

### **2.5.3 Rob Roy Substation Modifications**

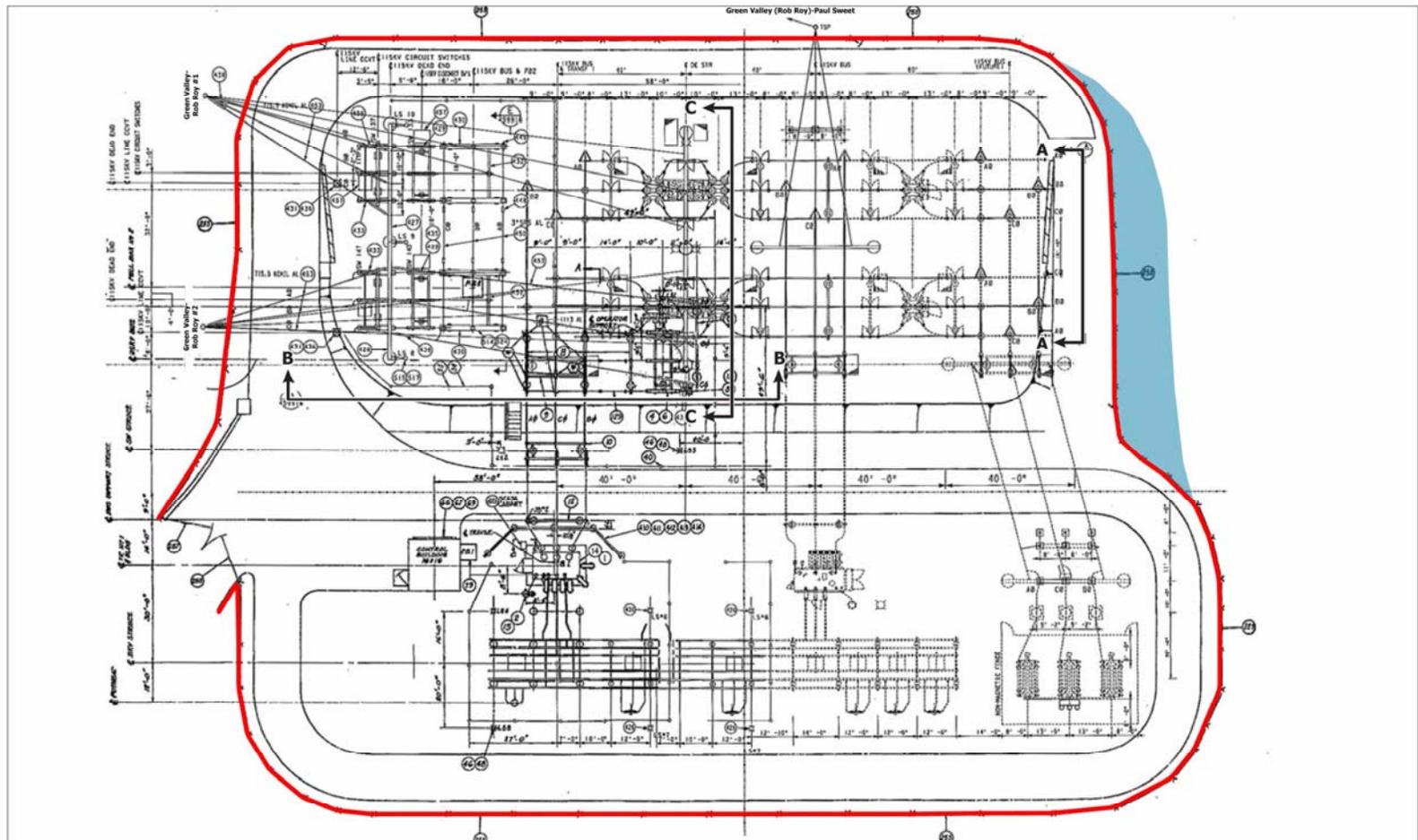
The proposed project includes modifications to Rob Roy Substation to accommodate the new power line. The modifications would begin with the conversion of the existing tap line bus configuration to a four-breaker ring bus arrangement using new steel structures. Modifications would also include the installation of the following:

- A new interior access road
- Four new 115-kV circuit breakers
- Twelve new 115-kV air break switches
- Nine new 115-kV coupling capacitor-type voltage transformers
- Two new approximately 35-foot-tall dead-end take-off structures
- An approximately 30-foot by 16-foot control enclosure

PG&E would expand the existing north and east fence lines by approximately 50 feet to accommodate the modifications to the substation. The existing network of access roads in the substation area would be expanded to surround the new components. The substation’s proposed layout is depicted in Figures 2.5-2 and 2.5-3.

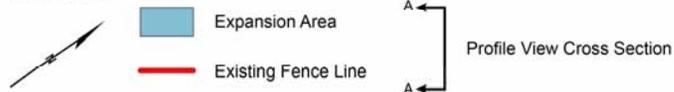
## 2: Project Description

Figure 2.5-2: Rob Roy Substation Proposed Layout Including Parcel Boundary



SOURCE: PG&E 2012 and Panorama Environmental, Inc. 2012

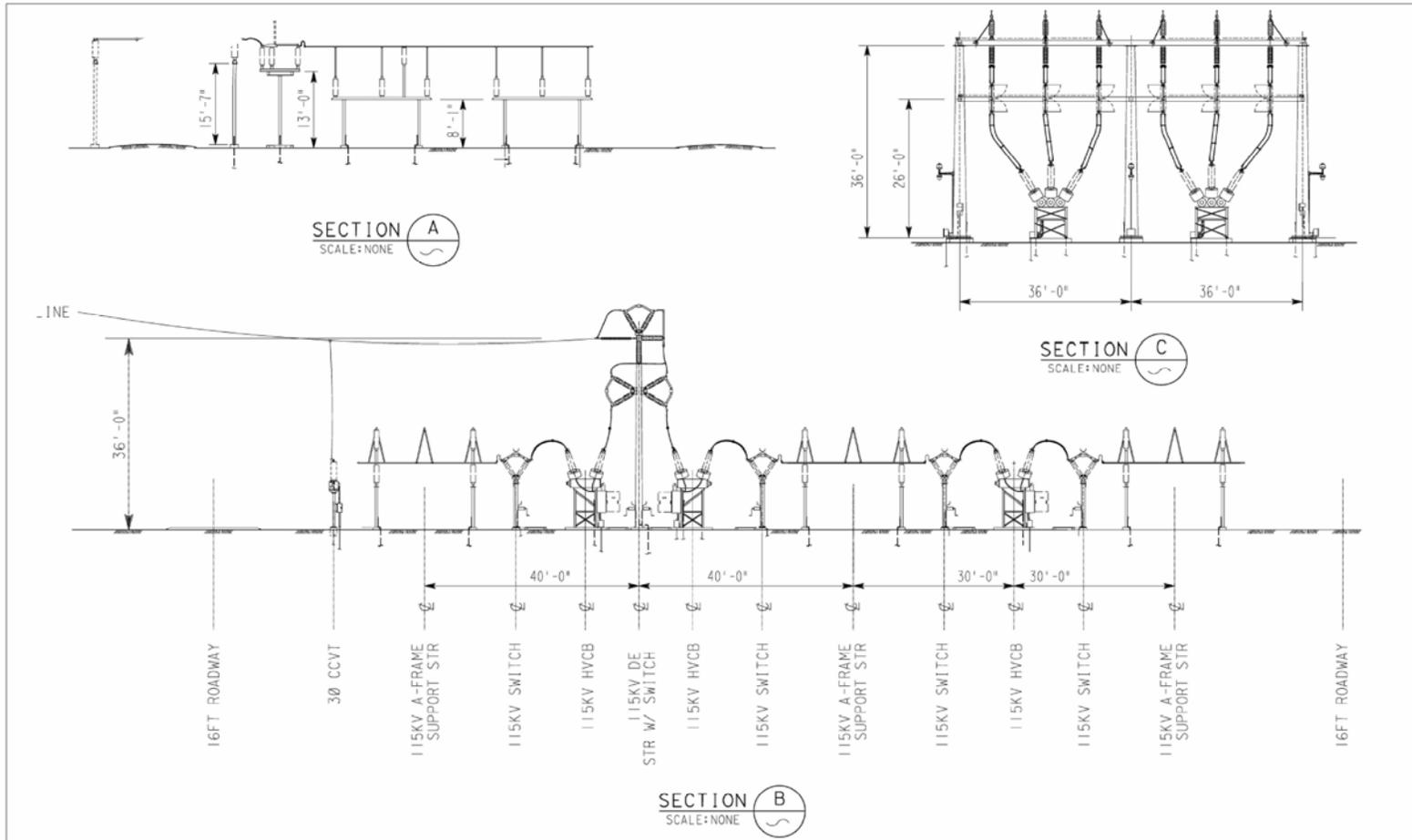
### LEGEND



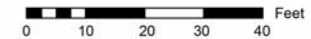
Source: PG&E 2012

## 2: Project Description

Figure 2.5-3: Rob Roy Substation Proposed Profile



SOURCE: PG&E 2012 and Panorama Environmental, Inc. 2012



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Source: PG&E 2012

Santa Cruz 115-kV Reinforcement Project  
October 2013

## 2.6 CONSTRUCTION

### 2.6.1 Vegetation Clearing, Grading, and Erosion Control

#### Vegetation Removal

Up to 46 acres of existing vegetation may need to be cleared or mowed along existing unpaved access routes, overland routes, and staging/landing zones and work areas (see Tables 2.6-1 and 2.6-2). Mowers, excavators, front-end loaders, and bulldozers would be used to clear these sites. During clearing activities, vegetation would be mowed or grubbed, leaving root systems intact wherever possible to encourage resprouting and to minimize erosion. Brush and shrubs cleared during construction would be disposed of at an approved landfill.<sup>5</sup>

#### Tree Removal

Up to 165 trees would need to be removed along the project alignment. Approximately 61 percent of those trees would be removed along the Cox-Freedom Alignment, while 39 percent along the Northern Alignment. The types of trees to be removed include cedar, Douglas fir, elm, eucalyptus, live oak, maple, Monterey pine, pine, redwood, stone pine, sycamore, and willow. Approximately half of the trees are non-native and half are native trees. The trees to be removed have height ranges from 20 to 100 feet and range from 5 to 85 inches in diameter at breast height (dbh). Three oak trees would be removed at the Rob Roy Substation.

Chainsaws, boom/bucket trucks, hand tools and chippers would be used as part of the tree removal process. Removed trees would most likely be mulched in place, except where prohibited. Trees may also be cut into logs and provided to residents, if requested, or hauled off site. Figures 2.6-1 and 2.6-2 show the anticipated tree trimming and removal locations.

#### Grading

Grading may be required along unpaved access roads, at pole work sites, and pull sites. Typical construction equipment required for grading includes graders, compactors, and haul trucks. Up to 46 acres of grading is anticipated (Tables 2.6-1 and 2.6-2).

PG&E would coordinate with landowners to secure access and accommodate livestock, as well as repair any roads or fences that may be damaged during work activities.

#### Erosion and Sediment Control

PG&E would be required to obtain coverage under the California State Water Resources Control Board (SWRCB) General Permit for Storm Water Discharges Associated with Construction Activity Order No. 2009-0009-DWQ (General Permit). In order to obtain coverage under the permit, PG&E would develop and submit Permit Registration Documents, including

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<sup>5</sup> Buena Vista Landfill, located at 1231 Buena Vista Drive in Watsonville, has been identified as a potential disposal facility for brush and other cleared vegetation.

## 2: Project Description

Table 2.6-1: Access Roads						
Type of Road	Proposed Project Component	Improvement	Approximate Width (feet)	Approximate length (feet)	Total Approximate Area (acres)	Total Vegetation Clearing (acres)
Existing Paved	Northern Alignment	No improvement	10	8,150	1.9	0.0
	Cox-Freedom Segment		N/A	N/A	0.0	0.0
	Rob-Roy Substation Modification		20	513	0.2	0.0
Existing Unpaved	Northern Alignment	No improvement	20	19,750	9.1	0.0
	Cox-Freedom Segment		N/A	300	N/A	0.0
	Rob-Roy Substation Modification		20	N/A	0.1	0.0
Improved Unpaved	Northern Alignment	Grading and vegetation removal as necessary	12	1,150	0.3	0.3
	Cox-Freedom Segment		0	0	0.0	0.0
	Rob-Roy Substation Modification		0	0	0.0	0.0
Overland Route	Northern Alignment	Vegetation removal as necessary for fire prevention and wetland fill in 2 areas	12	10,670	2.8	2.8
	Cox-Freedom Segment		12	25	0.01	0.01
	Rob-Roy Substation Modification		12	500	0.12	0.12
<b>Total Range<sup>1</sup></b>					<b>14.53–16.0</b>	<b>2.93–3.22</b>
<i>Note</i>						
<sup>1</sup> Due to final engineering additional poles may be required. The maximum acreages for each feature is presented in this table and analyzed in this IS.						

