

Appendix A
Air Quality Reference

Cabrillo-Santa Ynez 115 kV Reconductoring Project

Construction Emissions Summary

	Emissions (tons/project)							Emissions (metric tons/project)	Emissions with Implementation of APM GHG-1 (metric tons/project)
	ROG	NOx	CO	SO ₂	Exhaust PM ₁₀	Fugitive PM ₁₀	Exhaust PM _{2.5}		
TOTAL	0.4	2.7	2.1	0.028	0.14	7	0.13	CO ₂	CO ₂
SBCAPCD Threshold	25	25	NA	NA	NA	NA	NA	427	379
Threshold Exceeded?	No	No	NA	NA	NA	NA	NA	NA	NA

SBCAPCD, *Scope and Content of Air Quality Sections in Environmental Documents*, June 2008

Implementation of APM GHG-1 was assumed to reduce construction equipment, construction vehicles, and worker commute emissions by approximately 15 percent.

Cabrillo-Santa Ynez 115 kV Reconductoring Project
Construction Equipment Emissions

Table 1. Construction Equipment Emission Summary (tons/activity)

Construction Activity	Activity Duration (months)	Emissions (tons/activity)					Emissions (metric tons/activity)		
		ROG	NOx	Exhaust PM ₁₀	Exhaust PM _{2.5}	CO	SO ₂	CO	CO ₂
Re-establishment of Access Roads	2	0.05	0.37	0.02	0.02	0.18	0.0004	32	
Auger Holes	6	0.09	0.93	0.03	0.03	0.28	0.0014	129	
Pole Erection	6	0.02	0.10	0.01	0.01	0.05	0.0001	8	
Conductor Installation	6	0.10	0.60	0.05	0.05	0.34	0.0005	44	
TOTAL		0.25	1.99	0.12	0.10	0.85	0.0025	212	

The URBEEMIS2007 default of 17 days per month was used to calculate emissions in units of tons per activity (4 workdays per week).
 -The PM emission factor was assumed to represent PM₁₀ emissions.

- PM_{2.5} emissions were calculated following the SCAQMD Particulate Matter (PM) 2.5 Significance Thresholds and Calculation Methodology, October 2006. For offroad combustion sources, 89% of the PM₁₀ would be PM_{2.5}.

Table 2. Construction Equipment Summary

Construction Activity: Re-establishment of Access Roads (Assumed duration = 2 months)

Equipment	Fuel Type	Number of Equipment	Horsepower	Load	Operation (hours per day)	Emission Factors (g/bhp hr)								
						ROG	NOx	CO	SO ₂	CO ₂	PM	CO	SO ₂	CO ₂
Motor Grader	Diesel	1	174	0.61	10	0.488	3.789	2.074	0.004	346.974	0.219	2.074	0.004	346.974
Brush hog (ASV Mower) ^a	Diesel	1	91	0.68	10	0.762	4.434	2.742	0.005	388.971	0.431	2.742	0.005	388.971
Water Truck	Diesel	1	189	0.50	10	0.319	3.144	0.837	0.004	324.222	0.112	0.837	0.004	324.222

Construction Activity: Auger Holes (Assumed duration = 6 months)

Equipment	Fuel Type	Number of Equipment	Horsepower	Load	Operation (hours per day)	Emission Factors (g/bhp hr)								
						ROG	NOx	CO	SO ₂	CO ₂	PM	CO	SO ₂	CO ₂
Auger ^b	Diesel	1	291	0.75	10	0.204	2.337	0.763	0.084	426.608	0.084	0.763	0.084	426.608
Water Truck	Diesel	1	189	0.50	10	0.319	3.144	0.837	0.004	324.222	0.112	0.837	0.004	324.222

Construction Activity: Pole Erection (Assumed duration = 6 months)

Equipment	Fuel Type	Number of Equipment	Horsepower	Load	Operation (hours per day)	Emission Factors (g/bhp hr)								
						ROG	NOx	CO	SO ₂	CO ₂	PM	CO	SO ₂	CO ₂
Aerial Lift ^c	Diesel	1	60	0.46	10	0.477	3.074	1.715	0.003	261.653	0.246	1.715	0.003	261.653

Construction Activity: Conductor Installation

Equipment	Fuel Type	Number of Equipment	Horsepower	Load	Operation (hours per day)	Emission Factors (g/bhp hr)								
						ROG	NOx	CO	SO ₂	CO ₂	PM	CO	SO ₂	CO ₂
Aerial Lift ^d	Diesel	2	60	0.46	10	0.477	3.074	1.715	0.003	261.653	0.246	1.715	0.003	261.653
Pullers and Tensioners ^e	Diesel	2	106	0.48	10	0.583	3.451	1.943	0.003	273.029	0.314	1.943	0.003	273.029

^a It was assumed the emission factors for sweepers/scrubbers in URBEEMIS2007 would represent emissions from engines used to operate the brush hog.

^b It was assumed the emission factors for bore/drill rigs in URBEEMIS2007 would represent emissions from engines used to operate the auger.

^c It was assumed the emission factors for aerial lifts in URBEEMIS2007 would represent emissions from engines used to operate the line truck with worker lift.

^d It was assumed the emission factors for air compressors in URBEEMIS2007 would represent emissions from engines used to operate the pullers and tensioners.

Source: Emission factors, horsepower, and load factors from URBEEMIS2007, version 9.2.4.

Cabrillo-Santa Ynez 115 kV Reconductoring Project Truck Emissions

Table 3. On-Site Truck Miles Traveled

Construction Activity	Activity Duration (months)	Truck Type	Number of Trucks	Average Roundtrip Distance Traveled (Miles per Day)	Total Vehicle Miles Traveled (VMT/day)	Emissions (tons/activity)						Emissions (metric tons/activity)	
						ROG	NOx	Exhaust PM ₁₀	Fugitive PM ₁₀	Exhaust PM _{2.5}	CO	SO ₂	CO ₂
Survey	2	Pick-up truck (gasoline)	1	20	20	0.001	0.001	0.000	0.19	0.000	0.011	0.00002	1.0
Re-establishment of Access Roads	2	Pick-up truck (gasoline)	1	20	20	0.001	0.001	0.000	0.19	0.000	0.011	0.00002	1.0
Auger Holes	6	Pick-up truck (gasoline)	1	20	20	0.001	0.001	0.000	0.58	0.000	0.011	0.00002	1.0
Material Haul	1	Line Truck with Trailer	1	100	100	0.014	0.064	0.004	0.48	0.004	0.030	0.00007	7.0
Pole Delivery	2	Pick-up truck (gasoline)	1	20	20	0.001	0.001	0.000	0.19	0.000	0.011	0.00002	1.0
Line Truck with Trailer	6	Line Truck with Trailer	1	100	100	0.028	0.128	0.008	0.97	0.007	0.060	0.00015	13.9
Pole Erection - Aerial Access	6	Crew-cab Truck	1	20	20	0.002	0.003	0.000	0.58	0.000	0.033	0.00006	3.1
Pole Erection - Ground Access	6	Crew-cab Truck	1	20	20	0.017	0.077	0.005	0.58	0.004	0.036	0.00009	8.4
Conductor Installation	6	Line Truck with Trailer	3	20	60	0.007	0.010	0.001	1.74	0.001	0.099	0.00018	9.4
Construction Workers	12	Line Truck with Trailer	1	20	20	0.017	0.077	0.005	0.58	0.004	0.036	0.00009	8.4
		Pick-up truck (gasoline)	10	60	600	0.011	0.049	0.005	0.05	0.002	0.405	0.00052	50.2
TOTAL					600	0.102	0.415	0.027	6.729	0.023	0.774	0.001	107.6

The URBEMIS2007 default of 22 days per month was used to calculate emissions in units of tons per activity. Fugitive emissions from roads assumes 60% of the miles travel would occur on paved roads and 40% of the miles traveled would occur on unpaved roads.

Table 4. Emission Factors (EF)

	ROG	NOx	PM ₁₀	PM _{2.5}	CO	SO ₂	CO ₂
Heavy-duty diesel Emission Factor (g/mile)	5.806	26.30	1.575	1.449	12.292	0.03	3165.446
Heavy-duty diesel Emission Factor (lb/mile)	0.0128	0.0580	0.0035	0.0032	0.0271	0.0001	6.9785
Gasoline pick-up Emission Factor (g/mile)	0.846	1.152	0.069	0.064	11.321	0.021	1182.821
Gasoline pick-up Emission Factor (lb/mile)	0.0019	0.0025	0.0002	0.0001	0.0250	0.00005	2.60763
Gasoline passenger car Emission Factor (g/mile)	0.061	0.281	0.029	0.014	2.317	0.003	287.698
Gasoline passenger car Emission Factor (lb/mile)	0.0001	0.0006	0.0001	0.0000	0.0051	0.0000	0.6343

Emission factors from EMFAC2007 v 2.3 for SB-CAPCD for a heavy duty diesel truck traveling 10 miles per hour, gasoline pickup traveling 5 mph, and gasoline passenger car traveling 45 mph.

Cabrillo-Santa Ynez 115 kV Reconductoring Project

Truck Emissions

Table 5. Fugitive Emissions from Roads

Travel on Unpaved Surfaces

Emission Factor (EPA AP-42 13.2.2):

Travel on Paved Surfaces

Emission Factor (EPA AP-42 13.2.1):

$$EF^{(1)} = k [(s/12)^a] [(W/3)^b] \text{ lb/vehicle mile traveled (vmt)} \quad E = [k(sL/2)^{0.65}(W/3)^{1.5}] - C$$

Variables	PM ₁₀	Variables	PM ₁₀
k	1.5	k	0.016
a	0.9	sL (g/m ²)	0.03
b	0.45	W (tons)	3
s (%)	8.5	C	0.0005
W (tons)	3	EF (lb/VMT) =	0.001
EF (lb/VMT) =	1.10		

1. Emission factors were calculated using EPA AP-42 13.2.2, equation 1b.

2. Silt content were obtained from EPA AP42 Table 13.2.2-1. The value of scraper routes of construction sites was used.

Cabrillo-Santa Ynez 115 kV Reconductoring Project

Table 6. Fugitive Dust Calculations
Grading

Acres Graded	Emission Factor (lb PM ₁₀ /acre)	PM ₁₀ Emissions (tons/project)
12	20	0.12

A 40 ft by 100ft work area around each pole results in approximately 12 acres disturbed for the Project
The emission factor for disturbed area emissions is from URBEMIS2007, version 9.2.4.

Cabrillo-Santa Ynez 115 kV Reconductoring Project

Helicopter Emission Calculations

Table 7. Helicopter Criteria Pollutant Emissions Summary

Daily Emissions (lb/day)		NOx		SOx		PM	
CO	HC	NOx	NOx	SOx	SOx	PM	PM
20.48	1.20	12.09		1.11		0	
Annual Emissions (ton/yr)							
CO	HC	NOx	NOx	SOx	SOx	PM	PM
0.451	0.026	0.266		0.024		0	

Daily emissions calculated assuming 2 LTO per day and 8 hours per work day.
 Annual emissions calculated assuming 22 workdays per month for 2 months.

Table 8. Helicopter Criteria Pollutant Emission Factors

Helicopter	Engine Type	Mode	Emission Factors (lbs/min)				Minutes/LTO		
			CO	HC	NOx	SOx		PM	
BELL 206	250B17B	1	Approach	0.0686777	0.007566187	0.0032011	0.0007657	0	6.50
	250B17B	2	Climb	0.0368677	0.001634931	0.0243605	0.0022072	0	4.33
	250B17B	3	Take-off	0.0345047	0.001325406	0.0291589	0.0023857	0	2.17
	250B17B	4	Idle	0.1013631	0.020899608	0.001045	0.0005643	0	7.00

It was assumed that the Bell 206 engine represents the emissions profile of the helicopter that would be used.
 Emission factors for the Bell 206 engine are from the Federal Aviation Administration, Emissions and Dispersion Modeling System (EDMS).
 Time per mode based on default times in EDMS.

Cabrillo-Santa Ynez 115 kV Reconductoring Project

Helicopter Emission Calculations

Table 9. Landing/Take-Off Criteria Pollutant Emissions

Engine Mode	Emissions (lbs/LTO)				
	CO	HC	NOx	SOx	PM
Approach	0.446	0.049	0.021	0.005	0
Climb	0.160	0.007	0.105	0.010	0
Take-off	0.075	0.003	0.063	0.005	0
Idle	0.710	0.146	0.007	0.004	0
TOTAL:	1.390	0.205	0.197	0.024	0

2 LTO per day

Table 10. Helicopter Operation Criteria Pollutant Emissions during Tower Work

Minutes operation per day 480

Engine Mode	Emissions (lbs/LTO)				
	CO	HC	NOx	SOx	PM
Climb	17.70	0.78	11.69	1.06	0

Assume helicopter operates for 8 hours per day.

Table 11. Helicopter CO₂ Emissions

Fuel Use:	32	gallons per hour
Emission Factor:	9.56	kg CO ₂ /gallon Jet A fuel
Emissions (metric tons/project):	108	metric tons CO ₂

Emissions calculated assuming 22 workdays per month for 2 months.

CO₂ emission factor from the ARB Mandatory Reporting Regulation, Appendix A, Table 4.

Appendix B
Biological Resources

Appendix B-1

Biological Resources Technical Report

Biological Resources Technical Report

**Cabrillo-Santa Ynez 115 kV Reconductoring Project,
Santa Barbara County, California**

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Contents

1.	Introduction.....	1
2.	Methods.....	1
3.	Plant Communities.....	2
	California Annual Grassland (Non-native).....	3
	Central (Lucian) Coastal Scrub.....	3
	Coast Live Oak Woodland.....	3
	Freshwater Ponds and Seeps.....	4
	Mule Fat Scrub.....	4
	Riparian Scrub	4
	Agriculture	5
	Developed/Landscaped.....	5
	Ruderal Vegetation	5
	Rare Plants	5
	California Annual Grassland.....	13
	Central Coast Scrub	13
	Coast Live Oak Woodland.....	13
	Freshwater Ponds and Seeps.....	14
	Riparian and Mule Fat Scrub	14
	Agriculture	14
	Developed/Landscaped.....	15
	Ruderal Vegetation	15
4.	Wetlands and Aquatic Resources.....	15
5.	Special-Status Wildlife Species	15
	Wildlife	23
	Federally Listed Species	23
	State Special-Status Species	27
6.	References.....	34

Tables

Table 1.	Extent of vegetation types within the study area.....	2
Table 2.	Special-status plant species with potential to occur within the Cabrillo-Santa Ynez Reconductoring Project Area.....	7
Table 3.	Special-status wildlife species with potential to occur within the study area.....	17

Figures (located at the end of this document)

- 1 Cabrillo - Santa Ynez 115kV Reconductoring Project Maps 1-17
- 2 Cabrillo - Santa Ynez 115kV Reconductoring Project CNDDDB Map

1. Introduction

This report is preliminary documentation of existing biological resources on Pacific Gas & Electric Company's (PG&E's) Cabrillo-Santa Ynez Reconductoring Project in Santa Barbara County, California. The project includes approximately 14.6 miles (mi) of single circuit 115-kilovolt (kV) line. The study area, including power line corridor and a 200-foot buffer, covers approximately 345 acres (Figure 1, maps 1-17; all figures located at the end of this report). This report has been prepared at the request of CH2M HILL to document the reconnaissance field investigation conducted for the California Environmental Quality Act (CEQA) review of the proposed development project.

PG&E proposes to reductor the existing Cabrillo-Santa Ynez 115kV power line to improve line reliability for the area. The project is located in Santa Barbara County between the cities of Lompoc and Buellton, California. The alignment is oriented east-west roughly paralleling State Route 246 between State Route 1 in Lompoc and U.S. Highway 101, north of Buellton. This line connects Cabrillo Substation in Lompoc to Santa Ynez Switching Station, just west of U.S. Highway 101. This project is proposed because the existing conductor has corroded and deteriorated, leaving the line brittle and subject to failure. Overall, the project includes three components: installation of 128 new light-duty steel poles with a surface treatment designed to render the appearance of natural weathering; reductor of the single circuit 115kV power line; and the removal of 128 wood poles. Additionally, insulators on all 134 existing poles will be replaced.

The following sections describe existing biotic communities and discuss sensitive habitats and potential special-status wildlife species occurring in the study area.

2. Methods

Prior to conducting reconnaissance-level field surveys in the project area, Garcia and Associates (GANDA) reviewed existing information on biotic resources in the study area and surrounding areas. The following sources were reviewed:

- California Department of Fish and Game (CDFG) RareFind 3.1.0 Natural Diversity Database (CNDDDB) (CDFG 2008b);
- U.S. Fish and Wildlife Service (USFWS) species list website (USFWS 2008);
- California Wildlife Habitat Relationships System (CWHR) (CDFG 2008c).
- California Native Plant Society online version of the *Inventory of Rare and Endangered Plants of California* (CNPS 2009).

A list of special-status wildlife species with potential to occur in the project area was compiled by performing a CNDDDB search and reviewing the USFWS species list for the study area. The CNDDDB search included the following U.S. Geological Survey (USGS) quadrangles: Casmalia, Foxen Canyon, Lompoc, Lompoc Hills, Los Alamos, Los Olivos, Orcutt, Santa Rosa Hills, Santa

Ynez, Sisquoc, Solvang, Surf, Tranquillon Mountain, Zaca Creek and Zaca Lake. Other literature reviewed on wildlife distribution in the project region included the Lompoc Wind Energy Project (Aspen Environmental Group 2008), a bat survey report prepared for Vandenberg Air Force Base (Pierson et al. 2002), and the Ecosystem Characterization of La Purisima State Historic Park (Gevirtz et al. 2005).

Reconnaissance-level surveys were conducted along the alignment by GANDA wildlife biologist Loni Cooper and botanist Onkar Singh on January 20-23, 2009. The purpose of these surveys was to identify and map potential habitat for special-status wildlife species and to field-verify the mapped vegetation typing that was based on remote GIS sensing techniques. The study area included a 200-foot wide buffer centered on the 14.6 mi power line.

3. Plant Communities

Nine plant community types were identified within the study area. These include six natural vegetation types (California annual grassland, coast live oak woodland, central (Lucian) coastal scrub, riparian scrub, freshwater ponds/seeps and mule fat scrub); the other three are associated with human activities (agriculture, developed/landscaped, and ruderal). Type classifications of natural plant communities are based primarily on Holland (1986), with additional reference to the series-based vegetation classification system of Sawyer and Keeler-Wolf (1995). Human-influenced vegetation types are not included in the Holland (1986) system; some of these are included in the series described by Sawyer and Keeler-Wolf (1995). The acreage of each type found in the study area is shown in Figure 1 and summarized in Table 1. Descriptions of all identified vegetation types are provided below.

Table 1. Extent of vegetation types within the study area.

Vegetation Type	Area (acres)
<i>Natural Vegetation</i>	
California Annual Grassland	95.24
Coast Live Oak Woodland	72.33
Central (Lucian) Coastal Scrub	107.71
Riparian Scrub	3.87
Freshwater Pond and Seeps	1.19
Mule Fat Scrub	0.86
<i>Other Vegetation</i>	
Agriculture	47.58
Developed/Landscaped	10.32
Ruderal	5.41
Total	344.51

California Annual Grassland (Non-native)

California annual grassland is the current name for Holland's non-native grassland (Holland 1986), an upland community type composed of dense to sparse cover of mainly introduced annual grasses, usually less than 3 feet in height. California annual grassland includes remnant native perennial grasses, and native annual forbs (broad-leaved plants). The equivalent vegetation type in Sawyer and Keeler-Wolf (1995) is the California annual grassland series. California annual grassland is common along the entire length of the power line. Many of the grassland areas within the study area are used as pastureland for cattle grazing.

Although floristic composition is variable within this vegetation type, typical dominants for this vegetation type in the project area include soft chess (*Bromus hordeaceus*), ripgut brome (*B. diandrus*), and foxtail chess (*B. madritensis*), wild oats (*Avena* spp.), California croton (*Croton californicus*), and filarees (*Erodium botrys*, *E. cicutarium*). In years of favorable rainfall, this vegetation type may support numerous species of native annual spring wildflowers (Holland 1986). Native species observed during the January 2009 reconnaissance survey included Sandberg bluegrass (*Poa secunda*), red maids (*Calandrinia ciliata*), tarweed (*Hemizonia* sp.), sky lupine (*Lupinus* c.f. *nanus*), and common peppergrass (*Lepidium* c.f. *nitidum*).

Central (Lucian) Coastal Scrub

Central (Lucian) coastal scrub, as described by Holland (1986), is typically comprised of a dense shrub layer 3-6 feet tall with a sparse herbaceous layer below and often occurs on exposed south-facing slopes. The equivalent community in Sawyer and Keeler-Wolf (1995) is California sagebrush series. Within the study area, this community typically integrates with surrounding habitat types including California annual grassland and coast live oak woodland. Central (Lucian) coastal scrub is common throughout the study area.

Species composition is highly variable and is dependent upon topography, soils, and slope aspect. Along the alignment this community is typically dominated by California sagebrush (*Artemisia californica*) with black sage (*Salvia mellifera*) and coyote brush (*Baccharis pilularis*) often occurring as associated species. Other shrubs commonly occurring within this vegetation type include sticky monkeyflower (*Mimulus aurantiacus*), Menzies' goldenbush (*Isocoma menziesii*), goldenbush (*Ericameria ericoides*), deerweed (*Lotus scoparius*), and California encelia (*Encelia californica*). The understory is generally sparse and includes native forbs and grasses such as yarrow (*Achillea* sp.) and needlegrass (*Nassella* spp.), as well as various non-native annual grass species.

Coast Live Oak Woodland

In this vegetation type, coast live oak (*Quercus agrifolia*) is the sole dominant tree in the canopy. It typically occurs on north-facing slopes and in shaded ravines, and can occur with a more open canopy in more exposed areas (Holland 1986). Coast live oak woodland is common throughout the study area where it typically intergrades with the California annual grassland and central (Lucian) coastal scrub communities.

The understory vegetation within the oak woodlands is relatively dense and diverse. The composition of the understory varies depending on canopy density and adjacent habitats. Where

there is a relatively dense canopy, an herbaceous understory dominates. Typical species include hedge nettle (*Stachys bullata*), pitcher sage (*Salvia spathacea*), miners lettuce (*Claytonia perfoliata*), fiesta flower (*Pholistoma auritum*), bedstraw (*Gallium sp.*), and a variety of other native annual herbs and non-native grasses. At the ecotone between coast live oak woodland and central (Lucian) coastal scrub the oak canopy was found to be less dense and typical understory woodland species include California sagebrush, sticky monkeyflower and toyon (*Heteromeles arbutifolia*).

Freshwater Ponds and Seeps

Freshwater ponds are not described by Holland (1986) or Sawyer and Keeler-Wolf (1995). Holland (1986), however, describes freshwater seeps as areas of permanently wet or moist soils consisting of low growing perennial herbs and grasses. A single seep with active groundwater discharge was identified near pole 112 during the January 2009 reconnaissance survey. Several freshwater ponds occur scattered throughout the study area in low-lying areas in which the soil is inundated or saturated for part of the growing season. These are typically man-made stock ponds or detention basins. The wetlands northeast of SR 246 and Campbell Road (Figure 1, Map 9: Ponds 10A, 10B) located near pole 70 are known to support special-status wildlife species. According to Tom Olson (pers. comm. T. Olson 2009a) these ponds are natural sag ponds (e.g., depressions created by an active fault line) that have been surveyed by local biologists since the early 1970s.

Plant species composition within the freshwater pond habitat varies depending on the amount of inundation. In the larger, deeper ponds, vegetation was generally restricted to the shallow margins and includes species such as tules (*Scirpus spp.*), broad-leaved cattail (*Typha latifolia*), rushes (*Juncus spp.*) and scattered arroyo willows (*Salix lasiolepis*). Shallower ponds that were dry at the time of the reconnaissance survey were primarily dominated by spiny cocklebur (*Xanthium spinosum*). Dominant species associated with the freshwater seep include curly dock (*Rumex crispus*) and water cress (*Rorippa nasturtium-aquaticum*).

Mule Fat Scrub

Mule fat scrub, as described by Holland (1986) and Sawyer and Keeler-Wolf (1995), is a tall, herbaceous, riparian shrub community dominated by mule fat (*Baccharis salicifolia*). This early seral vegetation type is maintained by frequent flooding and scouring that prevents the succession of this community to cottonwood- or sycamore-dominated riparian forests or woodlands. Commonly observed associates in the shrub layer include sandbar willow (*Salix c.f. exigua*). The herbaceous layer is sparsely vegetated and includes white sweetclover (*Melilotus albus*) and rabbits-foot grass (*Polypogon monspeliensis*). Within the study area, mule fat scrub was observed in the active channel of the Santa Ynez River.

Riparian Scrub

Riparian scrub is described by Holland (1986) as a scrubby streamside thicket occurring on fine-grained sand and gravel bars along active river channels. The equivalent series in Sawyer and Keeler-Wolf (1995) is the Arroyo Willow series. It is an early seral community that in the absence of flood disturbance would succeed into a riparian forest community. Patches of this

vegetation type occur along the major waterways within the study area such as the Santa Ynez River and Santa Rosa Creek.

The riparian scrub community in the study area is generally dominated by an overstory of arroyo willow with some occurrences of coast live oak, sandbar willow, coyote brush, and blue elderberry (*Sambucus mexicana*). Understory species include rush (*Juncus* sp.), mugwort (*Artemisia douglasiana*), poison hemlock (*Conium maculatum*), California blackberry (*Rubus californica*), gooseberry (*Ribes* sp.), poison oak (*Toxicodendron diversilobum*), and stinging nettle (*Urtica dioica*).

Agriculture

Cultivated agricultural lands do not support natural vegetation, therefore they are not described by Holland (1986) or Sawyer and Keeler-Wolf (1995). Disked fields, irrigated crops and vineyards were mapped as agriculture. Grape (*Vitis* spp.) vineyards associated with wine production are the most abundant type of agriculture within the study area. The understories of vineyards typically consist of low-growing non-native grasses or are sprayed with herbicides to prevent herbaceous vegetation growth. Areas mapped as agriculture are common throughout the study area.

Developed/Landscaped

This habitat type is not described by Holland (1986) or Sawyer and Keeler-Wolf (1995). Developed areas include residential, commercial and industrial infrastructure as well as hardscaped (concrete, asphalt, or gravel) areas. Vegetation, where present, typically consists of weedy species such as telegraph weed (*Heterotheca grandiflora*) or ornamental plantings such as oleander (*Nerium oleander*).

Ruderal Vegetation

Ruderal vegetation typically occurs in areas that have been subject to ground disturbance, often resulting in a predominance of non-native species. Ruderal vegetation is not described by Holland (1986) or Sawyer and Keeler-Wolf (1995). Within the study area, the ruderal vegetation type is restricted to the western portion of the power line from poles 2 to 19. Included within the habitat type is a portion of the floodplain of the Santa Ynez River where soil disturbance related to past human activities has created a highly disturbed landscape characterized by both native and non-native weedy species such as Menzies' goldenbush, field mustard (*Brassica rapa*), black mustard (*B. nigra*), wild radish (*Raphanus sativus*), anise (*Foeniculum vulgare*), and horseweed (*Conyza canadensis*).

Rare Plants

The natural plant communities present throughout the project area provide suitable habitat for special-status plant species. GANDA botanists are currently conducting protocol-level special-status plant surveys for the Project. These surveys started in March 2009 and will be completed during the summer of 2009. During the first survey event in March, Lompoc ceanothus (*Ceanothus cuneatus* var. *fascicularis*), a CNPS watch list species (Table 2), was observed in the

study area. No other special-status plant species have been observed thus far. Following the survey a rare plant survey report will be prepared to document the methods and findings.

In preparation for the surveys, a list of potentially occurring special-status plant species was compiled. The list was assembled using community and habitat information from the reconnaissance surveys and information from the *Inventory of Rare and Endangered Plants of California* (CNPS 2009), the CNDDDB (CDFG 2008b), and other sources listed below. A plant was considered to be of special status if it met one or more of the following criteria:

- Federally or State-listed, or proposed for listing, as rare, threatened or endangered (CDFG 2009);
- Special Plant as defined by the CNDDDB (CNDDDB 2009); or
- Listed by the California Native Plant Society in the online version of its *Inventory of Rare and Endangered Plants of California* (CNPS 2009). Species designated as List 4 by the CNPS were considered only if the species was rare or restricted to Santa Barbara County.

The list was compiled by conducting a 15-quadrangle search of the CNDDDB RareFind3 database (CDFG 2009). The CNDDDB search included the following USGS quadrangles: Casmalia, Foxen Canyon, Lompoc, Lompoc Hills, Los Alamos, Los Olivos, Orcutt, Santa Rosa Hills, Santa Ynez, Sisquoc, Solvang, Surf, Tranquillon Mountain, Zaca Creek and Zaca Lake. The CNPS (2009) Inventory was then queried to produce a similar list for Santa Barbara County. The specific habitats included in the query were chaparral, cismontane woodland, coastal scrub, meadows and seeps, valley and foothill grassland, riparian scrub and riparian woodland at elevations between 0 and 2297 feet. These habitats were selected based on the similarity of their constituent species to those occurring on the project site. A total of 107 special-status plant species was identified in these queries. This list was revised and shortened to 40 taxa after considering the distributional analysis and habitat requirements of all taxa on the preliminary list. Dune buckwheat (*Eriogonum parvifolium*) was added to the target plant species list, because it is the host plant for the federally listed endangered El Segundo blue butterfly (*Euphilotes battoides allyni*). Table 2 provides a summary of information on the 40 special-status plants with potential to occur within the project area.

Table 2. Special-status plant species with potential to occur within the Cabrillo-Santa Ynez Reconductoring Project Area.

Common name <i>Scientific name</i>	FED	STATE	CNPS	Flowering Period	Habitat Preferences	Potential to Occur at the Project Site
La Graciosa thistle <i>Cirsium loncholepis</i>	FE	ST	1B.1	May-Aug	Cismontane woodland, Coastal dunes, Coastal scrub, Marshes and swamps(brackish), Valley and foothill grassland/mesic, sandy; 13-722 ft.	Moderate: There is a recorded occurrence of this species in the Surf quadrangle which is located adjacent to the project site. Suitable habitat is present. Low: Known records of this species are restricted to the Santa Ynez Mountains and Burton Mesa. Suitable chaparral habitat may not be present within the project site.
Lompoc yerba santa <i>Eriodictyon capitatum</i>	FE	SR	1B.2	May-Aug	Closed-cone coniferous forest, Chaparral(maritime);sandy;131-2952 ft.	Moderate: There are several recorded occurrences of this subspecies within 5 miles of the project site. Suitable habitat is present.
seaside bird's-beak <i>Cordylanthus rigidus ssp. littoralis</i>	-	SE	1B.1	Apr-Oct	Closed-cone coniferous forest, Chaparral(maritime), Cismontane woodland, Coastal dunes, Coastal scrub/sandy, often disturbed sites; 0-1394 ft.	Low: Suitable chaparral habitat may not be present within the project site. Moderate: There are 2 recorded occurrences of this species within 5 miles of the project site. Suitable habitat is present.
Santa Ynez false lupine <i>Thermopsis macrophylla</i>	-	SR	1B.3	Apr-Jun	Chaparral(sandy, granitic, disturbed areas) ; 1394-4593 ft.	Moderate: There are several recorded occurrences of this species within 5 miles of the project site. Suitable habitat is present.
Hoover's bent grass <i>Agrostis hooveri</i>	-	-	1B.2	Apr-Jul	Closed-cone coniferous forest, Chaparral, Cismontane woodland, Valley and foothill grassland/usually sandy; 20-2000 ft.	Moderate: There are several recorded occurrences of this species within 5 miles of the project site. Suitable habitat is present.
Santa Ynez groundstar <i>Ancistrocarphus keilii</i>	-	-	1B.1	Mar-Apr	Chaparral, Cismontane woodland/sandy; 130-427 ft.	Moderate: A recorded occurrence of this species occurs within 5 miles of the project site. This species is known only from the Santa Ynez Valley. Suitable habitat is present.
La Purisima manzanita <i>Arctostaphylos purissima</i>	-	-	1B.1	Nov-May	Chaparral(sandy), Coastal scrub; 197-1280 ft.	High: A recorded occurrence of this species occurs in the immediate vicinity of the project site in the near Campbell Road and Hwy 246. Suitable habitat is present.
Refugio manzanita <i>Arctostaphylos refugioensis</i>	-	-	1B.2	Dec-Mar(May)	Chaparral(sandstone); 899-2690 ft.	Low: Suitable chaparral habitat and sandstone substrates may not be present within the project site.
sand mesa manzanita <i>Arctostaphylos rudis</i>	-	-	1B.2	Nov-Feb	Chaparral(maritime), Coastal scrub/sandy; 82-1056 ft.	Moderate: There are several recorded occurrences of this species within 5 miles of the project site. Suitable

Common name Scientific name	FED	STATE	CNPS	Flowering Period	Habitat Preferences	Potential to Occur at the Project Site
						habitat is present.
Eastwood's brittle-leaf manzanita <i>Arctostaphylos tomentosa</i> ssp. <i>eastwoodiana</i>	-	-	1B.1	Mar	Chaparral(maritime, sandy) ; 295-1197 ft.	Low: Suitable chaparral habitat may not be present within the project site.
Miles' milk-vetch <i>Astragalus didymocarpus</i> var. <i>milesianus</i>	-	-	1B.2	Mar-Jun	Coastal scrub(clay) ; 66-295 ft.	High: A recorded occurrence of this variety occurs in the immediate vicinity of the project site between Drum Canyon and Hwy 101. Suitable habitat is present.
Davidson's saltscale <i>Atriplex serenana</i> var. <i>davidsonii</i>	-	-	1B.2	Apr-Oct	Coastal bluff scrub, Coastal scrub/alkaline; 32-656 ft.	Moderate: There is a recorded occurrence of this variety in the Zaca Lake quadrangle, which is located adjacent to the project site. Suitable habitat may be present.
round-leaved filaree <i>Californica macrophylla</i>	-	-	1B.1	Mar-May	Cismontane woodland, Valley and foothill grassland/clay; 50-3937 ft.	Moderate: There is a recorded occurrence of this species in the Los Olivos quadrangle which is located adjacent to the project site. Suitable habitat is present.
late-flowered mariposa lily <i>Calochortus weedii</i> var. <i>vestitus</i>	-	-	1B.2	Jun-Aug	Chaparral, Cismontane woodland, Riparian woodland/often serpentineite; 902-6250 ft.	Moderate: There are recorded occurrences of this variety in the Santa Rosa Hills and Santa Ynez quadrangles which are located adjacent to the project site. Suitable habitat is present.
dwarf calycadenia <i>Calycadenia villosa</i>	-	-	1B.1	May-Oct	Chaparral, Cismontane woodland, Meadows and seeps, Valley and foothill grassland/rocky, fine soils; 787-4429 ft.	Moderate: There is a recorded occurrence of this species in the Los Alamos quadrangle which contains the project site. Suitable habitat is present.
Santa Barbara jewel-flower <i>Caulanthus amplexicaulis</i> var. <i>barbarea</i>	-	-	1B.1	May-Jul	Closed-cone coniferous forest, Chaparral, Cismontane woodland/serpentineite; 1542-4000 ft.	Low: Known only from serpentine soils in the San Rafael Mountains.
Lompoc ceanothus <i>Ceanothus cuneatus</i> var. <i>fascicularis</i>	-	-	4.2	Feb-April	Chaparral/sandy; 16 – 1312 ft.	Moderate: Known from sandy mesas and hills about Lompoc, and northeast of Buellton (Smith 1998).
Blakley's spineflower <i>Chorizanthe blakleyi</i>	-	-	1B.3	Apr-Jun	Chaparral, Pinyon and juniper woodland; 1969-5250 ft.	Low: Known records of this species are restricted to the San Rafael, Sierra Madre, and Santa Ynez Mountains.