## 2: Project Description

Table 2.6-2: Temporary Work Areas				
Proposed Project Component	Workspace Description	Quantity	Required Improvements	Total Approximate Area (acres)
Northern Alignment	Pole Work Areas	80	Vegetation removal and minor grading may be required	15.0
	Crossing Structures	18	Vegetation removal may be required	0.7
	Pull Sites	5	Vegetation removal and minor grading may be required	6.35
	Staging Area/Landing Zones	4	Mowing of vegetation	11.02
Cox-Freedom Segment	Pole Work Areas	49	Vegetation removal and minor grading may be required	0.6
	Pull Sites	4	None; would be located on existing roads	0.2
Rob Roy Substation Modification	Substation Work Areas	1	Vegetation removal may be required	0.3
Rob Roy Substation Connections	Pole Work Areas	5	Vegetation removal and minor grading may be required	0.61
All	Contractor Staging/Storage Yards	3	Mowing of vegetation	7.05
<b>Total Range<sup>1</sup></b>				<b>42-46</b>
<i>Note:</i>				
1 Due to final engineering additional poles may be required. The maximum acreages are presented in this table and analyzed in this IS.				
2 Note that the four pull and tension sites along the Cox-Freedom segment could be situated anywhere along the roadway, but would be entirely within the paved and disturbed roadway.				

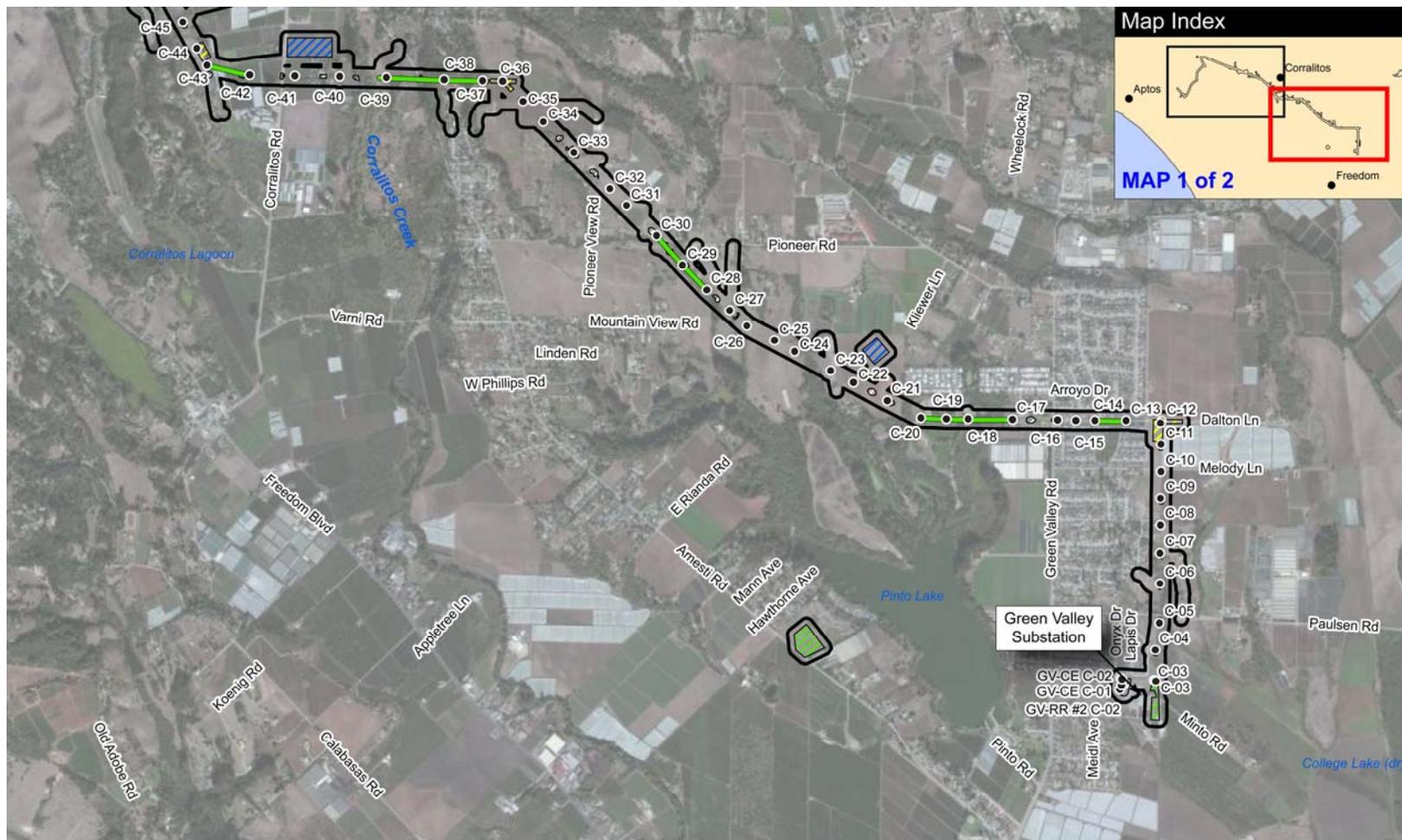
Source: PG&E 2012

a Notice of Intent, Storm Water Pollution Prevention Plan (SWPPP), risk assessment, site map, certification, and annual fee, to the SWRCB prior to initiating construction activities.

Appropriate best management practices (BMPs) would be developed in conjunction with the SWPPP for each activity that has the potential to degrade surrounding water quality through erosion, sediment run-off, and other pollutants. These BMPs would then be implemented and monitored throughout the project by a Qualified SWPPP Practitioner.

2: Project Description

Figure 2.6-1: Potential Tree Removal and Trimming Locations, Map 1



SOURCES: Esri 2013 and Panorama Environmental, Inc. 2013

Scale: 1:30,000

LEGEND

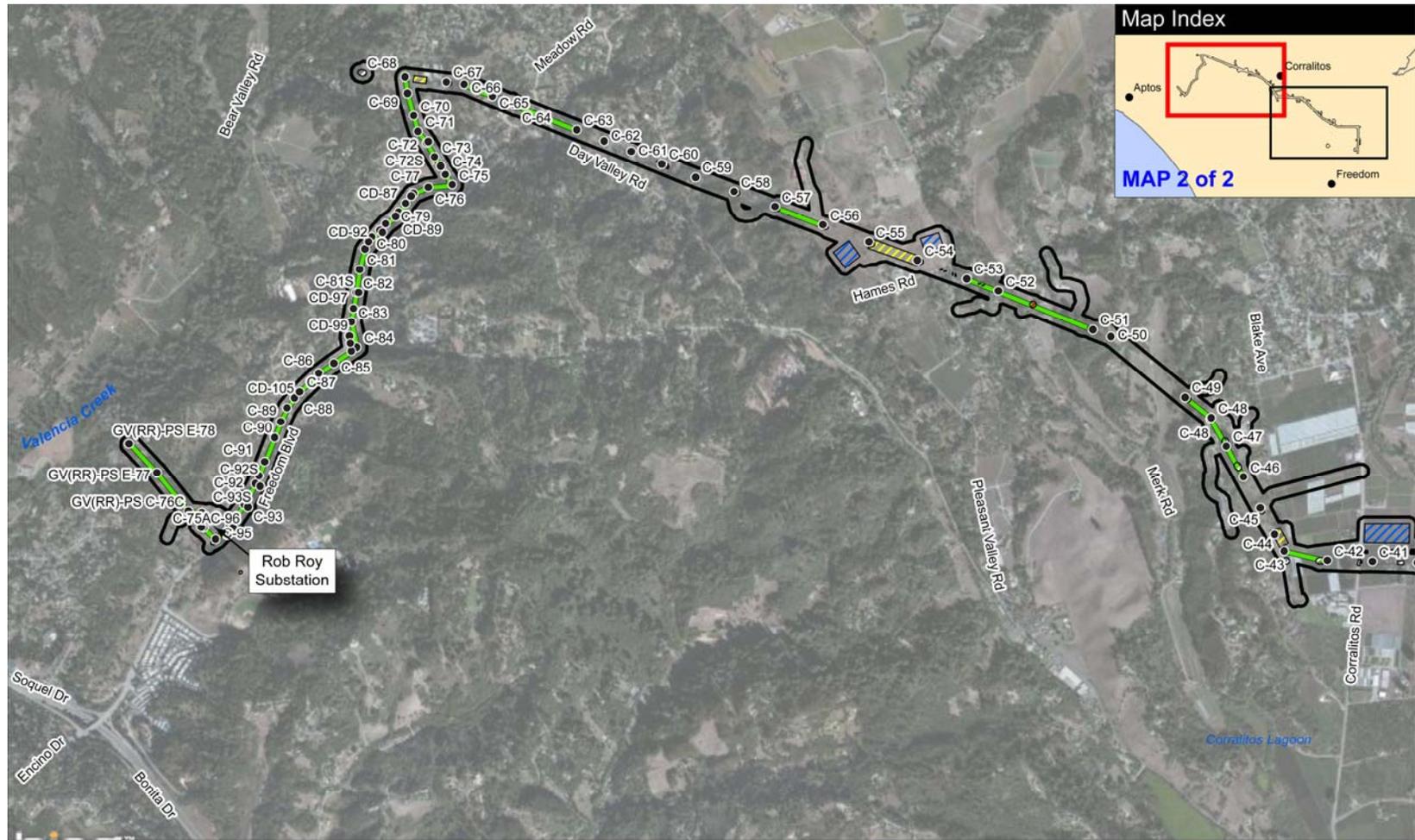
-  Project Corridor
-  C-18 Pole Structure and Number
-  Potential Tree Removal or Trimming Segment
-  Pole Work Area
-  Contractor Construction Yard
-  Landing Zone / Staging Area
-  Tension Pull Site
-  Guard Structure Work Area



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2: Project Description

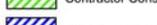
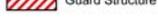
Figure 2.6-2: Potential Tree Removal and Trimming Locations, Map 2

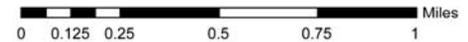


SOURCES: Esri 2013, Insignia Environmental 2012, and Panorama Environmental, Inc. 2013

Scale: 1:30,000

LEGEND

-  Project Corridor
-  C-18 Pole Structure and Number
-  Pole Work Area
-  Tension Pull Site
-  Potential Tree Removal or Trimming Segment
-  Contractor Construction Yard
-  Guard Structure Work Area
-  Landing Zone / Staging Area



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### 2.6.2 Project Access

#### Access Roads

Work areas for construction would be accessed through a combination of existing paved, existing unpaved, improved unpaved, and overland routes. The approximate acreage of each type of access associated with each proposed project component is provided in Table 2.6-1. No new permanent access roads would be constructed for the proposed project. Access roads are identified on Figures 2.4-1 through 2.4-15; however, access routes could be used anywhere within the project corridor, as previously defined.

Existing paved and existing unpaved roads would be used to access proposed project components along the Northern Alignment, Cox-Freedom Segment, and Rob Roy Substation. Overland routes would typically be approximately 12 feet wide to allow safe access by construction equipment. Some vegetation may need to be cleared along overland routes as previously discussed. Overland routes may be wider in some areas based on field conditions.

PG&E's access to the Northern Alignment work area using Kliewer Lane would require that PG&E replace a plastic culvert with a heavy duty steel culvert. The existing culvert would be insufficient to support the weight of equipment and materials that would be transported to the pole work areas. The estimated fill area would be approximately 180 square feet. This area is shown on Figure 2.4-3. PG&E would also need to lay aggregate in a seasonal wetland off of Pioneer Lane for trucks to access a pole. A total of 40 square feet would be filled. This area is shown on Figure 2.4-4.

Pole GV-RR#1 E-75, an existing pole located adjacent to Aptos High School, is located outside of the project corridor. This pole would be accessed on foot, and no temporary road would be created.

#### Construction Traffic and Circulation

Construction would require temporary lane closures along various public and private roads within the project corridor. Temporary lane closures would be coordinated with the County of Santa Cruz and/or City of Watsonville.

#### Helicopter Access

Helicopters with an approximate maximum payload capacity of 4,000 pounds would be used to assist with the installation of new poles in areas along the Northern Alignment, where limited access or local terrain conditions prohibit the work from being conducted by ground-based crews and equipment. Helicopters would be used to install poles C-44 through C-52, C-56, and C-57. Helicopters may also be used during the conductor installation and removal activities. Typical payloads would include, but not be limited to, wood poles, TSP segments, sock lines, power line hardware, crew members, and equipment. Hours of helicopter operation would be limited to those allowed by local regulations and ordinances, and would occur during the proposed construction hours as described further in Section 2.6.7: Construction Schedule. PG&E's BMPs would be implemented at the landing zones in order to reduce potential impacts

## 2: Project Description

to air quality, hazards and hazardous materials, and noise. The measures are identified in Section 2.9: Applicant Proposed Measures.

Helicopter flight paths are defined in close temporal proximity to the actual flights and are subject to variance due to weather conditions, air traffic, and other factors. The helicopter contractor would be responsible for notifying the Federal Aviation Administration (FAA) of proposed flight paths 24 hours in advance of helicopter operations, and for complying with all FAA regulations. It is not anticipated that helicopters would carry loads over occupied structures. If a helicopter route is identified to cross over “congested areas” as described in Federal Aviation Regulations (FAR), Part 133, the contractor would submit a formal written Lift Plan to the FAA at least 72 hours prior to helicopter operations.

### 2.6.3 Temporary Work Areas

Temporary work areas include staging areas, storage yards, helicopter landing zones, crossing structure work areas, pole work areas, pull sites, and the substation work area. Table 2.6-2 identifies each of the work areas and the approximate acreage of each.

#### **Staging Areas/Helicopter Landing Zones/Storage Yards**

Approximately three staging areas/landing zones would be used during construction. Staging areas/landing zones are depicted on Figure 2.4-1 through 2.4-15. Table 2.6-3 lists the currently anticipated staging areas, landing zones, and storage yards. Additional staging area options have been designated in the event that conditions at the time of construction change.

Staging areas and storage yards would be used for the following purposes:

- Equipment and construction vehicle storage, refueling and repair
- Construction material storage
- Pole assembly/disassembly
- Refuse collection and storage
- Construction personnel parking/reporting
- Construction trailer staging

Construction trailers would be mobilized in these areas for use during construction. Temporary power would be brought to the trailers by tapping into distribution lines located adjacent to the staging areas. This temporary power would be used for the operation of the construction trailers and lighting. These sites may also be used to stage and refuel the helicopters during construction activities.

Helicopter landing zones would be located in relatively flat areas that allow enough space for helicopters to safely land and take off. These sites may also be used for equipment and materials storage and for assembling structures. The helicopter would transport structure materials to and from the structure sites along the project corridor from the helicopter landing zones.

A layer of gravel may be spread over the staging areas and storage yards to control mud or other track-out, depending upon substrate conditions. For security, approximately 6-foot-tall

## 2: Project Description

Table 2.6-3: Proposed Staging Areas, Landing Zones, and Contractor Storage Yards

Area	Approximate Size (acres)
Sakata Road Staging Area	2.54
Kliewer Lane Staging Area/Landing Zone	2.07
Corralitos Road Staging Area/Landing Zone	4.82
Hames Road Contractor Storage Yard/Landing Zone (2)	4.10
Green Valley Contractor Storage Yard	1.31
Amesti Road Contractor Storage Yard	3.20
<b>Total Range</b>	<b>18.0-19.8</b>
<i>Note</i> <sup>1</sup> Due to final engineering additional poles may be required. The maximum acreages are presented in this table and analyzed in this IS.	

chain-link fences, with approximately 1 foot of barbed wire on top, may be installed around the perimeter of the staging areas and storage yards. Locking gates would also be installed to control access. During conductor stringing operations, 24-hour security guards may be used to enhance security at the site. Temporary night time security lighting may be installed, if needed.

Three contractor storage yards are proposed, as identified in Table 2.6-2. They would be used for storage and for worker and project vehicle parking. These flat areas are easily accessible for picking up and dropping off construction materials. Construction materials may also be stored at existing PG&E facilities. PG&E personnel may report to existing PG&E offices or yards during construction.

### Crossing Structure Work Areas

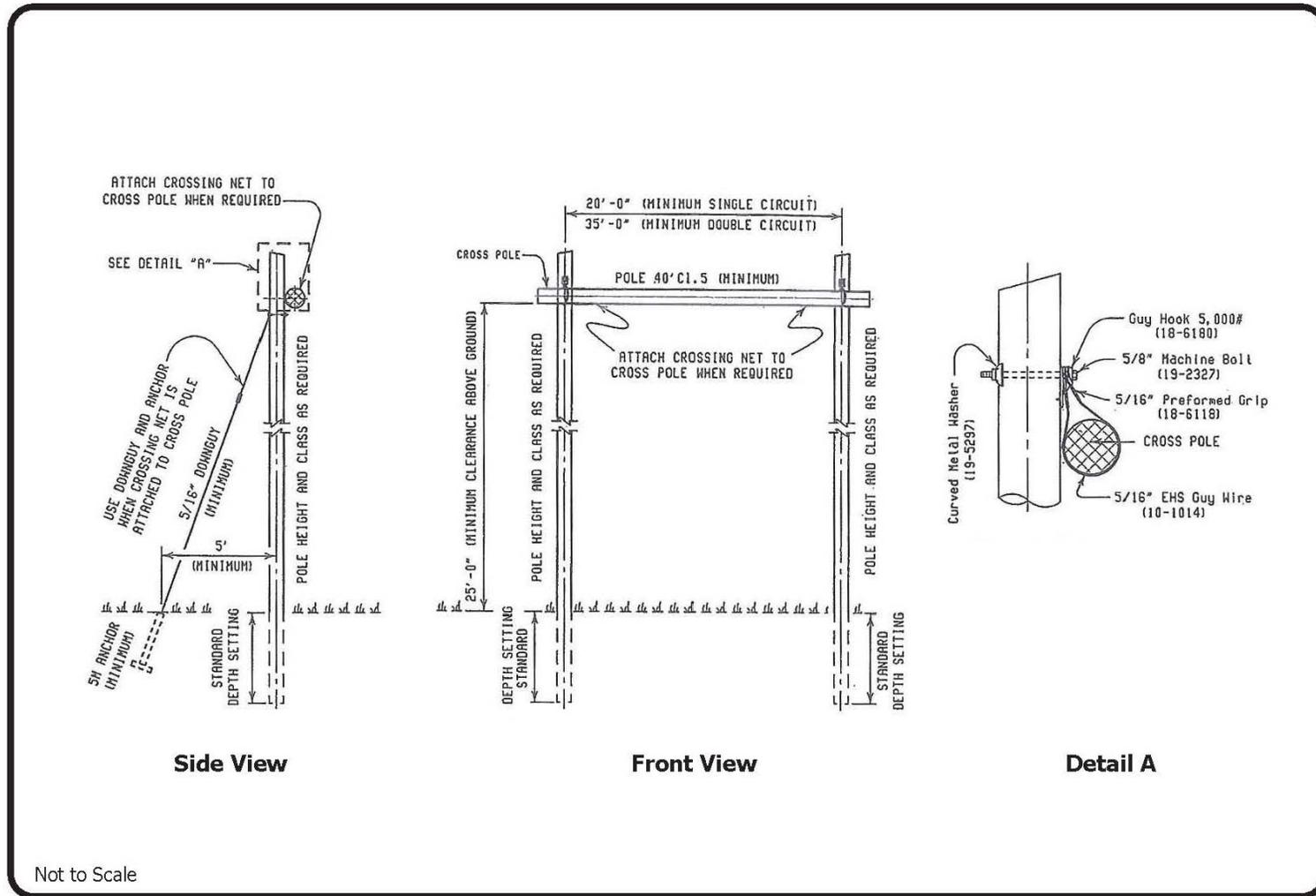
Prior to removing the existing conductors along the Northern Alignment, within the Cox-Freedom Segment ROW, and at the Rob Roy Substation, temporary crossing structures would be installed or mobilized at crossings of energized electric lines, communication facilities, and/or major roadways to prevent the conductors from sagging onto other lines or roads during removal or installation. Crossing structures would typically consist of either vertical wood poles with cross arms or staged construction equipment (Figure 2.6-3). PG&E would establish work areas measuring an average of 75 feet by 70 feet at each proposed crossing in order to accommodate the installation of a crossing structure.

### Pole Work Areas

Pole work areas are required to remove existing poles and to install the new poles. Work areas range in size from circular areas 10 feet in diameter to rectangular areas 140 feet long and 100 feet wide. The pole work areas are used to stage construction materials and equipment. Up to 184 pole work areas may be required as shown in Figures 2.4-1 through 2.4-15. All work areas would be within the project corridor.

## 2: Project Description

Figure 2.6-3: Typical Crossing Structure



Source: PG&E 2012

## 2: Project Description

### **Pull Sites**

Approximately nine pull sites would be used to install and remove conductors during construction. The average size of a pull site is 1.27 acres. The pull sites are shown in Figures 2.4-1 through 2.4-14. Pull sites would be utilized by PG&E to stage conductor-pulling trucks and conductor reel trucks. All pull sites located outside of paved areas may require vegetation removal and, depending on the local terrain, some minor grading to ensure a flat and safe work environment.

PG&E would establish approximately five 200- to 800-foot-long by 100- to 300-foot-wide pull sites on the Northern Alignment. These sites would be generally in line with the existing power line and distribution line alignments to facilitate installation of the new overhead conductors onto the poles along the Northern Alignment. These five pull sites would require a total of approximately 6.3 acres of temporary disturbance. On average, the pull sites would be located approximately 1.7 miles apart.

Approximately four pull sites would be located along the Cox-Freedom Segment. Three of these pull sites would be located within public paved roads. One additional pull site, measuring approximately 115 feet by 70 feet, would be located in the pole work area adjacent to and directly west of Cox Road near the southern corner of Rob Roy Substation. These four pull sites would be located approximately 0.6 miles apart.

### **Substation Work Area**

Substation work at Rob Roy Substation would require the existing north and east fence lines to be relocated approximately 50 feet to allow for the additional components and a new permanent interior access road to be installed. An approximately 20-foot-wide work area would also be established around the perimeter of the extended fence line to accommodate construction activities. These additional areas would be located within PG&E's existing parcel and would accommodate substation construction equipment and the interior access road.

## **2.6.4 Structure Install and Removal**

### **Crossing Structure Installation**

Crossing structures would be installed to protect existing roadways and other facilities from sagging conductors during construction. PG&E would auger an approximately 2-foot-diameter, 8-foot-deep hole within each crossing structure work area to facilitate the crossing structure installation. The temporary wood poles would then be placed in the excavations using a small crane or loader and secured by backfilling and compacting the excavated material into the remaining void. Equipment, such as line trucks, loaders, backhoes, or cranes, may be temporarily positioned to shield the crossing from potentially sagging conductors in areas where crossing protection may be short in duration or of low risk. A typical crossing structure is shown in Figure 2.6-3.

### **Pole Installation**

#### ***Grounding the Line and Obtaining Clearance***

Prior to installing either the TSPs or wood poles, an approved clearance from PG&E System Operations would be obtained and the line would be grounded/cleared of electrical energy. To start this process, PG&E System Operations would de-energize the line through remote-controlled operation of the substations or opening distribution line switches. Grounding clamps would be attached to the conductors on either side of the pole work area once the line is cleared and determined to be non-energized. The grounding clamps are attached to insulated rods with conductor pigtailed that would be attached to copper ground rods driven into the ground. The line would then be tested again to be sure it is not energized. If it is determined to be non-energized, the installation of the poles and transfer of conductor can proceed. The grounding scheme would be removed at the work area and the line would be reenergized at the end of the approved clearance period or the daily duration of construction.

#### ***Work Area Preparation***

Pole installation would begin with vegetation clearing at the pole work area, as described in Section 2.6.1: Vegetation Clearing, Grading, and Erosion Control. If necessary, minor grading may be conducted in order to develop a flat, stable area.

#### ***Foundation Construction***

Concrete foundations would be constructed prior to erecting the pole in order to install TSPs. Foundation construction would commence with the excavation of an approximately 3- to 7-foot-diameter, 15- to 33-foot-deep hole using large augers and drill rigs. A reinforcing steel rebar cage would then be delivered to the work area. Due to design considerations and available access, the cage may be delivered in more than one piece. The complete cage would then be lowered into the excavation and an approximately 2-foot-tall surface form would be built. Concrete would be poured to fill the excavation and encase the rebar cage once the rebar cage is in place and the form is established. The completed foundation is then left to cure for between 7 and 14 days.

#### ***Tubular Steel Pole Installation***

The TSP or pole segments, cross arms, insulators, and hardware would be delivered to the pole work area. The cross arms would be attached, the pole would be placed onto the cured concrete foundations using cranes, and the pole would be secured using the appropriate hardware. If the pole is delivered in multiple segments due to access restrictions or other engineering considerations, the segments would be placed in order on the foundation and secured using hardware. Poles may be delivered and assembled on their foundations using a helicopter in areas of difficult terrain. Once the pole is installed, additional hardware would be added to the cross arms using a bucket truck. If applicable, the existing conductor would then be attached to the new TSP hardware, and the line would be re-energized. TSPs would be installed at least 20 feet from the edge of the roadway for safety purposes.

## 2: Project Description

### ***Wood Pole Installation***

Wood poles would be embedded directly in the ground without the use of a separate foundation. Work would begin by excavating an approximately 3- to 4-foot-diameter and approximately 8- to 11-foot-deep hole. As described previously, direct-bury poles would be embedded at an approximate distance of 10 percent of their total installed height plus 2 feet.<sup>6</sup> The poles, insulators, and hardware would be delivered to the pole work area following the excavation process, and would be assembled. The poles would then be placed in the excavation using line trucks or cranes, the remaining void would be backfilled, and the surrounding area would be compacted. Guy wires would be installed where needed along the wood pole section. Up to four guy wires may be installed per pole. The final number, exact location, and orientation of guy wires would be dependent on site-specific conditions such as soil stability, wind exposure, and the depth the pole extends below grade.