Common name Scientific name	FED	STATE	CNPS	Flowering Period	Habitat Preferences	Potential to Occur at the Project Site
straight-awned spineflower <i>Chorizanthe rectispina</i>	-	-	1B.3	Apr-Jul	Chaparral, Cismontane woodland, Coastal scrub; 279-3396 ft.	Suitable chaparral habitat may not be present within the project site. Moderate: A recorded occurrence of this species is located within 5 miles of the project site just west of Vandenberg Village. Suitable habitat is present.
California sawgrass <i>Cladium californicum</i>	-	-	2.2	Jun-Sep	Meadows and seeps, Marshes and swamps/alkaline or freshwater; 197-1969 ft.	Moderate: There is a recorded occurrence of this species in the Orcutt quadrangle which is located adjacent to the project site. Suitable habitat is present. Low: There are no recorded occurrences of this subspecies within the project site or surrounding quadrangles. The plant is not known to occur south of the Guadalupe quadrangle.
leafy tarplant <i>Deinandra increscens</i> ssp. <i>foliosa</i>	-	-	1B.2	Jun-Sep	Valley and foothill grassland/sandy; 984-1640 ft.	High: There is a recorded occurrence of this subspecies in the immediate vicinity of the project site near Campbell Road and Hwy 246. Suitable habitat is present. Moderate: There is a recorded occurrence of this species in the Los Olivos quadrangle which is located adjacent to the project site. Suitable habitat is present.
dune larkspur <i>Delphinium paryi</i> ssp. <i>blochmaniae</i>	-	-	1B.2	Apr-May	Chaparral, Coastal dunes; 0-656 ft.	Moderate: Known from sandy coastal areas in Santa Barbara County
umbrella larkspur <i>Delphinium umbraeolorum</i>	-	-	1B.3	Apr-Jun	Cismontane woodland; 1312-5249 ft.	Low: Known records of this species are restricted to the San Rafael, Sierra Madre, and Santa Ynez Mountains. Suitable chaparral habitat may not be present within the project site.
Dune eriogonum <i>Eriogonum parvifolium</i>	-	-	-	May-Nov	Coastal Strand, Coastal Sage Scrub; 0 and 2297 ft.	Low: There are no recorded occurrences of this species within the project site or surrounding quadrangles. Habitat conditions are
Ojai fritillary <i>Fritillaria ojaiensis</i>	-	-	1B.2	Feb-May	Broadleaved upland forest(mesic), Chaparral, Lower montane coniferous forest/rocky; 984-3274 ft.	
vernal barley <i>Hordeum intercedens</i>	-	-	3.2	Mar-Jun	Coastal dunes, Coastal scrub, Valley and foothill grassland(saline flats and depressions), Vernal pools; 16-3281 ft.	

Common name Scientific name	FED	STATE	CNPS	Flowering Period	Habitat Preferences	Potential to Occur at the Project Site
						marginal.
mesa horkelia <i>Horkelia cuneata</i> ssp. <i>puberula</i>	-	-	1B.1	Feb- Jul(Sep)	Chaparral(maritime), Cismontane woodland, Coastal scrub/sandy or gravelly; 230-2657 ft.	Moderate: There are several recorded occurrences of this subspecies within 5 miles of the project site. Suitable habitat is present.
Kellogg's horkelia <i>Horkelia cuneata</i> ssp. <i>sericea</i>	-	-	1B.1	Apr-Sep	Closed-cone coniferous forest, Chaparral(maritime), Coastal dunes, Coastal scrub/sandy or gravelly, openings; 33-656 ft.	Moderate: There is an extirpated occurrence of this subspecies in the Lompoc quadrangle which contains the project site. Suitable habitat is present.
pale-yellow layia <i>Layia heterotricha</i>	-	-	1B.1	Mar-Jun	Cismontane woodland, Coastal scrub, Pinyon and juniper woodland, Valley and foothill grassland/alkaline or clay; 984-5594 ft.	Moderate: A recorded occurrence of this species is located within 5 miles of the project site near Mission Village. Suitable habitat is present.
large-flowered leptosiphon <i>Leptosiphon grandiflorus</i>	-	-	4.2	Apr-Aug	Coastal bluff scrub, Closed-cone coniferous forest, Cismontane woodland, Coastal dunes, Coastal prairie, Coastal scrub, Valley and foothill grassland/usually sandy; 16-4003 ft.	Moderate: The Consortium of California Herbaria lists a single voucher collection from Santa Barbara County and the CNPS states extirpation of this species from the county. Suitable habitat is present.
Santa Barbara honeysuckle <i>Lonicera subspicata</i> var. <i>subspicata</i>	-	-	1B.2	May- Aug(Dec- Feb)	Chaparral, Cismontane woodland, Coastal scrub; 115-3281 ft.	Moderate: A recorded occurrence of this species is located within 5 miles of the project site near La Purisima State Park. Suitable habitat is present.
Carmel Valley malacothrix <i>Malacothrix saxatilis</i> var. <i>arachnoidea</i>	-	-	1B.2	(Mar)Jun- Dec	Chaparral(rocky), Coastal scrub; 82-3399 ft.	Low: Only known records in Santa Barbara County are from Little Pine Mountain in the San Rafael Mountains.
Mt. Diablo cottonweed <i>Micropus amphibolus</i>	-	-	3.2	Mar-May	Broadleafed upland forest, Chaparral, Cismontane woodland, Valley and foothill grassland/rocky; 148-2707 ft.	Moderate: There is a recorded occurrence of this species in the Zaca Creek quadrangle which contains the project site. Suitable habitat is present.
Vandenberg monkeyflower <i>Mimulus fremontii</i> var. <i>vandenbergensis</i>	-	-	1B.1	Apr-Jun	Chaparral, Cismontane woodland, Coastal dunescentral dune scrub/sandy; often disturbed areas; 246-394 ft.	Moderate: There are several recorded occurrences of this variety within 5 miles of the project site. All known occurrences are on or within close proximity to the Vandenberg Air Force Base. Suitable habitat is present.
white rabbit-tobacco <i>Pseudognaphalium leucocephalum</i>	-	-	2.2	(Jul)Aug- Nov(Dec)	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland/sandy, gravelly; 0-6890 ft.	Moderate: There is a recorded occurrence of this species in the Surf quadrangle which is located adjacent

Common name Scientific name	FED	STATE	CNPS	Flowering Period	Habitat Preferences	Potential to Occur at the Project Site
						to the project site. Suitable habitat is present.
Nuttall's scrub oak <i>Quercus dumosa</i>	-	-	1B.1	Feb-Apr	Closed-cone coniferous forest, Chaparral, Coastal scrub/sandy, clay loam; 49-1312 ft.	Low: This species is not known to occur north of southern Santa Barbara County.
Santa Cruz Island oak <i>Quercus parvula</i> var. <i>parvula</i>	-	-	4.2	(Mar)Apr-Jun	Closed-cone coniferous forest, Chaparral, Cismontane woodland; 98-3000 ft.	Moderate: This species is endemic to Santa Barbara County. Suitable habitat is present.
Hoffmann's bitter gooseberry <i>Ribes amarum</i> var. <i>hoffmannii</i>	-	-	3	Mar-Apr	Chaparral, Riparian woodland; 492-3904 ft.	Moderate: There is a recorded occurrence of this species in the Santa Ynez quadrangle which is located adjacent to the project site. Suitable habitat is present.
black-flowered figwort <i>Scrophularia atrata</i>	-	-	1B.2	Mar-Jul	Closed-cone coniferous forest, Chaparral, Coastal dunes, Coastal scrub, Riparian scrub; 33-1640 ft.	Moderate: There are several recorded occurrences of this species within 5 miles of the project site. Suitable habitat is present.
chaparral ragwort <i>Senecio aphanactis</i>	-	-	2.2	Jan-Apr	Chaparral, Cismontane woodland, Coastal scrub/sometimes alkaline; 49-2625 ft.	Moderate: There are recorded occurrences of this species in the Lompoc Hills and Santa Ynez quadrangles which are located adjacent to the project site. Suitable habitat is present.
Sonoran maiden fern <i>Thelypteris puberula</i> var. <i>sonorensis</i>	-	-	2.2	Jan-Sep	Meadows and seeps(seeps and streams) ; 164-2000 ft.	Low: There are no recorded occurrences of this species within the project site or surrounding quadrangles. Habitat conditions are marginal.

1. Scientific nomenclature based on Hickman (1993) and Jepson Online Interchange (2009); common names from Hickman (1993), CalFlora (2009).

2. Conservation status definitions are as follows:

U.S. Fish and Wildlife Service designations:

FE Endangered: Any species in danger of extinction throughout all or a significant portion of its range.

California Department of Fish and Game designations:

SE Endangered: Any species in danger of extinction throughout all or a significant portion of its range.

SR Rare: Any species not currently threatened with extinction, but in such small numbers throughout its range that it may become endangered if its present environment worsens.

ST Threatened: Any species likely to become endangered within the foreseeable future.

California Native Plant Society designations:

- 1A Species presumed extinct in California
- 1B Plants rare, threatened or endangered in California and elsewhere.
- 2 Plants rare, threatened or endangered in California, but more common elsewhere.
- 3 Plants About Which We Need More Information - A Review List
- 4 Plants of Limited Distribution - A Watch List

California Native Plant Society threat categories:

- .1 Seriously endangered in California.
- .2 Fairly endangered in California.

3. Habitat information from the California Native Plant Society's on-line Inventory of Rare and Endangered Plants of California (2009), and A Flora of the Santa Barbara Region (Smith 1998).

4. A plant species was determined to have potential to occur in the project area if its known or expected geographic range includes the vicinity of the project area, and if its known or expected habitat is represented within or near the project area. Distance to nearest known location is the shortest distance to the power line corridor within the project area. Sources: CNPS 2008, CDFG 2008a, Jepson Online Interchange 2008.

Wildlife Habitats

The study area crosses a variety of wildlife habitat types that correspond with the diversity of vegetation types, topography and hydrologic features found in the area. The classification of wildlife habitats generally follows that used for vegetation types described above. While vegetation types are defined by plant species composition, wildlife habitats can include other important features such as rock outcrops, underground refugia, and open water. In some cases, a wildlife habitat type includes more than one plant community where those communities provide similar habitat characteristics and support a similar assemblage of wildlife species. A description of wildlife habitats in the study area follows; these are based on the California Wildlife Habitat Relationships System (CDFG 2008c).

California Annual Grassland

California annual grassland can support a variety of small mammals and provide foraging or nesting habitat for raptors and other birds. Birds commonly found foraging in annual grasslands include red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), and turkey vulture (*Cathartes aura*). Common seed eaters, including California quail (*Callipepla californica*), mourning dove (*Zenaida macroura*), and western meadowlark (*Sturnella neglecta*) will nest on the ground in grasslands. Other common species, such as western scrub-jay (*Aphelocoma californica*), barn swallow (*Hirundo rustica*), and northern mockingbird (*Mimus polyglottos*) will disperse through, and forage within, grassland habitats.

Common mammals of annual grasslands include California ground squirrel (*Spermophilus beecheyi*), Botta's pocket gopher (*Thomomys bottae*), California vole (*Microtus californicus*), broad-footed mole (*Scapanus latimanus*), western harvest mouse (*Reithrodontomys megalotis*), and black-tailed jackrabbit (*Lepus californicus*). These small mammals utilize open grassland for both foraging and breeding. Larger mammals such as California mule deer (*Odocoileus hemionus*) will browse on grassland plants and rest here at night. Burrows of California ground squirrels can also provide important refuge sites for other species. Grassland wildflowers provide important nectar sources for butterflies, bees and other insects.

Central Coast Scrub

This wildlife habitat type is dominated by scattered to dense stands of low to medium-sized shrubs. Common species associated with this habitat include western fence lizard (*Sceloporus occidentalis*), California quail, western scrub-jay, California towhee (*Pipilo crissalis*), California ground squirrel, and brush rabbit (*Sylvilagus bachmani*). Agile kangaroo rat (*Dipodomys agilis*), pinyon mouse (*Peromyscus truei*) and gray fox (*Urocyon cinereoargenteus*) are also common species expected to occur in coastal scrub habitat in this region.

Coast Live Oak Woodland

Coast live oak woodlands provide important nesting and perching habitat for raptors and other birds, an abundant food source in acorns, and cover for larger mammals. Common birds and mammals that utilize this habitat type include red-shouldered hawk (*Buteo lineatus*), California quail, oak titmouse (*Baeolophus inornatus*), bushtit (*Psaltriparus minimus*), spotted towhee (*Pipilo maculatus*), western scrub-jay, gray fox and mule deer. Leaf litter deposited below the

trees create microhabitats for a number of small vertebrates including arboreal salamander (*Aneides lugubris*), black-bellied slender salamander (*Batrachoseps nigriventris*), western skink (*Eumeces skiltonianus*), and rodents such as deer mouse (*Peromyscus maniculatus*) and California pocket mouse (*Chaetodipus californicus*).

Freshwater Ponds and Seeps

Seasonal freshwater ponds, wetlands and seeps often support a unique assemblage of species that are adapted to an annual regime of inundation and desiccation. These habitats provide valuable resources for a variety of wildlife species. Species composition depends in part on the period of inundation (or hydroperiod) during the wet season. When water is present, these habitats can support many aquatic invertebrates and provide breeding sites for amphibians such as Pacific treefrog (*Pseudacris regilla*), western toad (*Bufo boreas*), western spadefoot (*Spea [= Scaphiopus] hammondi*), California tiger salamander (CTS; *Ambystoma californiense*), and California red-legged frog (CRLF; *Rana draytonii*) and for reptiles such as southwestern pond turtle (*Actinemys marmorata pallida*). In winter and spring, seasonal wetlands also provide foraging habitat for resident and migratory birds such as yellow warbler (*Dendroica petechia brewsteri*), song sparrow (*Melospiza melodia*), snowy egret (*Egretta thula*), and green heron (*Butorides virescens*). Because they are often hydrologically isolated from rivers and streams and subject to seasonal drying, fish are absent from these seasonal wetlands. Such areas provide unique habitat conditions that can be essential for locally endemic and rare species.

Riparian and Mule Fat Scrub

Riparian communities provide important habitat for many wildlife species. These communities offer diverse microhabitats created by the layering of trees, shrubs, herbs, and aquatic vegetation, as well as access to streams for drinking and foraging. Riparian zones provide valuable nesting habitat for birds; offer cover and refuge sites for amphibians, reptiles and small mammals; and serve as important movement corridors for wildlife. They also enhance the value of adjacent upland habitats by providing water, foraging resources, and thermal refuges. Bird species found in riparian scrub and woodland habitats include Cooper's hawk (*Accipiter cooperi*), oak titmouse, Hutton's vireo (*Vireo huttoni*), warbling vireo (*Vireo gilvus*), spotted towhee and many other songbirds. Common mammals found in these habitats include opossum (*Didelphis virginianus*), raccoon (*Procyon lotor*), mule deer, striped skunk (*Mephitis mephitis*), deer mouse, and big-eared woodrat (*Neotoma macrotis*). Riparian vegetation can also provide beneficial shading and instream cover for fishes and other aquatic species.

Agriculture

Cultivated agricultural lands include vineyards, irrigated crop fields and dry-farmed fields found within the study area. Water features including channelized streams and irrigation ditches are associated with some of the agricultural areas within the study area. Typical species found in agricultural land include red-tailed hawk, common crow (*Corvus brachyrhynchos*), Brewer's blackbird (*Euphagus cyanocephalus*), western meadowlark, house finch (*Carpodacus mexicanus*), red-winged blackbird (*Agelaius phoeniceus*), California ground squirrel and deer mouse. Water bodies serve as habitats for amphibians such as Pacific tree frog, western spadefoot, and bullfrog (*Rana catesbeiana*); reptiles such as southwestern pond turtle (*Clemmys*

marmorata pallida); and a variety of waterbirds. These aquatic features also provide an important source of water and refuge sites for many terrestrial wildlife species.

Developed/Landscaped

Developed areas, particularly areas with landscaping vegetation, can provide moderate habitat value for wildlife. The planting and maintenance of shrubs, trees, and other ornamental plants in developed and landscaped areas can enhance this habitat for opportunistic animal species that can coexist with humans. Examples of species found in this habitat type are the northern mockingbird, house finch, Brewer's blackbird, raccoon, and opossum. Also, buildings and structures such as bridges, overpasses and power structures can provide shelter, roosting, or nesting sites for species such as cliff swallow (*Petrochelidon pyrrhonota*), barn swallow, rock dove (*Columba livia*), and small mammals such as mice, rats, and a variety of bats.

Ruderal Vegetation

Ruderal areas generally provide relatively low habitat value for wildlife because they are degraded communities dominated by non-native, weedy plants. These areas typically provide low-quality foraging habitat for most birds and small mammals, but can provide marginal habitat for some species depending on the type and amount of vegetation present. Common birds found in ruderal habitat include Brewer's blackbird, house finch, and mourning dove. The western fence lizard, a common reptile, often utilizes ruderal areas such as roadsides and railroad berms for thermal basking.

4. Wetlands and Aquatic Resources

Seasonal wetlands and numerous other aquatic habitat features occur at various locations within the study area. In January and March 2009, CH2M HILL wetlands biologists conducted a jurisdictional delineation for a portion of this Project. A separate report with those findings is being finalized.

5. Special-Status Wildlife Species

Special-status species are defined in accordance with the CEQA Guidelines, Section 15380, and include species that:

- are listed, proposed for listing, or candidates for listing as threatened or endangered under the federal Endangered Species Act;
- are listed or candidates for listing as threatened or endangered under the California Endangered Species Act;
- are designated as Species of Special Concern by the CDFG;
- are listed on the CDFG "Special Animals" list (CDFG 2008a); or
- otherwise meet the definition of rare, threatened or endangered, as described in the CEQA Guidelines, Section 15380.

Special-status wildlife species with potential to occur in the study area or vicinity are summarized in Table 3. The project alignment also passes through designated Critical Habitat for southern steelhead (*Oncorhynchus mykiss irideus*) California tiger salamander (*Ambystoma californiense*), and southwestern willow flycatcher (*Empidonax traillii extimus*) (Figure 2).

Table 3. Special-status wildlife species with potential to occur within the study area.

Common Name Scientific Name	Status ¹ Federal/State	Habitat Requirements	Potential to Occur in the Study Area
Invertebrates			
Monarch butterfly (roosting) <i>Danaus plexippus</i>	- / -	Winter roosting sites extend along the coast from northern Mendocino County to Baja California, Mexico. Roosts are often located in wind-protected tree groves, commonly found in eucalyptus, Monterey pine and/or cypress groves, with nectar and water sources in the vicinity.	Low to moderate potential to occur. Limited suitable roosting habitat occurs in and adjacent to the study area. One monarch butterfly was observed in flight during the reconnaissance field survey north of pole sites 59 and 60.
Lompoc grasshopper <i>Trimerotropis occulens</i>	- / -	Known only from Santa Barbara and San Luis Obispo Counties, but very little is known about its habitat requirements (pers. comm. Arnold 2009). Typically, <i>Trimerotropis</i> occurs in open areas with scattered vegetation cover and in habitat with extensive areas of bare or sparsely vegetated ground.	Moderate potential to occur; a CNDDDB occurrence from 1938 records an observation of this species approximately 2.5 miles northwest of the study area. Recently observed in the Lompoc area (pers. comm. Arnold 2009).
Fish			
Southern steelhead – southern California environmentally significant unit (ESU) <i>Oncorhynchus mykiss irideus</i>	FE / CSC	Spawns in silt-free coastal rivers and streams with a moderate to steep gradient. Requires gravel riffle for spawning and may overwinter in deep, low-velocity pools or lakes. Southern steelhead populations likely have greater physiological tolerances to warmer water and more variable conditions than other steelhead species.	High potential to occur in the Santa Ynez River and its tributaries. Santa Ynez River and tributaries are designated Critical Habitat for this species. See text for discussion.
Tidewater goby <i>Eucyclogobius newberryi</i>	FE / CSC	Found in brackish water habitats along the coast of California in shallow lagoons and lower stream reaches. Requires fairly still but not stagnant water and high oxygen levels.	Low potential to occur. No suitable aquatic habitat is present in the study area, which is too far inland. Known from the mouth of the Santa Ynez River, about 12 mi to the west.
Unarmored threespine stickleback <i>Gasterosteus aculeatus williamsoni</i>	FE / SE	Found in weedy pools, backwaters, and among emergent vegetation at the stream edge in small southern California streams. Requires cool (<75°F), clear water with abundant vegetation.	Low potential to occur. No suitable aquatic habitat is present in the study area. This species is only known to locally exist in the Santa Clara River (Los Angeles County) and San Antonio Creek drainages (Santa Barbara County).

Table 3. Special-status wildlife species with potential to occur within the study area.

Common Name Scientific Name	Status ¹ Federal/State	Habitat Requirements	Potential to Occur in the Study Area
Amphibians			
Arroyo toad <i>Bufo californicus</i>	FE / CSC	Occurs in semi-arid regions near washes or intermittent streams in a variety of habitats including valley-foothill, desert riparian, and desert wash. Found primarily in rivers with sandy banks, willows, cottonwoods, and sycamores. Requires loose, gravelly areas in streams, especially in drier parts of this species range.	Low to moderate potential to occur. Suitable habitat is present along the Santa Ynez River in the study area.
California red-legged frog <i>Rana draytonii</i>	FT / CSC	Breeds in ponds and pools in slow-moving streams with emergent vegetation; adjacent upland habitats are often used for temporary refuges or dispersal movements.	Present. Known to occur in ponds within the study area – see text discussion.
California tiger salamander <i>Ambystoma californiense</i>	FE / CCC	Vernal pools and/or seasonal water sources; requires underground refuges, especially ground squirrel burrows.	Present. Known to occur in ponds within study area as discussed in text and to use nearby upland habitat in the non-breeding season. There is also designated Critical Habitat for this species in the study area.
Western spadefoot <i>Spea hammondi</i>	- / CSC	Occurs primarily in open grassland habitats, but can be found in valley-foothill hardwood woodlands. Prefers open areas with sandy or gravel laden soils. Vernal pools or rain-pools and/or ponds that do not contain bullfrogs, fish or crayfish are essential for breeding and egg-laying.	Present. Suitable aquatic habitat present in the study area. Known to occur in ponds within the study area. CNDDB occurrences also recorded in the vicinity of the project alignment. See text discussion.
Reptiles			
Coast (California) horned lizard <i>Phrynosoma coronatum</i> (frontale population)	- / CSC	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Found in open areas for sunning, bushes for cover, patches of loose soil for burial and abundant supply of ants and other insects.	High potential to occur. Suitable habitat is present in the study area and ant colonies were observed during the reconnaissance-level field survey.
Coast patch-nosed snake <i>Salvadora hexalepis</i> <i>virgulitea</i>	- / CSC	Associated with rocky or gravelly soil vegetated with low scrub growth and minimum vegetation density (i.e., coastal chaparral or coastal scrub). Require small mammal burrows for refuge and overwintering sites. Preys primarily on western whiptail lizards.	Moderate potential to occur. Suitable habitat is present in the study area.

Table 3. Special-status wildlife species with potential to occur within the study area.

Common Name Scientific Name	Status¹ Federal/State	Habitat Requirements	Potential to Occur in the Study Area
Silvery legless lizard <i>Anniella pulchra pulchra</i>	- / CSC	Found in moist, warm sandy or loose loamy soils with plant cover. Requires soil moisture and occurs often in areas with leaf litter under trees and bushes in sunny locations.	Moderate to high potential to occur. Suitable habitat is present in the study area. CNDDDB occurrences are recorded in the vicinity as discussed in text.
Southwestern pond turtle <i>Actinemys marmorata pallida</i>	- / CSC	Permanent and seasonal ponds, lakes, and slow-moving parts of streams.	Present. Known to occur at ponds in the study area (see text).
Two-striped garter snake <i>Thamnophis hammondi</i>	- / CSC	Occurs in California coastal habitats from sea level to about 7,000 feet (ft) elevation. Highly aquatic, found in or near permanent fresh water around pools, creeks, cattle tanks, and other water sources. Often found in rocky areas in oak woodland, chaparral, and coniferous forest.	Moderate potential to occur. Suitable habitat occurs in the Santa Ynez River.
Birds			
California least tern <i>Sternula antillarum browni</i>	FE / SE	Nests along the coast from San Francisco Bay south to northern Baja California. Known to be a colonial breeder, prefers bare or sparsely vegetated, flat substrates: sand beaches, alkali flats, land fills, or paved areas for nesting.	Low potential to occur. No suitable habitat was found in the study area.
Least Bell's vireo <i>Vireo bellii pusillus</i>	FE / SE	Summer resident of southern California, found in low riparian habitats near water or in dry river bottoms; below 2000 ft. Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, Baccharis or mesquite. Requires dense shrub layer (2 -10 ft above ground) for nesting habitat.	High potential to occur. Suitable foraging and nesting habitat on and adjacent to the study area along the Santa Ynez River. Based on recent records, more likely to be present during migration than as a nesting species.
Southwestern willow flycatcher <i>Empidonax traillii extimus</i>	FE / SE	Occurs in riparian woodlands in southern California. Found in bushes, willow thickets, and brushy fields. Nests in thickets of deciduous trees and shrubs, or along woodland edges, especially willows, often near streams or marshes.	High potential to occur on the study area. Suitable nesting and foraging habitat found along the Santa Ynez River in the study area which has been designated as Critical Habitat for this species.

Table 3. Special-status wildlife species with potential to occur within the study area.

Common Name Scientific Name	Status¹ Federal/State	Habitat Requirements	Potential to Occur in the Study Area
Western snowy plover <i>Charadrius alexandrinus nivosus</i>	FT / CSC	Found on sandy beaches, salt pond levees and shores of large alkali lakes. Requires sandy, gravelly or friable soils for nesting. Tends to be found in places where habitat matches the pale color of its back.	Low to none. No suitable habitat found in the study area.
Western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	FC / SE	Nests in riparian forests along broad, lower flood-bottoms of large river systems. Nests in riparian jungles of willow often mixed with cottonwoods, with an understory of blackberry and/or nettles.	Moderate potential to occur on the study area. Suitable nesting and foraging habitat found in the Santa Ynez River in the study area, and a pair was observed in the study area vicinity in 2000 near the Santa Ynez River (National Audubon Society 2009).
Golden eagle <i>Aquila chrysaetos</i>	BGEPA / –	Rolling foothills, mountain areas, sage-juniper flats, & desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas provide good nesting sites.	High potential to occur. Suitable foraging and nesting habitat on and adjacent to the study area. Unlikely to nest in study area.
Grasshopper sparrow <i>Ammodramus savannarum</i>	– / CSC	Found in dense grasslands on rolling hills, lowland plains, in valleys and on hillsides on lower mountain slopes. Favors native grasslands with a mix of grasses, forbs and scattered shrubs. Can be loosely colonial when nesting.	High potential to occur. Known to occur in the area at the Lompoc Wind Energy Project (approximately 9 mi southwest of the alignment). Known to nest at La Purisima Mission State Historic Park.
Loggerhead shrike <i>Lanius ludovicianus</i>	– / CSC	Found in a wide variety of habitats including woodlands, savannah, pinyon-juniper, Joshua tree, riparian woodlands, desert oases, scrub and washes. Prefers open habitat for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	Moderate to high potential to occur on study area. Suitable nesting and foraging habitat present in the study area. More likely to be found during non-breeding months.
Long-eared owl <i>Asio otus</i>	– / CSC	Found in riparian bottomlands with tall willows & cottonwoods; also, belts of live oak paralleling stream courses. Requires adjacent open land with abundant prey (mice) and the presence of old nests of crows, hawks, or magpies for breeding.	High potential to occur on the study area. Suitable nesting and foraging habitat found along the Santa Ynez River in the study area.
Mountain plover <i>Charadrius montanus</i>	– / CSC	Short grasslands, freshly plowed fields, newly sprouting grain fields, and sometimes sod farms. Prefers short vegetation, bare ground with flat topography and grazed areas with burrowing rodents.	Moderate to high potential to occur on study area. Suitable wintering habitat present in the study area. Known to winter at Vandenberg Air Force Base.

Table 3. Special-status wildlife species with potential to occur within the study area.

Common Name Scientific Name	Status¹ Federal/State	Habitat Requirements	Potential to Occur in the Study Area
Tricolored blackbird <i>Agelaius tricolor</i>	- / CSC	Highly colonial species that requires open water protected nesting substrate, and foraging areas with insect prey near the colony. Nests in freshwater marshes containing emergent vegetation such as cattails and tules.	Low to moderate nesting potential due to limited suitable habitat, but moderate to high potential to foraging
Western burrowing owl <i>Athene cunicularia hypugea</i>	- / CSC	Nests in burrows (often constructed by ground squirrels) and forages in low-growing grasslands and other open, semi-arid habitats	Moderate potential to occur in the study area. Suitable wintering and foraging habitat present. Unlikely to nest in the study area (pers. comm. Tom Olson, 2009b).
White-tailed kite <i>Elanus leucurus</i>	- / CFP	Nests in oak, willow or other trees and forages over open grasslands. A coast live oak tree is often chosen as a nest site.	High potential to occur in the study area. Suitable nesting and foraging habitat present on and adjacent to the study area.
Yellow warbler <i>Dendroica petechia brewsteri</i>	- / CSC	Found in riparian plant associations bushes, swamp edges, streams and gardens. Prefers willows, cottonwoods, aspens, sycamores, and alders for nesting and foraging. Nests in a variety of habitats including woodlands and thickets along stream edges, lakes, swamps and marshes.	High potential to occur on the study area. Suitable nesting and foraging habitat found on the study area, primarily along the Santa Ynez River.
Mammals			
American badger <i>Taxidea taxus</i>	- / CSC	Prefers dry open stages of most shrub, forest, and herbaceous habitats. Requires sufficient food, friable soils and open, uncultivated ground. Preys mostly on burrowing rodents.	High potential to occur. Suitable habitat found throughout the study area and CNDDB occurrences recorded in the vicinity of the project alignment.
Pallid bat <i>Antrozous pallidus</i>	- / CSC	Open, dry habitats such as grasslands, shrublands, and woodlands with rocky areas for roosting. Roosts in cliff crevices of rock faces, bridges, and occasionally hollow trees and buildings.	Moderate potential to occur. A CNDDB occurrence is in the vicinity of the alignment in northern section of Santa Ynez River. Also known to roost nearby at Vandenberg Air Force Base.
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	- / CSC	Found throughout California in a wide variety of habitats; most commonly associated with mesic sites. Generally solitary or in small groups, but females form larger maternity colonies in the summer. Roosts in the open, hanging from walls and ceilings of caves, mines or abandoned structures in or near woodlands and forests. Extremely sensitive to human disturbance.	Moderate potential to occur. CNDDB occurrence recorded in the vicinity of the project alignment. Limited suitable roosting habitat available. Widely distributed on nearby Vandenberg Air Force Base.

Table 3. Special-status wildlife species with potential to occur within the study area.

Common Name Scientific Name	Status ¹ Federal/State	Habitat Requirements	Potential to Occur in the Study Area
Western red bat <i>Lasiurus blossevillii</i>	- / CSC	Widely distributed throughout California. Roosts primarily in trees, 2-40 ft high. Roosting habitat includes forests and woodlands from sea level up through mixed conifer forests. Forages over a wide variety of habitats including grasslands, open woodlands and forests, and croplands. Generally prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging.	Low to moderate potential to occur. Suitable foraging and roosting habitat present in the study area. Known to forage at Vandenberg Air Force Base.
Western mastiff bat <i>Eumops perotis californicus</i>	- / CSC	Found in open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, and chaparral. Roosts in crevices in cliff faces, high buildings, trees and/or tunnels	Low potential to occur. No occurrences recorded within the vicinity of the study area and recorded as very rare on Vandenberg Air Force Base. Not considered to be a resident species, but rather an occasional visitor.
Yuma myotis <i>Myotis yumanensis</i>	- / CSC	Found in a variety of habitats, ranging from desert areas near open water to juniper and riparian woodlands. Optimal habitat is open forest and woodlands with water sources. Forages over open crevices, mines and under bridges.	Moderate potential to occur. CNDDB occurrence recorded in the vicinity of the alignment in northern section of Santa Ynez River. There is limited distribution at Vandenberg Air Force Base.

Notes:

¹ Status designations:

Federal

FE Listed as Endangered under the federal Endangered Species Act

FT Listed as Threatened under the federal Endangered Species Act

FC Listed as Candidate under the federal Endangered Species Act

BGEPA Bald and Golden Eagle Protection Act

- No Listed Status

State of California

SE California Fish and Game Code Endangered Species

ST California Fish and Game Code Threatened Species

CFP California Fish and Game Code Fully Protected Species

CSC California Department of Fish and Game Species of Special Concern

CCC California Candidate Species as Threatened or Endangered

- No Listed Status

Wildlife

The literature and database review identified thirty-four special-status wildlife species with potential to occur in or near the study area (Table 3). Based on the initial assessment of wildlife habitats conducted during the reconnaissance field survey, twenty-nine of these species were determined to have moderate or high potential to occur on the site. Four of these species, the California tiger salamander (*Ambystoma californiense*), California red-legged frog (*Rana draytonii*), southwestern pond turtle (*Actinemys marmorata pallida*), and western spadefoot (*Spea hammondi*) are known to occur in the study area at the wetlands northeast of SR 246 and Campbell Road (Figure 1, Map 9: Ponds 10A, 10B) (pers. comm. Tom Olson, 2009b). Details of these species that have been documented to occur on the study area or have moderate to high potential to occur are discussed further below.

The CNDDDB documents 22 special-status wildlife species in the vicinity of the study area. Three of these species, the tidewater goby (*Eucyclogobius newberryi*), California least tern (*Sternula antillarum browni*), and western snowy plover (*Charadrius alexandrinus nivosus*), occur exclusively along coastal habitat, which is not present in the study area. Two other species, including the unarmored threespine stickleback (*Gasterosteus aculeatus williamsoni*) and western mastiff bat (*Eumops perotis californicus*), have CNDDDB occurrences in the vicinity of the project; however, there is either no suitable habitat present along the project alignment for these species or these species are locally very rare and not expected to occur in the project alignment.

Federally Listed Species

Arroyo toad – Federally Endangered, State species of special concern

Arroyo toad (*Bufo californicus*) has very specific habitat requirements, which include low-gradient stream segments with shallow breeding pools free of predatory fish; sandy or fine gravel beds without silt for egg mass depositing and tadpole development; and exposed sandy terraces and sparsely vegetated sand and gravel bars that are sufficiently wet for burrowing (Jennings and Hayes 1994, Stebbins 2003, CDFG 2008b). This species is primarily nocturnal and remains mostly underground during the daytime. Generally, arroyo toad becomes active in January or February during the first substantial rain event of the year (Jennings and Hayes 1994). Breeding occurs typically from March to July with larvae reaching metamorphosis in 2 to 3 months. Unlike other California tadpoles, arroyo tadpoles sift the substrate while foraging for food (Jennings and Hayes 1994, Stebbins 2003).

There are no CNDDDB occurrences of arroyo toad within 5 mi of the study area. Arroyo toad is known to occur above the Gibraltar Reservoir on the Mono and Indian Creeks as well as the main stream of the Santa Ynez River, approximately 50 mi upstream from the project alignment (Sweet 1992). There are elements of potential habitat for arroyo toad along the Santa Ynez River in the study area, including a braided channel on a relatively low floodplain with mule fat dominant vegetation. The Santa Ynez River is the only potential habitat for this species in the study area (Figure 1, Map 1: 1).

Southern steelhead – Southern California ESU – Federally Endangered, State species of special concern

Southern steelhead (*Oncorhynchus mykiss irideus*) have variable life history. They are generally anadromous; however, juveniles spend a wide range of time rearing in freshwater and some individuals may remain in freshwater throughout their life cycle. Adults generally begin returning to streams with the first heavy rains of fall, with peak migration occurring in winter to early spring. Depending on the timing of upstream migration, most spawning takes place from January through April. Steelhead usually spawn in high-gradient, upper reaches of tributary streams. After hatching, fry usually stay in fresh water for one to two years. Juvenile steelhead can occupy a variety of in-stream habitats that provide adequate cover, food supply, and cold water temperatures. Out-migration generally occurs between February and June and requires sufficiently high flows and cool water temperatures.