Once the pole is embedded and the surrounding area compacted (and guy wires installed, if needed), additional hardware would be added to the cross arms using a bucket truck. The existing conductor would then be attached to the new wood pole hardware, if applicable, and the line would be re-energized.

### **Conductor Installation**

The new 115-kV circuit conductor stringing between the Green Valley Substation and the Rob Roy Substation would begin with the installation of insulators and stringing sheaves during TSP installation. Sheaves are rollers that would be temporarily attached to the lower end of the insulators to allow the conductor to be pulled along the line. A rope would then be pulled through the rollers from structure to structure. This conductor pulling may be accomplished through the use of a helicopter in instances where terrain is difficult or through the use of a bucket truck or aerial man-lift. Once the rope is in place, it would be attached to a steel cable and pulled back through the sheaves. The 115-kV conductor would then be attached to the steel cable and pulled back through the sheaves and into place. This would be done using conventional tractor-trailer pulling equipment located within one of the substations or within designated pull sites located along the alignments. The pulling through each structure would be done under a controlled tension to keep the conductor elevated and away from obstacles.

The sag between the structures would be adjusted to a pre-calculated level after the 115-kV conductor has been pulled into place. The lowest 115-kV conductor would be installed with a minimum ground clearance of approximately 30 feet. The conductor would then be attached to the end of each insulator, the sheaves would be removed, and the vibration dampers and other hardware accessories would be installed. The existing 12-kV distribution line would be transferred from the existing poles to the new collocated poles, where applicable. The installation and transfer of the conductors would require temporary partial system outages.

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<sup>6</sup> Stub poles would be installed in a similar fashion as wood power poles.

## 2: Project Description

This process would be repeated again to reconnector the existing Green Valley-Camp Evers 115-kV line between the Green Valley Substation and an existing pole near the intersection of Cox Road and Leslie Lane.

### **Distribution Switching Activities and Reconductoring of Distribution Line Segments**

Any distribution lines that cross the power line or are collocated on the line would be temporarily taken out of service during reconductoring along the specific relevant line segments (taking clearances). PG&E would use daily clearances, planned in advance with PG&E's System Operations group, for the relocation of the distribution lines. Distribution clearances may occur anywhere along the power line and the exact location of the clearances is determined the morning of the clearance. The process of taking clearances may require a worker to physically climb the poles or access via a bucket truck to turn switches on or off. Clearances may therefore be outside of the project corridor.

Two distribution line segments along the Cox-Freedom Boulevard Segment would also be reconducted. The work would be conducted from the edge of the road. The two segments are (Figures 2.4-11, 2.4-12, and 2.4-13):

- From Pole E-86 to Pole E-101
- From Pole E-112 to Pole C-89

### **Pole Removal**

Following the transfer of the existing Green Valley-Camp Evers 115-kV circuit conductors to the new TSPs, and transfer of the existing distribution line to the new Cox-Freedom Segment poles, crews would remove the existing distribution and transmission poles and hardware using cranes, aerial man lifts, and/or helicopters. The old poles would be cut off at ground level and any guy wires removed and transported off site. The bases of the poles would then be removed, the voids would be backfilled and compacted with native soil from new pole excavations, and the backfilled areas would be allowed to revegetate naturally. Removed poles would be transported to a PG&E service yard for temporary storage until the poles are reused or disposed of at a permitted landfill site, as appropriate.<sup>7</sup>

### **Pole Topping**

Approximately 12 existing poles along the Northern Alignment that currently have distribution underbuilt would be retained following construction. PG&E anticipates that eight of these poles would be topped (i.e., the top would be cut off with a chainsaw) approximately 1 foot above the horizontally configured distribution underbuild. The distribution underbuild at the remaining poles would be reframed as a vertical configuration and the existing pole would be topped approximately 1 foot above the highest distribution conductor.

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<sup>7</sup> The Monterey County Regional Waste Management District Landfill, located at 14201 Del Monte Boulevard in Marina, has been identified as a potential disposal facility for old wood power line poles.

### **Rob Roy Substation Modification**

Modification of Rob Roy Substation would be required to accommodate the additional 115-kV circuit. Backhoes and augers would be used to excavate the new footing for the additional substation components. PG&E would construct necessary forms and pour additional concrete footings following excavation work. All equipment would be anchored into final position once all footings have cured, and wiring, controls, and protective devices would be installed. All new components would be delivered to the site using a flatbed truck and positioned using a small crane.

### **2.6.5 Cleanup and Post-Construction Restoration**

Surplus materials, equipment, and construction debris would be removed at the completion of construction activities. All man-made construction debris would be removed and recycled or disposed of at permitted landfill sites, as appropriate. Cleared vegetation would either be chipped and stored on the ROW for later use during reclamation, or disposed of off-site, depending on landowner and agency agreements.

### ***Northern Alignment, Cox-Freedom Segment, and Rob Roy Substation Connections***

All areas that are temporarily disturbed around each pole, as well as areas used for conductor stringing and staging, would be restored to preconstruction conditions following construction. This restoration would include returning areas to their original contours, as well as reseeding in accordance with prearranged landowner agreements, where applicable. An approximately 30-foot by 15-foot work space area surrounding all TSPs and wood poles for the 115-kV power line poles would be maintained clear of vegetation and other obstructions for inspection and maintenance purposes. Improved unpaved access roads and overland routes would be returned to their natural conditions.

### ***Rob Roy Substation Modifications***

All construction waste would be disposed of in accordance with all applicable federal, state, and local laws regarding solid and hazardous waste disposal, and would be transported to an authorized landfill or disposal facility. Because all work would occur within existing or modified fence lines, no landscaping work is proposed around the substation.

### **2.6.6 Equipment and Transportation**

The equipment that would be used during project construction, as well as a summary of deliveries and pickups for each piece of equipment, is provided in Table 2.6-4. Green Valley Road, Airport Boulevard, and Freedom Boulevard would be the primary routes used to access the project corridor during construction. Freedom Boulevard, Cox Road, Dalton Lane, Day Valley Road, and McDonald Road would be used to access work sites for poles adjacent to those routes.

### **2.6.7 Construction Schedule**

PG&E anticipates that construction of the proposed project would take up to 15 to 18 months. 95 percent engineering design was completed in June 2013. Site development and preparation for all proposed project components are preliminarily scheduled to begin in July 2015, after which

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Table 2.6-4: Construction Equipment Summary		
Activity	Quantity	Equipment
Site Access and Road Drainage	1	1-Ton foreman pickup
	2	Backhoe/loader
	1	Brush hog
	2	Dump/haul truck
	1	Vibrating roller
	2	Water truck
Construction Yard/Work Area/Laydown	1	Tractor-harrow disc
	1	6-person crew truck
Foundation Installation (Northern Alignment and Cox-Freedom Segment)	2	1-Ton foreman pickup
	4	6-person crew truck
	3	Backhoe/bobcat
	6	Concrete truck
	8	Dump/haul truck
	1	Helicopter
	4	Small mobile crane/boom truck/forklift
	3	Tracked drill rig with augers
	4	Wheel roller
TSP Installation (Northern Alignment and Cox-Freedom Segment)	8	50- to 70-Ton crane
	8	Aerial lift truck
	8	Air compressor
	1	Helicopter
	8	Portable generator
	4	Semi with 40-foot trailer
Direct Bury Pole Installation/Pole Removal (Cox-Freedom Segment)	1	1-Ton foreman pickup
	1	20-Ton derrick digger
	3	25-Ton crane/bucket truck
	2	2-Ton flatbed truck
	2	6-person crew truck
	1	Tracked drill rig with augers
	1	Concrete/industrial saw

## 2: Project Description

Table 2.6-4 (Continued): Construction Equipment Summary		
Activity	Quantity	Equipment
	4	Aerial lift truck
	4	Air compressor
	4	Portable generator
Pole Removal (Northern Alignment)	2	1-Ton foreman pickup
	4	2-Ton flatbed truck
	3	50 to 70-Ton crane
	4	6-Man crew truck
	6	Aerial lift truck
	6	Air compressor
	3	Concrete/industrial saw
	1	Helicopter
	6	Portable generator
Pulling and Stringing (Northern Alignment and Cox-Freedom Segment)	1	1,500-Gallon fuel truck
	2	1-Ton foreman pickup
	1	2-Ton equipment truck
	6	6-Man crew truck
	9	Aerial lift truck
	3	Air compressor
	2	Dual bull wheel tensioner/tensioner
	2	Helicopter
	2	Hydraulic press
	3	Portable generator
	4	Rigging/line truck
	2	Three-reel puller
	2	Wire reel trailer
	3	Pumps
Rob Roy Substation Construction (Entire Duration)	2	1-Ton foreman pickup
	1	6-Man crew truck
	2	Pickup
	1	Vendor pickup

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Table 2.6-4 (Continued): Construction Equipment Summary		
Activity	Quantity	Equipment
Fence Removal and Construction (Rob Roy Substation)	1	Backhoe
	1	1-Ton material truck
	1	1-Yard portable mixer
	1	Truck-mounted hole auger
Site Mobilization	5	Flatbed truck
Rough Grading (Rob Roy Substation)	1	Bull Dozer
	1	Dump/haul truck
	1	Paddle scraper
	1	Skid steer/bobcat
	1	Water truck
Foundation/Duct Bank Installation (Rob Roy Substation)	1	Backhoe
	3	Concrete truck
	1	Trencher
Compaction (Rob Roy Substation)	1	Roller Compactor
	2	Wacker tamper
	1	Water truck
Final Grading and Paving (Rob Roy Substation)	1	Paving machine
	1	Skip loader tractor
	1	Transfer truck
Equipment Installation (Rob Roy Substation)	1	25-Ton Crane/Bucket Truck
	3	Aerial lift truck
	1	Forklift
	3	Semi with 40-foot trailer
Testing and Commissioning (Rob Roy Substation)	1	Bucket truck
Restoration	2	Pickup
Environmental Inspection	1	Pickup

construction of each of the components would occur concurrently. Commissioning and startup of the new circuit is anticipated to occur in 2016 or 2017.

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Construction would typically occur 6 days per week (Monday through Saturday) throughout the duration of construction. Daily work hours would generally be 10 hours per day with construction typically occurring between 7:00 AM and 5:30 PM. Occasionally, work would occur during the evening hours or on Sundays. Such activities would include, but are not limited to, monitoring the substation foundation curing process, and testing and commissioning the new substation components.

Construction work in Pinto Lake Park (Figure 2.4-2 and 2.4-3) would not occur on weekends, unless permission is obtained by the County, and activities would be coordinated with the County two to three weeks in advance.

### 2.6.8 Construction Workforce

Different phases of the construction process require varying numbers of construction personnel. Construction of the Northern Alignment would be conducted by two six- to eight-crewmember teams. The Cox-Freedom Segment would be constructed by one or two eight-crewmember teams. Rob Roy Substation modifications would be conducted by approximately nine personnel. The total number of construction personnel and vendors visiting the site would range between approximately 12 and 75 per day, including construction monitors.

## 2.7 OPERATION AND MAINTENANCE

This section describes the operation and maintenance (O&M) activities that would be conducted for each proposed project component once the project has been constructed and is in service.

### 2.7.1 Power Lines

Inspection, maintenance, and repair of the new 115-kV power lines would continue to be performed as it has been for the existing lines in the project corridor. O&M activities for both existing and proposed electric lines would involve both routine preventative maintenance and emergency procedures to maintain service continuity. Aerial and ground inspections of project facilities would continue to be performed. At a minimum of once per year, the TSPs and power lines would be inspected for corrosion, equipment misalignment, loose fittings, and other common mechanical problems. Approximately 30-foot by 15-foot work spaces around all TSPs and wood poles would be maintained for the 115-kV power line poles. These areas would be kept clear of shrubs and other obstructions for inspection and maintenance purposes. Herbicides would be applied in the work spaces around all TSPs and wood poles, as needed, to control the growth of vegetation.

### 2.7.2 Rob Roy Substation

The Rob Roy Substation would continue to be unmanned during operation, and substation monitoring and control functions would continue to be performed remotely. Unauthorized entry into the substation would be prevented by the existing and expanded fencing around the facility and locked gates. No new personnel would be required for operation and maintenance of the substation. Routine inspections would continue to occur approximately 12 times per year

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by two or three PG&E employees to ensure that the substation is in proper functioning condition.

### 2.8 REQUIRED APPROVALS

The CPUC is the lead state agency for the project under CEQA because a PTC is required in accordance with the CPUC's General Order No. 131-D Section III.B (GO 131-D). GO-131-D includes the permitting requirements for the construction of transmission and power line facilities. In addition to the PTC, PG&E would obtain all necessary permits for the project from federal, state, and local agencies per requirements under GO 131-D. Note that only ministerial permits are required from local jurisdictions. Table 2.8-1 provides the potential permits and approvals that may be required for project construction.

Permit/Authorization	Agency	Requirement
Incidental Take Permit	USFWS	Required if incidental take of Santa Cruz long-toed salamander could occur
Permit to Construct	CPUC	Construction of a new 115-kV circuit
National Pollutant Discharge Elimination System (NPDES) Construction General Permit	State Water Resources Control Board	Disturbance of more than 1 acre of land during construction
Encroachment Permit	Santa Cruz County	Work within County roads ROW and property
Building Permit	Santa Cruz County	Attachment of control enclosure to foundation at Rob Roy Substation
Grading Permit	Santa Cruz County	Grading at Rob Roy Substation
Significant Tree Removal Permit	Santa Cruz County	Removal of trees in an area considered "sensitive habitat"
Section 404 Permit (Dredge and Fill)	USACE	Required for discharge of fill material at wetland work areas.
Section 401 (Water Quality Certification/Waste Discharge Requirements)	Central Coast Regional Water Quality Control Board	Required for discharge of fill material at wetland work areas

### 2.9 APPLICANT PROPOSED MEASURES

PG&E proposes to implement measures to ensure that the proposed project would be implemented with minimal environmental impacts in a manner consistent with applicable rules

## 2: Project Description

and regulations. PG&E proposes to implement these measures during the design, construction, and operation of the proposed project to avoid or minimize potential environmental impacts.

Applicant Proposed Measures (APMs) listed in Table 2.9-1 are considered part of the proposed project in the evaluation of environmental impacts (see Section 3: Environmental Setting and Environmental Impacts). CPUC approval would be based upon PG&E adhering to the proposed project as described in this document, including the project description and the APMs, as well as any adopted mitigation measures identified in the MND.

Table 2.9-1 details each APM by environmental issue area. Some APMs have been edited or deleted since their initial proposal in the PEA. APMs are presented as follows:

- Some APMs were modified to clarify language without substantive changes to the content. The originally proposed and final language of these APMs is presented in the table.
- Some APMs that were initially proposed were found to be unnecessary to reduce impacts and have been deleted.

Some APMs were superseded with mitigation measures, as presented in Section 3. The additional mitigation measures supersede the APMs presented in Table 2.9-1. PG&E has agreed to implement all of the additional recommended mitigation measures as part of the proposed project.

## 2: Project Description

Table 2.9-1: Original and Final APMs	
Original APM	Final, Deleted, or Superseded APM
<b>Aesthetics</b>	
<b>AES-01:</b> Construction activities will be kept as clean and inconspicuous as practical.	<b>Deleted:</b> The APM was deleted because it is not needed to reduce effects to less than significant levels and it has no clear standards against which to measure success of implementation.
<b>AES-02:</b> Non-reflective 115 kV conductor and insulators will be installed along the Northern Alignment and Cox-Freedom Segment to minimize the reflectivity and general visibility of the line.	<b>AES-02:</b> Non-reflective 115 kV conductor (non-specular conductors) and insulators will be installed along the Northern Alignment and Cox-Freedom Segment to minimize the reflectivity and general visibility of the line.
<b>AES-03:</b> The new and replacement tubular steel poles that will be installed will be manufactured of self-weathering steel.	<b>AES-03:</b> New and replacement tubular steel poles to be installed will be manufactured steel that will come pre-weathered with a rust color.
<b>AES-04:</b> The new lighting at Rob Roy Substation will use non-glare or hooded fixtures, and will be directed to reduce spillover into areas outside the substation site and minimize the visibility of lighting from off-site locations.	<b>AES-04:</b> The new lighting at Rob Roy Substation will use non-glare or hooded fixtures, and will be directed to reduce spillover into areas outside the substation site and minimize the visibility of lighting from off-site locations.
<b>AES-05:</b> To reduce the potential visibility of new poles as seen from a limited number of residences within approximately 250 feet, where relatively unobstructed views of the project are seen and the new structures appear prominent, PG&E will consult with residential property owners regarding the potential purchase of trees and large shrubs for visual screening to be installed at key locations on residential properties, where feasible. The selected plant materials will be ecologically appropriate to the local landscape setting (in terms of water usage, horticultural and soil requirements, etc.) and will be consistent with PG&E and CPUC requirements for landscaping in proximity to power facilities.	<b>Deleted:</b> The APM was deleted because it is not needed to reduce effects to less than significant levels and implementation of the measure would not necessarily reduce impacts.
<b>Air Quality and Greenhouse Gas Emissions</b>	
<b>AIR-01:</b> All active construction areas, unpaved access roads, parking areas, and staging areas will be watered or stabilized with non-toxic soil stabilizers at least two times per day or as needed to control fugitive dust.	<b>AIR-01:</b> All active construction areas, unpaved access roads, parking areas, and staging areas will be watered or stabilized with non-toxic soil stabilizers at least two times per day or as needed to control fugitive dust.
<b>AIR-02:</b> Traffic speeds on unpaved roads and rights-of-way will be limited to 15 miles per hour.	<b>Deleted:</b> APM AIR-02 was deleted because it is duplicative of APM BIO-10, which has been retained.

## 2: Project Description

<b>Table 2.9-1 (Continued): Original and Final APMs</b>	
<b>Original APM</b>	<b>Final, Deleted, or Superseded APM</b>
<p><b>AIR-03:</b> Vehicle idling time will be limited to a maximum of 5 minutes for vehicles and construction equipment, except where idling is required for the equipment to perform its task.</p>	<p><b>Deleted:</b> The APM was deleted because it is not needed to reduce effects to less than significant levels and it has no clear standards against which to measure success of implementation.</p>
<p><b>AIR-04:</b> If suitable park-and-ride facilities are available in the project vicinity, construction workers will be encouraged to carpool to the job site, to the extent feasible. The ability to develop an effective carpool program for the project will depend upon the proximity of carpool facilities to the job site, the geographical commute departure points of construction workers, and the extent to which carpooling will not adversely affect worker arrival time and the project's construction schedule.</p>	<p><b>Deleted:</b> The APM was deleted because it is not needed to reduce effects to less than significant levels and implementation of the measure would not necessarily reduce impacts.</p>
<p><b>Biological Resources</b></p>	
<p><b>BIO-01: Confinement of Work Activities and Access to Designated Areas Only.</b> All project vehicular movement will be restricted to existing access roads, temporary access roads constructed as a part of the project, designated overland routes, approved temporary work areas, and existing permanent work areas. All approved access roads, access routes, and work areas will be located in advance of construction to the extent possible, and will be marked in sensitive areas except when not feasible due to physical or safety constraints. Construction personnel and equipment will be confined to these delineated work areas, access roads, and access routes. Vehicle travel to each construction site will be limited to the minimum number of trips and vehicles necessary to perform work safely. If new access routes or work areas are needed in biologically sensitive areas, they will be surveyed first by a qualified biologist to ensure that no special-status species or sensitive habitat is present. Approval from a qualified biologist will be obtained prior to any travel off of approved routes or work areas in biologically sensitive areas.</p>	<p><b>Deleted:</b> The APM was deleted because this measure is already included in the description of the project. New access routes are only allowed within the project corridor. Other measures address survey requirements in greater detail.</p>
<p><b>BIO-02: Minimization of Vegetation Clearing.</b> Vegetation-clearing (i.e., tree removal, tree trimming, and understory vegetation removal) will be confined to the minimal amount necessary to safely facilitate work. Pre-construction surveys will be performed prior to vegetation-clearing activities, and as feasible, those activities will be planned to avoid sensitive periods for special-status species.</p>	<p><b>Deleted:</b> This APM was deleted because other measures more thoroughly address vegetation clearing, special status species surveys, and habitat restoration.</p>

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Table 2.9-1 (Continued): Original and Final APMs	
Original APM	Final, Deleted, or Superseded APM
<p><b>BIO-03: Site Restoration and Revegetation.</b> The existing conditions of work areas and overland travel routes will be documented by a qualified biologist before construction begins, and these areas will be returned to pre-existing contours and conditions following construction. A Revegetation and Monitoring Plan will be developed; this plan will describe which vegetation restoration method (i.e., natural revegetation, re-seeding with native seed stock, or reseeded in compliance with the project's Stormwater Pollution Prevention Plan [SWPPP]) will be implemented in the project area. The Revegetation and Monitoring Plan will include additional measures for areas that support sensitive habitat (coastal scrub) and/or special-status plant populations, as discussed in APM BIO-04 and APM BIO-22. This plan will also include measures to control highly invasive weed species.</p>	<p><b>Superseded:</b> The APM has been superseded by Mitigation Measure Biology-2. Refer to Section 3: Environmental Setting and Impacts.</p>
<p><b>BIO-04: Avoidance and Minimization of Impacts to Special-Status Plant Populations.</b> During the appropriate phenological periods, pre-construction rare plant surveys will be conducted in areas where either special-status plants were previously identified or have the potential of occurring within work areas. Agricultural fields and developed areas will not be surveyed due to the lack of suitable habitat for supporting rare plant species. Prior to construction, the boundaries of all special-status plant populations will be delineated with clearly visible flagging, fencing, or other suitable means of marking the area for avoidance. This boundary will be maintained during work at these locations, and these areas will be avoided during all construction activities to the extent possible. Where these areas will be disturbed, additional measures will be implemented. PG&amp;E will develop and implement a Revegetation and Monitoring Plan, as described in APM BIO-03, which will include measures for special-status plant species that may be impacted by project construction. This plan will include specific measures for Monterey spineflower, which will be impacted by project activities, as well as general measures in the event that other special-status plant species are encountered prior to or during project construction.</p>	<p><b>Superseded:</b> The APM has been superseded by Mitigation Measure Biology-5. Refer to Section 3: Environmental Setting and Impacts.</p>

## 2: Project Description

Table 2.9-1 (Continued): Original and Final APMs	
Original APM	Final, Deleted, or Superseded APM
<p><b>BIO-05: Conduct Environmental Training for All Crewmembers.</b> A qualified biologist will develop an environmental training program, and an environmental representative will present the training to all crew members before they begin work on the project. The training will describe special-status species and sensitive habitats that could occur within the project area, protection afforded these species, and the avoidance and minimization measures necessary to avoid/minimize impacts. Penalties for violations of environmental laws will also be incorporated into the training session. Each crewmember will be provided with an informational training handout and a decal to indicate that he/she has attended the training.</p>	<p><b>Superseded:</b> The APM has been superseded by Mitigation Measure Biology-3. Refer to Section 3: Environmental Setting and Impacts.</p>
<p><b>BIO-06: Avoidance of Burrows on Site.</b> To the maximum extent feasible, burrows will be avoided.</p>	<p><b>Deleted:</b> The APM has been deleted because other measures address avoidance of burrows in special status species habitat and it has no clear standards against which to measure success of implementation.</p>
<p><b>BIO-07: Work During Daytime Hours.</b> Work will be conducted between sunrise and sunset in areas with suitable upland habitat for Santa Cruz long-toed salamander, unless approved by a qualified biologist or required due to an emergency situation. Suitable upland habitat includes areas with small mammal burrows, tree roots, dense leaf litter, and fallen logs in coastal oak woodlands, willow riparian woodlands, and dense coastal scrub (especially on north-facing slopes) within 1 mile of known and potential breeding ponds for Santa Cruz long-toed salamander.</p>	<p><b>Deleted:</b> The AMP has been deleted because other measures address avoidance of Santa Cruz long-toed salamander.</p>
<p><b>BIO-08: On-Site Biological Monitoring.</b> Under the direction of the PG&amp;E Project Biologist, a qualified biologist will be present at all active construction areas in biologically sensitive areas.</p>	<p><b>BIO-08: On-Site Biological Monitoring.</b> Under the direction of the PG&amp;E Project Biologist, a CPUC-approved biologist will be present at all active construction areas in biologically sensitive areas</p>