The southern portion of the environmentally significant unit (ESU) where steelhead actively spawn and rear contains relatively few representative streams. Overall, southern steelhead usually spend less time in fresh water because of inhospitable conditions in the lower reaches of southern California streams. Therefore, steelhead in this region tend to migrate to the ocean or they tend to utilize coastal lagoons during their first year. The southern California ESU includes populations of steelhead in streams from Santa Maria to Malibu Creek. Santa Ynez River and tributaries are designated Critical Habitat for this species. Critical Habitat tributaries that are in the study area vicinity include Alisal and Salsipuedes Creeks, which are upstream from the alignment, and San Miguelito Creek, which is located downstream from the alignment. The Santa Ynez River and its tributaries may occasionally support steelhead (NOAA 2005). Several occurrences of steelhead are reported in the CNDDDB from the Santa Ynez River. This is the only potential habitat for this species in the study area (Figure 1, Map 1: 1).

California red-legged frog – Federally Threatened, State species of special concern

The CRLF occurs primarily in ponds or pools of intermittent stream courses that retain water long enough for breeding and development of young. The adults prefer dense, emergent or shoreline riparian vegetation closely associated with deep, still or slow-moving water and may disperse upstream, downstream or upslope from their breeding habitat (Jennings and Hayes 1994). Key habitat features for CRLF include good water quality and absence of introduced bullfrogs and predatory fish. Adults and sub-adults can estivate in small mammal burrows and moist leaf litter generally found within 300 ft of aquatic habitat. However, during wet periods CRLF can move long distances between aquatic features, traversing up to 1 mi from ponds and ephemeral drainages (Jennings and Hayes 1994).

There are five CNDDDB occurrences of CRLF within 5 mi of the study area, with the closest occurrence approximately 0.40 mi from the alignment (Figure 2) (CDFG 2008b). In addition, a telephone conversation with Tom Olson (2009b) indicated that two seasonal sag ponds along the alignment are known to contain populations of CRLF (Figure 1, Map 9: Ponds 10A, 10B). Several other ponds and seasonal drainages located in the vicinity of the project and within the alignment could potentially provide suitable breeding habitat for CRLF (Figure 1, Maps 4, 5, 9, 10, 15: Ponds 4, 7, 11, 14, 16; Drainages 11A, 15). During the reconnaissance-level field surveys, Ponds 7, 11 and 16 were found to provide a perennial water source and dense emergent vegetation, thus providing potential habitat for CRLF. A perennial pond located along a potential

project access route (4300 Buellton Road) to poles 40 to 47 also provides suitable breeding habitat for CRLF. Other seasonal drainages and ponds in the project vicinity (Figure 1) were found to either contain bullfrogs (Pond 2) or may lack a sufficient hydroperiod for CRLF breeding and larval development. During a particularly wet year, Ponds 3, 5, 6, 9, 12A, B, 13 and 18 could provide marginal habitat for this species.

California tiger salamander – Federally Endangered, State Candidate for Listing (Feb 2009)

CTS breeds in vernal pools and other seasonal or permanent ponds, and spends up to 90 percent of its life underground in upland habitats. These salamanders typically occur in grassland and oak savanna habitats where rodent burrows or deep soil crevices are used as long-term refuge sites. Individuals may move as far as 1.2 mi between breeding ponds and upland refuge sites (USFWS 2003; CDFG 2008b). Adults migrate from upland habitats to breeding ponds during late fall and early winter. The aquatic larvae hatch and develop in pools during winter and spring, and require about ten weeks of surface water to complete their aquatic development. The juvenile metamorphs leave the pools to disperse into upland habitats during mid- to late spring. Adults and juveniles may also undergo dispersal movements within and between upland habitats at any time during the wet season, typically on rainy nights.

The power line alignment passes through designated Critical Habitat for CTS and there are two CNDDDB occurrences documented within the vicinity at less than 1.2 mi from the alignment (Figure 2). The wetlands northeast of SR 246 and Campbell Road (Figure 1, Map 9: Ponds 10A, 10B) have been documented to contain known populations of CTS (pers. comm. Tom Olson, 2009b). During the reconnaissance-level field surveys Ponds 7 and 16 (Figure 1, Maps 5, 15) were found to provide suitable habitat for CTS. Other seasonal ponds in the vicinity (Figure 1) may lack a sufficient hydroperiod for CTS breeding and larval development. During a particularly wet year ponds 3, 4, 5, 6, 9, 12A, 12B, and 18 could provide breeding habitat for this species.

Golden eagle – Federal Bald and Golden Eagle Protection Act

Golden eagle (*Aquila chrysaetos*) occurs in open rolling foothills and mountain areas. Typically they nest on cliff ledges or in large trees but they can also utilize power structures as nest sites. Golden eagles require open areas such as grasslands for hunting (CDFG 2008b). There are no CNDDDB records of this species nesting in the vicinity. However, suitable foraging for this species is present in open grasslands throughout the alignment and several large eucalyptus and Monterey cypress stands adjacent to and within the study area could also provide suitable nesting habitat for golden eagles.

Least Bell's vireo – Federally Endangered, State Endangered

The least Bell's vireo (*Vireo bellii pusillus*) is an obligate riparian specialist that prefers early successional and structurally diverse riparian vegetation, but also occurs in dense, low, shrubby vegetation, second-growth forest, oak scrub, coastal chaparral, and mesquite shrub lands (USFWS 1998). The most critical component of their summer breeding habitat is dense vegetation from 1.96 – 9.8 ft in height in riparian areas (Kus 2002). Least Bell's vireos migrate to Baja California during the winter, and breed in southern California during the summer months.

They arrive on the breeding grounds in late March/early April and depart from late July to late September. Nesting takes place from early April through late July (Kus 2002).

There are no CNDDDB occurrences in the immediate project vicinity. The nearest reported CNDDDB occurrences are approximately 11.9 mi northeast and 14.3 mi north of the study area. However, this species is also known to breed along the entire length of the Santa Ynez River in Santa Barbara County (Abell 1989; National Audubon Society 2009). During the reconnaissance field surveys suitable nesting habitat for least Bell's vireo was found along the Santa Ynez River and in several creeks and drainages in the study area (Figure 1, Map 1: Santa Ynez River 1; Maps 5, 10, 11, 15, 17: Drainages/Creeks 9B, 11A, 12C, 12D, 15 and 17). In the study area, the Santa Ynez River provides high-quality habitat for this species; the other drainages and creeks traversed by the project provide low to moderate quality nesting habitat.

Southwestern willow flycatcher – Federally Endangered, State Endangered

Southwestern willow flycatcher (*Empidonax traillii extimus*) is a riparian obligate species that breeds in dense vegetation along rivers, streams, or other wetlands. Willow flycatchers will utilize dense stands of willows (*Salix* sp.), mule fat tamarisk (*Tamarix* sp.), and other low shrubs for breeding substrate. The most important quality of the vegetation is that it must be dense throughout all of the layers present; they do not necessarily need an overstory of cottonwood (*Populus* sp.) or other large trees. Also, the vegetation must be within 60 ft of water or very saturated soil (USGS 2009). Southwestern willow flycatchers usually arrive on the breeding ground between early May and early June with most breeding occurring from mid-June to the end of July. Several subspecies of willow flycatchers migrate through southern California in early spring, and willow flycatchers call and sing while migrating; therefore willow flycatcher detections prior to June 15th cannot be assumed to be *E. t. extimus* (USFWS 2002).

The lower Santa Ynez River supports a large population of southwestern willow flycatchers; the largest colony occurs approximately 5 mi west of Buellton and 7 mi east of Lompoc (National Audubon Society 2009). Two southwestern willow flycatcher CNDDDB occurrences are documented in the project vicinity: approximately 1.6 mi south and 2.1 mi southeast of the study area, respectively. The alignment also passes through designated Critical Habitat for southwestern willow flycatcher along the Santa Ynez River (Figure 2). During the reconnaissance field surveys suitable nesting habitat for southwestern willow flycatcher was observed along the Santa Ynez River and along several smaller creeks and drainages in the study area (Figure 1, Map 1: Santa Ynez River 1; Maps 5, 10, 11: Drainages/Creeks 9B, 11A, 12C and 12D). The Santa Ynez River provides high-quality habitat for this species, with the other smaller drainages and creeks traversed by the project providing lower-quality nesting habitat.

Western yellow-billed cuckoo – Federally Candidate, State Endangered

Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*) is an obligate riparian specialist that prefers multi-seral stage riparian habitat comprised of early successional stages and overstory of cottonwoods and large willow trees. Typical habitats include from 3.5 to 85 percent shrub cover. Also, depositional point bars and low woody vegetation have been used as significant indicators of cuckoo occupancy and riparian habitat succession (Laymon 1998). In addition, yellow-billed cuckoos require dense populations of large-bodied insects in order to

breed. Yellow-billed cuckoos do not defend their territory using vocalizations, displays, or aggressive interactions (Laymon 1998). They disperse in search of appropriate breeding habitat and conditions, and synchronize nesting activity with the availability of appropriate prey species at high densities. Yellow-billed cuckoos arrive on the breeding grounds from late April through July, but most arrive during June. The peak of breeding occurs from mid-July to early August, but can occur anytime when conditions are ideal. They depart during their annual migration from early July through mid-September (Laymon 1998; Hughes 1999).

There are no CNDDDB records of western yellow-billed cuckoo nesting within the vicinity of the alignment. However, in July of 2000 a pair was recorded along the Santa Ynez River near Sweeny Road east of Lompoc (National Audubon Society 2009). Since the sighting in 2000 was of a pair there is a chance that they were nesting in the area. This species is known to be very evasive and shy and therefore detecting a nest is very difficult and rare. During the reconnaissance field surveys suitable nesting habitat for yellow-billed cuckoo was observed along the Santa Ynez River and in several smaller creeks and drainages in the project area (Figure 1, Map 1: Santa Ynez River 1; Maps 5, 10, 11: Drainages/Creeks 9B, 11A, 12C and 12D). The Santa Ynez River provides high-quality habitat for this species, with the other drainages and creeks traversed by the project providing low-quality nesting habitat for this species.

State Special-Status Species

Monarch butterfly (roosting) – State special animals list

The monarch butterfly (*Danaus plexippus*) migrates long distances from summer to winter roosting grounds covering four generations of butterflies along their route. During the spring and summer, this species can be found in open fields and meadows with milkweed (*Asclepias syriaca*), the larval host plant. During winter monarchs can be found on the coast of southern California and at high altitudes in central Mexico. Monarchs gather at their winter locations generally starting in November and roost in clusters in the trees. In spring monarchs will reproduce and their offspring will make the return trip to the north. This species prefers dense, wind-protected tree groves, such as eucalyptus, Monterey pine and/or Monterey cypress found near the coast from northern Mendocino, California to Baja California, Mexico (CDFG 2008b).

The nearest CNDDDB occurrence to the study area is approximately 3.8 mi northwest of the alignment (Figure 2). There is limited suitable roosting habitat on or adjacent to the study area. Patches of eucalyptus and Monterey pine are present adjacent to the alignment, especially in the western section of the project; however, none of these stands provides sufficiently dense cover for this species. One monarch butterfly was, however, observed in flight during the reconnaissance field survey north of poles 59 and 60.

Lompoc grasshopper – State special animals list

Little is known about the habitat requirements of the Lompoc grasshopper (*Trimerotropis occulens*) (CDFG 2008b; pers. comm. Arnold 2009). This species is only known from Santa Barbara and San Luis Obispo Counties. Typically, this genus (band-winged) of grasshopper is expected to occur in open areas with widely scattered tree and/or shrub cover and in habitat with

extensive areas of bare or sparsely vegetated ground, loose sand, and relatively flat relief. There is one CNDDDB occurrence of this species approximately 2.5 mi northwest of the study area from 1938. Recently this species was found and collected in the Lompoc area by entomologist Richard Arnold (pers. comm. R. Arnold 2009). Arnold collected specimens of this species along Lompoc roadsides where shale or rock formations were prevalent.

Suitable habitat for this species, including open areas with loose soils, was observed in the study area during the reconnaissance-level survey. In particular, potential habitat for the Lompoc grasshopper could occur in the coastal scrub and annual grassland habitats along the alignment.

Western spadefoot – State species of special concern

Western spadefoot toad (*Spea hammondi*) occurs primarily in lowlands and is found frequently in washes, floodplains of rivers, and alluvial fans and flats; however, this species range also covers into foothills and mountain habitats. Western spadefoots prefer open vegetation with short grasses and sandy or gravelly soil (Stebbins 2003). This species typically aestivates during the summer in burrows (generally of their own construction) and emerges after warm fall to late winter/early spring rains to breed in ponds and ephemeral wetlands (Gevirtz 2005).

Western spadefoots are widespread in Santa Barbara County, and co-occur in several freshwater sites with the California tiger salamander (Gevirtz 2005). Typical breeding habitat for the western spadefoot in Santa Barbara County includes agricultural ponds, seasonal pools and ephemeral wetlands that hold water for at least 22 days and are free of introduced fish and bullfrogs. One western spadefoot CNDDDB occurrence was documented in the alignment in the vicinity of the wetlands northeast of SR 246 and Campbell Road (Figure 2); this species is also known to occur in these two ponds (Figure 1, Map 9: Ponds 10A, 10B) (pers. comm. Tom Olson, 2009b). Reconnaissance-level field surveys identified several other ponds (permanent and seasonal) located in the vicinity of the study area and within the alignment that provide suitable breeding habitat (Figure 1, Maps 3, 4, 5, 9, and 15: Ponds 3, 4, 7, 11, 14, and 16). Other ponds in the vicinity of the project (Figure 1) were found to either contain bullfrogs (Pond 2) or appeared to lack sufficient inundation for spadefoot breeding and larval development. During a particularly wet year Ponds 5, 6, 9, 12A, 12B, 13 and 18 could provide suitable breeding habitat for this species.

Coast horned lizard – State species of special concern

The coast horned lizard (*Phrynosoma coronatum*) is associated with a wide variety of habitats including scrubland, grassland, coniferous forest and woodlands. Commonly this species is found in lowlands along sandy washes and in habitats with loose, sandy loams and/or sandy-gravelly soils (Jennings and Hayes 1994; Stebbins 2003). This species requires open bare soil for basking and presence of native harvester ants for foraging.

In Santa Barbara County, coast horned lizards have been found in riparian scrub, dune scrub, coastal scrub and open chaparral. Widespread urban development in the Lompoc Valley has reduced much of the habitat for this species; consequently this species is uncommon in the region (Gevirtz 2005). The nearest CNDDDB record for this species is approximately 4.5 mi from the alignment. Suitable habitat including loose soils and colonies of harvester ants was observed

in the study during the reconnaissance-level survey, suggesting that this species may occur along the alignment. In particular suitable habitat was found in the coastal scrub and oak woodland habitats near pole locations 13 - 21, 25 - 28, 30 - 33, 37 - 39 and 118 - 121.

Coast patch-nosed snake – State species of special concern

The known range of the coast patch-nosed snake (*Salvadora hexaleps is virgultea*) extends from central San Luis Obispo County, California to Baja California, Mexico. Little is known about the species life history and even less is known regarding this particular subspecies. In general patch-nosed snakes are associated with rocky or gravelly soils and shrub-scrub vegetation types (Jennings and Hayes 1994; Stebbins 2003). This snake is believed to overwinter in small mammal burrows (possibly in woodrat nests) from October to March (Jennings and Hayes 1994). There are no CNDDDB records of this species in the vicinity of the study area. However, this species is known to occur at the La Purisima Mission State Historic Park, less than 2 mi north of the alignment (Figure 2) (Gevirtz 2005). This species has moderate potential to occur in coastal scrub habitat in the study area.

Silvery legless lizard – State species of special concern

The silvery legless lizard (*Anniella pulchra pulchra*) requires loose, moist soils to facilitate burrowing, and is found typically in areas with sparse vegetation within chaparral, pine-oak woodlands and along stream sides (Stebbins 2003). Loss of habitat due to urbanization and agriculture, along with the introduction of non-native plants (e.g., veldt grass [*Ehrharta calycina*] and ice plant [*Carpobrotus edulis*]) has contributed to the decline in this species (Jennings and Hayes 1994). In Santa Barbara County, this species is found in sandy soils within chaparral, coastal scrub, oak woodland and open riparian habitats where leaf litter under shrubs provides foraging and cover habitat (Gevirtz 2005).

There are three CNDDDB occurrences in the project vicinity, with the closest approximately 4.3 mi northwest of the alignment. This species has potential to occur in the central coast scrub and coast live oak woodland found in the study area. During the reconnaissance field surveys good quality habitat (i.e. moist loose soils with abundant leaf litter) for this lizard was noted to occur in the woodland habitat near poles 100 to 113 (Figure 1, Maps 13, 14 and 15).

Southwestern pond turtle – State species of special concern

The southwestern pond turtle (*Actinemys marmorata pallida*) requires still or slow-moving temporary and permanent waters such as ponds, freshwater marshes and pools in perennial streams. They may remain active all year and sometimes move overland for distances of more than 300 ft to find a suitable nesting site (Jennings and Hayes 1994). Pond turtles generally lay their eggs in open areas that are on dry slopes with soils rich in silt and clay.

There are no CNDDDB records of this species within 5 mi of the study area. However, this species is known to occur along the Santa Ynez River and are reportedly common in the seasonal drainages and ponds found throughout the project vicinity (Gevirtz 2005). The wetlands northeast of SR 246 and Campbell Road, located within the alignment, are known to support this species (Figure 1, Map 6: Ponds 10A, 10B) (pers. comm. Tom Olson 2009b). During the reconnaissance-level field surveys several ponds and seasonal drainages located in the vicinity of

the project and within the alignment were found to provide suitable habitat for pond turtle (Figure 1, Maps 4, 5, 9, 10, 15: Ponds 4, 7, 11, 14, 16; Drainages 11A, 15; Santa Ynez River 1). Ponds 7, 11 and 16 were found to provide especially good habitat for pond turtle; all of these three ponds are permanent and support dense emergent vegetation and abundant basking locations. There is also a permanent pond located along the potential access route (4300 Buellton Road) to poles 40 to 47 that provides suitable habitat for pond turtle. Other seasonal drainages and ponds in the vicinity (Figure 1) appeared to lack a sufficient hydroperiod for this species. However, during a particularly wet year several of these ponds and drainages (i.e., Ponds 3, 5, 6, 9, 12A, 12B, 13 and 18; Drainages 12C) could also potentially provide suitable habitat for this species.

Two-striped garter snake – State species of special concern

This highly aquatic garter snake can be found in or near permanent or intermittent freshwater systems, often along streams with rocky beds and bordered with willows or other riparian vegetation. Two-striped garter snake (*Thamnophis hammondi*) is generally active at dusk or at night. This species' range is generally confined to coastal slope drainages in the Coast Peninsular and Transverse Ranges from Monterey Bay south through Baja California, Mexico (Jennings and Hayes 1994; Stebbins 2003).

This species is known to occur throughout Santa Barbara County where suitable perennial and intermittent drainages are available. Local populations have been reported along San Antonio Creek, upper Santa Ynez River, Honda Creek and Jalama Creek (Gevirtz 2005). This snake is also expected to occur in several tributary streams along the lower Santa Ynez River (i.e., Salsipuedes/El Jaro, Nojoqui and Zaca Creeks) (Gevirtz 2005). There are no CNDDDB records of two-striped garter snake within the 5 mi of the study area and the nearest CNDDDB occurrence is approximately 9 mi northeast of the Santa Ynez Switching Station. However, there is potential habitat for this snake in the Santa Ynez River within the alignment (Figure 1, Map 1).

Grasshopper sparrow – State species of special concern

The grasshopper sparrow (*Ammodramus savannarum*) occurs in extensive grassland areas with flat or sloped topography where there are scattered bushes or tall plants that may be utilized as perches. This species was once more widespread across Santa Barbara County, particularly along the southern coast (Lehmann 1994). This species has been consistently observed in the La Purisima Mission State Historic Park, less than 2 mi north of the alignment (Figure 2) (Gevirtz 2005). There are no CNDDDB records of this species nesting in the project vicinity; however, suitable foraging and nesting habitat is present in the open grasslands throughout the study area. This species has been observed nesting in the nearby La Purisima Mission State Historic Park (per comm. Tom Olson 2009b).

Loggerhead shrike – State species of special concern

The loggerhead shrike (*Lanius ludovicianus*) frequents open habitats with sparse trees and shrubs. They are known to utilize fences, trees, power lines and utility poles as lookout posts for scanning broad open areas where suitable prey abounds. This species generally nests in open fields with few trees or in open woodlands or scrub. There are no CNDDDB records of this species

nesting in the project vicinity; however, suitable foraging and nesting habitat is present in open California annual grasslands found throughout the alignment.

Long-eared owl – State species of special concern

Long-eared owls (*Asio otus*) nest in mature riparian or oak woodlands adjacent to riparian zones near open foraging areas. Wintering birds may roost communally in dense riparian thickets. There are no CNDDDB records of this species nesting in the project area; however, it may still breed in the canyons along the Cuyama River and on Vandenberg Air Force Base along the eastern portions of San Antonia Creek (Gevirtz 2005). The Cuyama River and the San Antonia Creek are approximately 17 mi north and 11 mi northeast of the study area, respectively. Suitable foraging and nesting habitat for this species is present in open California annual grasslands and oak woodlands found in the study area (Figure 1, Maps, 1, 15, 17: Santa Ynez River 1, Creeks and Drainages 15, 17).

Mountain plover – State species of special concern

Mountain plovers (*Charadrius montanus*) are winter migrants generally found on plowed agricultural fields. During the summer they relocate to nest in the dry prairies and short grass plains of northern Montana, southeastern Colorado and Wyoming. Typically this species nests in a scraped depression on bare ground lined with grasses, roots and cow manure (Kaufman 1996). There are no CNDDDB records of this species in the vicinity; however, suitable foraging habitat for this species is present in open grasslands found throughout the alignment.

Tricolored blackbird – State species of special concern

Tricolored blackbirds (*Agelaius tricolor*) are largely restricted to California, where they occur throughout the Central Valley and along the coast in Southern California from Santa Barbara County to the Mexican Border (Beedy and Hamilton 1999). They are colonial nesters, breeding in dense colonies from which they may travel several miles to forage in grasslands and agricultural fields. Males arrive at breeding sites before females and initiate singing from late February through March. Nesting occurs from late March to early August. Individuals within breeding colonies may nest synchronously and lay eggs within one week of each other (Beedy and Hamilton 1999). They breed within wetland habitats but prefer freshwater marshes dominated by cattails (*Typha* spp.) or bulrushes (*Schoenoplectus* spp.). Nesting has also been documented in willows (*Salix* spp.), blackberries (*Rubus* spp.), thistles (*Cirsium* and *Centaurea* spp.), and nettles (*Urtica* sp) (Beedy and Hamilton 1999). They will also breed in diverse upland habitats, and agricultural areas. They prefer larger marshes and denser vegetation than red-winged blackbirds. There are no CNDDDB records of tricolor blackbird within 5 mi of the study area, but they have been reported in the Santa Ynez watershed, nesting in farm ponds (National Audubon Society 2009). Suitable nesting habitat was observed in the study area during the reconnaissance surveys along the Santa Ynez River (Figure 1, Map 1) and suitable foraging habitat for this species is present in open grasslands found throughout the alignment.

Western burrowing owl – State species of special concern

Western burrowing owls (*Athene cucularia hypugea*) prefer open, flat or gently sloped grasslands and require burrows for nesting. This species was almost extirpated from Santa

Barbara County due primarily to the conversion of grasslands and pastures to cultivation and the extermination of ground squirrel populations. Breeding still occurs in the Carrizo Plain in San Luis Obispo and pairs have been known to breed in the western Santa Maria and Cuyama Valleys (Lehman 1994). Although suitable habitat exists on the La Purisima Mission State Historic Park (Figure 2), this species has not been detected during recent surveys of the park (Gevirtz 2005). Currently this species is not known to nest in Santa Barbara County (pers. comm. Tom Olson 2009b). There are no CNDDDB records in the vicinity of the study area; however, suitable foraging and nesting habitat for this species is present in the annual grasslands and pastures found along the alignment; overwintering owls could occur the study area. During the reconnaissance field surveys suitable habitat (i.e., open grassland land with abundant California ground squirrels colonies present) were noted in abundance throughout the eastern section of the alignment (Figure 1, Maps 13 -17).

White-tailed kite – State fully protected species

The white-tailed kite (*Elanus leucurus*) inhabits open lowland valleys and low, rolling foothills. They forage in grasslands, marshes, riparian edges, and cultivated fields where prey species (mainly ground squirrels and jackrabbits) are relatively abundant (Kaufman 1996). Kites typically nest on the tops of trees in close proximity to good foraging locations. There are no CNDDDB records of this species nesting in the vicinity of the study area; however, suitable foraging and nesting habitat is present in woodland and open annual grasslands throughout the study area.

Yellow warbler – State species of special concern

Yellow warblers breed in riparian woodlands that typically contain tall willows, cottonwoods and sycamore. This species is a long-distance migrant, and population decline in southern California has been linked to cowbird parasitism and breeding habitat loss and/or degradation (Lehman 1994). This species is widely distributed in the vicinity of the project, including the upper Santa Ynez River and nearby tributaries (Gevirtz 2005).

There is one CNDDDB occurrence approximately 15 mi north of the study area. During the reconnaissance field surveys potential nesting habitat for yellow warbler was found along the Santa Ynez River and in several smaller creeks and drainages found along the alignment (Figure 1, Map 1: Santa Ynez River 1; Maps 5, 10, 11, 15, 17: Drainages/Creeks 9B, 11A, 12C, 12D, 15 and 17). The Santa Ynez River provides the best habitat for this species while the other drainages and creeks provide only low to moderate nesting habitat.

American badger – State species of special concern

The American badger (*Taxidea taxus*) is widely distributed throughout California, occurring in grassland and open scrub/shrub habitats. Decline of this species is often attributed to urban growth, conversion of grasslands to agriculture and the use of rodenticides (Reid 2006). This species is primarily solitary, nocturnal, and a proficient digger that constructs burrows for resting and rearing young. The badger's main food source is small mammals.

Badgers are known to occur in undeveloped habitats throughout Santa Barbara County but have declined in agriculturally developed areas including Santa Maria, Lompoc and Santa Ynez

Valleys (Gevirtz 2005). There are several CNDDDB records of American badger in the vicinity on roads, including one within the alignment along Campbell Road (Figure 2). Suitable habitat for badger is present in the open grasslands and coastal scrub found throughout the alignment.

Pallid bat – State species of special concern

Pallid bat (*Antrozus pallidus*) occurs in a wide variety habitats throughout the state of California, ranging from deserts to moist oak woodlands and redwood forests along the coast (Pierson et al. 2002). Commonly this species is found in open, dry grasslands, oak savannah and open scrublands (Williams 1986). This bat is highly social and roosts in rock crevices, caves, mines, tunnels, tree hollows, bridges and buildings; foraging for large arthropods is generally done on the ground or gleaned from vegetation (Pierson et al. 2002).

Pallid bats were found to be widely distributed on Vandenberg Air Force Base, foraging along creeks and tanbark oak habitat (Pierson et al. 2002). Although caves and rock crevice roosting habitat is lacking along the alignment, there are sufficient tree hollows (i.e., coast live oaks) in the study area for this species to occur.

Townsend's big-eared bat – State species of special concern

Townsend's big-eared bat (*Corynorhinus townsendii*) is widely distributed throughout California with most populations concentrated in habitats with caves or mines for roosting (Pierson et al. 2002). This species is locally common in coastal and lower montane habitats. It forages primarily on moths and other soft-bodied insects which are captured in flight (Zeiner et al. 1990; Pierson et al. 2002). This bat is extremely sensitive to disturbance since their preferred roosting habitat is on cave walls and other exposed surfaces rather than protected crevices (Williams 1986).

This species is known to occur in Santa Barbara County with a known maternity roost along the Santa Ynez River east of the town of Santa Ynez (Gevirtz 2005). There are several CNDDDB records in the project vicinity, including one less than 0.5 mile from the alignment (Figure 2). There is limited suitable roosting habitat for this species in the study area consisting of vacant outbuildings, abandoned structures and small bridges along the eastern section of the alignment (Figure 1, Maps 13-17).

Western red bat – State species of special concern

The western red bat (*Lasiurus blossevillii*) is widely distributed throughout California and known to occur in a variety of habitats including forested canyons, riparian zones and arid areas where they primarily roost in trees (Reid 2006). Pierson et al. (2006) suggest that Central Valley habitats are most important for breeding populations. Western red bats are known to forage along creek drainages on Vandenberg Air Force Base, primarily as individuals, but no roosts have been found on the Base (Pierson 2002). There are no CNDDDB occurrences within 5 mi of the study area. Limited suitable foraging and roosting habitat for this species is present within the study area along the Santa Ynez River and other smaller drainages.

Yuma myotis – State species of special concern

The Yuma myotis (*Myotis yumanensis*) is known to occur in a variety of habitats throughout California. Optimal habitat for this species includes open forest and woodlands with available water sources nearby (Reid 2006; CDFG 2008). This species is known to have limited distribution in Santa Barbara County, including one maternity roost at Vandenberg Air Force Base (Pierson 2002). There is one CNDDDB occurrence approximately 2 mi from the study area in the northern section of the Santa Ynez River (Figure 2). The Santa Ynez River likely provides the best suitable habitat for this species along the alignment; however, large ponds (Figure 1, Maps 9, 15: Ponds 11, 16) and outbuildings along the eastern section of the alignment also provide foraging and roosting habitat for this species.

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FIGURES



Figure 1
Habitat Classification
Cabrillo - Santa Ynez
175KV Reconductoring Project
Map 1

Scale: 1:5,200
 0 300 600 Feet

PG&E

<ul style="list-style-type: none"> ○ Power Poles to be Replaced ● Power Poles Replaced by Helicopter ● Existing Power Poles ● Power Pole Sites with Expected Tree Management — Power Line 	<ul style="list-style-type: none"> ○ 200' Habitat Classification Area □ Potential Lay Down Area □ Potential Pull and Tension Site □ Potential Staging Area ● Ponds, Creeks, and Drainages 	<p>Natural Vegetation</p> <ul style="list-style-type: none"> California Annual Grassland Central Coast (Lucian) Scrub Coast Live Oak Woodland Freshwater Pond Mule Fat Scrub Riparian Scrub 	<p>Other Vegetation</p> <ul style="list-style-type: none"> Agriculture Developed Ruderal 	<p>County Roads</p> <ul style="list-style-type: none"> Existing Access Road Existing Access Road Reestablished Through Grading and Vegetation Removal Overland Access Route
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Figure 1
Habitat Classification
Cabrillo - Santa Ynez
175kV Reconductoring Project
Map 2

Scale: 1:5,200
 0 300 600 Feet

PG&E

○ Power Poles to be Replaced	○ 200' Habitat Classification Area	Natural Vegetation	Other Vegetation	⚡ County Roads
● Power Poles Replaced by Helicopter	▭ Potential Lay Down Area	California Annual Grassland	🌾 Agriculture	⚡ Existing Access Road
● Existing Power Poles	▭ Potential Pull and Tension Site	🌿 California Annual Grassland	🏠 Developed	⚡ Existing Access Road
● Power Pole Sites with	▭ Potential Staging Area	🌳 Central Coast (Lucian) Scrub	🌳 Ruderal	⚡ Reestablished Through
● Expected Tree Management	⚡ Ponds, Creeks, and Drainages	🌳 Coast Live Oak Woodland	🌳 Freshwater Pond	⚡ Grading and Vegetation
⚡ Power Line		🌳 Mule Fat Scrub	🌳 Riparian Scrub	⚡ Removal
		⚡ Overland Access Route		⚡ Overland Access Route



Figure 1
Habitat Classification
Cabrillo - Santa Ynez
115kV Reconductoring Project
Map 3

PG&E

Scale: 1:5,200
 0 300 600 Feet

Legend:

- Power Poles to be Replaced:** White circle
- Power Poles Replaced by Helicopter:** Blue circle
- Existing Power Poles:** Brown circle
- Power Pole Sites with Expected Tree Management:** Green circle
- Power Line:** Yellow line
- 200' Habitat Classification Area:** Red outline
- Potential Lay Down Area:** Yellow outline
- Potential Pull and Tension Site:** Blue outline
- Potential Staging Area:** Pink outline
- Ponds, Creeks, and Drainages:** Blue outline
- Natural Vegetation:**
 - California Annual Grassland: Light green
 - Central Coast (Lucian) Scrub: Dark green
 - Coast Live Oak Woodland: Brown
 - Freshwater Pond: Blue
 - Mule Fat Scrub: Purple
 - Riparian Scrub: Cyan
- Other Vegetation:**
 - Agriculture: Red
 - Developed: Yellow
 - Ruderal: Orange
- Other Features:**
 - County Roads: White line
 - Existing Access Road: Black line
 - Existing Access Road: Black line
 - Reestablished Through Grading and Vegetation Removal: Blue line
 - Overland Access Route: Yellow line



Figure 1
Habitat Classification
Cabrillo - Santa Ynez
175kV Reconductoring Project
Map 4

Scale: 1:5,200
 0 300 600 Feet

PG&E

○ Power Poles to be Replaced	○ 200' Habitat Classification Area	Natural Vegetation	Other Vegetation
● Power Poles Replaced by Helicopter	□ Potential Lay Down Area	California Annual Grassland	County Roads
● Existing Power Poles	□ Potential Pull and Tension Site	Central Coast (Lucian) Scrub	Existing Access Road
● Power Pole Sites with Expected Tree Management	□ Potential Staging Area	Coast Live Oak Woodland	Existing Access Road
— Power Line	— Ponds, Creeks, and Drainages	Freshwater Pond	Reestablished Through Grading and Vegetation Removal
		Mule Fat Scrub	Overland Access Route
		Riparian Scrub	

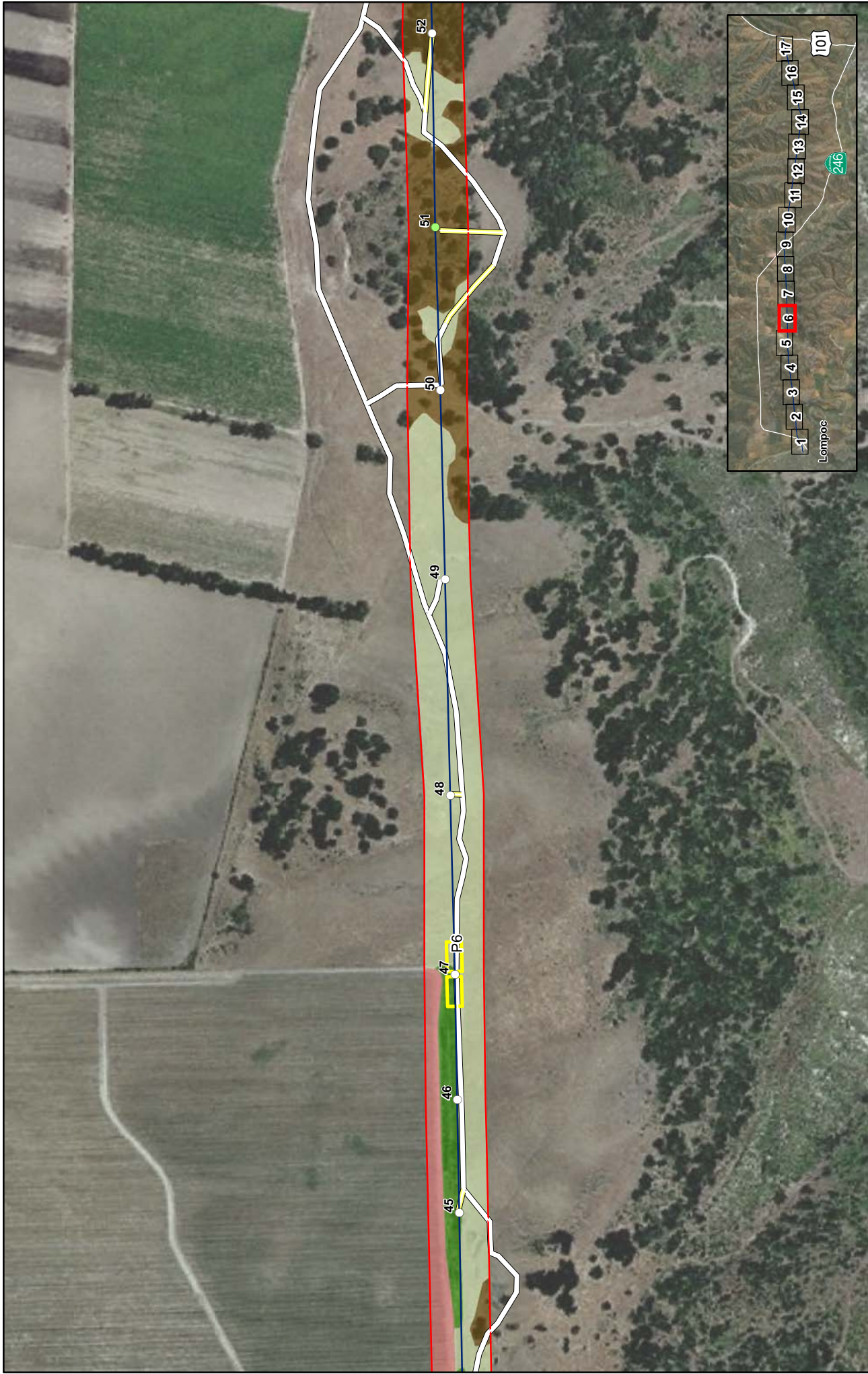


Figure 1
Habitat Classification
Cabrillo - Santa Ynez
175kV Reconductoring Project
Map 6