## 2: Project Description

<b>Table 2.9-1 (Continued): Original and Final APMs</b>	
<b>Original APM</b>	<b>Final, Deleted, or Superseded APM</b>
<p><b>BIO-09: Special-status Wildlife in the Project Areas.</b> If a special-status species is observed on site, crews will immediately stop work when it is safe to do so and will contact the qualified biologist. Crews will not be permitted to touch, handle, or relocate special-status wildlife. A communication protocol will be developed and provided to all project personnel to guide the special-status species reporting. If a biological monitor is not in the immediate area to document the resource observation, crews will immediately contact the Environmental Compliance Manager and the PG&amp;E Project Biologist.</p>	<p><b>BIO-09. Special-status Wildlife in the Project Areas.</b> If a special-status species is observed on site, crews will stop work as quickly as is safe to do so and will contact the CPUC-approved biologist. Crew members will not be permitted to touch, handle, or relocate special-status wildlife. Notification and reporting guidelines established in the MMCRP will be implemented. If there is no CPUC-approved biologist in the immediate area to document the resource observation, crews will contact the Environmental Compliance Manager and the PG&amp;E Project Biologist.</p>
<p><b>BIO-10: Construction Site Speed Limits.</b> When safe to do so, a speed limit of 15 miles per hour will be observed on unpaved access routes, and crews will maintain awareness for wildlife in the roadway. Travel on paved roadways will be conducted according to established speed limits or as safety follows.</p>	<p><b>BIO-10. Construction Site Speed Limits.</b> When safe to do so, a speed limit of 15 miles per hour will be observed on unpaved public access routes, and crews will maintain awareness for wildlife in the roadway. Travel on public roadways will be conducted according to established speed limits or as safety allows.</p>
<p><b>BIO-11: Minimization of Impacts to Santa Cruz Long-Toed Salamander.</b> PG&amp;E is consulting with a Santa Cruz long-toed salamander expert to develop measures for avoiding the impacts to this species. PG&amp;E expects to provide an updated measure in February of 2012.</p>	<p><b>Deleted:</b> The APM has been deleted because other measures more thoroughly address impacts to the Santa Cruz long-toed salamander.</p>
<p><b>BIO-12: Nesting Birds.</b> If work is scheduled to occur during the avian nesting season (February through August), active work areas will be surveyed by a qualified biologist within 15 days before work begins in those areas to determine if any nesting birds are present. Exclusionary buffer zones will be established by a qualified biologist around any active nests within the project area. Typical exclusionary buffer zones will be 250 feet for raptors and a minimum of 50 feet for non-raptors; however, the size of the buffer zone may also be modified at the discretion of the biologist based on the following factors: 1) the species' sensitivity to disturbance, 2) the topography surrounding the nest site, and 3) its concealment from project activities. In addition to exclusionary buffers, helicopters will not be permitted to hover over active nests, regardless of height. If construction activities are required within an exclusionary buffer zone, the nest will be monitored for disturbance by a qualified biologist until the young have fledged and are independent of the adults. Nest disturbance will be assessed based on behavioral cues such as time off the nest, hesitation approaching the nest, and incessant</p>	<p><b>Superseded:</b> The APM has been superseded by Mitigation Measure Biology-11. Refer to Section 3: Environmental Setting and Impacts.</p>

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Table 2.9-1 (Continued): Original and Final APMs	
Original APM	Final, Deleted, or Superseded APM
<p>chattering and bill swiping, among other indications. All potential sources of nest disturbance, including non-construction activities, will be assessed and documented. If no nest disturbance is observed, work may continue. If the biologist determines that activities are causing nest disturbance, work will not be allowed to continue within the buffer zone until the young have fledged. In the event of an unforeseen circumstance regarding avian species, the PG&amp;E Avian Protection Plan Manager will be consulted.</p>	
<p><b>BIO-12A: Nesting Bald and Golden Eagles.</b> Construction activities are anticipated to occur during the nesting season for bald and golden eagles (January – August). PG&amp;E will retain a qualified biologist to conduct preconstruction surveys for all construction activities that will occur near suitable breeding habitat within one-mile of the project. Surveys will include the power line route, staging areas, pull sites, and areas of access road improvements where ground disturbance or vegetation clearing/tree removal is required, at a frequency and timing appropriate for nest detection. Helicopters may be used to conduct aerial surveys to document nests up to one mile from project work areas. Helicopter surveys will be appropriately scheduled during different phases of the eagle nesting season. Follow-up terrestrial surveys will be conducted of nests observe by aerial survey, where accessible. Subsequent monitoring of nests will be conducted to check on the status of each nest. Nest monitoring will be conducted using the best method for nest observation (by air or ground) depending on the specific landscape characteristics surrounding each nest.</p> <p>The project biologist will determine the number of site intervals and frequency for monitoring program once initial surveys are completed. Active nests will be monitored by a qualified biologist at a schedule appropriate to the work schedule and nest characteristics to ensure that nesting pairs are not impacted by construction activities. If no active eagle nests are detected, no additional mitigation measures are required.</p>	<p><b>Superseded:</b> The APM has been superseded by Mitigation Measure Biology-12. Refer to Section 3: Environmental Setting and Impacts.</p>

2: Project Description

Table 2.9-1 (Continued): Original and Final APMs	
Original APM	Final, Deleted, or Superseded APM
<p><b>BIO-12B: Nesting Bald and Golden Eagles.</b> If active bald and golden eagle nests are detected in areas exposed to urban-related disturbances (e.g., air, vehicle, pedestrian traffic, loud community events, or operating farm equipment), a 0.25 mile buffer will be established around the nest to exclude project activities that will be taking place from the ground within that distance. Work occurring near this 0.25 mile buffer will be paired with a monitoring program implemented from APM Bio-12A to monitor the nest status during construction. At the discretion of a project biologist, the buffer area may be increased around active eagle nests detected in more rural or undisturbed environments. Use of helicopters will be restricted to necessary trips to install and remove towers and poles, install power lines, and deliver and remove equipment to the areas. Helicopter flight paths will be designed to conform to project-specific requirements (i.e., safety regulations, municipal guidelines, etc.) and will also be designed to minimize and avoid impacts to eagle nests by maintaining a 0.5 mile buffer from active eagle nests to avoid helicopter disturbance of active nests identified during project preconstruction surveys. If active nests occur less than 0.5 miles from planned helicopter flight paths, especially those near landing areas, coordination with appropriate overseeing agencies is recommended to adjust flight paths to a route that is consistent with all project requirements.</p>	<p><b>Superseded:</b> The APM has been superseded by Mitigation Measure Biology-12. Refer to Section 3: Environmental Setting and Impacts.</p>
<p><b>BIO-13: Raptor Protection Guidelines for New Poles.</b> The majority of the project has been designed to conform to the suggested guidelines in the following documents:</p> <ul style="list-style-type: none"> <li>• Mitigating Bird Collisions with Power Lines: The State of the Art in 1994 – Avian Power Line Interaction Committee (APLIC), 1994</li> <li>• Avian Protection Plan Guidelines – APLIC and U.S. Fish and Wildlife Service, April 2005</li> <li>• Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006 – APLIC, 2006</li> </ul> <p>The project’s final design and installation will reflect these suggested guidelines; however, no 115 kV insulators have been manufactured that</p>	<p><b>BIO-13. Raptor Protection Guidelines for New Poles.</b>The majority of the project has been designed to conform to the suggested guidelines in the following documents:</p> <ul style="list-style-type: none"> <li>• Mitigating Bird Collisions with Power Lines: The State of the Art in 1994 –APLIC, 1994</li> <li>• Avian Protection Plan Guidelines – APLIC and USFWS, April 2005</li> <li>• Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006 – APLIC, 2006</li> </ul> <p>The project’s final design and installation will reflect these suggested guidelines; however, no 115 kV insulators have been manufactured that meet the recommended 71-inch horizontal phase to ground clearance</p>

## 2: Project Description

<b>Table 2.9-1 (Continued): Original and Final APMs</b>	
<b>Original APM</b>	<b>Final, Deleted, or Superseded APM</b>
meet the recommended 71-inch horizontal phase to ground clearance guideline. As a result, the project will not conform to this suggested guideline.	guideline. As a result, the project will not reflect to this suggested guideline, which is not required to minimize significant effects.
<b>BIO-14: Pre-construction Surveys for Special-Status Wildlife.</b> Pre-construction surveys for special-status wildlife species will be conducted by a qualified biologist at all work areas within 2 weeks or as appropriate for species requiring survey methods during specific seasons before construction begins at those work areas. If a special-status species is encountered, PG&E will avoid the species. If a special-status species cannot be avoided, the appropriate agency or agencies will be notified.	<b>Deleted:</b> The APM has been deleted because other measures provide more specificity on the requirements for pre-construction surveys for special status wildlife that could occur in the project corridor.
<b>BIO-15: Avoidance of Roosting Bats.</b> When feasible, tree-trimming and tree-removal activities will be conducted during warmer periods, outside of the bat breeding season, in the presence of a qualified biologist. If vegetation-removal activities will be conducted during the bat breeding season, a habitat evaluation of those areas will be performed to assess the habitat's potential to support sensitive bat species. As necessary, an exclusionary buffer around active roost features will be maintained during project activities; the size of the buffer zone may be modified at the discretion of the qualified biologist based on the species' sensitivity to disturbance. A qualified biologist will monitor roost site exclusion zones during project activities to determine if roosting activity is influenced by noise or other activities and to determine when young bats are able to fly from the roost. Exclusion buffers may be removed after a qualified biologist has determined that bats have vacated the occupied roost sites. If project activities cannot avoid directly impacting active colonial roost sites, PG&E will contact the CDFG to discuss implementing alternative measures.	<b>Superseded:</b> The APM has been superseded by Mitigation Measure Biology-14. Refer to Section 3: Environmental Setting and Impacts.
<b>BIO-16: Avoidance and Minimization of Impacts to San Francisco Dusky-footed Woodrat.</b> During the pre-construction surveys, described in APM BIO-14, a qualified biologist will identify potential San Francisco dusky-footed woodrat houses within 50 feet of project activities. At the discretion of a qualified biologist, an exclusion buffer will be established around any woodrat houses that can be avoided, and these exclusion zones will be flagged or fenced. If impacts to a woodrat house are	<b>Superseded:</b> The APM has been superseded by Mitigation Measure Biology-15. Refer to Section 3: Environmental Setting and Impacts.

## 2: Project Description

Table 2.9-1 (Continued): Original and Final APMs	
Original APM	Final, Deleted, or Superseded APM
unavoidable, PG&E will work with a qualified biologist to develop a Woodrat Trapping and Relocation Plan, and will coordinate with the CDFG to handle and relocate the San Francisco dusky-footed woodrats.	
<b>BIO-17: Protection and Inspection of Open Excavations for Entrapped Wildlife.</b> Excavations that may act as pitfall traps (i.e., those exceeding 6 inches in depth) will be securely fenced or covered. In biologically sensitive areas, the fences around excavations will provide one-way passage for small animals to exit the immediate work area in the event they are encountered. Covers will be strong enough to prevent wildlife from falling into the excavations and will be secured to prevent burrowing underneath the covers. Existing pole excavations will be inspected before they are filled to ensure the absence of wildlife. If a special-status species is located in the excavation or an area of impact and cannot escape, the species will be avoided. Project activities in the immediate work area will cease and the CDFG and/or USFWS (as appropriate, depending on the species listing status) will be contacted.	<b>Superseded:</b> The APM has been superseded by Mitigation Measure Biology-17. Refer to Section 3: Environmental Setting and Impacts.
<b>BIO-18: Inspection of Construction Materials for Wildlife.</b> Before being moved, all poles and similar construction materials stored overnight at the construction site will be thoroughly inspected for animals. If special-status species are observed within poles or similar construction materials, they will be avoided and allowed to leave of their own volition.	<b>BIO-18: Inspection of Construction Materials for Wildlife.</b> Before being moved, all poles and similar construction materials stored overnight at the construction site will be thoroughly inspected for animals. If special-status species are observed within poles or similar construction materials, they will be avoided and allowed to leave of their own volition.
<b>BIO-19: No Pets in the Project Area.</b> Crewmembers and project personnel will not be allowed to bring pets to the project area.	<b>BIO-19. No Pets in the Project Area.</b> Crewmembers and project personnel will not be allowed to bring pets to the project area
<b>BIO-20: No Firearms in the Project Area.</b> Firearms will be prohibited in all work areas, unless carried by authorized security personnel.	<b>BIO-20. No Firearms in the Project Area.</b> Firearms will be prohibited in all work areas, unless carried by authorized security personnel.
<b>BIO-21: Garbage and Trash Management.</b> Littering will be prohibited. Food-related garbage and trash will be enclosed in covered containers and removed from the project area daily. Storage yards, contractor yards, and other non-temporary work areas may use centralized areas to aggregate and store wastes. Covered, water-tight waste bins will be required for permanent stored wastes. Stored waste containers will be emptied once a week at a minimum.	<b>BIO-21. Garbage and Trash Management.</b> Littering will be prohibited. Food-related garbage and trash will be enclosed in covered, secured containers and removed from the project area as necessary, but no less than weekly. Storage yards, contractor yards, and other non-temporary work areas may use centralized areas to aggregate and store wastes.

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Table 2.9-1 (Continued): Original and Final APMs	
Original APM	Final, Deleted, or Superseded APM
<p><b>BIO-22: Avoidance and Minimization of Impacts to Sensitive Vegetation (Coastal Scrub).</b> Before construction begins, the boundaries of coastal scrub that can be avoided will be delineated with clearly visible flagging or fencing, or otherwise marked for avoidance. Alternatively, the project access/work areas near coastal scrub vegetation that can be avoided will be marked. The flagging, fencing, and/or other marking will be maintained in place for the duration of construction at each location until work is completed at that site, and these areas will be avoided to the maximum extent practical. Where feasible, measures in the Revegetation and Monitoring Plan, described in APM BIO-03, will be implemented to restore areas of coastal scrub vegetation that will be disturbed during construction activities.</p>	<p><b>Superseded:</b> The APM has been superseded by Mitigation Measure Biology-16. Refer to Section 3: Environmental Setting and Impacts.</p>
<p><b>BIO-23. Pre-Construction Santa Cruz Long-toed Salamander Study.</b></p> <p>In order to better assess the potential for SCLTS to be present in areas where excavation activities will occur as part of the project, PG&amp;E will commission a study of sites that were determined to be potential SCLTS upland habitat within 0.6 mile of known or potential SCLTS breeding sites. The SCLTS study will be conducted by a qualified biologist using the following methodology that must be approved by the U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG). The SCLTS study is currently recommended at 18 sites. Beginning in late summer of the year prior to the scheduled project, each of these workspaces will be enclosed with silt-fencing buried to a depth of 6 inches under the guidance of a qualified biologist. Pitfall traps will be placed in pairs (inside and outside of the enclosure) approximately every 50 feet, and/or at each corner. Silt fencing and pitfall traps will be installed no later than October 15 of the year prior to the start of scheduled construction, and will be monitored through March 15 of the following year. Traps will be opened in the evenings if it rains during the day and/or if the forecast for rain is 50 percent or greater (using forecast data from the National Weather Service), and checked the following morning. Traps will remain open for at least 24 hours after rainfall, and will be closed between rain events. Closed traps will be checked at least once per week to ensure that they are secure. All vertebrates will be identified to species. If a SCLTS is captured outside of the enclosure, it will</p>	<p><b>Deleted:</b> The APM was deleted because the study is a separate project not within CPUC jurisdiction. Additional measures address impacts to Santa Cruz long-toed salamander.</p>

2: Project Description

Table 2.9-1 (Continued): Original and Final APMs	
Original APM	Final, Deleted, or Superseded APM
<p>be released outside of the study area in the nearest suitable upland area and in the presumed direction of travel. If a SCLTS is captured within a study area, it will similarly be released outside of the silt fence, and the USFWS and CDFG will be contacted within 24 hours for further consultation. All pitfall traps will be removed within 2 weeks of completion of the study. Silt fencing will be removed under the guidance of a qualified biologist after the study, unless work is anticipated after October 15 (see APM BIO-25, below).</p> <p>If PG&amp;E determines that the 18 project work sites included in the SCLTS study need to be expanded after the salamander study has already been completed, PG&amp;E will consult with a permitted biologist to evaluate and appropriately adjust the boundaries of work areas in a manner that minimizes the risk to the species. In consultation with the permitted biologist, PG&amp;E may expand the work areas into areas not considered suitable for SCLTS (e.g., roadways, disturbed areas, etc.).</p>	
<p><b>BIO-24: Conduct Specialized Environmental Training for SCLTS.</b> Prior to construction at locations where SCLTS could occur, all construction personnel entering these work areas will attend an endangered species orientation that describes the SCLTS and its protected status, as well the procedure to follow if one is seen during construction. During the course of the project, all new construction personnel will receive this training before starting work. If a SCLTS is observed within the project footprint, work will cease, and USFWS and CDFG will be contacted.</p>	<p><b>Superseded:</b> The APM has been superseded by Mitigation Measure Biology-3. Refer to Section 3: Environmental Setting and Impacts.</p>

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Table 2.9-1 (Continued): Original and Final APMs	
Original APM	Final, Deleted, or Superseded APM
<p><b>BIO-25: Seasonal Ground Disturbance Windows.</b> To the extent possible, ground disturbance will not take place between October 15 and March 15 to avoid affecting SCLTS during their breeding migration or during outward-bound dispersal of post-metamorphic juveniles. Project construction in workspaces identified as providing potential upland SCLTS habitat is scheduled to begin in the 2013 during the dry season.</p> <p>If project construction is anticipated to extend past October 15, all project workspaces within 0.6 mile of a known or potential breeding pond will be enclosed with 3-foot silt-fencing buried to a depth of 6 inches to prevent SCLTS from entering the work areas during migration or dispersal. Fencing will be in place prior to the first significant rainfall (0.25 inches or greater), and all fencing will be completed no later than October 15. The majority of these workspace locations are presented in Appendix A of the Santa Cruz Long-Toed Salamander Habitat Assessment. Other sites may be identified as the project progresses. Installation of the silt fencing as a barrier to SCLTS movement will be conducted under the guidance of an approved biological monitor. Fencing will be in place until activities at a particular site are completed. While the fencing is in place, it will be checked at least weekly by a qualified biologist for the presence of the species.</p>	<p><b>Superseded:</b> The APM has been superseded by Mitigation Measure Biology-7. Refer to Section 3: Environmental Setting and Impacts.</p>
<p><b>BIO-26: Reduced Vegetation Removal.</b> For all sites west of Corralitos Creek, including those within and greater than 0.6 mile of a known or potential breeding pond, clearing of native vegetation for project facilities will be reduced as much as feasible. Clearing of vegetation in these areas will not occur during the rainy season (October 15 through March 15), when SCLTS are more likely to be at or near the surface. Vegetation will be cleared by hand (chain-saws and similar hand equipment are acceptable) without the use of heavy equipment. Clearing of vegetation will occur with a biological monitor present to ensure that adjacent habitat is not unnecessarily disturbed.</p>	<p><b>Superseded:</b> The APM has been superseded by Mitigation Measure Biology-8. Refer to Section 3: Environmental Setting and Impacts.</p>

2: Project Description

Table 2.9-1 (Continued): Original and Final APMs	
Original APM	Final, Deleted, or Superseded APM
<p><b>BIO-27: Avoidance and Minimization of Impacts to Monterey Spineflower.</b> Before construction begins and during the appropriate phenological periods, Monterey spineflower surveys will be conducted in areas where they were previously identified or have the potential of occurring in project work areas. Agricultural fields and developed areas will not be surveyed due to the lack of suitable habitat for supporting rare plant species. The boundaries of Monterey spineflower populations near project work areas, or the limits of project work areas or access roads/routes near Monterey spineflower populations, that will be avoided will be delineated with clearly visible flagging or fencing. The populations that will be impacted will be recorded using a submeter-accurate global positioning system (“GPS”) unit, and the total acreage of temporary and permanent impacts will be calculated.</p> <p>In areas where Monterey spineflower is present, work will be conducted in late summer or early fall to avoid impacting these plants before they have set seed, if feasible. If this is not feasible and it is possible to collect seed prior to the start of construction, seed will be collected from the Monterey spineflower individuals and will be used during restoration following the completion of construction activities. If it is not feasible to conduct work before the spineflower has set seed, all areas occupied by the spineflower where equipment will be operated or where trampling will occur will be protected by steel plates or plywood will be removed as soon as construction activity in that area has been completed, in order to minimize disruption of photosynthesis by the spineflower plants.</p> <p>One year of post-construction monitoring of areas of occupied spineflower habitat impacted by construction will be conducted by a qualified botanist to ensure that the spineflower populations have recovered and that the sites are not being invaded by invasive species. If invasive species are encroaching on the sites, they will be removed. If spineflower populations have not recovered to pre-construction levels after 1 year, remedial actions may include broadcasting spineflower seed collected from plants in immediately adjacent areas and shallow soil disturbance (e.g., raking) to stimulate spineflower germination and establishment.</p> <p>To mitigate for the anticipated less than 0.1 acre of occupied Monterey spineflower habitat that is likely to be permanently impacted by the</p>	<p><b>Superseded:</b> The APM has been superseded by Mitigation Measure Biology-1. Refer to Section 3: Environmental Setting and Impacts.</p>

2: Project Description

project, PG&E will enhance habitat for Monterey spineflower by	
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Table 2.9-1 (Continued): Original and Final APMs	
Original APM	Final, Deleted, or Superseded APM
<p>removing iceplant and other non-native plants, including, if present, European beach grass (<i>Ammophila arenaria</i>). After removing the invasive plants, the area will then be seeded with Monterey spineflower seed collected from impacted plants. A mitigation monitoring and reporting plan will be developed to ensure compliance. The plan will include pre- and post-treatment vegetation sample plot surveys to record the percent cover of invasive plants and Monterey spineflower prior to and 1 year after treatment. The plots will be done during the appropriate phenological period for Monterey spineflower to allow for positive identification. Performance criteria will be identified in the mitigation monitoring and reporting plan to ensure successful restoration and enhancement of Monterey spineflower populations. Reports will contain pre- and post-treatment photographs of the habitat enhancement area and each sample plot. The enhanced habitat will be monitored for a minimum of 1 year post-treatment to measure the efficacy of non-native plant removal on Monterey spineflower populations. If Monterey spineflower does not colonize the area, remedial actions that may include rebroadcasting spineflower seed collected from plants in immediately adjacent areas and shallow soil disturbance (e.g., raking) to stimulate spineflower germination and establishment will be implemented.</p>	
<p><b>BIO-28: Habitat Enhancement of Oak Woodland.</b> At individual work areas where a SCLTS is detected during project activities, PG&amp;E will implement measures to enhance upland SCLTS habitat after construction is completed. Measures may include, but not be limited to, removal of invasive species within the affected work area, depositing wood debris, or planting new trees depending on site specific conditions and needs. PG&amp;E will coordinate with the FWS to develop a site specific prescription to ensure the affected work area is restored with appropriate habitat enhancements for SCLTS.</p>	<p><b>Superseded:</b> The APM has been superseded by Mitigation Measure Biology-11. Refer to Section 3: Environmental Setting and Impacts.</p>

## 2: Project Description

Table 2.9-1 (Continued): Original and Final APMs	
Original APM	Final, Deleted, or Superseded APM
<p><b>BIO-29: Installation of Surface Barriers on Overland Access Routes.</b> When it is necessary for vehicles and other construction equipment to travel on designated overland routes to individual work sites where SCLTS have been detected, PG&amp;E will avoid burrows or other potential refugia along the route to the extent feasible. If it is not feasible to avoid traveling over burrows, a temporary surface barrier (e.g. plywood, steel plate, fiberglass matting) will be placed in practicable areas (based on topography, soil type, safety, etc.). over burrows immediately prior to using the overland access route. The temporary surface barrier will be immediately removed at the end of each day (or sooner).</p>	<p><b>BIO-29. Installation of Surface Barriers on Overland Access Roads.</b> When vehicles and other construction equipment are required to travel on designated overland routes to reach work sites within suitable upland habitat, determined per APM BIO-25, for Santa Cruz long-toed salamander, the CPUC-approved, qualified biologist will survey the route and flag all burrows and/or other potential refugia along the route for avoidance. If travel over burrows is determined unavoidable (e.g. no other route that can support vehicle travel is available due to space or topography constraints), a temporary surface barrier (e.g. plywood, steel plate, or fiberglass matting) will be placed over burrows immediately prior to using the overland access route in areas where practicable (based on topography, soil type, safety, etc.). The temporary surface barrier will be immediately removed at the end of each day (or sooner). If it is not practicable to place a temporary surface barrier or avoid the burrow within the overland route, no access will occur in these areas until the PG&amp;E Project Biologist contacts USFWS, CDFW, and the CPUC for additional instructions and measures to be implemented that ensure no impacts to Santa Cruz long-toed salamanders.</p>
<p><b>Cultural Resources</b></p>	
<p><b>CUL-01:</b> Prior to construction, all PG&amp;E, contractor, and subcontractor project personnel will receive training regarding the appropriate work practices necessary to effectively implement the APMs and to comply with the applicable environmental laws and regulations, including the potential for exposing subsurface cultural resources and paleontological resources and how to recognize possible buried resources. This training will include a presentation of the procedures to be followed upon discovery or suspected discovery of archaeological materials, including Native American remains and their treatment, as well as of paleontological resources.</p>	<p><b>CUL-01:</b> Prior to construction, all PG&amp;E, contractor, and subcontractor project personnel will receive training regarding the appropriate work practices necessary to effectively implement the APMs and mitigation measures and to comply with the applicable environmental laws and regulations, including the potential for exposing subsurface cultural resources and paleontological resources and how to recognize possible buried resources. This training will include a presentation of the procedures to be followed upon discovery or suspected discovery of archaeological materials, including Native American remains and their treatment, as well as of paleontological resources.</p>

2: Project Description

Table 2.9-1 (Continued): Original and Final APMs	
Original APM	Final, Deleted, or Superseded APM
<p><b>CUL-02:</b> Prior to construction, SCPL-2 will be evaluated to determine if it is eligible for listing on the CRHR. If SCPL-2 is eligible, PG&amp;E will not improve the road and will place steel plates along the existing access road to protect this resource in the event the road is used during wet conditions. If SCPL-2 is not eligible, PG&amp;E will use the access road in its current state. Regardless of eligibility, resources identified within SCPL-2 that are outside of the existing access road will be flagged prior to project construction, and the proposed pull site will be situated to avoid the flagged location. Proper signage that states “Exclusion Zone, No Access” will be posted in the restricted area. All crewmembers will be directed not to enter the exclusion zone.</p>	<p><b>Deleted:</b> The APM was deleted because PG&amp;E has since completed the eligibility evaluation for SCPL-2 and determined that the resource is not eligible for listing on the CRHR.</p>
<p><b>CUL-03:</b> The area between the three poles located approximately 1,000 feet northeast of the intersection of Whiteman Avenue and Harrison Way will be examined by a qualified archaeologist prior to any ground-disturbing activities. Any identified cultural resources that can be avoided will be flagged and marked with proper signage that states “Exclusion Zone, No Access” in the restricted area. All crewmembers will be directed not to enter the exclusion zone. If avoidance of an identified cultural resource is not feasible, the resource will be formally evaluated for its eligibility to be listed on the CRHR by a qualified professional historian prior to project construction. Once the find has been identified and evaluated, PG&amp;E’s cultural resources specialist will make the necessary plans for treatment of the find and mitigation of impacts if the find is determined to be significant as defined by CEQA.</p>	<p><b>Superseded:</b> The APM has been superseded by Mitigation Measure Cultural Resources-2. Refer to Section 3: Environmental Setting and Impacts.</p>
<p><b>Geology, Soils, and Mineral Resources</b></p>	
<p><b>GEO-01:</b> PG&amp;E will contract a professional geotechnical engineer to conduct a geotechnical investigation in areas that are suspected to have unstable soils or that could be subject to strong ground shaking. PG&amp;E will consider the recommendations and findings in the geotechnical report in the project’s final design to minimize the effects of expansive soils, differential settling, and strong ground shaking. When necessary, design features, such as engineered subgrades and reinforced foundations, will be incorporated into the project’s design. In addition, PG&amp;E will comply with all applicable codes and seismic standards.</p>	<p><b>Superseded:</b> The APM has been superseded by Mitigation Measure Geology-1. Refer to Section 3: Environmental Setting and Impacts.</p>