Scale: 1:5,200
 0 300 600 Feet

○ Power Poles to be Replaced	○ 200' Habitat Classification Area	Natural Vegetation	Other Vegetation
● Power Poles Replaced by Helicopter	□ Potential Lay Down Area	California Annual Grassland	County Roads
● Existing Power Poles	□ Potential Pull and Tension Site	Central Coast (Lucian) Scrub	Existing Access Road
● Power Pole Sites with Expected Tree Management	□ Potential Staging Area	Coast Live Oak Woodland	Existing Access Road
— Power Line	☞ Ponds, Creeks, and Drainages	Freshwater Pond	Reestablished Through Grading and Vegetation Removal
		Mule Fat Scrub	Overland Access Route
		Riparian Scrub	

PG&E

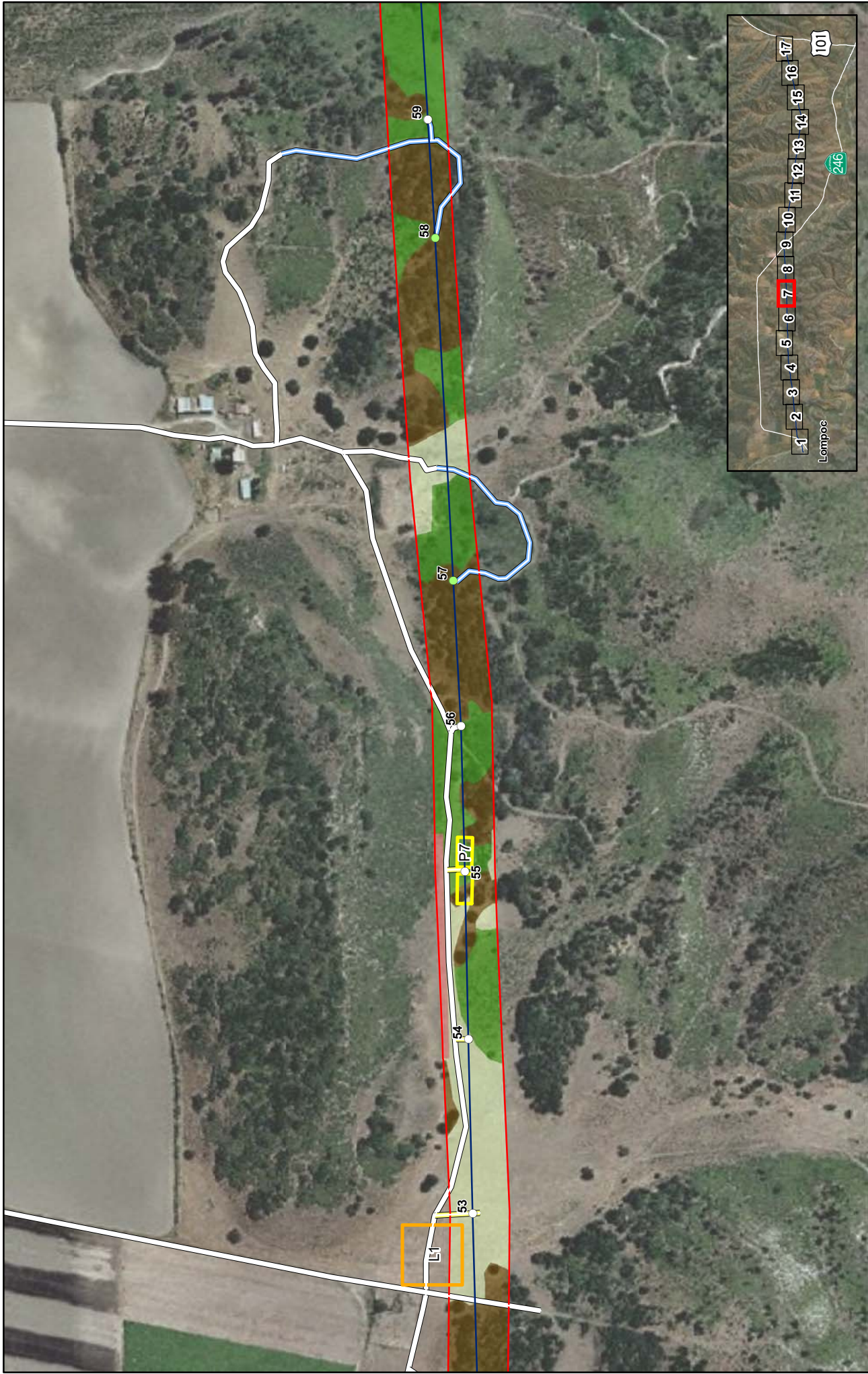


Figure 1
Habitat Classification
Cabrillo - Santa Ynez
175kV Reconductoring Project
Map 7

Scale: 1:5,200
 0 300 600 Feet

PG&E

○ Power Poles to be Replaced	○ 200' Habitat Classification Area	Natural Vegetation	Other Vegetation
● Power Poles Replaced by Helicopter	□ Potential Lay Down Area	California Annual Grassland	County Roads
● Existing Power Poles	□ Potential Pull and Tension Site	Central Coast (Lucian) Scrub	Existing Access Road
● Power Pole Sites with Expected Tree Management	□ Potential Staging Area	Coast Live Oak Woodland	Existing Access Road
— Power Line	— Ponds, Creeks, and Drainages	Freshwater Pond	Reestablished Through Grading and Vegetation Removal
		Mule Fat Scrub	Overland Access Route
		Riparian Scrub	

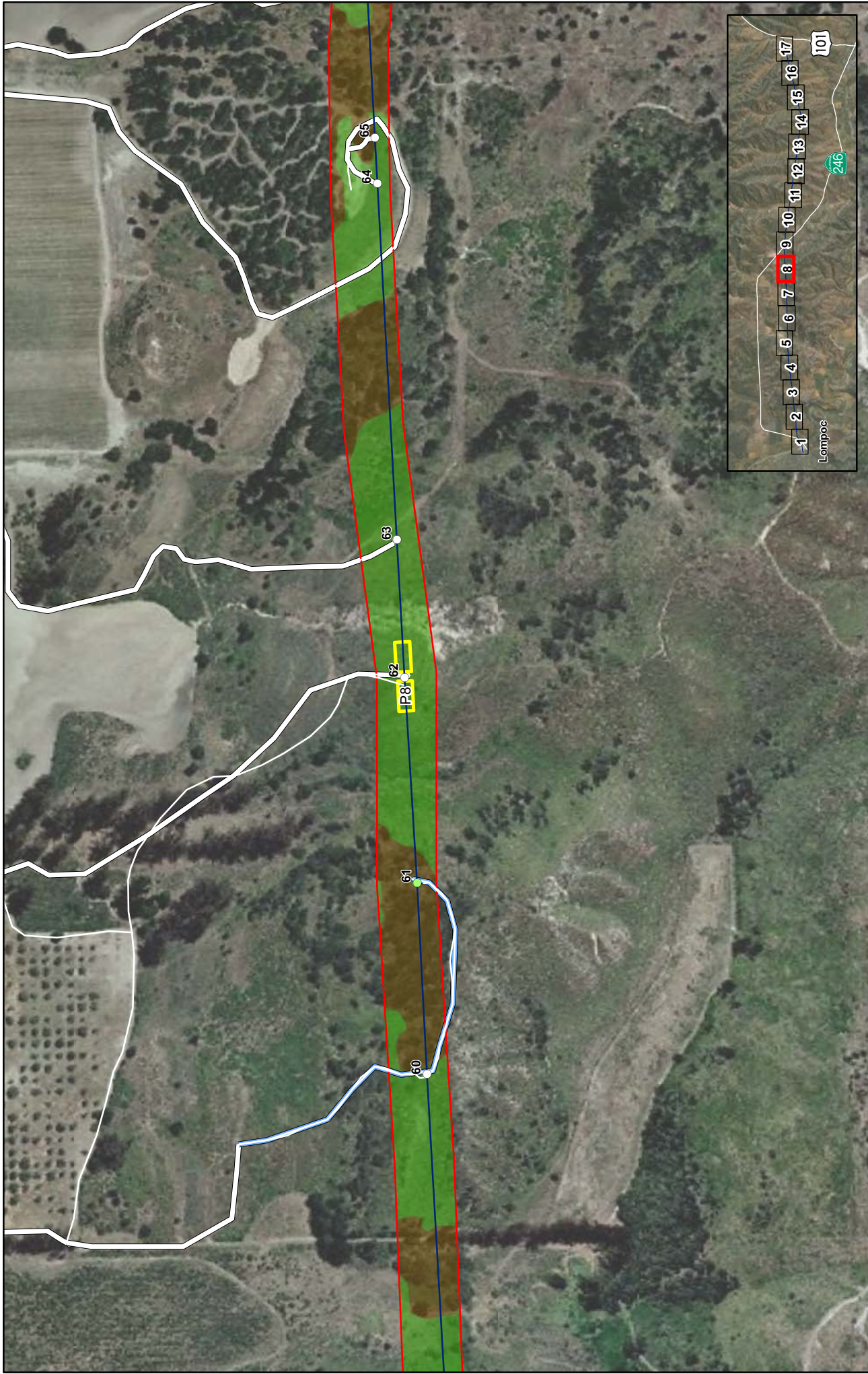


Figure 1
Habitat Classification
Cabrillo - Santa Ynez
175kV Reconductoring Project
Map 8

Scale: 1:5,200
 0 300 600 Feet

PG&E

○ Power Poles to be Replaced	○ 200' Habitat Classification Area	Natural Vegetation	Other Vegetation	⚡ County Roads
● Power Poles Replaced by Helicopter	□ Potential Lay Down Area	California Annual Grassland	🌾 Agriculture	⚡ Existing Access Road
● Existing Power Poles	□ Potential Pull and Tension Site	🌿 California Annual Grassland	🏠 Developed	⚡ Existing Access Road
● Power Pole Sites with	□ Potential Staging Area	🌳 Central Coast (Lucian) Scrub	🌳 Ruderal	⚡ Reestablished Through
● Expected Tree Management	⚡ Ponds, Creeks, and Drainages	🌳 Coast Live Oak Woodland	🌳 Freshwater Pond	⚡ Grading and Vegetation
⚡ Power Line		🌳 Mule Fat Scrub	🌳 Riparian Scrub	⚡ Removal
		⚡ Overland Access Route		⚡ Overland Access Route

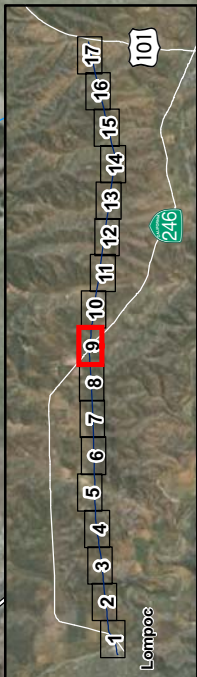


Figure 1
Habitat Classification
Cabrillo - Santa Ynez
115kV Reconductoring Project
Map 9

○ Power Poles to be Replaced	○ 200' Habitat Classification Area	○ Natural Vegetation	○ Other Vegetation
● Power Poles Replaced by Helicopter	□ Potential Lay Down Area	■ California Annual Grassland	■ Existing Access Road
● Existing Power Poles	□ Potential Pull and Tension Site	■ Central Coast (Lucian) Scrub	■ Existing Access Road
● Power Pole Sites with	□ Potential Staging Area	■ Coast Live Oak Woodland	■ Reestablished Through Grading and Vegetation Removal
● Expected Tree Management	□ Ponds, Creeks, and Drainages	■ Freshwater Pond	■ Overland Access Route
— Power Line		■ Mule Fat Scrub	
		■ Riparian Scrub	

PG&E

Scale: 1:5,200

0 300 600 Feet



Figure 1
Habitat Classification
Cabrillo - Santa Ynez
115kV Reconductoring Project
Map 11

Scale: 1:5,200
 0 300 600 Feet

PG&E

○	Power Poles to be Replaced	○	Habitat Classification Area	⚡	County Roads
●	Power Poles Replaced by Helicopter	□	Potential Lay Down Area	⚡	Existing Access Road
●	Existing Power Poles	□	Potential Pull and Tension Site	⚡	Existing Access Road
●	Power Pole Sites with	□	Potential Staging Area	⚡	Reestablished Through
●	Expected Tree Management	⚡	Ponds, Creeks, and Drainages	⚡	Grading and Vegetation
⚡	Power Line	⚡		⚡	Removal
		⚡		⚡	Overland Access Route

Natural Vegetation

- California Annual Grassland
- Central Coast (Lucian) Scrub
- Coast Live Oak Woodland
- Freshwater Pond
- Mule Fat Scrub
- Riparian Scrub

Other Vegetation

- Agriculture
- Developed
- Ruderal

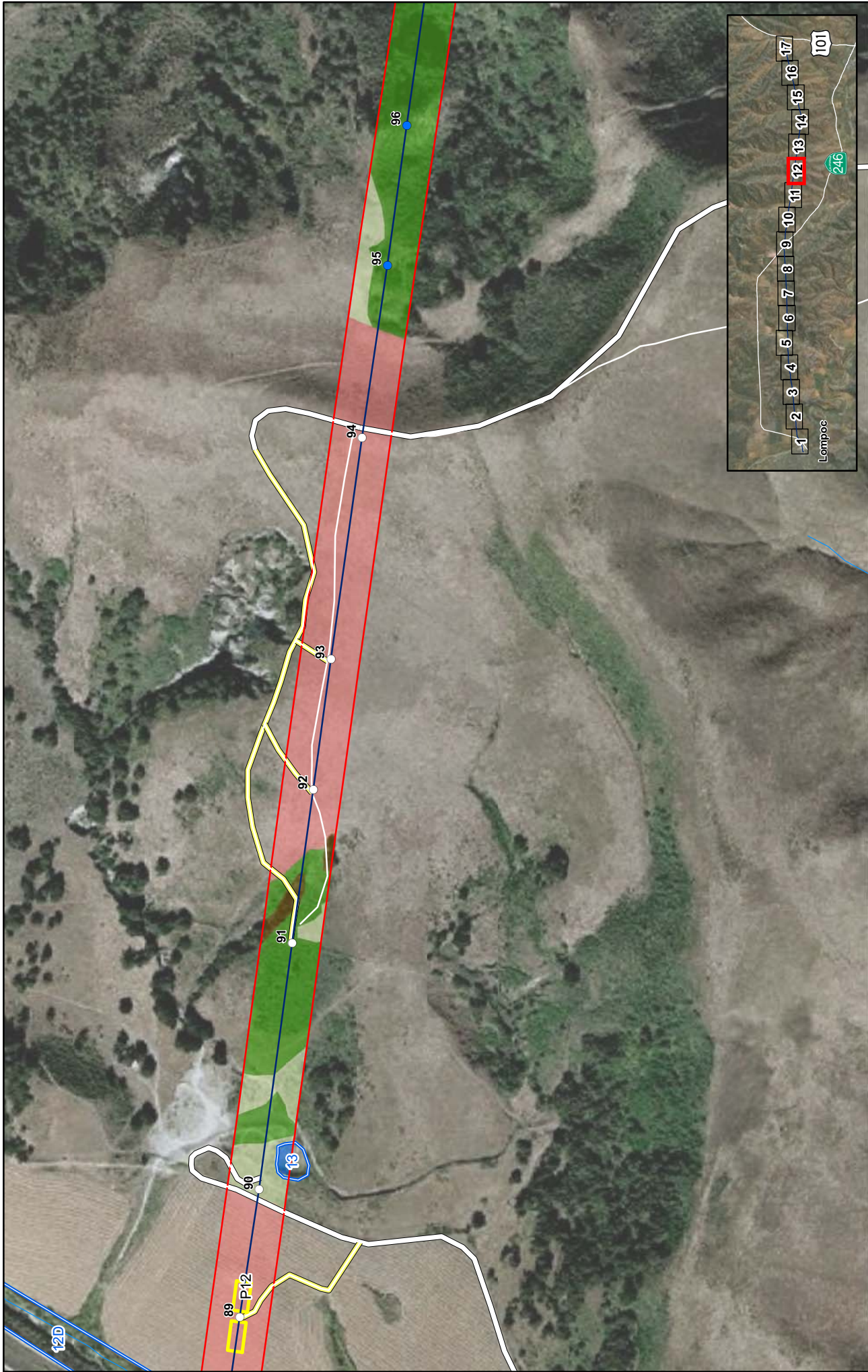


Figure 1
Habitat Classification
Cabrillo - Santa Ynez
175kV Reconductoring Project
Map 12

Scale: 1:5,200
 0 300 600 Feet

PG&E

○ Power Poles to be Replaced	○ 200' Habitat Classification Area	Natural Vegetation	Other Vegetation
● Power Poles Replaced by Helicopter	□ Potential Lay Down Area	California Annual Grassland	County Roads
● Existing Power Poles	□ Potential Pull and Tension Site	Central Coast (Lucian) Scrub	Existing Access Road
● Power Pole Sites with	□ Potential Staging Area	Coast Live Oak Woodland	Existing Access Road
● Expected Tree Management	□ Ponds, Creeks, and Drainages	Freshwater Pond	Reestablished Through
— Power Line		Mule Fat Scrub	Removal
		Riparian Scrub	Overland Access Route



Figure 1
Habitat Classification
Cabrillo - Santa Ynez
175kV Reconductoring Project
Map 13

PG&E

Scale: 1:5,200
 0 300 600 Feet

○ Power Poles to be Replaced	○ 200' Habitat Classification Area	Natural Vegetation	Other Vegetation
● Power Poles Replaced by Helicopter	□ Potential Lay Down Area	California Annual Grassland	County Roads
● Existing Power Poles	□ Potential Pull and Tension Site	Central Coast (Lucian) Scrub	Existing Access Road
● Power Pole Sites with	□ Potential Staging Area	Coast Live Oak Woodland	Existing Access Road
Expected Tree Management	□ Ponds, Creeks, and Drainages	Freshwater Pond	Reestablished Through
● Power Line	□ Mule Fat Scrub	Mule Fat Scrub	Grading and Vegetation
	□ Riparian Scrub	Riparian Scrub	Removal
			Overland Access Route

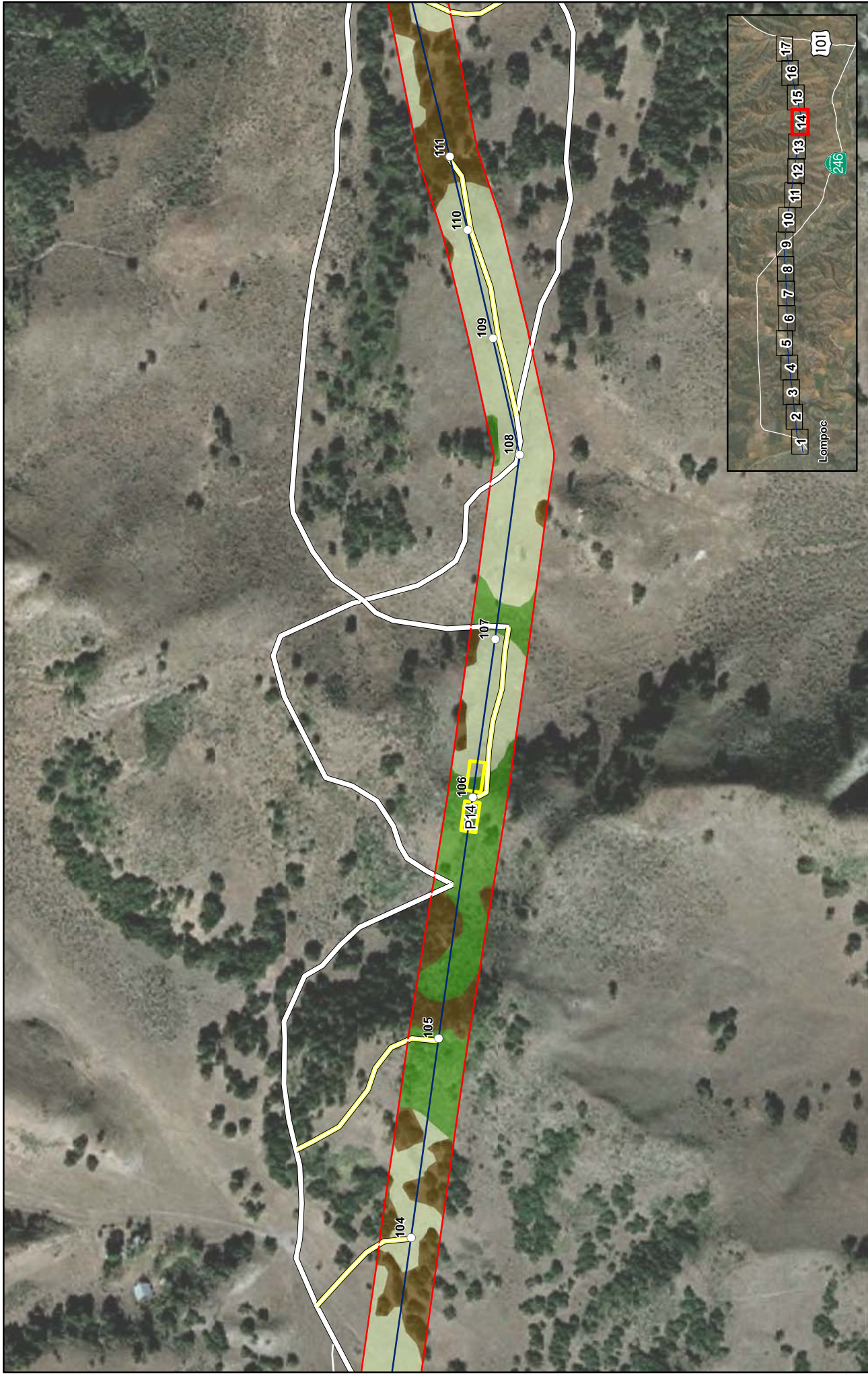


Figure 1
Habitat Classification
Cabrillo - Santa Ynez
115KV Reconductoring Project
Map 14

Scale: 1:5,200
 0 300 600 Feet

PG&E

○ Power Poles to be Replaced	○ 200' Habitat Classification Area	Natural Vegetation	Other Vegetation
● Power Poles Replaced by Helicopter	□ Potential Lay Down Area	California Annual Grassland	County Roads
● Existing Power Poles	□ Potential Pull and Tension Site	Central Coast (Lucian) Scrub	Existing Access Road
● Power Pole Sites with Expected Tree Management	□ Potential Staging Area	Coast Live Oak Woodland	Existing Access Road
— Power Line	— Ponds, Creeks, and Drainages	Freshwater Pond	Reestablished Through Grading and Vegetation Removal
		Mule Fat Scrub	Overland Access Route
		Riparian Scrub	



Figure 1
Habitat Classification
Cabrillo - Santa Ynez
115kV Reconductoring Project
Map 15

PG&E

Scale: 1:5,200
 0 300 600 Feet

Legend:

- Power Poles to be Replaced** (White circle)
- Power Poles Replaced by Helicopter** (Blue circle)
- Existing Power Poles** (Brown circle)
- Power Pole Sites with Expected Tree Management** (Green circle)
- Power Line** (Blue line)
- 200' Habitat Classification Area** (Red outline)
- Potential Lay Down Area** (Yellow outline)
- Potential Pull and Tension Site** (Pink outline)
- Potential Staging Area** (Blue outline)
- Ponds, Creeks, and Drainages** (Blue line)

Natural Vegetation

- California Annual Grassland
- Central Coast (Lucian) Scrub
- Central Live Oak Woodland
- Freshwater Pond
- Mule Fat Scrub
- Riparian Scrub

Other Vegetation

- Agriculture
- Developed
- Ruderal

Other Features

- County Roads
- Existing Access Road
- Existing Access Road
- Reestablished Through Grading and Vegetation Removal
- Overland Access Route

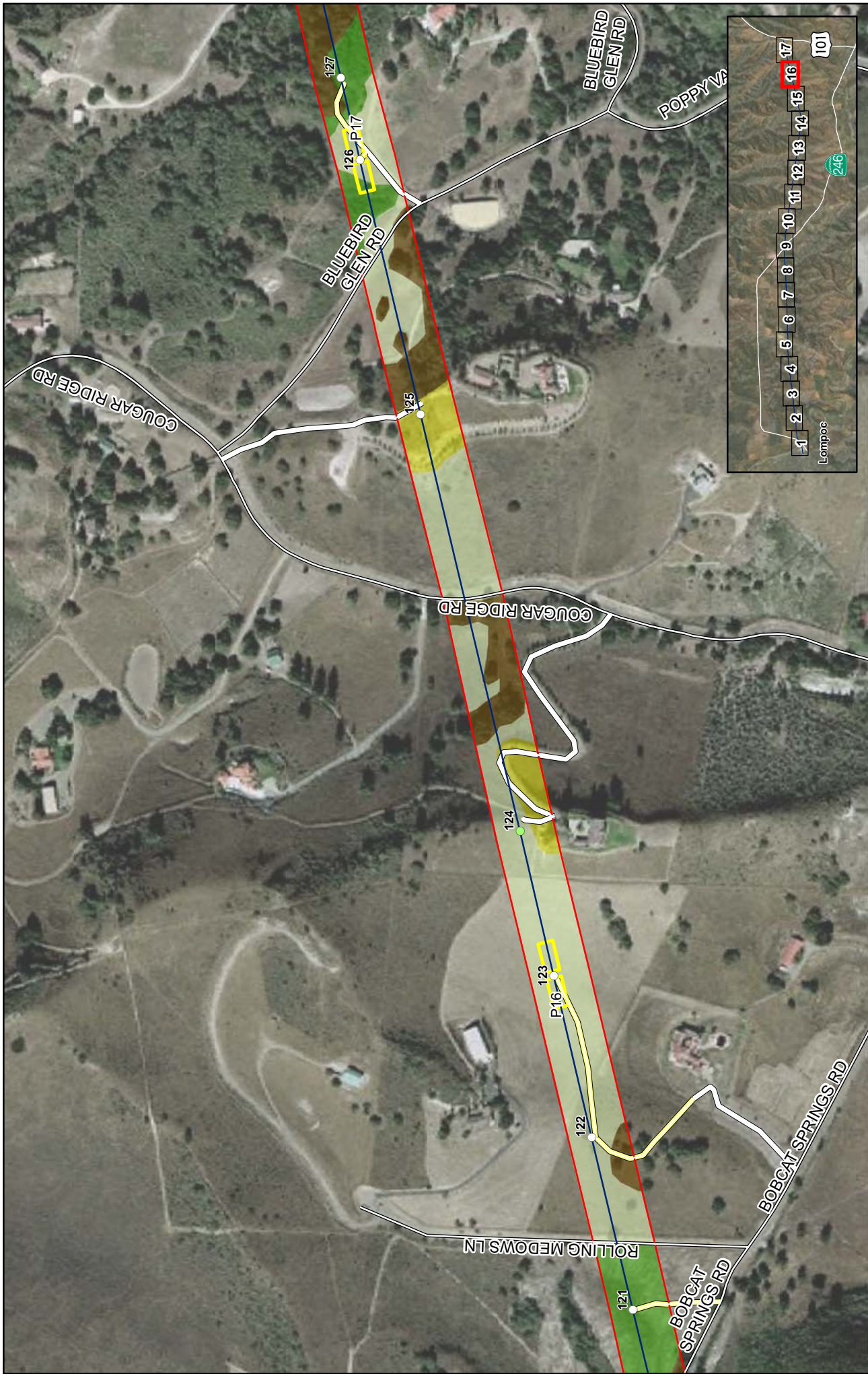


Figure 1
Habitat Classification
Cabrillo - Santa Ynez
175kV Reconductoring Project
Map 16

PG&E

Scale: 1:5,200
 0 300 600 Feet

Legend:

- Power Poles to be Replaced:** White circle
- Power Poles Replaced by Helicopter:** Blue circle
- Existing Power Poles:** Brown circle
- Power Pole Sites with Expected Tree Management:** Green circle
- Power Line:** Blue line
- 200' Habitat Classification Area:** Red outline
- Potential Lay Down Area:** Yellow outline
- Potential Pull and Tension Site:** Orange outline
- Potential Staging Area:** Pink outline
- Ponds, Creeks, and Drainages:** Blue wavy line

Natural Vegetation

- California Annual Grassland
- Central Coast (Lucian) Scrub
- Coast Live Oak Woodland
- Freshwater Pond
- Mule Fat Scrub
- Riparian Scrub

Other Vegetation

- Agriculture
- Developed
- Ruderal

County Roads

- Existing Access Road
- Existing Access Road
- Reestablished Through Grading and Vegetation Removal
- Overland Access Route

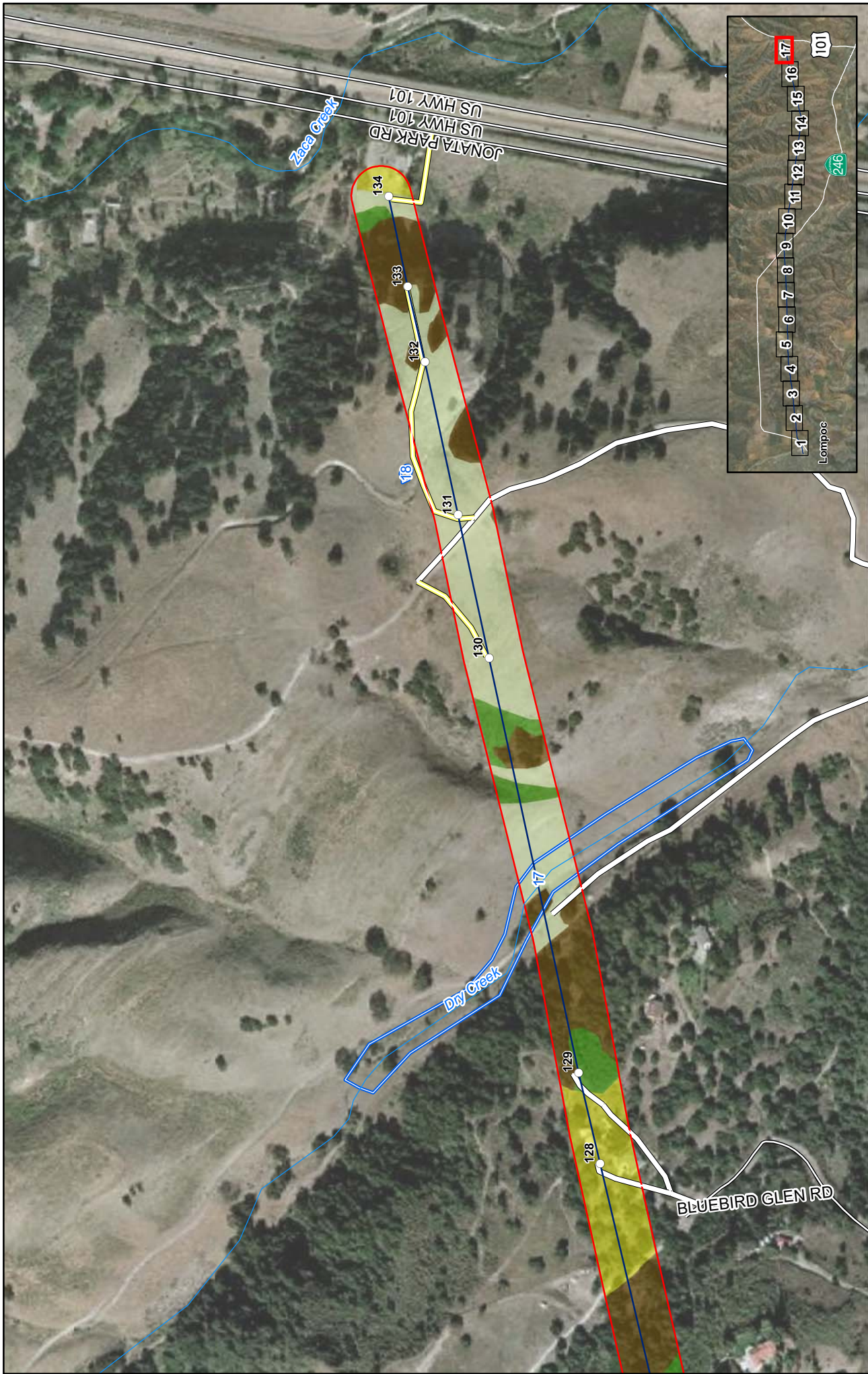
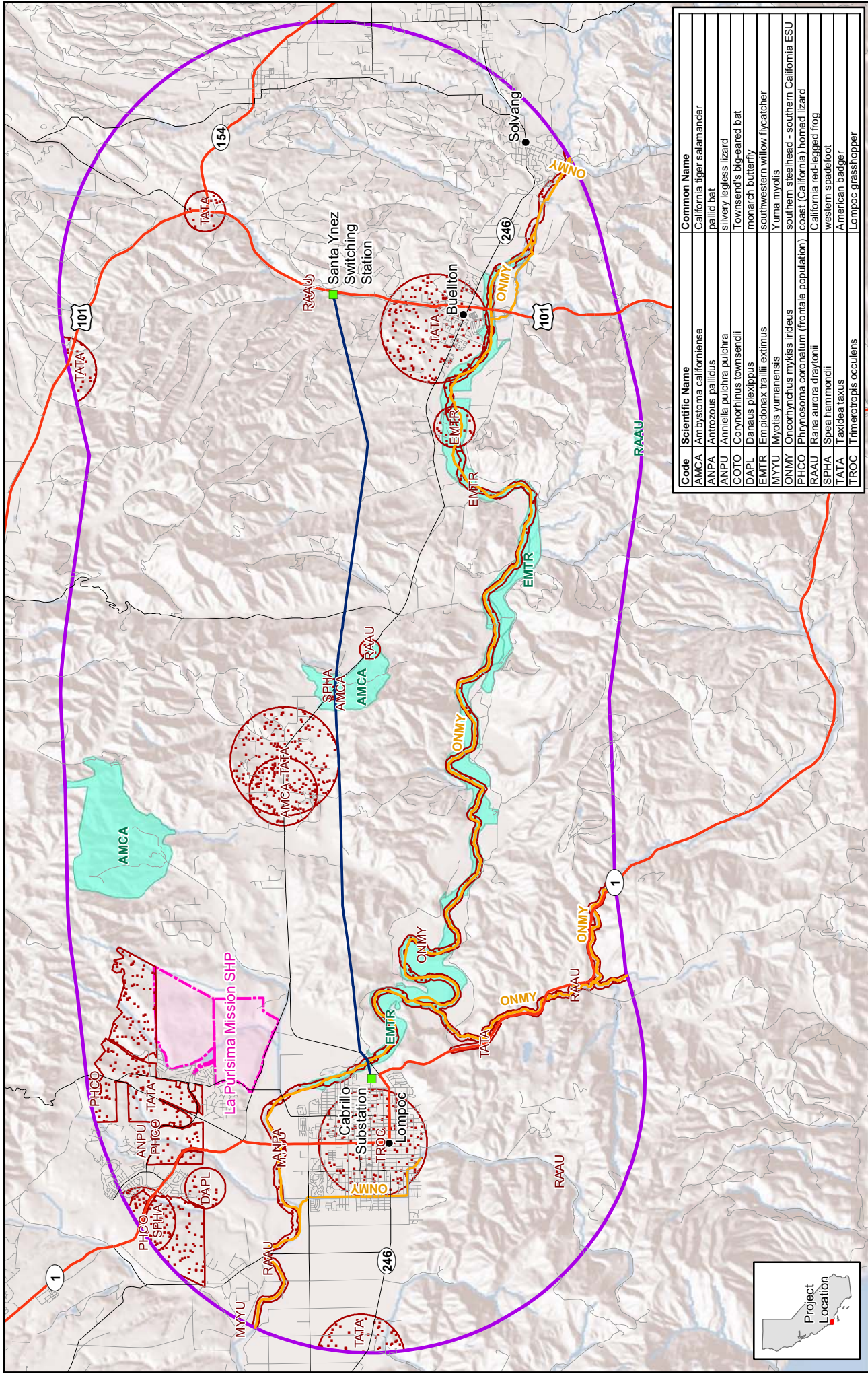


Figure 1
Habitat Classification
Cabrillo - Santa Ynez
175KV Reconductoring Project
Map 17



Scale: 1:5,200
 0 300 600 Feet

- | | | | |
|--|------------------------------------|------------------------------|--|
| ○ Power Poles to be Replaced | ○ 200' Habitat Classification Area | Natural Vegetation | Other Vegetation |
| ● Power Poles Replaced by Helicopter | □ Potential Lay Down Area | California Annual Grassland | County Roads |
| ● Existing Power Poles | □ Potential Pull and Tension Site | Central Coast (Lucian) Scrub | Existing Access Road |
| ● Power Pole Sites with Expected Tree Management | □ Potential Staging Area | Coast Live Oak Woodland | Existing Access Road |
| — Power Line | — Ponds, Creeks, and Drainages | Freshwater Pond | Reestablished Through Grading and Vegetation Removal |
| | | Mule Fat Scrub | Overland Access Route |
| | | Riparian Scrub | |

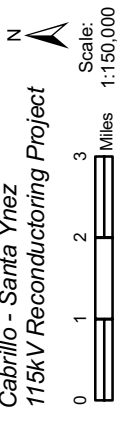


Code	Scientific Name	Common Name
AMCA	<i>Ambystoma californiense</i>	California tiger salamander
ANPA	<i>Antrozous pallidus</i>	pallid bat
ANPU	<i>Anniella pulchra pulchra</i>	silvery legless lizard
COTO	<i>Corynorhinus townsendii</i>	Townsend's big-eared bat
DAPL	<i>Danaus plexippus</i>	monarch butterfly
EMTR	<i>Empidonax traillii eximius</i>	southwestern willow flycatcher
MYU	<i>Myotis yumanensis</i>	Yuma myotis
ONMY	<i>Oncorhynchus mykiss irideus</i>	southern steelhead - southern California ESU
PHCO	<i>Phrynosoma coronatum</i> (frontale population)	coast (California) horned lizard
RAAU	<i>Rana aurora draytonii</i>	California red-legged frog
SPHA	<i>Spea hammondi</i>	western spadefoot
TATA	<i>Taxidea taxus</i>	American badger
TROC	<i>Trimetrops occulens</i>	Lompoc grasshopper

- Substation
- Cabrillo - Santa Ynez Power Line
- 5 Mile Study Area Buffer
- La Purisima Mission SHP
- CNDDDB Wildlife Occurrences
- USFWS Critical Habitat
- Steelhead Critical Habitat



Figure 2
 CNDDDB and Critical Habitat
 Cabrillo - Santa Ynez
 115kV Reconductoring Project



Appendix B-2

Preliminary Results of Special-Status Plant Surveys



Garcia and Associates
1512 Franklin Street, Suite 100
Oakland, CA 94612
Phone: (510) 891-0024 Fax: (510) 891-0027

To: Colleen Taylor, CH2M HILL
From: Eric Wrubel, Botanist
Date: June 24, 2009
RE: Preliminary results of special-status plant surveys for the Cabrillo-Santa Ynez Reconductoring Project

This memo documents the survey methods and special-status plant species that have been observed to date during the spring 2009 botanical surveys. The third survey is schedule for July 6-10, 2009. The rare plant survey report is expected to be completed in late summer 2009.

Rare Plant Survey Methods

Pre-field Preparations

Preparation for the protocol-level special-status plant surveys included compiling a list of special-status plants with potential to occur within the project area. The list was assembled using community and habitat information from the reconnaissance surveys and information from the California Native Plant Society's [CNPS] *Inventory of Rare and Endangered Plants of California* (CNPS 2009) and the California Natural Diversity Database [CNDDDB] (CDFG 2009a), as well as other sources listed below. A plant was considered to be of special status if it met one or more of the following criteria:

- Federally or State-listed, or proposed for listing, as rare, threatened or endangered (CDFG 2009a);
- Special Plant as defined by the California Natural Diversity Database (CDFG 2009b); or
- Listed by the California Native Plant Society in the online version of its *Inventory of Rare and Endangered Plants of California* (CNPS 2009).

A list of special-status plants with the potential to occur in the project area was compiled by conducting a 15-quadrangle search of the CNDDDB RareFind3 database (CDFG 2009b). The project

is located within the Lompoc, Los Alamos, and Zaca Creek U.S. Geological Survey (USGS) 7.5' quadrangles. The USGS 7.5' quads that were searched included Lompoc, Los Alamos, Zaca Creek, Casmalia, Orcutt, Sisquoc, Foxen Canyon, Zaca Lake, Los Olivos, Santa Ynez, Solvang, Santa Rosa Hill, Lompoc Hills, Tranquillon Mountain, and Surf. The CNPS (2009) Inventory was then queried to produce a similar list for Santa Barbara County. The specific habitats included in the query were chaparral, cismontane woodland, coastal scrub, meadows and seeps, valley and foothill grassland, riparian scrub and riparian woodland at elevations between 0 and 2,300 feet. These habitats were selected based on the similarity of their constituent species to those occurring on the project site. A total of 106 special-status plant species were identified in these queries. This list was revised and shortened to 39 taxa after considering the distributional analysis and habitat requirements of all taxa on the preliminary list. Table 1 provides a summary of information on the special-status plants with potential to occur within the project area.

Table 1. Special-status plant species with potential to occur within the Cabrillo-Santa Ynez Reconductoring Project Area.

Common name ¹ Scientific name	Listing Status ² Federal State CNPS	Flowering Period ³	Habitat Preferences ³	Potential to Occur at the Project Site ⁴
<i>Agrostis hooveri</i> Hoover's bent grass	- - 1B.2	Apr-Jul	Closed-cone coniferous forest, Chaparral, Cismontane woodland, Valley and foothill grassland/usually sandy; 20-2000 ft.	Moderate: There are 2 recorded occurrences of this species within 5 miles of the project site. Suitable habitat is present.
<i>Ancistrocarphus keilii</i> Santa Ynez groundstar	- - 1B.1	Mar-Apr	Chaparral, Cismontane woodland/sandy; 130-425 ft.	Moderate: A recorded occurrence of this species is within 5 miles of the project site. This species is known only from the Santa Ynez Valley. Suitable habitat is present.
<i>Arctostaphylos purissima</i> La Purissima manzanita	- - 1B.1	Nov-May	Chaparral(sandy), Coastal scrub; 200-1280 ft.	High: A recorded occurrence of this species is found in the immediate vicinity of the project site near the intersection of Campbell Road and Hwy 246. Suitable habitat is present.
<i>Arctostaphylos rudis</i> sand mesa manzanita	- - 1B.2	Nov-Feb	Chaparral(maritime), Coastal scrub/sandy; 80-1050 ft.	Moderate: There are several recorded occurrences of this species within 5 miles of the project site. Suitable habitat is present.
<i>Arctostaphylos tomentosa</i> ssp. <i>eastwoodiana</i> Eastwood's brittle-leaf manzanita	- - 1B.1	Mar	Chaparral(maritime, sandy) ; 300-1200 ft.	Low: Low quality habitat is present in a few locations within the project site.
<i>Astragalus didymocarpus</i> var. <i>milesianus</i> Miles' milk-vetch	- - 1B.2	Mar-Jun	Coastal scrub(clay) ; 70-300 ft.	High: A recorded occurrence of this variety occurs in the immediate vicinity of the project site between Drum Canyon Road and Hwy 101. Suitable habitat is present.
<i>Atriplex serenana</i> var. <i>davidsonii</i> Davidson's saltscale	- - 1B.2	Apr-Oct	Coastal bluff scrub, Coastal scrub/alkaline; 30-650 ft.	Moderate: There is a recorded occurrence of this variety in the Zaca Lake quadrangle, which is located adjacent to the project site. Limited suitable habitat is present.
<i>California macrophylla</i> round-leaved filaree	- - 1B.1	Mar-May	Cismontane woodland, Valley and foothill grassland/clay; 50-3900 ft.	Moderate: There is a recorded occurrence of this species in the Los Olivos quadrangle which is located adjacent to the project site. Suitable habitat is present.

Common name ¹ Scientific name	Listing Status ² Federal State CNPS	Flowering Period ³	Habitat Preferences ³	Potential to Occur at the Project Site ⁴
<i>Calochortus weedii. vestitus</i> late-flowered mariposa lily	- - 1B.2	Jun-Aug	Chaparral, Cismontane woodland, Riparian woodland/often serpentine; 900-6250 ft.	Moderate: There are recorded occurrences of this variety in the Santa Rosa Hills and Santa Ynez quadrangles which are located adjacent to the project site. Suitable habitat is present.
<i>Calycaenia villosa</i> dwarf calycadenia	- - 1B.1	May-Oct	Chaparral, Cismontane woodland, Meadows and seeps, Valley and foothill grassland/rocky, fine soils; 790-4430 ft.	Moderate: There is a recorded occurrence of this species in the Los Alamos quadrangle which contains the project site. Suitable habitat is present.
<i>Caulanthus amplexicaulis</i> var. <i>barbarae</i> Santa Barbara jewel-flower	- - 1B.1	May-Jul	Closed-cone coniferous forest, Chaparral, Cismontane woodland/serpentine; 1540-400 ft.	Low: Mostly restricted to serpentine soils in the San Rafael Mountains.
<i>Ceanothus cuneatus</i> var. <i>fascicularis</i> Lompoc ceanothus	- - 4.2	Feb-April	Chaparral/sandy; 16 - 1312 ft.	Moderate: Known from sandy mesas and hills around Lompoc, and northeast of Buellton.
<i>Chorizanthe blakleyi</i> Blakley's spineflower	- - 1B.3	Apr-Jun	Chaparral, Pinyon and juniper woodland; 1968-5248 ft.	Low: Known records of this species are restricted to the San Rafael, Sierra Madre, and Santa Ynez Mountains. Limited chaparral habitat is present within the project area.
<i>Chorizanthe rectispina</i> straight-awned spineflower	- - 1B.3	Apr-Jul	Chaparral, Cismontane woodland, Coastal scrub; 280-3400 ft.	Moderate: A recorded occurrence of this species is located within 5 miles of the project site just west of Vandenberg Village. Suitable habitat is present.
<i>Cirsium loncholepis</i> La Graciosa thistle	FE ST 1B.1	May-Aug	Cismontane woodland, Coastal dunes, Coastal scrub, Marshes and swamps(brackish), Valley and foothill grassland/mesic, sandy; 13-720 ft.	Low: There is a recorded occurrence of this species in the Surf quadrangle which is located adjacent to the project area. Historically known from areas near the coast in moist sandy soils associated with dune swales, margins of dune lakes and marshes, seeps, intermittent streams, and river margins and coastal wetlands in northern Santa Barbara County. Limited suitable habitat is present.

Common name ¹ Scientific name	Federal	Listing Status ² State	CNPS	Flowering Period ³	Habitat Preferences ³	Potential to Occur at the Project Site ⁴
<i>Cladium californicum</i> California sawgrass	-	-	2.2	Jun-Sep	Meadows and seeps, Marshes and swamps/alkaline or freshwater; 200-2000 ft.	Moderate: There is a recorded occurrence of this species in the Orcutt quadrangle which is located adjacent to the project area. Suitable habitat is present. Moderate: There are several recorded occurrences of this subspecies within 5 miles of the project area. Suitable habitat is present.
<i>Cordylanthus rigidus</i> ssp. <i>littoralis</i> seaside bird's-beak	-	SE	1B.1	Apr-Oct	Closed-cone coniferous forest, Chaparral(maritime), Cismontane woodland, Coastal dunes, Coastal scrub/sandy, often disturbed sites; 0-1400 ft.	Low: There are no recorded occurrences of this subspecies within the project vicinity or surrounding quadrangles. The plant is not known to occur south of the Guadalupe quadrangle. High: There is a recorded occurrence of this subspecies in the immediate vicinity of the project area near the intersection of Campbell Road and Hwy 246. Suitable habitat is present.
<i>Deinandra increscens</i> ssp. <i>foliosa</i> leafy tarplant	-	-	1B.2	Jun-Sep	Valley and foothill grassland/sandy; 980-1640 ft.	Moderate: There is a recorded occurrence of this species in the Los Olivos quadrangle which is located adjacent to the project area. Suitable habitat is present. Low: Known records of this species are restricted to the Santa Ynez Mountains and Burton Mesa. Limited, marginal habitat is present within the project site.
<i>Delphinium parryi</i> ssp. <i>blochmaniae</i> dune larkspur	-	-	1B.2	Apr-May	Chaparral, Coastal dunes; 0-650 ft.	Low: There are no recorded occurrences of this species within the project site or surrounding quadrangles. Habitat conditions are marginal.
<i>Delphinium umbraculorum</i> umbrella larkspur	-	-	1B.3	Apr-Jun	Cismontane woodland; 1300-5250 ft.	Low: There are no recorded occurrences of this species within the project site or surrounding quadrangles. Habitat conditions are marginal.
<i>Eriodictyon capitatum</i> Lompoc yerba santa	FE	SR	1B.2	May-Aug	Closed-cone coniferous forest, Chaparral(maritime)/sandy;130-2950 ft.	Low: Known records of this species are restricted to the San Rafael, Sierra Madre, and Santa Ynez Mountains. Limited, marginal habitat is present within the project site.
<i>Fritillaria ojaiensis</i> Ojai fritillary	-	-	1B.2	Feb-May	Broadleafed upland forest(mesic), Chaparral, Lower montane coniferous forest/rocky; 980-3270 ft.	Low: There are no recorded occurrences of this species within the project site or surrounding quadrangles. Habitat conditions are marginal.
<i>Hordeum intercedens</i> vernal barley	-	-	3.2	Mar-Jun	Coastal dunes, Coastal scrub, Valley and foothill grassland(saline flats and depressions), Vernal pools; 15-3280 ft.	Low: There are no recorded occurrences of this species within the project site or surrounding quadrangles. Habitat conditions are marginal.

Common name ¹ Scientific name	Listing Status ² Federal State CNPS	Flowering Period ³	Habitat Preferences ³	Potential to Occur at the Project Site ⁴
<i>Horkelia cuneata</i> ssp. <i>puberula</i> mesa horkelia	- -	Feb-Jul(Sep)	Chaparral(maritime), Cismontane woodland, Coastal scrub/sandy or gravelly; 230-2650 ft.	Moderate: There are several recorded occurrences of this subspecies within 5 miles of the project area. Suitable habitat is present.
<i>Horkelia cuneata</i> ssp. <i>sericea</i> Kellogg's horkelia	-	Apr-Sep	Closed-cone coniferous forest, Chaparral(maritime), Coastal dunes, Coastal scrub/sandy or gravelly, openings; 33-650 ft.	Moderate: There is an extirpated occurrence of this subspecies in the Lompoc quadrangle. Suitable habitat is present.
<i>Layia heterotricha</i> pale-yellow layia	-	Mar-Jun	Cismontane woodland, Coastal scrub, Pinyon and juniper woodland, Valley and foothill grassland/alkaline or clay; 980-5600 ft.	Moderate: A recorded occurrence of this species is located within 5 miles of the project site near Mission Village. Suitable habitat is present.
<i>Leptosiphon grandiflorus</i> large-flowered leptosiphon	-	Apr-Aug	Coastal bluff scrub, Closed-cone coniferous forest, Cismontane woodland, Coastal dunes, Coastal prairie, Coastal scrub, Valley and foothill grassland/usually sandy; 16-400 ft.	Low: The Consortium of California Herbaria lists a single voucher collection from Santa Barbara County; CNPS states this species has been extirpated from the county. Suitable habitat is present.
<i>Lonicera subspicata</i> var. <i>subspicata</i> Santa Barbara honeysuckle	-	May-Aug(Dec-Feb)	Chaparral, Cismontane woodland, Coastal scrub; 115-3280 ft.	Moderate: A recorded occurrence of this species is located within 5 miles of the project site near La Purisima State Park. Suitable habitat is present.
<i>Malacothrix saxatilis</i> var. <i>arachnoidea</i> Carmel Valley malacothrix	-	(Mar)Jun-Dec	Chaparral(rocky), Coastal scrub; 82-3398 ft.	Low: Only known records in Santa Barbara County are from Little Pine Mountain in the San Rafael Mountains.
<i>Micropus amphibolus</i> Mt. Diablo cottonweed	-	Mar-May	Broadleaved upland forest, Chaparral, Cismontane woodland, Valley and foothill grassland/rocky; 148-2706 ft.	Moderate: There is a recorded occurrence of this species in the Zaca Creek quadrangle which includes a portion of the project area. Suitable habitat is present.
<i>Mimulus fremontii</i> var. <i>vandenbergensis</i> Vandenberg monkeyflower	-	Apr-Jun	Chaparral, Cismontane woodland, Coastal dunes central dune scrub/sandy; often disturbed areas; 246-394 ft.	Moderate: There are several recorded occurrences of this variety within 5 miles of the project site. All known occurrences are on or within close proximity to the Vandenberg Air Force Base. Suitable habitat is present.
<i>Pseudognaphalium leucocephalum</i> white rabbit-tobacco	-	(Jul)Aug-Nov(Dec)	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland/sandy, gravelly; 0-6900 ft.	Moderate: There is a recorded occurrence of this species in the Surf quadrangle which is located adjacent to the project site. Suitable habitat is present.

Common name ¹ Scientific name	Listing Status ² Federal State CNPS	Flowering Period ³	Habitat Preferences ³	Potential to Occur at the Project Site ⁴
				present.
<i>Quercus dumosa</i> Nuttall's scrub oak	- 1B.1	Feb-Apr	Closed-cone coniferous forest, Chaparral, Coastal scrub/sandy, clay loam; 50-1300 ft.	Low: This species seldom occurs north of southern Santa Barbara County. Moderate: This species is largely restricted to Santa Barbara County. Suitable habitat is present.
<i>Quercus parvula</i> var. <i>parvula</i> Santa Cruz Island oak	- 4.2	(Mar)Apr-Jun	Closed-cone coniferous forest, Chaparral, Cismontane woodland; 100-3000 ft.	Moderate: There is a recorded occurrence of this species in the Santa Ynez quadrangle which is located adjacent to the project site. Suitable habitat is present.
<i>Ribes amarum</i> var. <i>hoffmannii</i> Hoffmann's bitter gooseberry	- 3	Mar-Apr	Chaparral, Riparian woodland; 500-3900 ft.	Moderate: There are several recorded occurrences of this species within 5 miles of the project site. Suitable habitat is present.
<i>Scrophularia atrata</i> black-flowered figwort	- 1B.2	Mar-Jul	Closed-cone coniferous forest, Chaparral, Coastal dunes, Coastal scrub, Riparian scrub; 33-1640 ft.	Moderate: There are recorded occurrences of this species in the Lompoc Hills and Santa Ynez quadrangles which are located adjacent to the project site. Suitable habitat is present.
<i>Senecio aphanactis</i> chaparral ragwort	- 2.2	Jan-Apr	Chaparral, Cismontane woodland, Coastal scrub/sometimes alkaline; 50-2625 ft.	Low: There are no recorded occurrences of this species within the project site or surrounding quadrangles. Habitat conditions are marginal.
<i>Thelypteris puberula</i> var. <i>sonorensis</i> Sonoran maiden fern	- 2.2	Jan-Sep	Meadows and seeps(seeps and streams) ; 160-2000 ft.	Low: There is one recorded occurrence in the Santa Ynez quadrangle which is located adjacent to the project site. Limited, marginal habitat is present within the project site
<i>Thermopsis macrophylla</i> Santa Ynez false lupine	- SR 1B.3	Apr-Jun	Chaparral(sandy, granitic, disturbed areas) ; 1390-4600 ft.	

1. Scientific nomenclature based on Hickman (1993) and Jepson Online Interchange (2009); common names from Hickman (1993) and CalFlora (2009).

2. Conservation status definitions are as follows:

U.S. Fish and Wildlife Service designations:

FE Endangered: Any species in danger of extinction throughout all or a significant portion of its range.

California Department of Fish and Game designations:

- SE Endangered: Any species in danger of extinction throughout all or a significant portion of its range.
- SI Threatened: Any species likely to become endangered within the foreseeable future.
- SR Rare: Any species not currently threatened with extinction, but in such small numbers throughout its range that it may become endangered if its present environment worsens.

California Native Plant Society designations:

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

California Native Plant Society threat categories:

- .1 Seriously endangered in California.
- .2 Fairly endangered in California.
- .3 Not very endangered in California.

3. Flowering period and habitat information from the California Native Plant Society's on-line Inventory of Rare and Endangered Plants of California (2009).

4. A plant species was determined to have potential to occur in the project area if its known or expected geographic range includes the vicinity of the project area, and if its known or expected habitat is represented within or near the project area Sources: CNPS 2009, CDFG 2009b, Jepson Online Interchange 2009 and (Smith 1998).

Protocol-level Surveys

The goal of the protocol-level surveys was to locate all populations of special-status plants within project area, and precisely record and map their locations. Protocol-level surveys were floristic, meaning that all plant species encountered were identified to the taxonomic level needed to determine if they have special status. Surveys were conducted according to the botanical survey guidelines of the U.S. Fish and Wildlife Service (USFWS 1996), the California Department of Fish and Game (CDFG 2000), and the California Native Plant Society (CNPS 2001).

Protocol-level surveys were conducted by Garcia and Associates (GANDA) Botanists Eric Wrubel, Kathy Rindlaub and Ed Kentner. Surveyors conducted meandering transects on foot throughout the project site, focusing on microhabitats with higher likelihood to support special-status plants. The project area included the entire 40-foot wide right-of-way between Cabrillo Substation in Lompoc to Santa Ynez Switching Station near Buellton. The survey also included all access roads that may require clearing and grading activities and proposed lay down or staging areas outside the alignment. Existing access roads and proposed overland routes were not specifically included in the survey; however, any special-status species plants observed from the right-of way or while accessing the project area along these designated routes during the surveys were noted. When special-status plants were found, the location, number of individuals, flowering condition, and habitat characteristics were recorded in the field. Population size was determined by counting individuals or by visual estimates, using standard estimation techniques (Elzinga et al. 1998). Information on plant phenology, microhabitat and associated species was also noted for each mapped occurrence.

Two rounds of spring surveys were conducted on the following dates: March 2-6, 2009 and April 20-25, 2009. A third visit is scheduled for July 6-10, 2009. This range of survey dates was selected to encompass the blooming times of all of the special-status plants that could potentially occur within the project area. All areas identified as potential habitat for rare plants were visited during the times when special-status plants associated with those habitat types would be likely to be blooming and/or identifiable.

All plant species found in the project area during the first and second visits were identified to the taxonomic level needed to determine if they have special status. Samples were taken of taxa that could not be identified in the field, and were later identified using The Jepson Manual (Hickman 1993).

Special-status Plant Species observed during first two visits

Five special-status and one locally uncommon plant species have been identified to date within the right-of-way, near access roads or along overland access routes. Four special-status species are located in work areas (Appendix A). Work areas include a 40 by 100 foot area around each pole to be replaced (40 foot-wide right-of-way and fifty feet on either side of each pole). Other work areas include access roads that require clearing and grading and lay down or staging areas.

All special-status species observed during the surveys were documented and mapped, and their locations are shown in Appendix A. Special-status species that were observed within the planned

work areas are discussed below.

Nuttall's milkvetch (*Astragalus nuttallii* var. *nuttallii*) CNPS 4.2

Nuttall's milkvetch is short-statured herbaceous perennial in the pea family (*Fabaceae*). Its stems are prostrate to erect and sometimes grow in dense tangles. Its leaves are odd-1-pinnate with leaflets generally jointed to the midrib. It is distinguished by its lower stipules fused into a sheath around the stem, green color of the foliage, and lack of a stalk-like fruit base. *Astragalus nuttallii* variety *nuttallii* is distinguished by its geographic location in the southern portion of central coastal California. This species is found on ocean bluffs and rocky or sandy areas within its range.

Nuttall's milkvetch is not state or federally listed, but is included on CNPS's List 4, a watch list for plants of limited distribution or infrequent occurrences throughout a broader area in California. This species has a threat code of 2 meaning it is fairly threatened in California (CNPS 2009).

Nuttall's milkvetch is widely scattered in grasslands and access roads on sandy soils between poles 106 and 108, and was found in the Bobcat Springs area between poles 116 -121 and near pole 121 (Appendix A, Maps 30, 32 and 33). A population of approximately 20 individuals was also observed growing within the existing access road near pole 108 (Appendix A, Map 30). This species is common along access roads in the vicinity of the survey area, and vehicle travel on these roads is not expected to have a significant impact on this occurrence. Avoidance can be achieved through pre-construction flagging of this species within work areas.

Sand buck brush (*Ceanothus cuneatus* var. *fascicularis*)

Sand buck brush is a 3 to 7-foot tall shrub in the buckthorn family (*Rhamnaceae*). It has slender, flexible, arched branches with opposite leaves, ± flat leaf blades that are narrowly oblanceolate to round-obovate, and leaf margins that are generally entire. *Ceanothus. cuneatus* variety *fascicularis* is distinguished by its blue to pale-blue flowers and narrowly oblanceolate closely clustered leaves. It is known from chaparral and coastal sandy mesas below 1300 feet in Santa Barbara and San Luis Obispo Counties.

Sand buck brush is not state or federally listed, but is included on CNPS's List 4, a watch list for plants of limited distribution or infrequent occurrences throughout a broader area in California. This species has a threat code of 2 meaning it is fairly threatened in California (CNPS 2009).

Sand buck brush was found during the surveys in open oak woodlands on sandy soils, associated with coast live oak (*Quercus agrifolia*) and non-native annual grass species. A large sand buckbrush individual was found within the planned disturbance area on the east side of pole 111 (Appendix A, Map 31). Scattered individuals were also observed in the vicinity of an overland access route near poles 115 and numerous individuals were found in the chaparral habitat around pole 129 (Appendix A, Maps 32 and 36). Avoidance can be achieved through pre-construction flagging of this species within work areas.

San Luis Obispo wallflower (*Erysimum capitatum* ssp. *lompocense*) CNPS 4.2

San Luis Obispo wallflower is an orange to yellow-flowered biennial or short-lived perennial in the mustard family (*Brassicaceae*) that is generally between 20 and 40 inches tall. *Erysimum capitatum* variety *lompocense* is distinguished by its elongate caudex, narrowly lanceolate lower leaves, and spreading, ± flattened, generally irregularly curved fruit. It is found on sandy hillsides and mesas in the outer South Coast Ranges.

This species is not state or federally listed, but is included on CNPS's List 4, a watch list for plants of limited distribution or infrequent occurrences throughout a broader area in California. This variety has a threat code of 2 meaning it is fairly threatened in California (CNPS 2009).

San Luis Obispo wallflower was found in several locations within the right-of-way during the surveys, but only one individual was found in a planned disturbance area, at pole 97 about 6.5 feet west of the pole (Appendix A, map 27). This pole is slated for replacement using a helicopter, which will limit the amount of ground disturbance in this area. Avoidance can be achieved through pre-construction flagging of this species within work areas.

Mesa horkelia (*Horkelia cuneata* ssp. *puberula*) CNPS 1B.1

Mesa horkelia is a low-growing herbaceous perennial in the rose family (*Rosaceae*). It has a matted growth form, with green or grayish pinnately divided leaves and white flowers. It is generally found in dry, sandy habitats of the south coast and south coast ranges. *Horkelia cuneata* subspecies *cuneata* is distinguished from other *H. cuneata* subspecies by its glandular-hairy foliage and the glabrous inner rim of its hypanthium and it tends to be found in more inland locations than the other *H. cuneata* subspecies.

This species is not state or federally listed, but is included on CNPS's List 1B, meaning that it is rare, threatened or endangered in California and elsewhere. This variety has a threat code of 1 meaning it is seriously endangered in California (CNPS 2009).

Mesa horkelia was found at one location during the surveys. A population of approximately 20 individuals was located within the ROW between poles 61 and 62 (Appendix A, map 17). The population is not located in a planned disturbance area or access route.

California spineflower (*Mucronea californica*) CNPS 4.2

California spineflower is a diminutive annual plant in the buckwheat family (*Polygonaceae*). Its small, white to pink flowers are subtended by spiny bracts. It is distinguished from the only other *Mucronea* species in California by its bracts occurring on only one side of the stem and its entire perianth lobes. It is known from sandy soils near the coast and in the coastal ranges of central and southern California in coastal scrub and chaparral vegetation.

This species is not state or federally listed, but is included on CNPS's List 4, a watch list for plants of limited distribution or infrequent occurrences throughout a broader area in California. This variety has a threat code of 2 meaning it is fairly threatened in California (CNPS 2009).

California spineflower was found in one location during the surveys, near a planned overland access route to pole 121 (Appendix A, map 33). A small population of five individuals was observed in sandy soils at this location during the April surveys. The population is not located in a planned disturbance area, and is not in the path of the planned overland access route.

Desert Scrub Oak (*Quercus Palmeri*)

An individual desert scrub oak (*Quercus palmeri*) was found in the planned disturbance area at pole 111 (Appendix A, map 31). It is a large (6.5 feet tall) shrub located on the northwest side of the pole. Pre-construction flagging can be used to avoid this species within the pole work area. Desert scrub oak does not have statewide special-status, but is locally uncommon in Santa Barbara County (Smith 1998, Jepson Online Interchange 2009).

Areas to visit in third survey

A third survey scheduled for July 6-10, 2009 will include habitat that could support late-blooming sensitive species (Appendix A. maps 1-37, identified in purple). Potential habitat for late blooming special-status plant species in the survey area includes California Annual Grassland on sandy soils, Central Coast (Lucian) Scrub, Coast Live Oak Woodland, Mule Fat Scrub, Riparian Scrub, and Chamise Chaparral. A small stand of Chamise Chaparral was found within the survey area at pole 129 (Appendix A, map 36). Chamise Chaparral was not previously identified in the Biological Resources Technical Report as a vegetation type occurring within the survey area.

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Appendix A:

**Locations of Special-Status Species Observed in March and April
2009
and Areas Remaining to be Surveyed**



Rare Plant Survey Map 1
Cabrillo - Santa Ynez
115kV Reconductoring Project

Remaining Rare Plant
 Survey Areas: July 2009

Rare Plant Occurrences

County Roads

- Existing Access Road
- Existing Access Road Reestablished
- Through Grading and Vegetation Removal
- Overland Access Route

Laydown Area for Helicopter

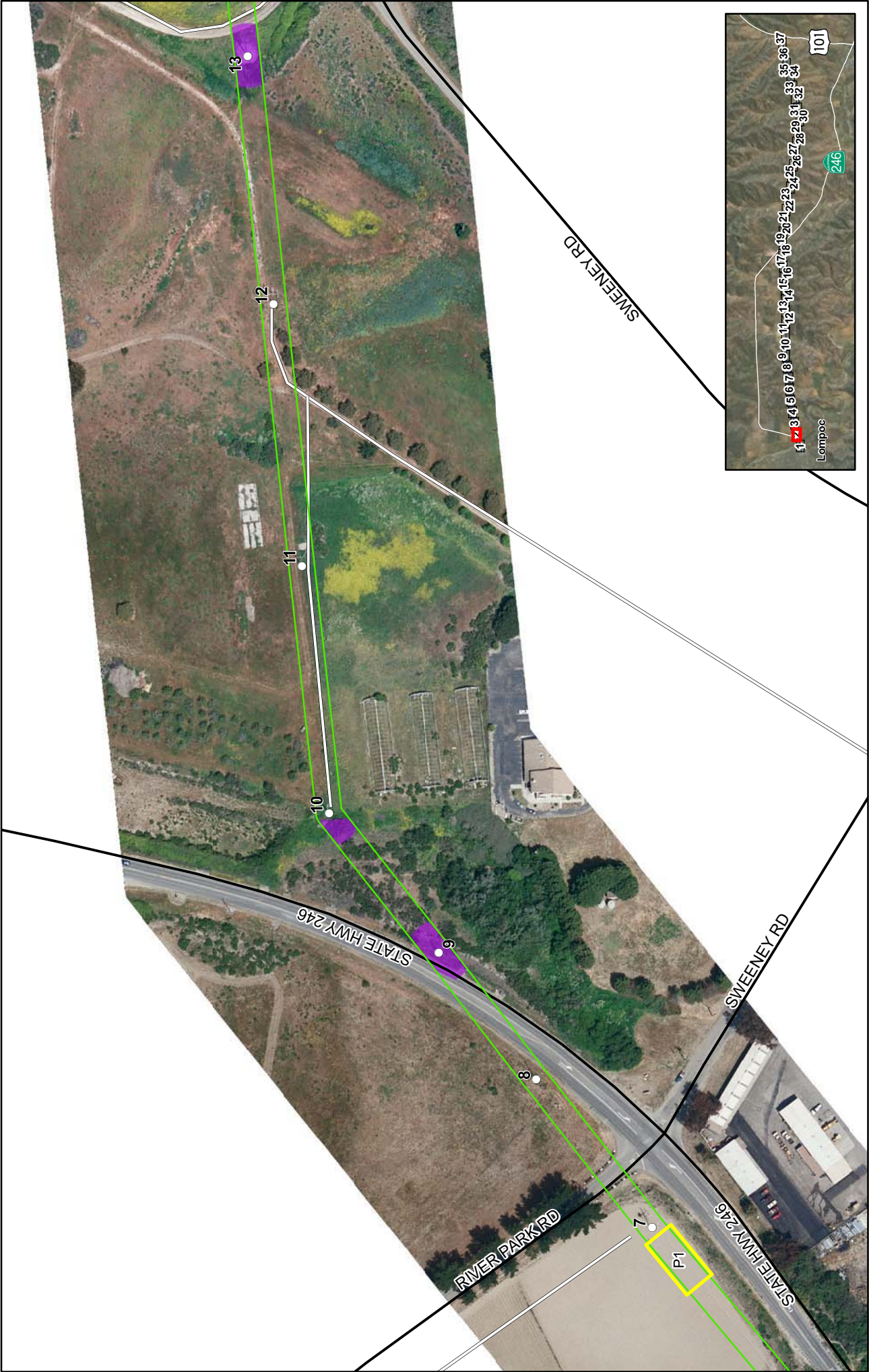
- Potential Lay Down Area
- Potential Pull and Tension Site
- Potential Staging Area
- Rivers/Creeks

Power Poles to be Replaced

- Power Poles Replaced by Helicopter
- Existing Power Poles
- Power Pole Sites with Expected Tree Management
- Power Line ROW (40')