## 2: Project Description

Table 2.9-1 (Continued): Original and Final APMs	
Original APM	Final, Deleted, or Superseded APM
<b>Hazards and Hazardous Materials</b>	
<p><b>HAZ-01:</b> Prior to construction, all PG&amp;E, contractor, and subcontractor project personnel will receive training in the applicable environmental laws and regulations associated with hazardous materials, the use and storage of hazardous materials used on the project, and spill response and cleanup BMPs in the event of an unanticipated release.</p>	<p><b>Superseded:</b> The APM has been superseded by Mitigation Measure Hazards-1. Refer to Section 3: Environmental Setting and Impacts.</p>
<p><b>HAZ-02:</b> PG&amp;E will update the existing SPCC Plan for Rob Roy Substation and ensure compliance with applicable standards 160 by incorporating the design, control, training, containment, and response requirements for the increased amounts of hydrocarbon and oil storage that will be located at the modified substation, so that hazardous materials will not encounter the soil.</p>	<p><b>HAZ-02:</b> PG&amp;E will update the existing SPCC Plan for Rob Roy Substation and ensure compliance with applicable standards 160 by incorporating the design, control, training, containment, and response requirements for the increased amounts of hydrocarbon and oil storage that will be located at the modified substation, so that hazardous materials will not encounter the soil.</p>
<p><b>HAZ-03:</b> Smoking will not be permitted during fire season, except in a barren area that is cleared to mineral soil at least 10 feet in diameter or within vehicles or enclosed equipment cabs. Under no circumstances will smoking be permitted during fire season while employees are operating light or heavy equipment, or while walking or working in grass and woodlands.</p>	<p><b>HAZ-03:</b> Smoking will not be permitted during fire season, except in a barren area that is cleared to mineral soil at least 10 feet in diameter or within vehicles or enclosed equipment cabs. Under no circumstances will smoking be permitted during fire season while employees are operating light or heavy equipment, or while walking or working in grass and woodlands.</p>
<p><b>HAZ-04:</b> PG&amp;E construction crew trucks and equipment will have at a minimum a standard round point shovel and a fire extinguisher. If construction activities likely to cause sparks—e.g., welding, grinding, or grading in rocky terrain—are conducted, emergency fire tool boxes will be readily available to crews. The tool boxes will contain fire-fighting items such as shovels, axes, and water.</p>	<p><b>HAZ-04:</b> PG&amp;E construction crew trucks and equipment will have at a minimum a standard round point shovel and a fire extinguisher. If construction activities likely to cause sparks (e.g., welding, grinding, or grading in rocky terrain) are conducted, emergency fire tool boxes will be readily available to crews. The tool boxes will contain firefighting items such as shovels, axes, and water.</p>

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Table 2.9-1 (Continued): Original and Final APMs	
Original APM	Final, Deleted, or Superseded APM
<b>Hydrology and Water Quality</b>	
<p><b>HYD-01:</b> PG&amp;E will file a Notice of Intent with the State Water Resources Control Board for coverage under the General Construction Storm Water Permit and will prepare and implement a SWPPP in accordance with General Order No. 99-08-DWQ. Implementation of the SWPPP will help stabilize graded areas and waterways and reduce erosion and sedimentation. The following measures are generally drawn from that permit and PG&amp;E's standard practices, and will be included in the SWPPP prepared for the construction of the project:</p> <ul style="list-style-type: none"> <li>• All BMPs will be on-site and ready for installation before the start of construction activities.</li> <li>• BMPs will be developed to prevent the acceleration of natural erosion and sedimentation rates. A monitoring program will be established to ensure that the prescribed APMs are followed throughout project construction.</li> <li>• Examples of BMPs include the following measures:               <ul style="list-style-type: none"> <li>– straw wattles, water bars, covers, silt fences, sensitive area access restrictions (e.g., flagging), or other sediment containment methods placed around and/or down slope of work areas prior to earth disturbing activities and before the onset of winter rains or any anticipated storm events;</li> <li>– mulching, seeding, or other suitable measures to protect exposed areas during construction activities as necessary;</li> <li>– installation of additional silt fencing prior to construction to address unforeseen runoff into nearby wetlands and drainages;</li> <li>– use of brooms and shovels (as opposed to water) when possible to maintain a clean site;</li> <li>– construction of a stabilized construction entrance/exit to prevent tracking of dirt onto public roadways; establishment of a vehicle storage, maintenance, and refueling area, if needed, to minimize the spread of oil, gas, and engine fluids;</li> </ul> </li> </ul>	<p><b>HYD-01:</b> PG&amp;E will file a Notice of Intent with the State Water Resources Control Board for coverage under the General Construction Storm Water Permit and will prepare and implement a SWPPP in accordance with General Order No. 2009-0009-DWQ. Implementation of the SWPPP will help stabilize graded areas and waterways and reduce erosion and sedimentation. The following measures are generally drawn from that permit and PG&amp;E's standard practices, and will be included in the SWPPP prepared for the construction of the project:</p> <ul style="list-style-type: none"> <li>• All Best Management Practices (BMPs) will be on site and ready for installation before the start of construction activities.</li> <li>• BMPs will be developed to prevent the acceleration of natural erosion and sedimentation rates. A monitoring program will be established to ensure that the prescribed BMPs are followed throughout project construction. All materials shall be certified weed-free; Examples of BMPs include, but are not limited to, the following measures. The appropriate measures will be applied depending on specific site conditions.               <ul style="list-style-type: none"> <li>• Straw wattles, water bars, covers, silt fences, coir logs, sensitive area access restrictions (e.g., flagging), or other sediment containment methods placed around and/or down slope of work areas prior to earth disturbing activities and before the onset of winter rains or any anticipated storm events.</li> <li>• Mulching, seeding, or other suitable measures to protect exposed areas during construction activities as necessary;</li> <li>• Installation of additional silt fencing prior to construction to address unforeseen runoff into nearby wetlands and drainages;</li> <li>• Use of brooms and shovels (as opposed to water) when possible to maintain a clean site;</li> </ul> </li> <li>• Construction of a stabilized construction entrance/exit</li> </ul>

## 2: Project Description

Table 2.9-1 (Continued): Original and Final APMs	
Original APM	Final, Deleted, or Superseded APM
<ul style="list-style-type: none"> <li>– no overnight parking of mobile equipment within 100 feet of wetlands, culverts, or drainages; and</li> <li>– positioning stationary equipment (e.g., pumps, generators, etc.) used or stored within 100 feet of wetlands, culverts, or drainages within secondary containment.</li> <li>• All BMPs will be inspected before and after each storm event. BMPs will be maintained on a regular basis, and replaced as necessary throughout the course of construction.</li> </ul> <p>A Qualified SWPPP Practitioner will supervise placement of silt fencing to limit the area of disturbance. The silt fence will be monitored regularly to ensure effectiveness.</p>	<ul style="list-style-type: none"> <li>• to prevent tracking of dirt onto public roadways;</li> <li>• Establishment of a vehicle storage, maintenance, and refueling area, if needed, to minimize the spread of oil, gas, and engine fluids;</li> <li>• No overnight parking of mobile equipment within 100 feet of wetlands, culverts, or drainages; and</li> <li>• Positioning stationary equipment (e.g., pumps, generators, etc.) used or stored within 100 feet of wetlands, culverts, or drainages within secondary containment.</li> </ul> <p>All BMPs will be inspected before and after each storm event. BMPs will be maintained on a regular basis, and replaced as necessary throughout the course of construction.</p> <p>A Qualified SWPPP Practitioner will supervise placement of silt fencing to limit the area of disturbance. The silt fence will be monitored regularly to ensure effectiveness.</p>
<b>Noise</b>	
<b>NOI-01:</b> Equipment will be positioned to maximize the distance from residences and to maintain safe and effective operation.	<b>NOI-01:</b> Equipment will be positioned to maximize the distance from residences and to maintain safe and effective operation.
<b>NOI-02:</b> All internal combustion engine-driven equipment will be equipped with exhaust mufflers that are in good condition and that meet or exceed the manufacturers' specifications. All equipment will be maintained and tuned according to manufacturers' recommendations.	<b>NOI-02:</b> All internal combustion engine-driven equipment will be equipped with exhaust mufflers that are in good condition and that meet or exceed the manufacturers' specifications. All equipment will be maintained and tuned according to manufacturers' recommendations.
<b>NOI-03:</b> When backup alarms have more than one volume setting, they will be set to the lowest volume setting that meets OSHA safety requirements.	<b>Deleted:</b> PG&E requested that the APM be removed. CPUC removed the mitigation measure because it is not needed to reduce impacts to less than significant levels.
<b>NOI-04:</b> When construction activities are located within 50 feet of residences, an approximately 3-foot-tall temporary noise barrier will be placed between the residences and any noise-generating equipment that cannot move under its own power while in use.	<b>Superseded:</b> The APM has been superseded by Mitigation Measure Noise-1. Refer to Section 3: Environmental Setting and Impacts.

## 2: Project Description

<b>Table 2.9-1 (Continued): Original and Final APMs</b>	
<b>Original APM</b>	<b>Final, Deleted, or Superseded APM</b>
<p><b>NOI-05:</b> Helicopters will maintain a height of at least 500 feet when passing above residential areas, except when they are at temporary construction areas or actively assisting with the stringing of conductor or other project activities. Helicopters will maintain a lateral distance of at least 500 feet from schools when in session.</p>	<p><b>NOI-05:</b> Helicopters will maintain a height of at least 500 feet when passing above residential areas, except when they are at temporary construction areas or actively assisting with the stringing of conductor or other project activities. Helicopters will maintain a lateral distance of at least 500 feet from schools when in session.</p>
<b>Public Services</b>	
<p><b>PS-01:</b> At least 24 hours prior to implementing any road or lane closure, PG&amp;E will coordinate with applicable emergency service providers in the project vicinity, including, but not limited to, the Santa Cruz County Fire Department, Aptos/La Selva Fire Protection District, Santa Cruz County Sheriff's Office, and Watsonville Police Department. PG&amp;E will provide emergency service providers with information regarding the road or lanes to be closed; the anticipated date, time, and duration of closures; and a contact telephone number.</p>	<p><b>PS-01:</b> At least 24 hours prior to implementing any road or lane closure, PG&amp;E will coordinate with applicable emergency service providers in the project vicinity, including, but not limited to, the Santa Cruz County Fire Department, Aptos/La Selva Fire Protection District, Santa Cruz County Sheriff's Office, and Watsonville Police Department. PG&amp;E will provide emergency service providers with information regarding the road or lanes to be closed; the anticipated date, time, and duration of closures; and a contact telephone number.</p>
<b>Transportation and Traffic</b>	
<p><b>TRA-01:</b> Reflective bollards will be installed around the base of TSP foundations to increase vehicle safety along Dalton Lane and at the corner of McDonald Road and Freedom Boulevard.</p>	<p><b>TRA-01:</b> Reflective bollards will be installed around the base of TSP foundations to increase vehicle safety along Dalton Lane and at the corner of McDonald Road and Freedom Boulevard.</p>
<p><b>TRA-02:</b> At least 2 weeks prior to work within 1,000 feet of any Santa Cruz Metropolitan Transit District (METRO) bus stop, PG&amp;E will coordinate with the METRO to inform them of the project's potential to impact the bus stop. PG&amp;E will provide the METRO with information regarding the location of the bus stop; the anticipated date, time, and duration of construction activities; and a telephone contact number.</p>	<p><b>TRA-02:</b> At least 2 weeks prior to work within 1,000 feet of any Santa Cruz Metropolitan Transit District (METRO) bus stop, PG&amp;E will coordinate with the METRO to inform them of the project's potential to impact the bus stop. PG&amp;E will provide the METRO with information regarding the location of the bus stop; the anticipated date, time, and duration of construction activities; and a telephone contact number.</p>