Scale: 1:2,400

PC&E



Rare Plant Survey Map 2
 Cabrillo - Santa Ynez
 115kV Reconductoring Project

Scale: 1:2,400

0 100 200 Feet

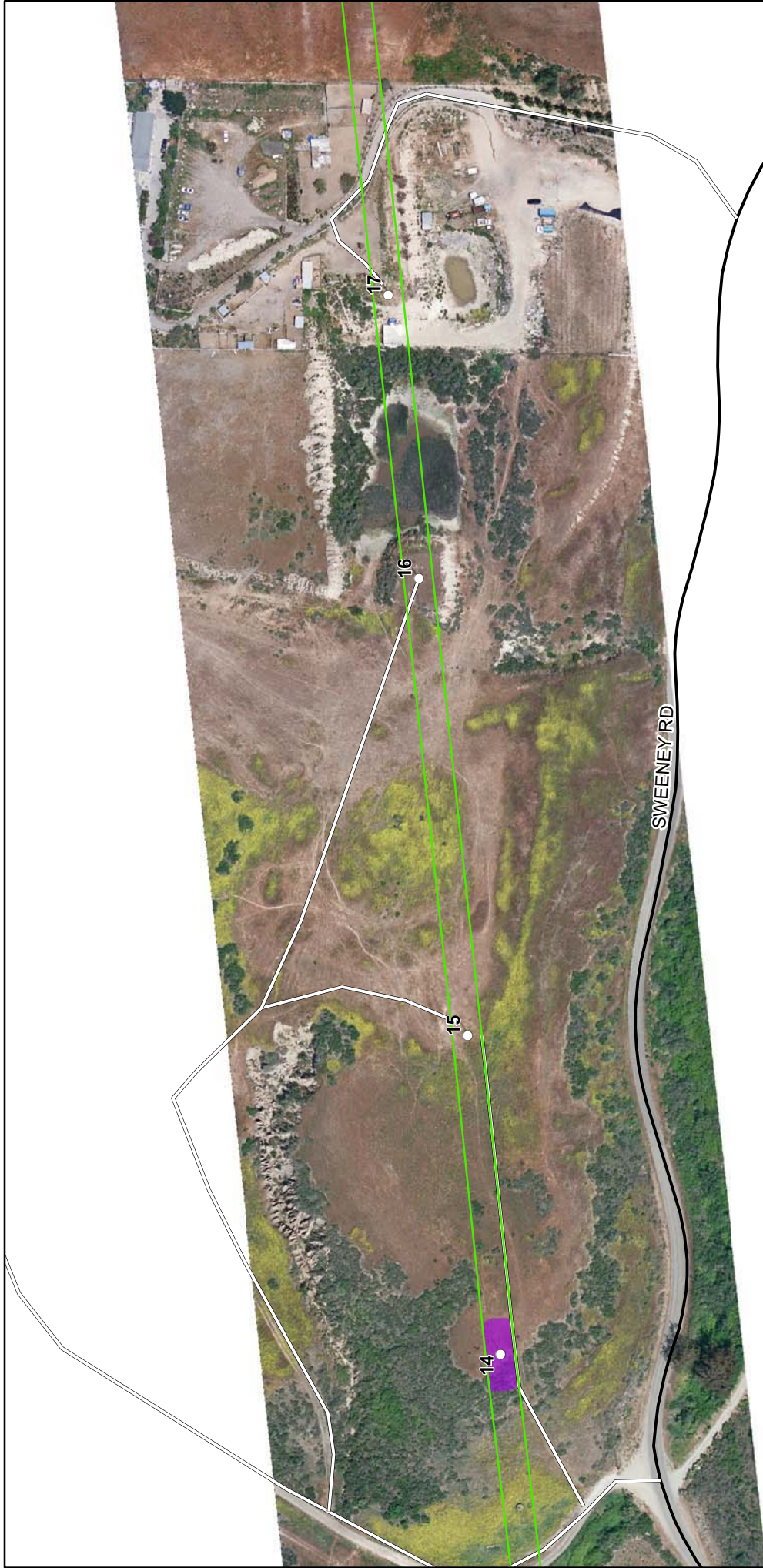
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Remaining Rare Plant Survey Areas: July 2009

Rare Plant Occurrences

PC&E

- Power Poles to be Replaced
- Power Poles Replaced by Helicopter
- Existing Power Poles
- Power Pole Sites with Expected Tree Management
- Power Line ROW (40')
- H Laydown Area for Helicopter
- Potential Lay Down Area
- Potential Pull and Tension Site
- Potential Staging Area
- ~ Rivers/Creeks
- ~ County Roads
- ~ Existing Access Road
- ~ Existing Access Road Reestablished
- ~ Through Grading and Vegetation Removal
- ~ Overland Access Route
- Rare Plant Occurrences
- ▲ Remaining Rare Plant Survey Areas: July 2009



Rare Plant Survey Map 3
 Cabrillo - Santa Ynez
 115kV Reconductoring Project

Scale: 1:2,400

Remaining Rare Plant Survey Areas: July 2009

Rare Plant Occurrences

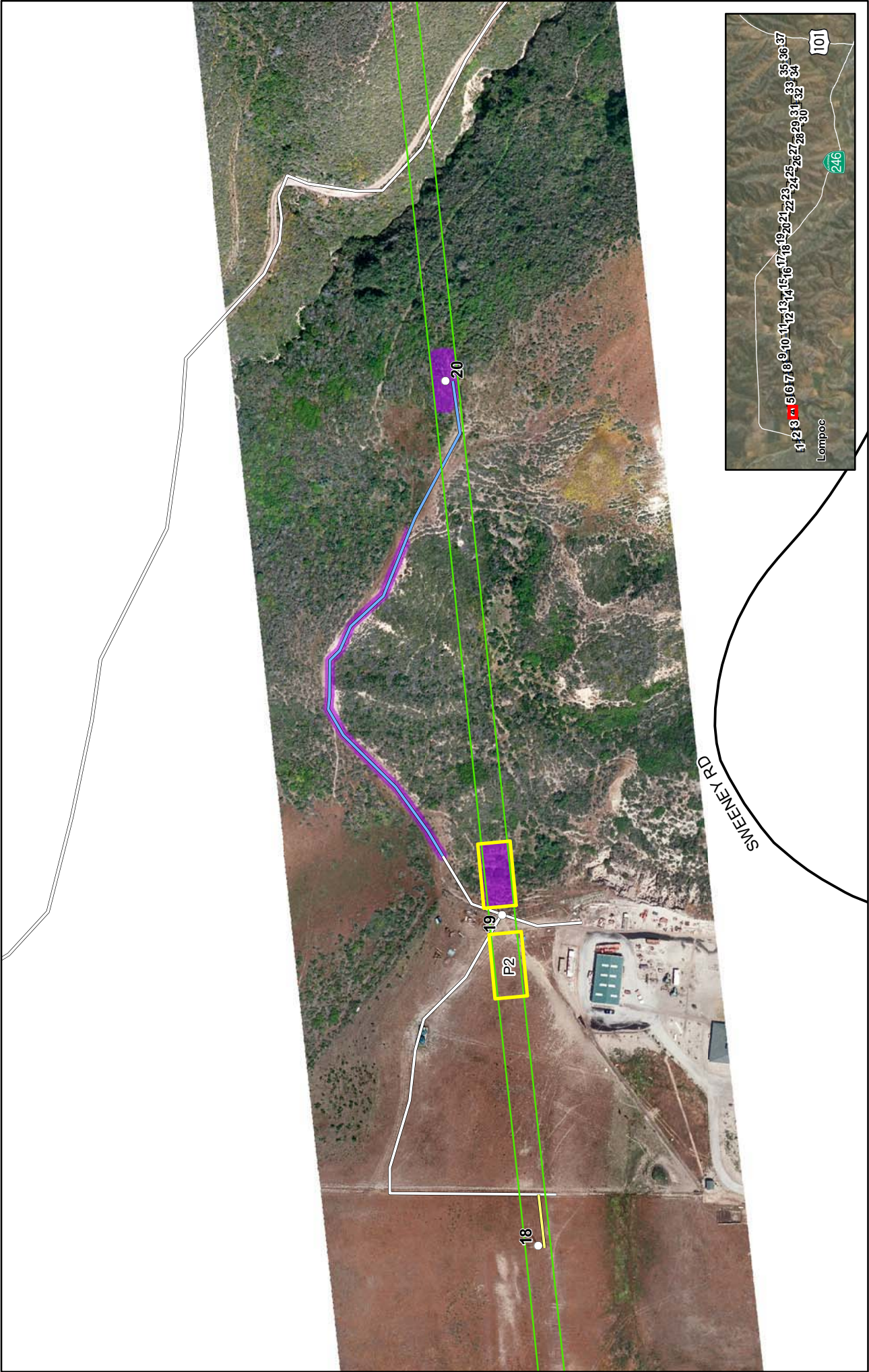
PC&E

- Power Poles to be Replaced
- Power Poles Replaced by Helicopter
- Existing Power Poles
- Power Pole Sites with Expected Tree Management
- Power Line ROW (40')

- H Laydown Area for Helicopter
- Potential Lay Down Area
- Potential Pull and Tension Site
- Potential Staging Area
- ~ Rivers/Creeks

- ∩ County Roads
- ∩ Existing Access Road
- ∩ Existing Access Road Reestablished
- ∩ Through Grading and Vegetation Removal
- ∩ Overland Access Route

Rare Plant Occurrences



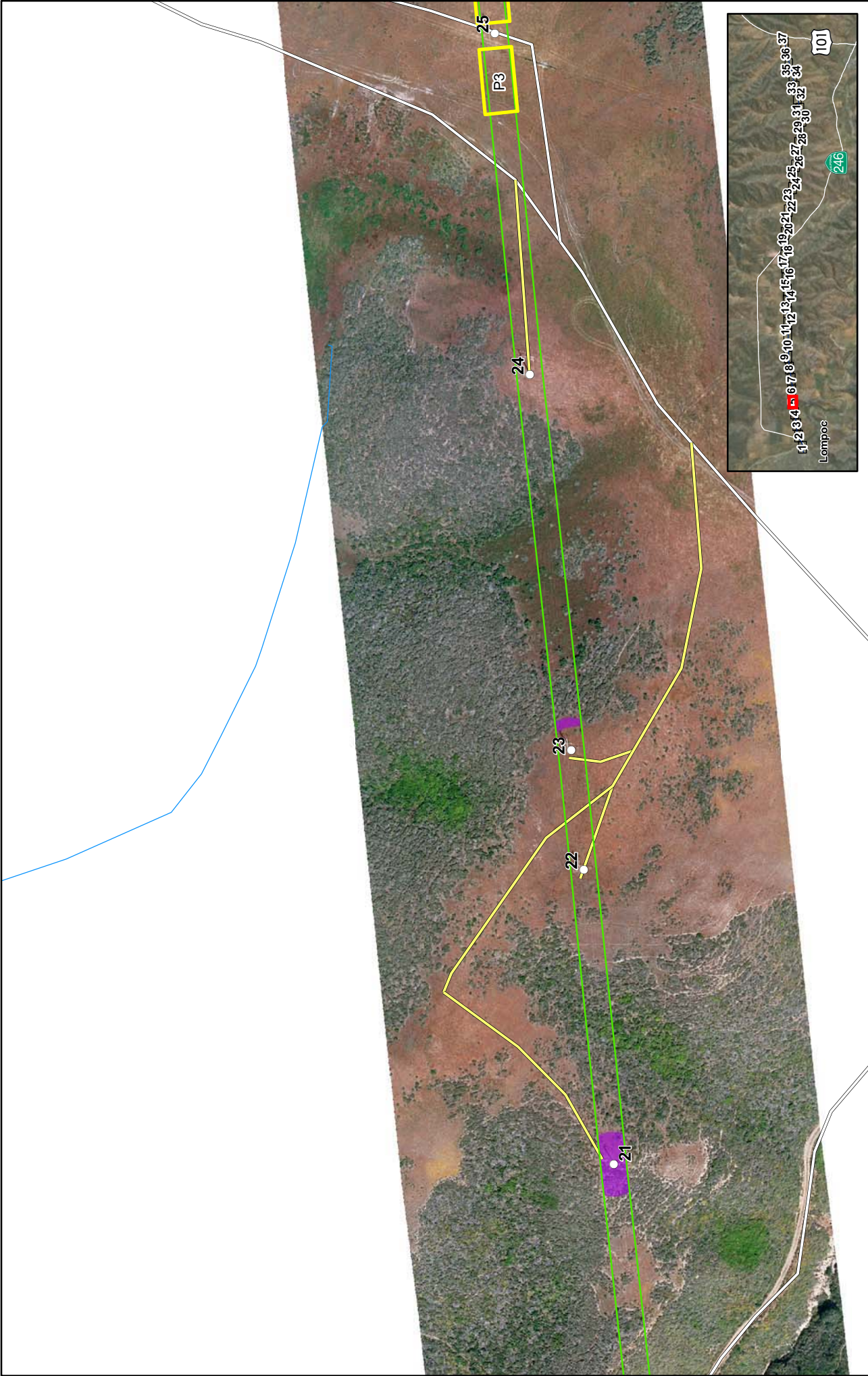
Rare Plant Survey Map 4
 Cabrillo - Santa Ynez
 115kV Reconductoring Project

Remaining Rare Plant Survey Areas: July 2009

Rare Plant Occurrences

Scale: 1:2,400
 0 100 200 Feet

PC&E



Rare Plant Survey Map 5
 Cabrillo - Santa Ynez
 115kV Reconductoring Project

Remaining Rare Plant Survey Areas: July 2009

Rare Plant Occurrences

PC&E

Scale: 1:2,400

0 100 200 Feet

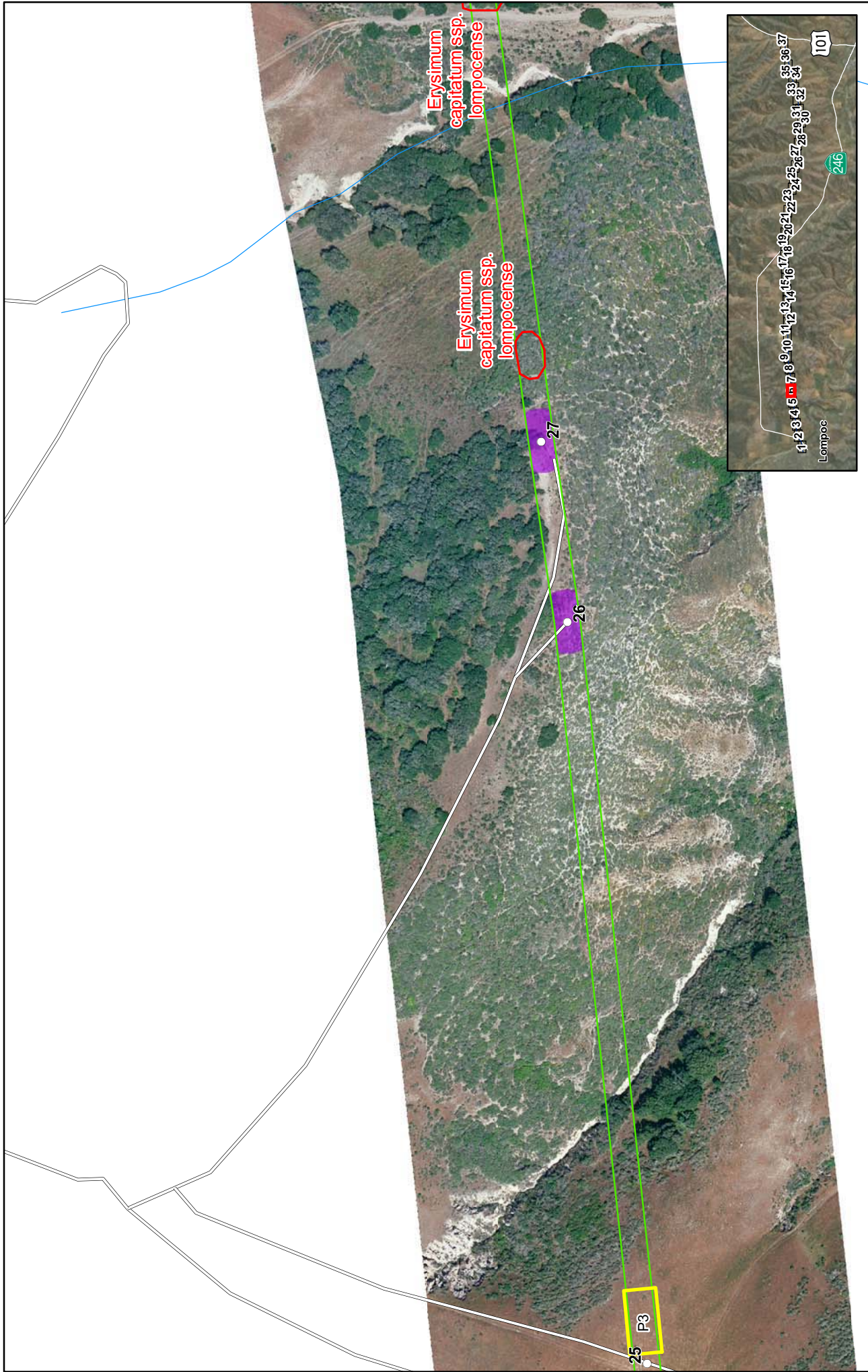
N

- Power Poles to be Replaced
- Power Poles Replaced by Helicopter
- Existing Power Poles
- Power Pole Sites with Expected Tree Management
- Power Line ROW (40')

- Laydown Area for Helicopter
- Potential Lay Down Area
- Potential Pull and Tension Site
- Potential Staging Area
- Rivers/Creeks

- County Roads
- Existing Access Road
- Existing Access Road Reestablished
- Through Grading and Vegetation Removal
- Overland Access Route

- Rare Plant Occurrences



Rare Plant Survey Map 6
 Cabrillo - Santa Ynez
 115kV Reconductoring Project

Remaining Rare Plant Survey Areas: July 2009

Rare Plant Occurrences

○ Power Poles to be Replaced
 ● Power Poles Replaced by Helicopter
 ● Existing Power Poles
 ● Power Pole Sites with Expected Tree Management
 □ Power Line ROW (40')

H Laydown Area for Helicopter
 □ Potential Lay Down Area
 □ Potential Pull and Tension Site
 □ Potential Staging Area
 ~ Rivers/Creeks

〰 County Roads
 〰 Existing Access Road
 〰 Existing Access Road Reestablished
 〰 Through Grading and Vegetation Removal
 〰 Overland Access Route

■ Rare Plant Occurrences
 ▲

■ Remaining Rare Plant Survey Areas: July 2009
 ■ Rare Plant Occurrences

0 100 200 Feet
 Scale: 1:2,400
 N

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37
 Lompoc

246
 101

PC&E



Rare Plant Survey Map 7
 Cabrillo - Santa Ynez
 115kV Reconductoring Project

Remaining Rare Plant Survey Areas: July 2009

Rare Plant Occurrences

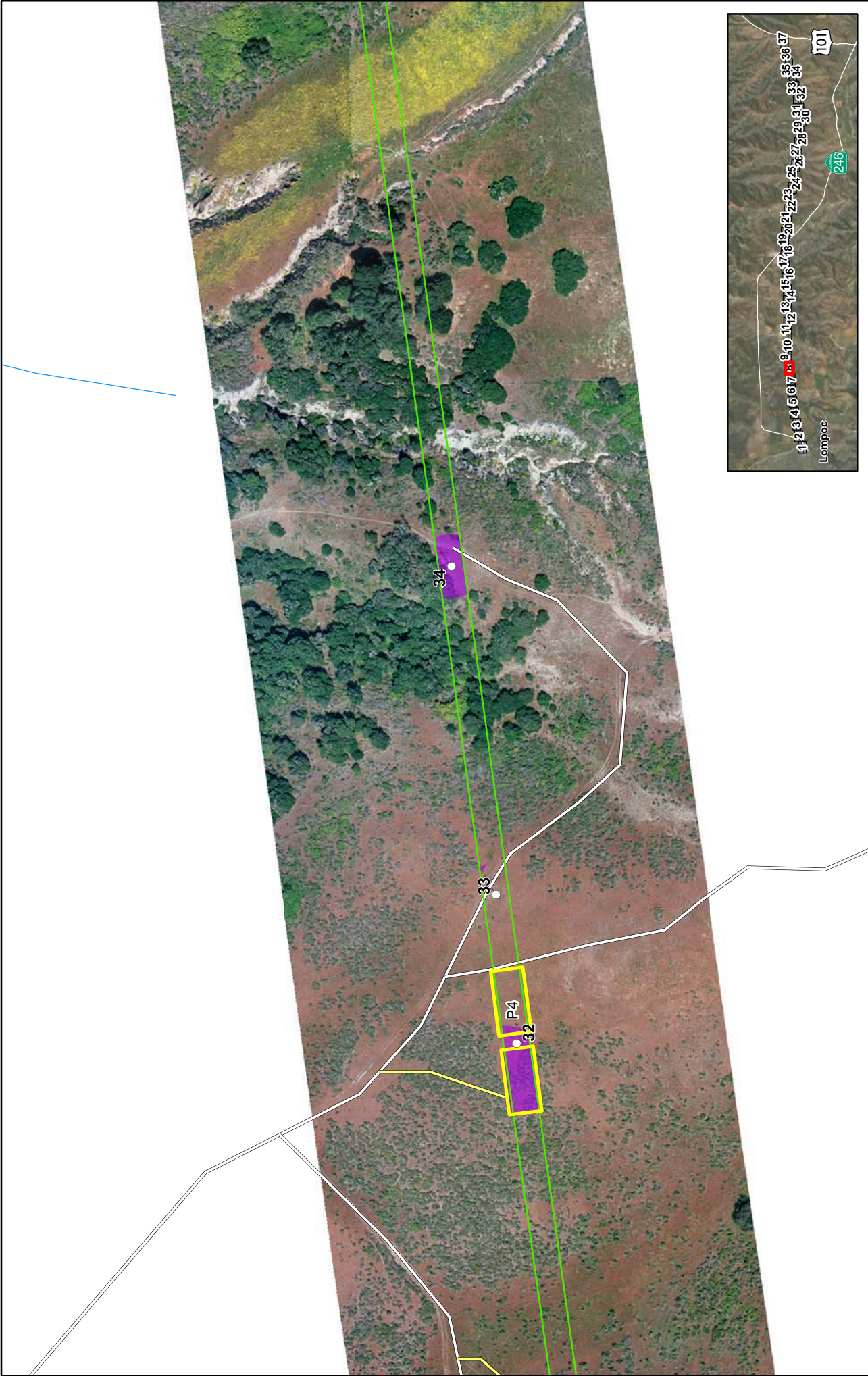
Remaining Rare Plant Survey Areas: July 2009
 Power Line ROW (40')
 Power Poles to be Replaced
 Power Poles Replaced by Helicopter
 Existing Power Poles
 Power Pole Sites with Expected Tree Management
 Power Line ROW (40')

Laydown Area for Helicopter
 Potential Lay Down Area
 Potential Pull and Tension Site
 Potential Staging Area
 Rivers/Creeks

County Roads
 Existing Access Road
 Existing Access Road Reestablished Through Grading and Vegetation Removal
 Overland Access Route

Rare Plant Occurrences
 Rare Plant Occurrences

0 100 200 Feet
 Scale: 1:2,400



- Power Poles to be Replaced
- Power Poles Replaced by Helicopter
- Existing Power Poles
- Power Pole Sites with Expected Tree Management
- Power Line ROW (40')

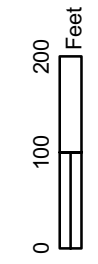
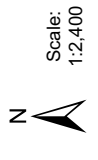
- H Laydown Area for Helicopter
- Potential Lay Down Area
- Potential Pull and Tension Site
- Potential Staging Area
- ~ Rivers/Creeks

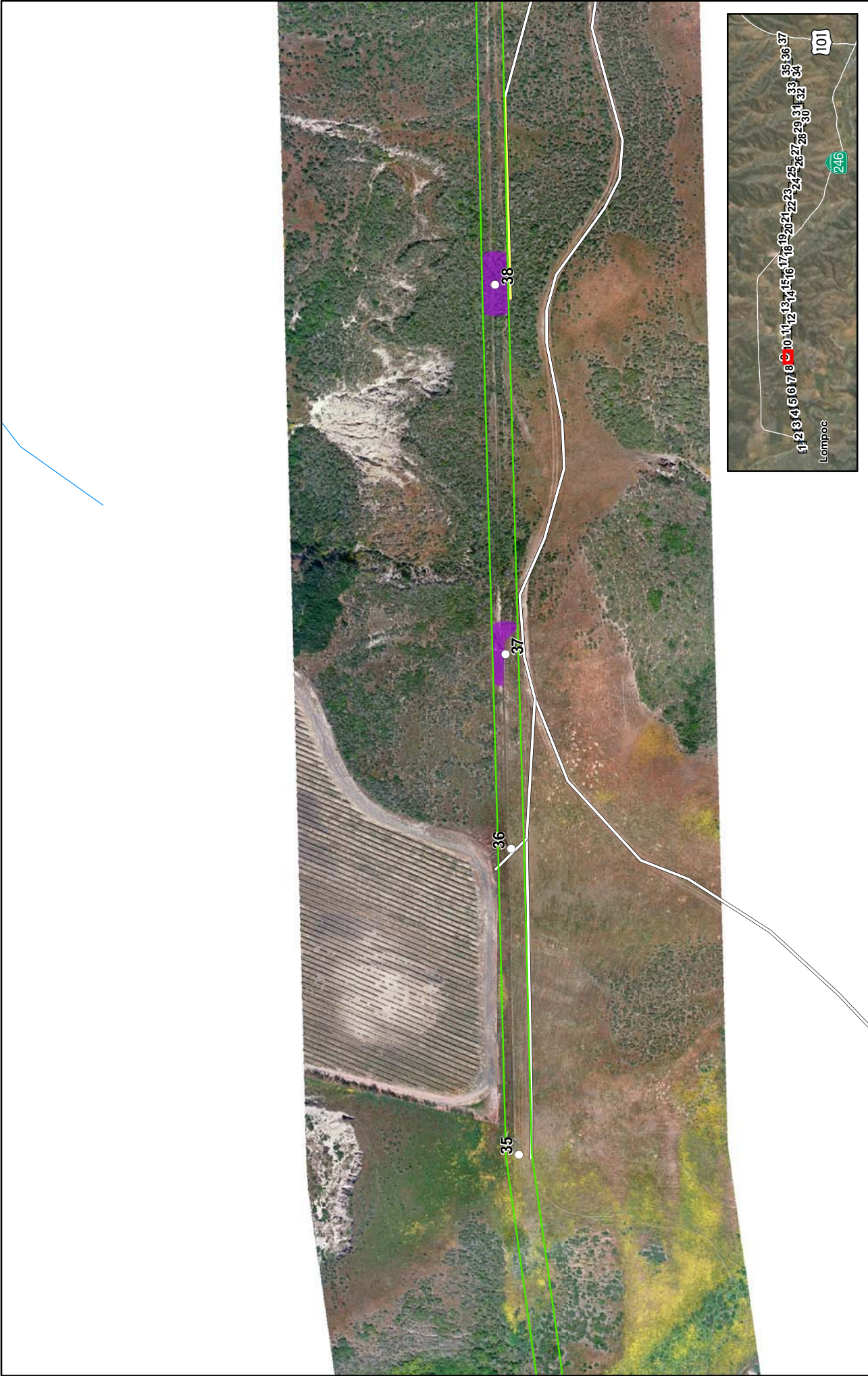
- County Roads
- Existing Access Road
- Existing Access Road Reestablished
- Through Grading and Vegetation Removal
- Overland Access Route

- Remaining Rare Plant Survey Areas: July 2009
- Rare Plant Occurrences

Rare Plant Survey Map 8
Cabrillo - Santa Ynez
115kV Reconductoring Project

Scale: 1:2,400





Rare Plant Survey Map 9
 Cabrillo - Santa Ynez
 115kV Reconductoring Project

Remaining Rare Plant Survey Areas: July 2009

Rare Plant Occurrences

Remaining Rare Plant Survey Areas: July 2009
 Rare Plant Occurrences

County Roads
 Existing Access Road
 Existing Access Road Reestablished
 Through Grading and Vegetation Removal
 Overland Access Route

Laydown Area for Helicopter
 Potential Lay Down Area
 Potential Pull and Tension Site
 Potential Staging Area
 Rivers/Creeks

Power Poles to be Replaced
 Power Poles Replaced by Helicopter
 Existing Power Poles
 Power Pole Sites with Expected Tree Management
 Power Line ROW (40')

N
 0 100 200 Feet
 Scale: 1:2,400



Rare Plant Survey Map 10
 Cabrillo - Santa Ynez
 115kV Reconductoring Project

Remaining Rare Plant Survey Areas: July 2009

Rare Plant Occurrences

PC&E

Scale: 1:2,400

0 100 200 Feet

N

- Power Poles to be Replaced
- Power Poles Replaced by Helicopter
- Existing Power Poles
- Power Pole Sites with Expected Tree Management
- Power Line ROW (40')

- Laydown Area for Helicopter
- Potential Lay Down Area
- Potential Pull and Tension Site
- Potential Staging Area
- Rivers/Creeks

- County Roads
- Existing Access Road
- Existing Access Road Reestablished
- Through Grading and Vegetation Removal
- Overland Access Route

- Rare Plant Occurrences



Rare Plant Survey Map 11
 Cabrillo - Santa Ynez
 115kV Reconductoring Project

Remaining Rare Plant Survey Areas: July 2009

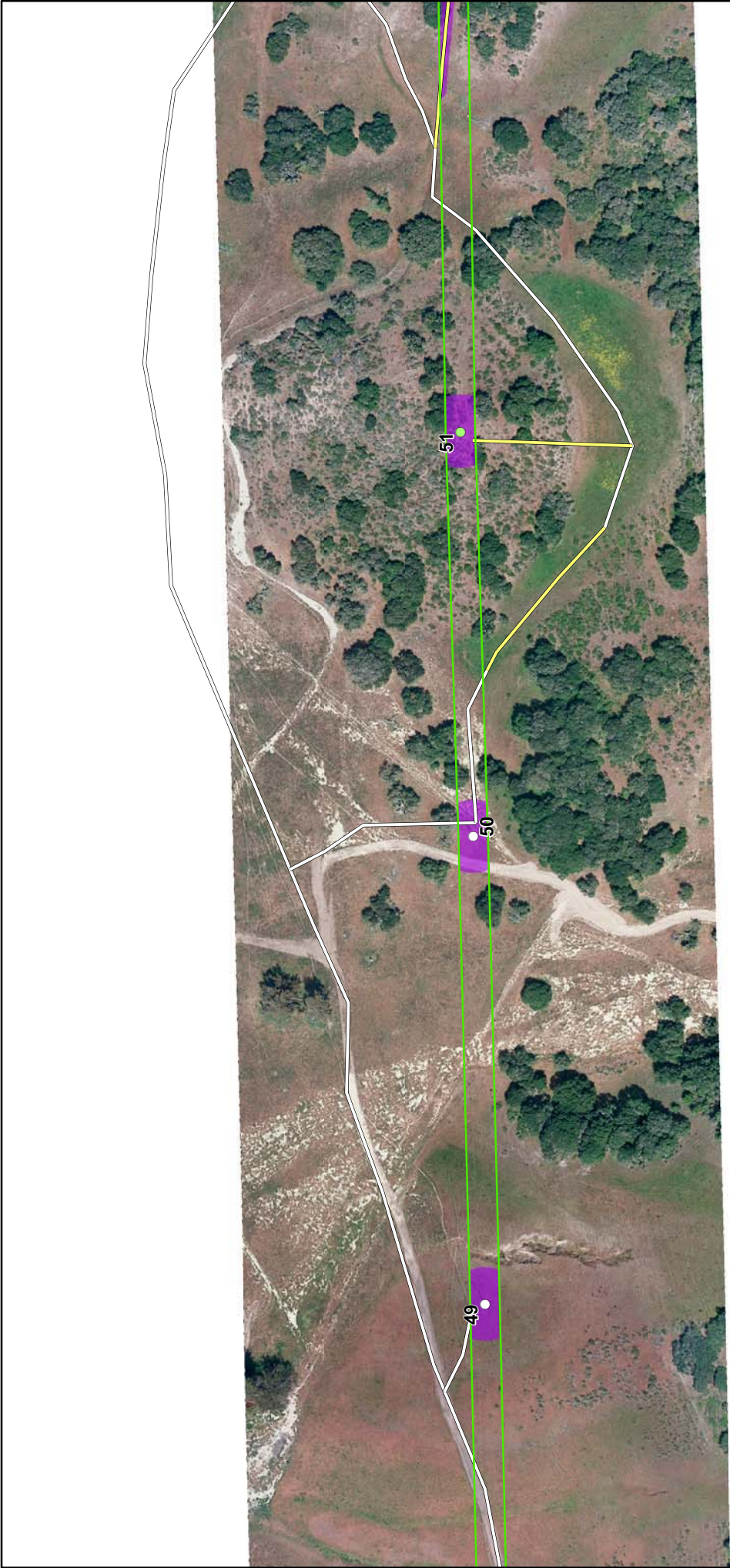
Rare Plant Occurrences

Power Poles to be Replaced
 Power Poles Replaced by Helicopter
 Existing Power Poles
 Power Pole Sites with Expected Tree Management
 Power Line ROW (40')
 Laydown Area for Helicopter
 Potential Lay Down Area
 Potential Pull and Tension Site
 Potential Staging Area
 Rivers/Creeks
 County Roads
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 Existing Access Road Reestablished Through Grading and Vegetation Removal
 Overland Access Route
 Rare Plant Occurrences
 Rare Plant Occurrences

Scale: 1:2,400
 0 100 200 Feet
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<ul style="list-style-type: none"> Power Poles to be Replaced Power Poles Replaced by Helicopter Existing Power Poles Power Pole Sites with Expected Tree Management Power Line ROW (40') 	<ul style="list-style-type: none"> Laydown Area for Helicopter Potential Lay Down Area Potential Pull and Tension Site Potential Staging Area Rivers/Creeks 	<ul style="list-style-type: none"> County Roads Existing Access Road Existing Access Road Reestablished Through Grading and Vegetation Removal Overland Access Route 	<ul style="list-style-type: none"> Remaining Rare Plant Survey Areas: July 2009 Rare Plant Occurrences 	<p>Rare Plant Survey Map 12 Cabrillo - Santa Ynez 115kV Reconductoring Project</p> <p>Scale: 1:2,400</p> <p>0 100 200 Feet</p> <p>N </p>
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Rare Plant Survey Map 13
 Cabrillo - Santa Ynez
 115kV Reconductoring Project

0 100 200 Feet

Scale: 1:2,400

Remaining Rare Plant Survey Areas: July 2009

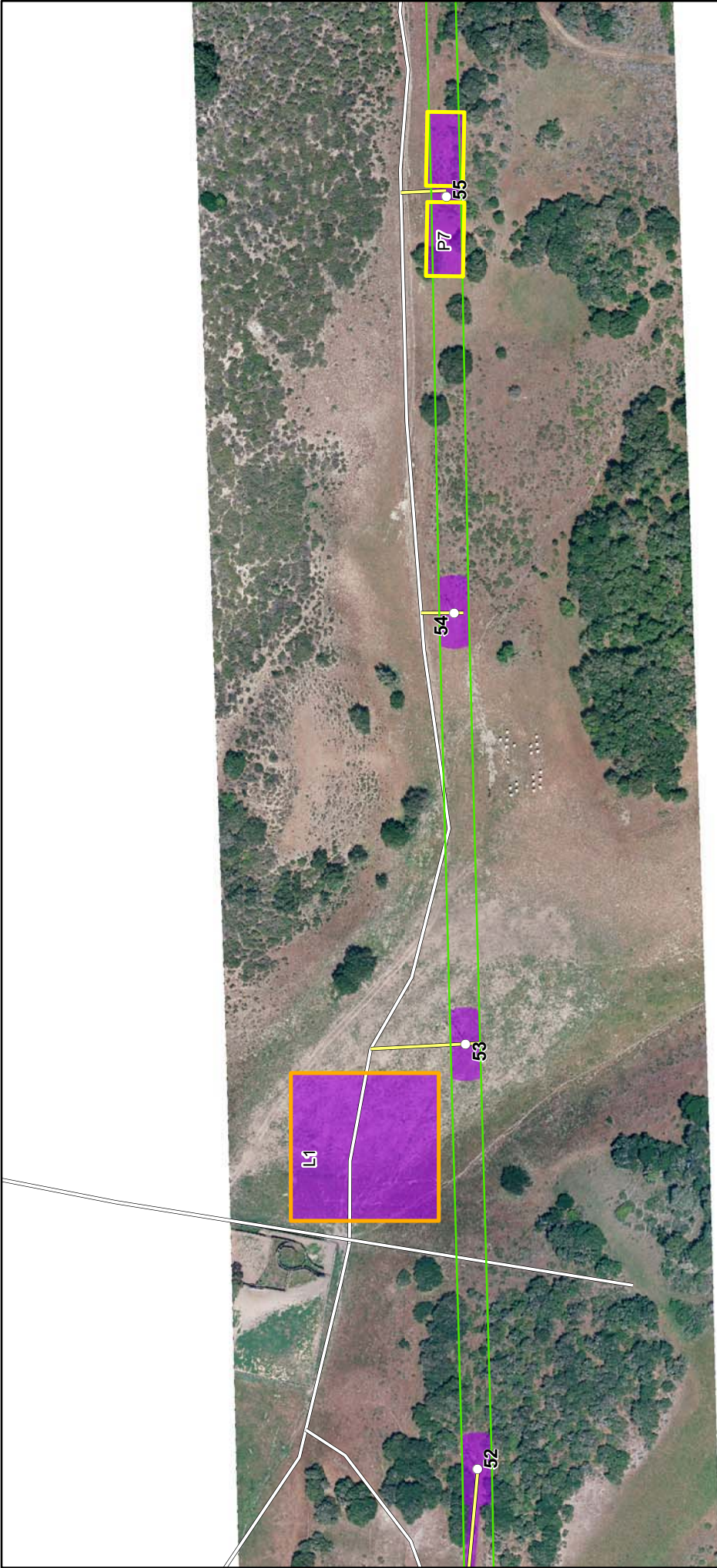
Rare Plant Occurrences

Rare Plant Occurrences
 Rare Plant Occurrences
 Rare Plant Occurrences

County Roads
 Existing Access Road
 Existing Access Road Reestablished
 Through Grading and Vegetation Removal
 Overland Access Route

Laydown Area for Helicopter
 Potential Lay Down Area
 Potential Pull and Tension Site
 Potential Staging Area
 Rivers/Creeks

Power Poles to be Replaced
 Power Poles Replaced by Helicopter
 Existing Power Poles
 Power Pole Sites with Expected Tree Management
 Power Line ROW (40')



- Power Poles to be Replaced
- Power Poles Replaced by Helicopter
- Existing Power Poles
- Power Pole Sites with Expected Tree Management
- Power Line ROW (40')

- H** Laydown Area for Helicopter
- Potential Lay Down Area
- Potential Pull and Tension Site
- Potential Staging Area
- ~ Rivers/Creeks

- ∩ County Roads
- ∩ Existing Access Road
- ∩ Existing Access Road Reestablished
- ∩ Through Grading and Vegetation Removal
- ∩ Overland Access Route

- Remaining Rare Plant Survey Areas: July 2009
- Rare Plant Occurrences



Rare Plant Survey Map 14
 Cabrillo - Santa Ynez
 115kV Reconductoring Project





Rare Plant Survey Map 15
 Cabrillo - Santa Ynez
 115kV Reconductoring Project

0 100 200 Feet

Scale: 1:2,400

Remaining Rare Plant
 Survey Areas: July 2009

Rare Plant Occurrences

- Power Poles to be Replaced
- Power Poles Replaced by Helicopter
- Existing Power Poles
- Power Pole Sites with Expected Tree Management
- Power Line ROW (40')
- Laydown Area for Helicopter
- Potential Lay Down Area
- Potential Pull and Tension Site
- Potential Staging Area
- Rivers/Creeks
- County Roads
- Existing Access Road
- Existing Access Road Reestablished
- Through Grading and Vegetation Removal
- Overland Access Route
- Remaining Rare Plant Survey Areas: July 2009
- Rare Plant Occurrences



Rare Plant Survey Map 16
 Cabrillo - Santa Ynez
 115kV Reconductoring Project

Remaining Rare Plant Survey Areas: July 2009

Rare Plant Occurrences

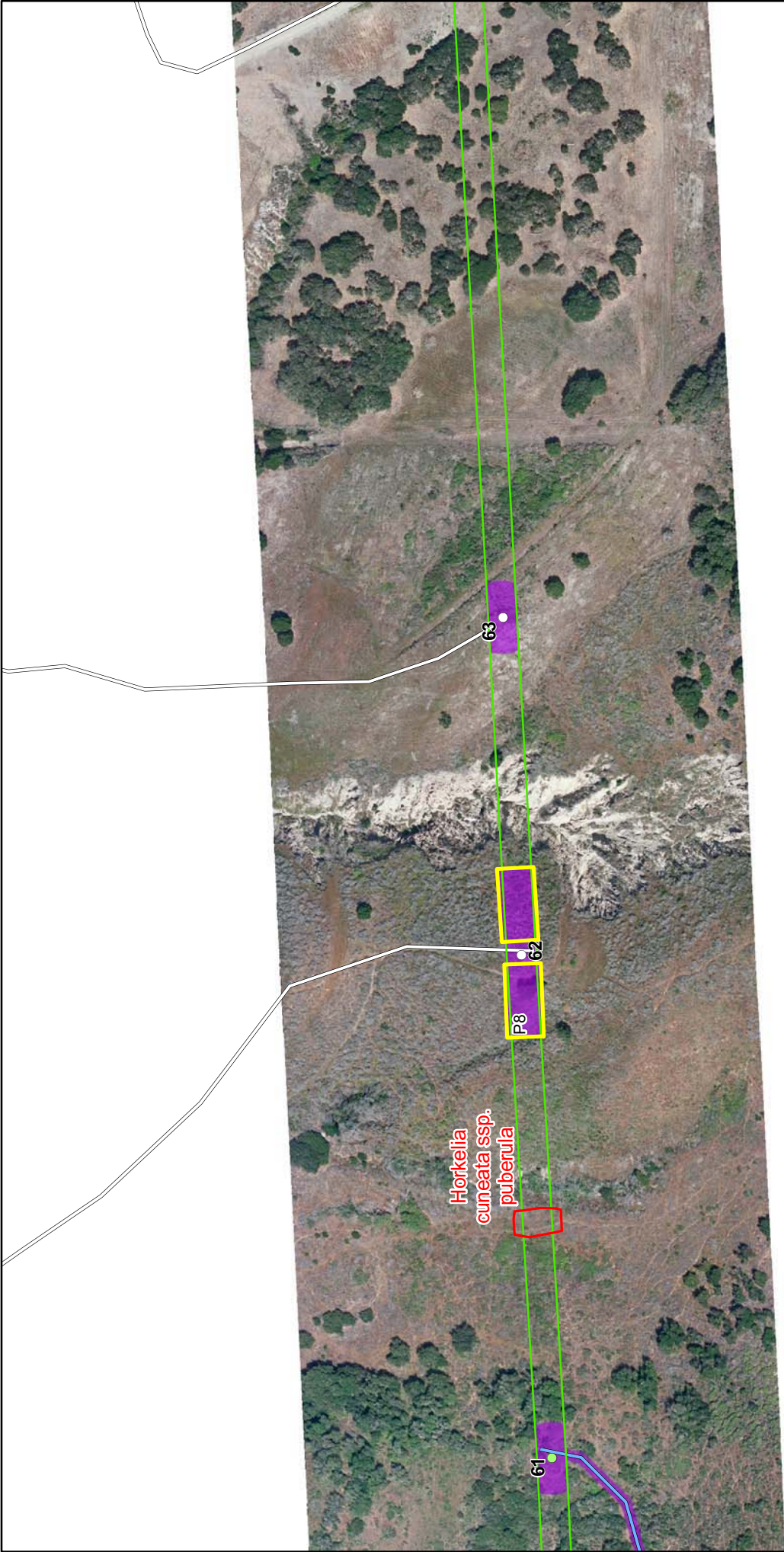
Rare Plant Occurrences
 Rare Plant Occurrences
 County Roads
 Existing Access Road
 Existing Access Road Reestablished
 Through Grading and Vegetation Removal
 Overland Access Route
 Laydown Area for Helicopter
 Potential Lay Down Area
 Potential Pull and Tension Site
 Potential Staging Area
 Rivers/Creeks
 Power Poles to be Replaced
 Power Poles Replaced by Helicopter
 Existing Power Poles
 Power Pole Sites with Expected Tree Management
 Power Line ROW (40')

Scale: 1:2,400

0 100 200 Feet

N

PC&E



Rare Plant Survey Map 17
 Cabrillo - Santa Ynez
 115kV Reconductoring Project

Remaining Rare Plant Survey Areas: July 2009

Rare Plant Occurrences

PC&E

- Power Poles to be Replaced
- Power Poles Replaced by Helicopter
- Existing Power Poles
- Power Pole Sites with Expected Tree Management
- Power Line ROW (40')

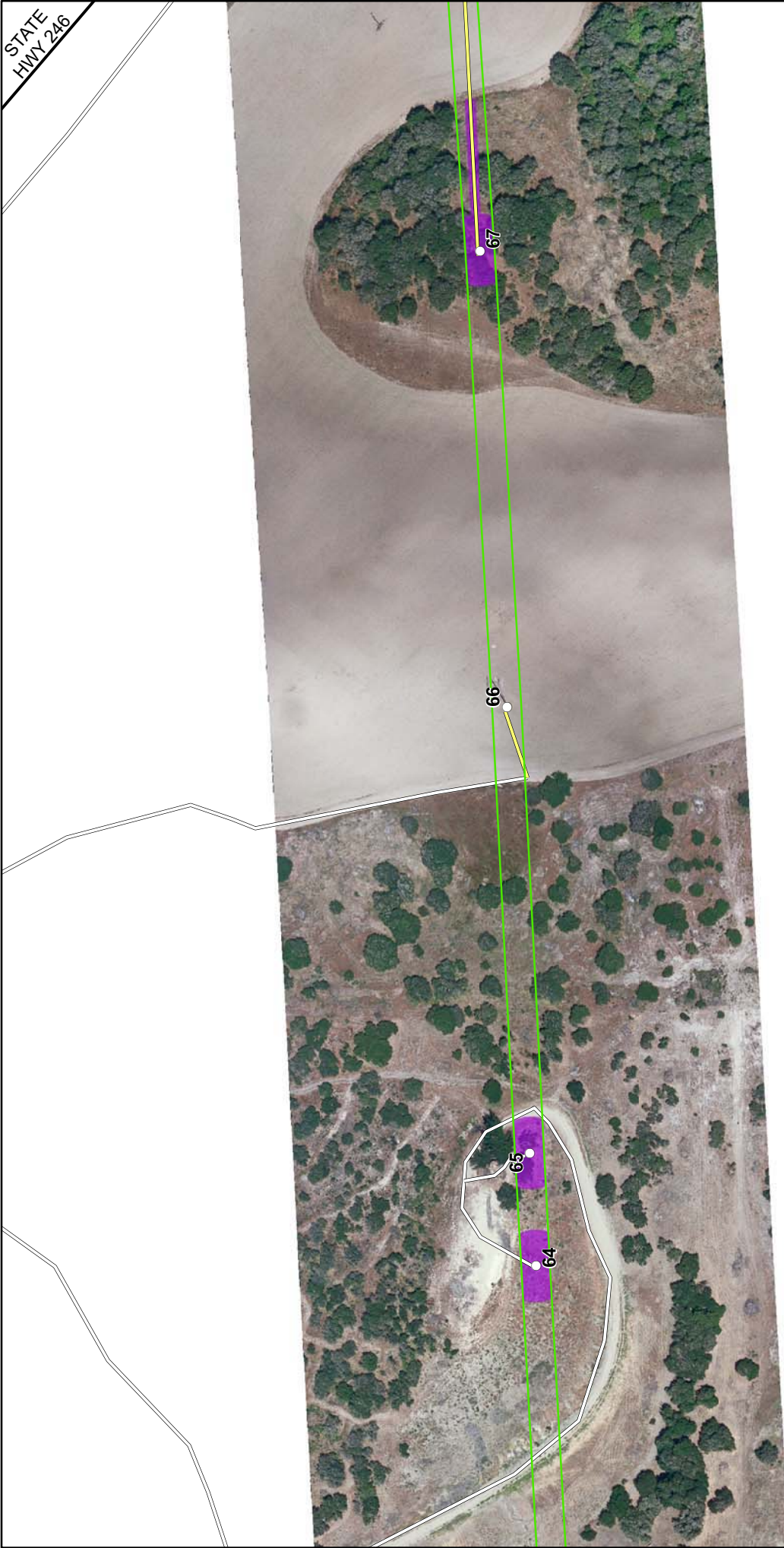
- Laydown Area for Helicopter
- Potential Lay Down Area
- Potential Pull and Tension Site
- Potential Staging Area
- Rivers/Creeks

- County Roads
- Existing Access Road
- Existing Access Road Reestablished
- Through Grading and Vegetation Removal
- Overland Access Route

- Rare Plant Occurrences

Scale: 1:2,400

STATE
HWY 246



Rare Plant Survey Map 18
Cabrillo - Santa Ynez
115kV Reconductoring Project

Remaining Rare Plant Survey Areas: July 2009

Rare Plant Occurrences

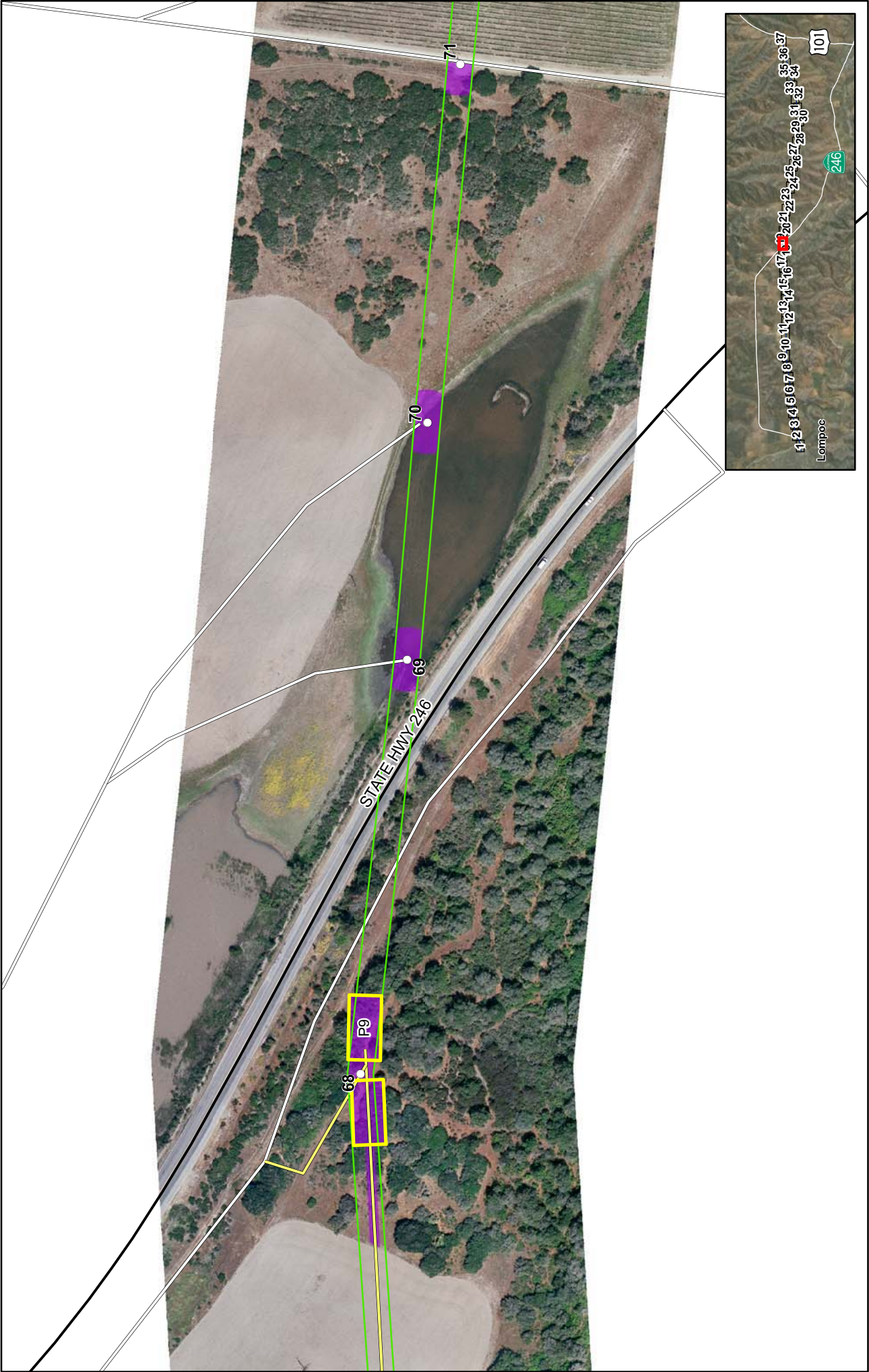
Remaining Rare Plant Survey Areas: July 2009
 Rare Plant Occurrences

Power Poles to be Replaced
 Power Poles Replaced by Helicopter
 Existing Power Poles
 Power Pole Sites with Expected Tree Management
 Power Line ROW (40')

Laydown Area for Helicopter
 Potential Lay Down Area
 Potential Pull and Tension Site
 Potential Staging Area
 Rivers/Creeks

County Roads
 Existing Access Road
 Existing Access Road Reestablished Through Grading and Vegetation Removal
 Overland Access Route

N
 0 100 200 Feet
 Scale: 1:2,400



Rare Plant Survey Map 19
 Cabrillo - Santa Ynez
 115kV Reconductoring Project

Remaining Rare Plant
 Survey Areas: July 2009

Rare Plant Occurrences

County Roads

- Existing Access Road
- Existing Access Road Reestablished
- Through Grading and Vegetation Removal
- Overland Access Route

Laydown Area for Helicopter

- Potential Lay Down Area
- Potential Pull and Tension Site
- Potential Staging Area
- Rivers/Creeks

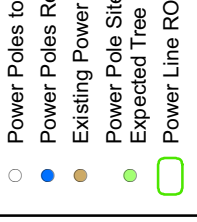
Power Poles to be Replaced

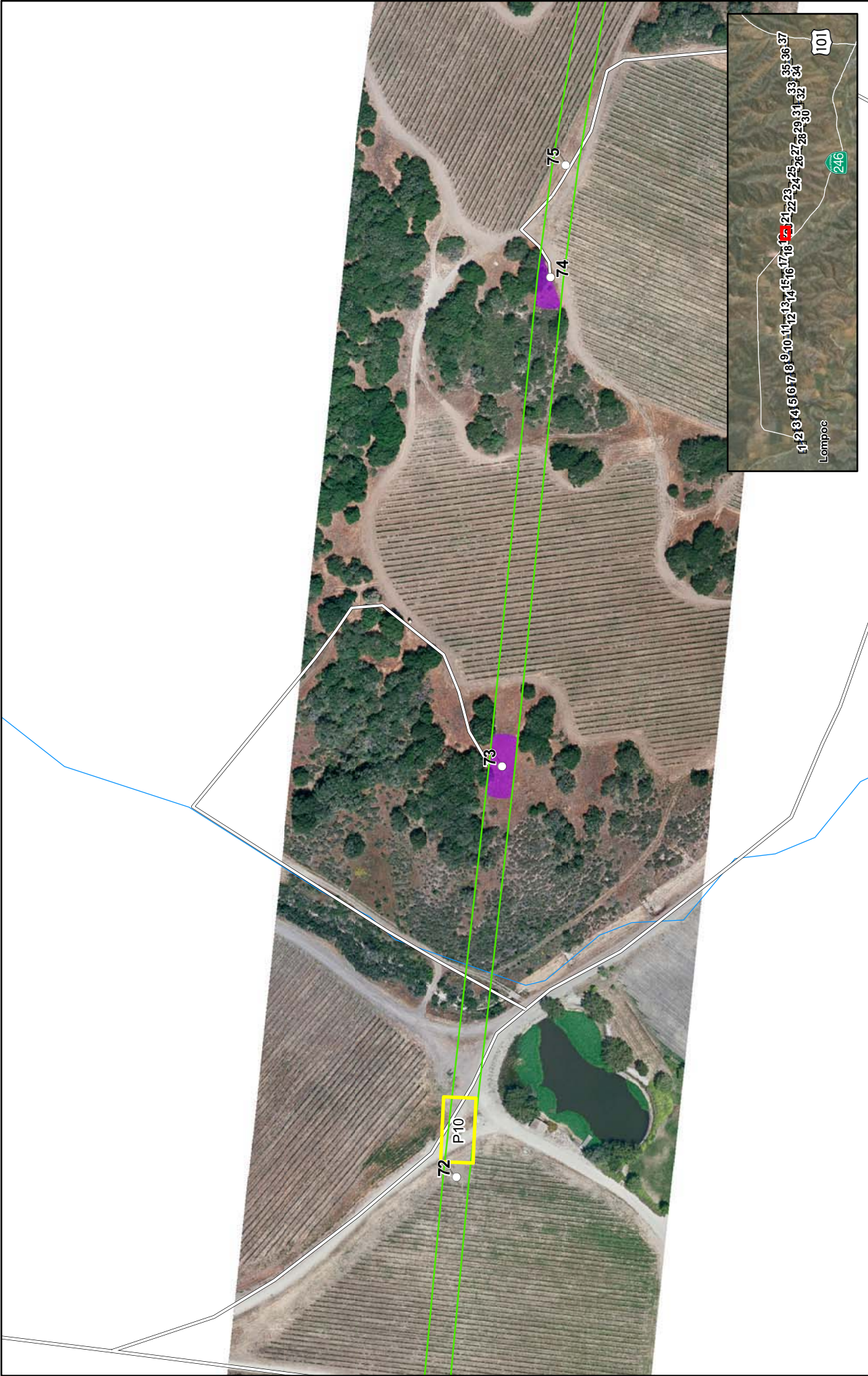
- Power Poles Replaced by Helicopter
- Existing Power Poles
- Power Pole Sites with Expected Tree Management
- Power Line ROW (40')

Scale: 1:2,400

0 100 200 Feet

N





Rare Plant Survey Map 20
Cabrillo - Santa Ynez
115kV Reconductoring Project

Remaining Rare Plant Survey Areas: July 2009

Rare Plant Occurrences

PC&E

Scale: 1:2,400

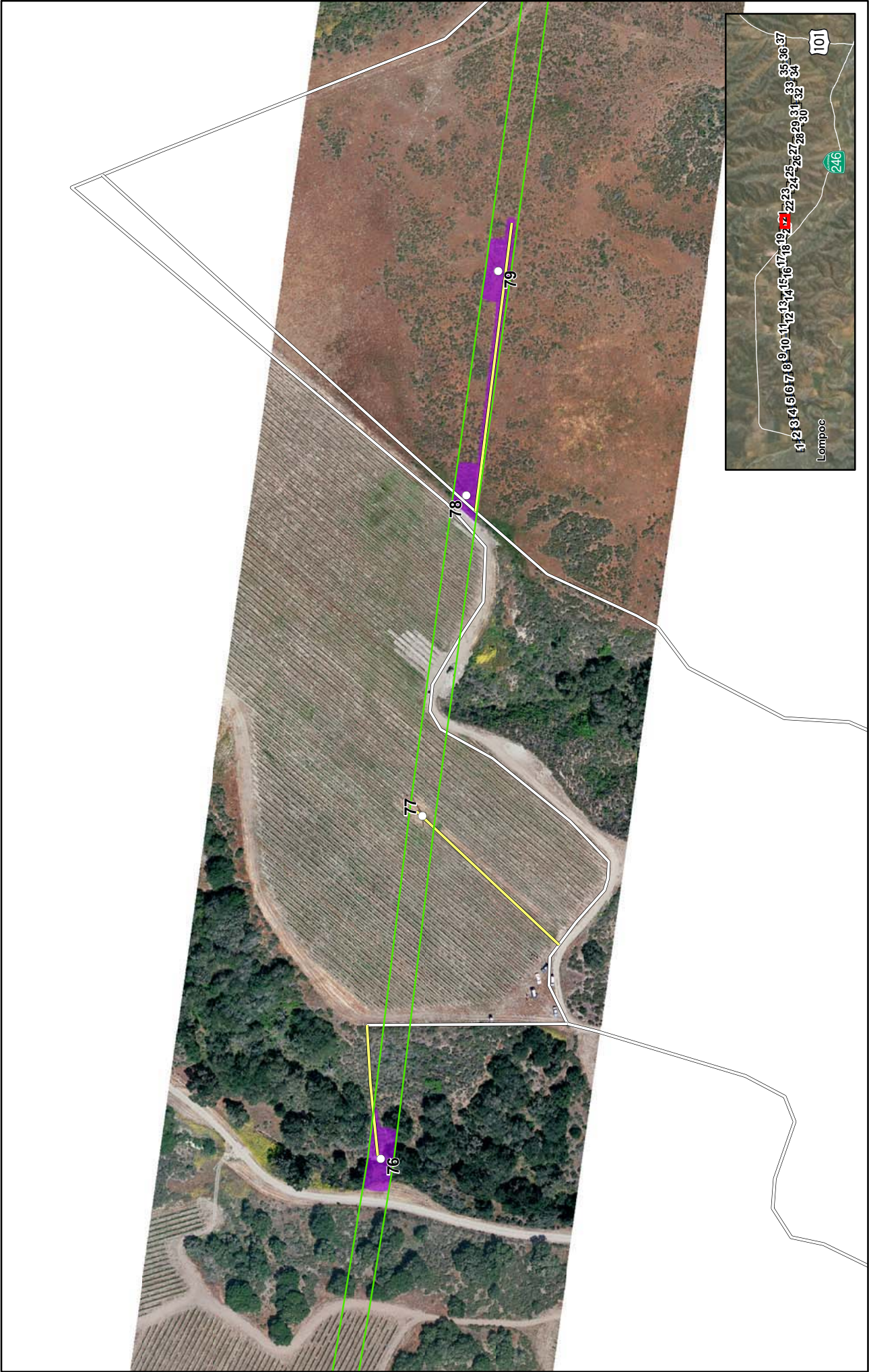
0 100 200 Feet

○ Power Poles to be Replaced
 ● Power Poles Replaced by Helicopter
 ● Existing Power Poles
 ● Power Pole Sites with Expected Tree Management
 □ Power Line ROW (40')

H Laydown Area for Helicopter
 □ Potential Lay Down Area
 □ Potential Pull and Tension Site
 □ Potential Staging Area
 ~ Rivers/Creeks

∩ County Roads
 ∩ Existing Access Road
 ∩ Existing Access Road Reestablished
 ∩ Through Grading and Vegetation Removal
 ∩ Overland Access Route

■ Rare Plant Occurrences
 ▲ Rare Plant Occurrences



Rare Plant Survey Map 21
 Cabrillo - Santa Ynez
 115kV Reconductoring Project

Remaining Rare Plant Survey Areas: July 2009

Rare Plant Occurrences

Rare Plant Occurrences
 Rare Plant Occurrences
 Rare Plant Occurrences

County Roads
 Existing Access Road
 Existing Access Road Reestablished
 Through Grading and Vegetation Removal
 Overland Access Route

Laydown Area for Helicopter
 Potential Lay Down Area
 Potential Pull and Tension Site
 Potential Staging Area
 Rivers/Creeks

Power Poles to be Replaced
 Power Poles Replaced by Helicopter
 Existing Power Poles
 Power Pole Sites with Expected Tree Management
 Power Line ROW (40')

N
 0 100 200 Feet
 Scale: 1:2,400

Santa Rosa Creek

DRUM CANYON RD



Rare Plant Survey Map 22
 Cabrillo - Santa Ynez
 115kV Reconductoring Project

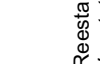
Remaining Rare Plant
 Survey Areas: July 2009



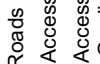
Rare Plant Occurrences



Remaining Rare Plant
 Survey Areas: July 2009



Rare Plant Occurrences



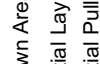
County Roads



Existing Access Road



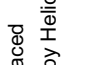
Existing Access Road Reestablished



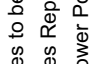
Through Grading and Vegetation Removal



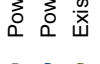
Overland Access Route



Laydown Area for Helicopter



Potential Lay Down Area

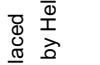


Potential Pull and Tension Site

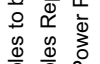


Potential Staging Area

Rivers/Creeks



Power Poles to be Replaced



Power Poles Replaced by Helicopter



Existing Power Poles



Power Pole Sites with Expected Tree Management

Power Line ROW (40')



80

81

82

P11

83



- Power Poles to be Replaced
- Power Poles Replaced by Helicopter
- Existing Power Poles
- Power Pole Sites with Expected Tree Management
- Power Line ROW (40')

- H** Laydown Area for Helicopter
- Potential Lay Down Area
- Potential Pull and Tension Site
- Potential Staging Area
- ~ Rivers/Creeks

- W** County Roads
- ~ Existing Access Road
- ~ Existing Access Road Reestablished
- ~ Through Grading and Vegetation Removal
- ~ Overland Access Route

- Remaining Rare Plant Survey Areas: July 2009
- Rare Plant Occurrences

Rare Plant Survey Map 23
 Cabrillo - Santa Ynez
 115kV Reconductoring Project

PC&E

Scale: 1:2,400

0 100 200 Feet

N



- Power Poles to be Replaced
- Power Poles Replaced by Helicopter
- Existing Power Poles
- Power Pole Sites with Expected Tree Management
- Power Line ROW (40')

- Laydown Area for Helicopter
- Potential Lay Down Area
- Potential Pull and Tension Site
- Potential Staging Area
- Rivers/Creeks

- County Roads
- Existing Access Road
- Existing Access Road Reestablished
- Through Grading and Vegetation Removal
- Overland Access Route

- Remaining Rare Plant Survey Areas: July 2009
- Rare Plant Occurrences

Rare Plant Survey Map 24
 Cabrillo - Santa Ynez
 115kV Reconductoring Project

PC&E

Scale: 1:2,400

0 100 200 Feet

N



Rare Plant Survey Map 25
 Cabrillo - Santa Ynez
 115kV Reconductoring Project

Remaining Rare Plant Survey Areas: July 2009

Rare Plant Occurrences

Rare Plant Occurrences
 Rare Plant Occurrences
 Power Poles to be Replaced
 Power Poles Replaced by Helicopter
 Existing Power Poles
 Power Pole Sites with Expected Tree Management
 Power Line ROW (40')

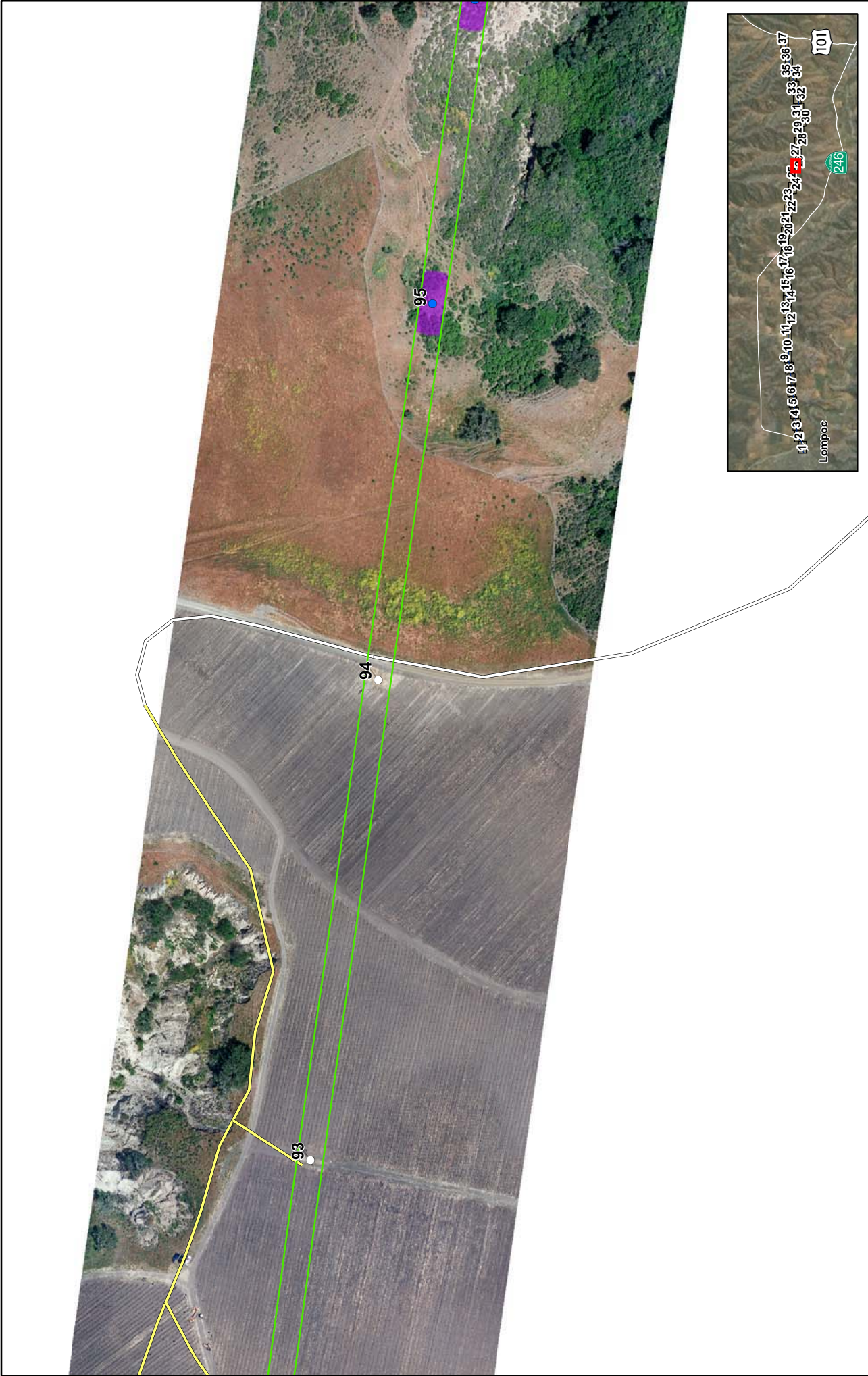
Laydown Area for Helicopter
 Potential Lay Down Area
 Potential Pull and Tension Site
 Potential Staging Area
 Rivers/Creeks

County Roads
 Existing Access Road
 Existing Access Road Reestablished
 Through Grading and Vegetation Removal
 Overland Access Route

Scale: 1:2,400

0 100 200 Feet

N



Rare Plant Survey Map 26
 Cabrillo - Santa Ynez
 115kV Reconductoring Project

Remaining Rare Plant Survey Areas: July 2009

Rare Plant Occurrences

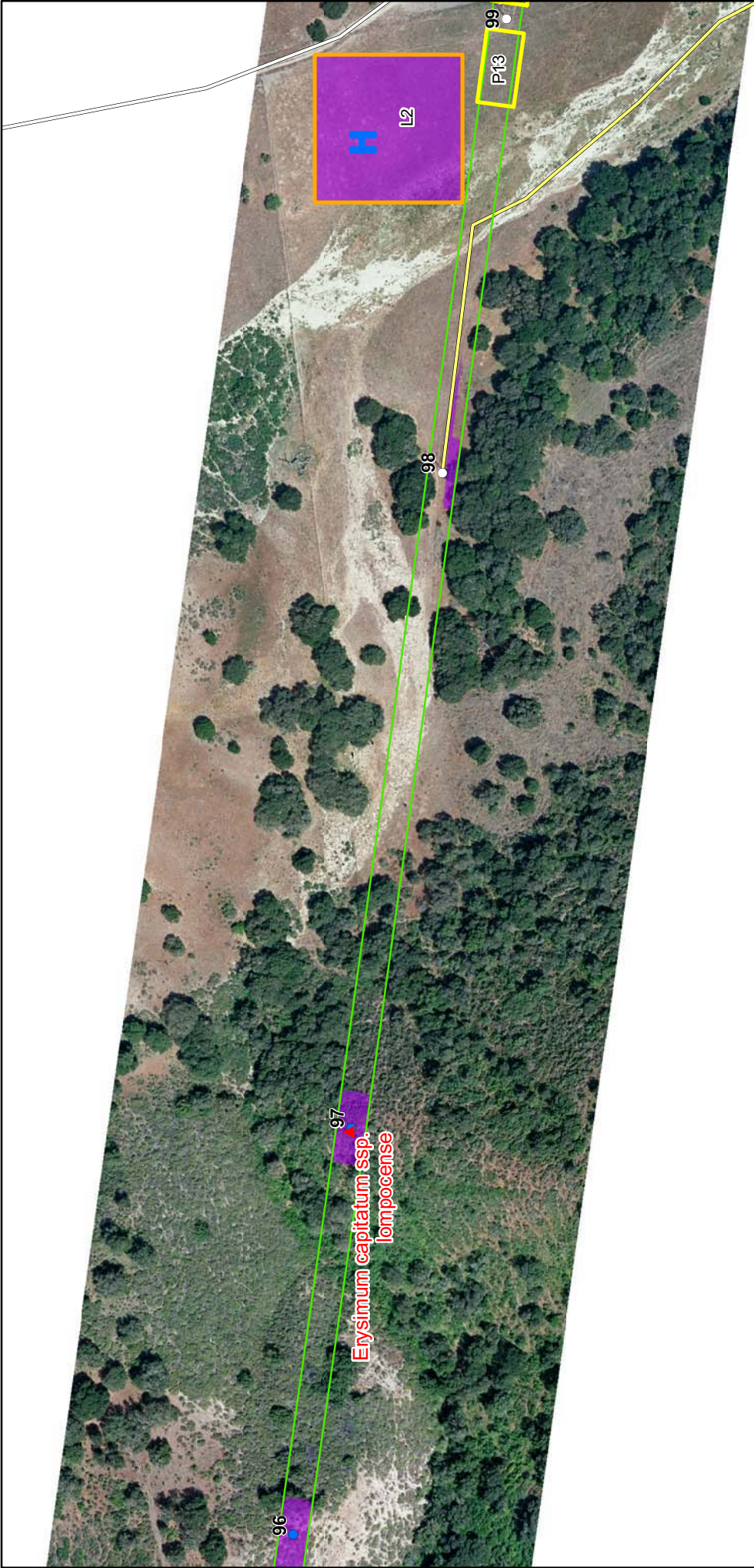
Rare Plant Occurrences
 Rare Plant Occurrences
 County Roads
 Existing Access Road
 Existing Access Road Reestablished
 Through Grading and Vegetation Removal
 Overland Access Route
 Laydown Area for Helicopter
 Potential Lay Down Area
 Potential Pull and Tension Site
 Potential Staging Area
 Rivers/Creeks
 Power Poles to be Replaced
 Power Poles Replaced by Helicopter
 Existing Power Poles
 Power Pole Sites with Expected Tree Management
 Power Line ROW (40')

Scale: 1:2,400

0 100 200 Feet

N

PC&E



- Power Poles to be Replaced
- Power Poles Replaced by Helicopter
- Existing Power Poles
- Power Pole Sites with Expected Tree Management
- Power Line ROW (40')

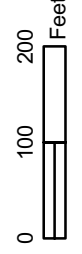
- Laydown Area for Helicopter
- Potential Lay Down Area
- Potential Pull and Tension Site
- Potential Staging Area
- Rivers/Creeks

- County Roads
- Existing Access Road
- Existing Access Road Reestablished
- Through Grading and Vegetation Removal
- Overland Access Route

- Remaining Rare Plant Survey Areas: July 2009
- Rare Plant Occurrences



Rare Plant Survey Map 27
 Cabrillo - Santa Ynez
 115kV Reconductoring Project



Scale: 1:2,400





Rare Plant Survey Map 28
 Cabrillo - Santa Ynez
 115kV Reconductoring Project

Scale: 1:2,400

0 100 200 Feet

N

Remaining Rare Plant Survey Areas: July 2009

Rare Plant Occurrences

County Roads

- Existing Access Road
- Existing Access Road Reestablished
- Through Grading and Vegetation Removal
- Overland Access Route

Laydown Area for Helicopter

- Potential Lay Down Area
- Potential Pull and Tension Site
- Potential Staging Area
- Rivers/Creeks

Power Poles to be Replaced by Helicopter

- Existing Power Poles
- Power Pole Sites with Expected Tree Management
- Power Line ROW (40')

PC&E



Rare Plant Survey Map 29
 Cabrillo - Santa Ynez
 115kV Reconductoring Project

Remaining Rare Plant
 Survey Areas: July 2009

Rare Plant Occurrences

County Roads

- Existing Access Road
- Existing Access Road Reestablished
- Through Grading and Vegetation Removal
- Overland Access Route

Laydown Area for Helicopter

- Potential Lay Down Area
- Potential Pull and Tension Site
- Potential Staging Area
- Rivers/Creeks

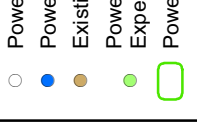
Power Poles to be Replaced

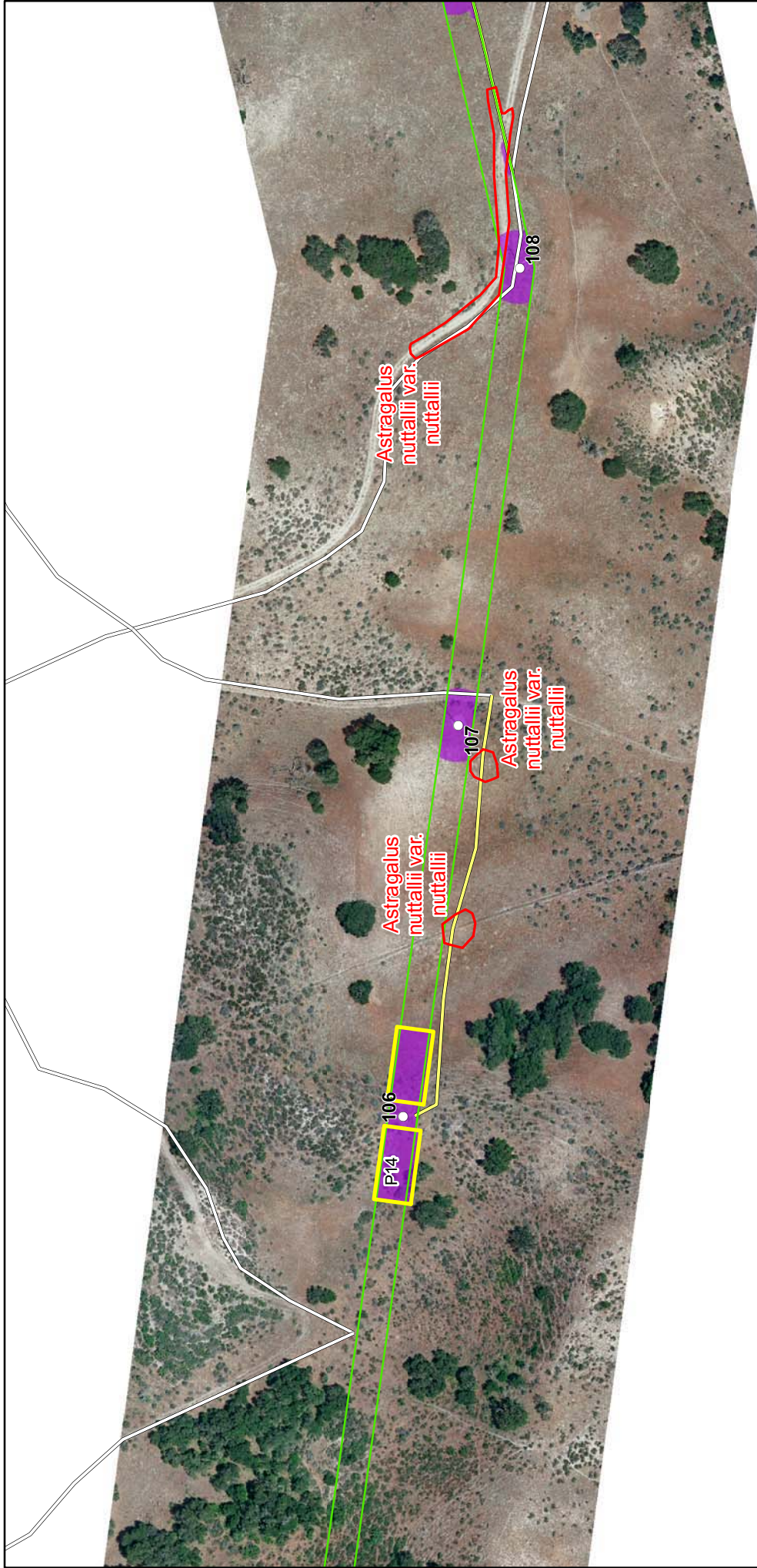
- Power Poles Replaced by Helicopter
- Existing Power Poles
- Power Pole Sites with Expected Tree Management
- Power Line ROW (40')

Scale: 1:2,400

0 100 200 Feet

N





Rare Plant Survey Map 30
 Cabrillo - Santa Ynez
 115kV Reconductoring Project

Remaining Rare Plant Survey Areas: July 2009

Rare Plant Occurrences

Legend:

- Power Poles to be Replaced
- Power Poles Replaced by Helicopter
- Existing Power Poles
- Power Pole Sites with Expected Tree Management
- Power Line ROW (40')
- H Laydown Area for Helicopter
- Potential Lay Down Area
- Potential Pull and Tension Site
- Potential Staging Area
- ~ Rivers/Creeks
- ∩ County Roads
- ∩ Existing Access Road
- ∩ Existing Access Road Reestablished
- ∩ Through Grading and Vegetation Removal
- ∩ Overland Access Route
- Rare Plant Occurrences

PC&E

Scale: 1:2,400



- Power Poles to be Replaced
- Power Poles Replaced by Helicopter
- Existing Power Poles
- Power Pole Sites with Expected Tree Management
- Power Line ROW (40')

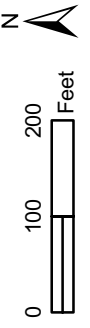
- H Laydown Area for Helicopter
- Potential Lay Down Area
- Potential Pull and Tension Site
- Potential Staging Area
- ~ Rivers/Creeks

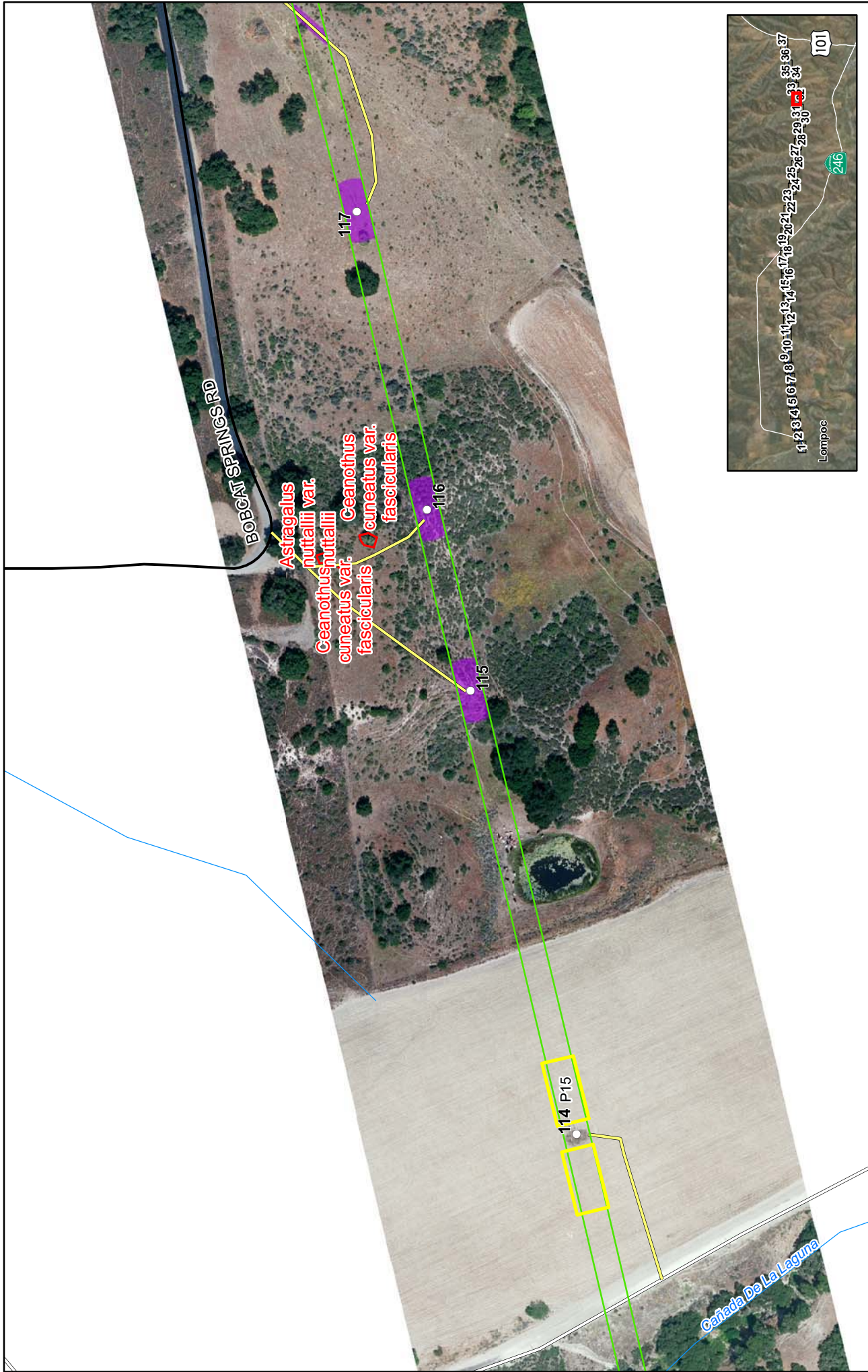
- ∩ County Roads
- ∩ Existing Access Road
- ∩ Existing Access Road Reestablished
- ∩ Through Grading and Vegetation Removal
- ∩ Overland Access Route

- Remaining Rare Plant Survey Areas: July 2009
- Rare Plant Occurrences



Rare Plant Survey Map 31
 Cabrillo - Santa Ynez
 115kV Reconductoring Project





Rare Plant Survey Map 32
 Cabrillo - Santa Ynez
 115kV Reconductoring Project

Remaining Rare Plant Survey Areas: July 2009

Rare Plant Occurrences

PC&E

- Power Poles to be Replaced
- Power Poles Replaced by Helicopter
- Existing Power Poles
- Power Pole Sites with Expected Tree Management
- Power Line ROW (40')

- H Laydown Area for Helicopter
- Potential Lay Down Area
- Potential Pull and Tension Site
- Potential Staging Area
- ~ Rivers/Creeks

- County Roads
- Existing Access Road
- Existing Access Road Reestablished
- Through Grading and Vegetation Removal
- Overland Access Route

- Remaining Rare Plant Survey Areas: July 2009
- Rare Plant Occurrences

Scale: 1:2,400

0 100 200 Feet



Rare Plant Survey Map 33
 Cabrillo - Santa Ynez
 115kV Reconductoring Project

0 100 200 Feet

Scale: 1:2,400

Remaining Rare Plant Survey Areas: July 2009

Rare Plant Occurrences

PC&E

Power Poles to be Replaced

- Power Poles to be Replaced by Helicopter
- Power Poles Replaced by Helicopter
- Existing Power Poles
- Power Pole Sites with Expected Tree Management
- Power Line ROW (40')

Laydown Area for Helicopter

- Potential Lay Down Area
- Potential Pull and Tension Site
- Potential Staging Area
- ~ Rivers/Creeks

County Roads

- Existing Access Road
- Existing Access Road Reestablished
- Through Grading and Vegetation Removal
- Overland Access Route



- Power Poles to be Replaced
- Power Poles Replaced by Helicopter
- Existing Power Poles
- Power Pole Sites with Expected Tree Management
- Power Line ROW (40')

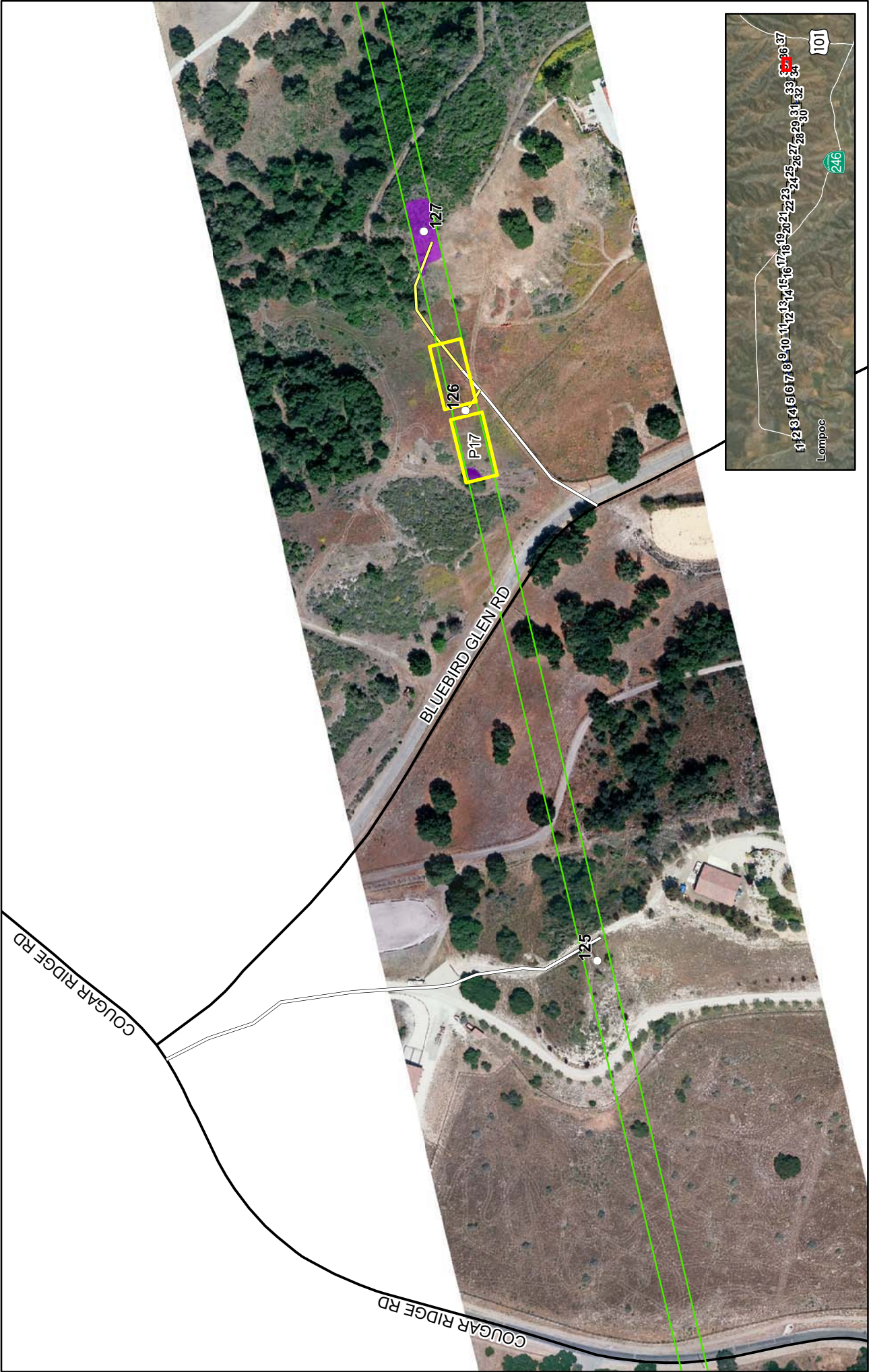
- Laydown Area for Helicopter
- Potential Lay Down Area
- Potential Pull and Tension Site
- Potential Staging Area
- Rivers/Creeks

- County Roads
- Existing Access Road
- Existing Access Road Reestablished
- Through Grading and Vegetation Removal
- Overland Access Route

- Remaining Rare Plant Survey Areas: July 2009
- Rare Plant Occurrences

Rare Plant Survey Map 34
 Cabrillo - Santa Ynez
 115kV Reconductoring Project





Rare Plant Survey Map 35
 Cabrillo - Santa Ynez
 115kV Reconductoring Project

Remaining Rare Plant Survey Areas: July 2009

Rare Plant Occurrences

○ Power Poles to be Replaced
 ● Power Poles Replaced by Helicopter
 ● Existing Power Poles
 ● Power Pole Sites with Expected Tree Management
 □ Power Line ROW (40')

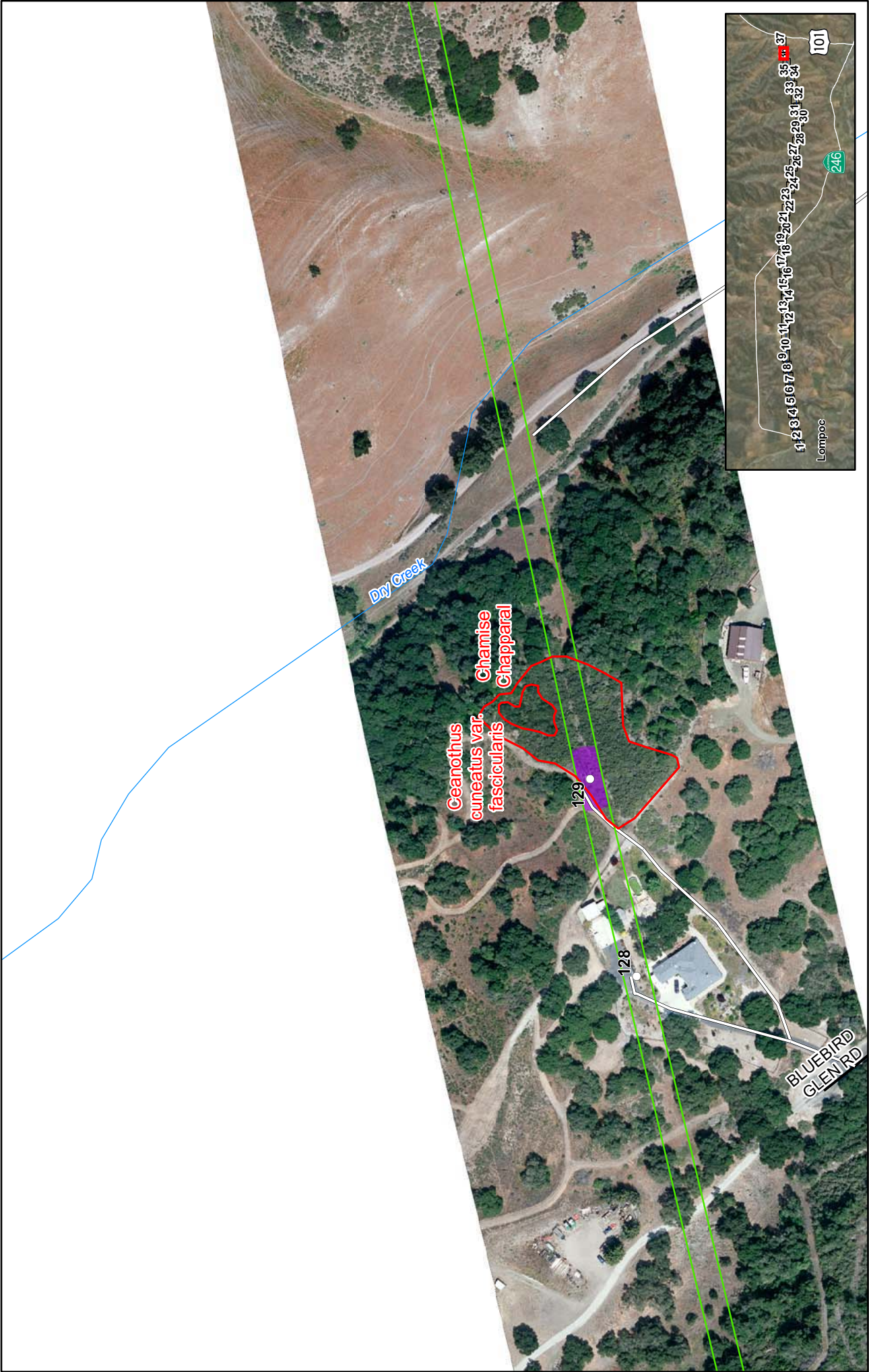
H Laydown Area for Helicopter
 □ Potential Lay Down Area
 □ Potential Pull and Tension Site
 □ Potential Staging Area
 ~ Rivers/Creeks

County Roads
 Existing Access Road
 Existing Access Road Reestablished
 Through Grading and Vegetation Removal
 Overland Access Route

Remaining Rare Plant Survey Areas: July 2009
 Rare Plant Occurrences

PC&E

0 100 200 Feet
 Scale: 1:2,400



- Power Poles to be Replaced
- Power Poles Replaced by Helicopter
- Existing Power Poles
- Power Pole Sites with Expected Tree Management
- Power Line ROW (40')

- H Laydown Area for Helicopter
- Potential Lay Down Area
- Potential Pull and Tension Site
- Potential Staging Area
- ~ Rivers/Creeks

- ∩ County Roads
- ∩ Existing Access Road
- ∩ Existing Access Road Reestablished
- ∩ Through Grading and Vegetation Removal
- ∩ Overland Access Route

- Remaining Rare Plant Survey Areas: July 2009
- Rare Plant Occurrences
- PC&E

Rare Plant Survey Map 36
 Cabrillo - Santa Ynez
 115kV Reconductoring Project

0 100 200 Feet

Scale: 1:2,400

N



Rare Plant Survey Map 37
 Cabrillo - Santa Ynez
 115kV Reconductoring Project

Scale: 1:2,400

- Power Poles to be Replaced
- Power Poles Replaced by Helicopter
- Existing Power Poles
- Power Pole Sites with Expected Tree Management
- Power Line ROW (40')
- Laydown Area for Helicopter
- Potential Lay Down Area
- Potential Pull and Tension Site
- Potential Staging Area
- Rivers/Creeks
- County Roads
- Existing Access Road
- Existing Access Road Reestablished
- Through Grading and Vegetation Removal
- Overland Access Route
- Remaining Rare Plant Survey Areas: July 2009
- Rare Plant Occurrences



Appendix C
Cultural Resources

NATIVE AMERICAN CONSULTATION

In September 2008, Æ consulted with the Native American Heritage Commission (NAHC) to determine if any sites recorded in the Commission's Sacred Lands File occur in or near the project area. The NAHC indicated that it had no sites within the study area listed on its Sacred Lands Inventory. The NAHC supplied a list of Native American individuals and/or groups with interests and knowledge about the area. Those included on the list were contacted by letter and telephone to inform them of project details and request comments or information about the study area. Table 4-2 summarizes Æ's efforts at consultation with these local Native American representatives.

Table 4-2
Details of Native American Consultation

Name	Affiliation	Letter Mailed	Follow-up Contact	Results
Vincent Armenta	Chumash	9/26/08	10/14/08	Freddie Romero, on behalf of the Santa Ynez Band, called to ask for more details on construction; Æ provided him with that additional information.
Sam Cohen	Chumash	9/26/08	10/14/08	See above.
Adelina Alva-Padilla	Chumash	9/26/08	10/14/08	See above.
Mark Vigil	Chumash	9/26/08	10/15/08	Left message; no response to date.
Diane Napoleone	Chumash	9/26/08	10/15/08	Attempted phone and email contact; phone numbers and e-mail address are not current; no response to date.
Kote & Lin A-Lul'Koy Lotah	Chumash	9/26/08	10/15/08	Reached by phone; no comments or concerns about the project.



743 Pacific Street
 Suite A
 San Luis Obispo, CA 93401
 (805) 594-1590
 FAX (805) 594-1577

September 19, 2008

Mr. Dave Singleton
 Native American Heritage Commission
 915 Capitol Mall, Room 364
 Sacramento, CA 95814

Re: Cultural Resources Investigation of Cabrillo-Santa Ynez Transmission Line Replacement Project,
 Santa Barbara County

Dear Mr. Singleton:

On behalf of Pacific Gas and Electric Company, Applied EarthWorks, Inc. is conducting a cultural resources records and literature search and pedestrian archaeological survey of the proposed Cabrillo-Santa Ynez Transmission Line Replacement Project in Santa Barbara County, California. Specifically, the proposed Project will include a linear corridor, approximately 17 miles long and 100 feet wide, depicted on the attached copies of the Lompoc, Los Alamos, and Zaca Creek 7.5' Quadrangle Maps. The lines cross the following townships, ranges, and sections:

Lompoc:

Unsectioned portions of the La Mission Vieja de la Purisima land grant

Los Alamos:

Unsectioned portions of the San Carlos de Jonata land grant

Zaca Creek:

Unsectioned portions of the Santa Rita (Malo) and Santa Rosa (Cota) land grants and

Township	Range	Section
07N	33W	26
		27
		34

This letter is being submitted to formally request your agency to conduct a search of its *Sacred Lands Inventory File*. Your information will aid us in determining if any other cultural properties are present within the general vicinity of the proposed projects, thereby assisting us in our environmental analysis. In addition, we are requesting the names, addresses, and phone numbers of officially recognized tribal representatives in the project areas.



Please do not hesitate to call me at (805) 594-1590 if you have any questions or require additional information. Thank you for your time and consideration in this matter.

Sincerely,

Megan Linder
Applied EarthWorks, Inc.

STATE OF CALIFORNIA

Arnold Schwarzenegger, Governor

**NATIVE AMERICAN HERITAGE
COMMISSION**915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-4882
Fax (916) 657-5390

September 23, 2008

Megan Linder
Applied EarthWorks, Inc.
743 Pacific Street, Suite A
San Luis Obispo, CA 93401Sent by Fax: 805-594-1577
Number of Pages: 2

RE: Cabrillo-Santa Ynez Transmission Line, Santa Barbara County

Dear Ms. Linder:

A record search of the sacred lands file has failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the sacred lands file does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Enclosed is a list of Native Americans individuals/organizations who may have knowledge of cultural resources in the project area. The Commission makes no recommendation or preference of a single individual, or group over another. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend others with specific knowledge. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at (916) 653-4040.

Sincerely,

Katy Sanchez
Katy Sanchez
Program Analyst

Native American Contacts
Santa Barbara County
September 22, 2008

Owl Clan
 Dr. Kote & Lin A-Lul'Koy Lotah
 48825 Sapaque Road Chumash
 Bradley , CA 93426
 (805) 472-9536

Santa Ynez Tribal Elders Council
 Adelina Alva-Padilla, Chair Woman
 P.O. Box 365 Chumash
 Santa Ynez , CA 93460
 elders@santaynezchumash.org
 (805) 688-8446
 (805) 693-1768 FAX

Santa Ynez Band of Mission Indians
 Vincent Armenta, Chairperson
 P.O. Box 517 Chumash
 Santa Ynez , CA 93460
 varmenta@santaynezchumash.org
 (805) 688-7997
 (805) 686-9578 Fax

Santa Ynez Band of Mission Indians
 Sam Cohen, Tribal Administrator
 P.O. Box 517 Chumash
 Santa Ynez , CA 93460
 (805) 688-7997
 (805) 686-9578 Fax

San Luis Obispo County Chumash Council
 Chief Mark Steven Vigil
 1030 Ritchie Road Chumash
 Grover Beach , CA 93433
 cheifmvgil@fix.net
 (805) 481-2461
 (805) 474-4729 - Fax

Diane Napoleone and Associates
 Diane Napoleone
 6997 Vista del Rincon Chumash
 La Conchita , CA 93001
 dnaassociates@sbcglobal.net

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Santa Maria-Sisquoc Transmission line Replacement Project; Santa Barbara County.



743 Pacific Street
Suite A
San Luis Obispo, CA 93401
(805) 594-1590
FAX (805) 594-1577

September 26, 2008

Santa Ynez Tribal Elders Council
Adelina Alva-Padilla, Chairwoman
P.O. Box 365
Santa Ynez, CA 93460

RE: Cabrillo-Santa Ynez Transmission Line Replacement

Dear Ms. Alva-Padilla:

Your name and address was provided to us by the Native American Heritage Commission, which lists you as an individual with knowledge of Native American resources in Santa Barbara County.

Applied Earthworks, Inc (Æ) is currently conducting a cultural resources inventory for a transmission line replacement project for Pacific Gas and Electric Company (PG&E). PG&E plans to replace 115kV transmission lines from the Cabrillo substation in Lompoc to the Santa Ynez substation in Buellton. The project entails replacement of some poles in addition to the power lines.

The project will be a linear corridor, approximately 17 miles long and 100 feet wide, as depicted on the attached aerial photos. The project includes portions of Township 7N and Range 33W and unsectioned portions of the La Mission Vieja de la Purisma, San Carlos de Jonata, Santa Rita (Malo), and Santa Rosa (Cota) land grants.

If you have information regarding the study area or have interest in the project, please phone me or send a letter to my attention. Your comments will be included in our cultural resources inventory report. You can contact me during normal business hours (805) 594-1590 if you have any questions or need additional information. Thank you.

Sincerely,

A handwritten signature in black ink, appearing to read "Barry A. Price". The signature is fluid and cursive, written over a light background.

Barry A. Price, M.A., R.P.A.
Principal Archaeologist

Appendix D
Electric and Magnetic Fields

Electric and Magnetic Fields

The California Public Utilities Commission (CPUC) and the California Department of Health Services (CDHS) have not concluded that exposure to magnetic fields from utility electric facilities is a health hazard. Many reports have concluded that the potential for health effects associated with electric and magnetic field (EMF) exposure is too speculative to allow the evaluation of impacts or the preparation of mitigation measures.

EMF is a term used to describe electric and magnetic fields that are created by electric voltage (electric field) and electric current (magnetic field). Power frequency EMF is a natural consequence of electrical circuits, and can be either directly measured using the appropriate measuring instruments or calculated using appropriate information.

Electric Fields

Electric fields are present whenever voltage exists on a wire, and are not dependent on current. The magnitude of the electric field is primarily a function of the configuration and operating voltage of the line and decreases with the distance from the source (line). The electric field can be shielded (i.e., the strength can be reduced) by any conducting surface, such as trees, fences, walls, buildings, and most types of structures. The strength of an electric field is measured in volts per meter (V/m) or kilovolts per meter (kV/m).

Magnetic Fields

Magnetic fields are present whenever current flows in a conductor, and are not dependent on the voltage present on the conductor. The strength of these fields also decreases with distance from the source. However, unlike electric fields, most common materials have little shielding effect on magnetic fields.

The magnetic field strength is a function of both the current on the conductor and the design of the system. Magnetic fields are measured in units called Gauss. However, for the low levels normally encountered near power systems, the field strength is expressed in a much smaller unit, the milligauss (mG), which is one thousandth of a Gauss.

Power frequency EMF is present where electricity is used. This includes not only utility transmission lines, distribution lines, and substations, but also the building wiring in homes, offices, and schools, and in the appliances and machinery used in these locations. Typical magnetic fields from these sources can range from below 1 mG to above 1,000 mG (1 Gauss).

Magnetic field strengths diminish with distance. Fields from compact sources (i.e., those containing coils such as small appliances and transformers) decrease in inverse proportion to the distance from the source cubed. For three-phase power lines with balanced currents, the magnetic field strength drops off inversely proportional to the distance from the line squared. Fields from unbalanced currents, which flow in paths such as neutral or ground conductors, fall off inversely proportional to the distance from the source. Conductor spacing and configuration also affect the rate at which the magnetic field strength decreases.

The magnetic field levels of PG&E's overhead and underground transmission lines will vary depending upon customer power usage. Magnetic field strengths for typical PG&E transmission line loadings at the edge of rights-of-way are approximately 10 to 90 mG. Under peak load conditions, the magnetic fields at the edge of the right-of-way would not likely exceed 150 mG. There are no long-term, health-based state or federal government EMF exposure standards. State regulations for magnetic fields have been developed in New York and Florida (150 mG and 200 mG at the edge of the right-of-way). However, these are based on limiting exposure from new facilities to levels no greater than existing facilities.

The strongest magnetic fields around the outside of a substation come from the power lines entering and leaving the station. The strength of the magnetic fields from transformers and other equipment decreases quickly with distance. Beyond the substation fence, the magnetic fields produced by the equipment within the station are typically indistinguishable from background levels.

Possible Health Effects

The possible effects of EMF on human health have come under scientific scrutiny. Concern about EMF originally focused on electric fields; however, much of the recent research has focused on magnetic fields. Uncertainty exists as to what characteristics of magnetic field exposure need to be considered to assess human exposure effects. Among the characteristics considered are field intensity, transients, harmonics, and changes in intensity over time. These characteristics may vary from power lines to appliances to home wiring, and this may create different types of exposures. The exposure most often considered is intensity or magnitude of the field.

There is a consensus among the medical and scientific communities that there is insufficient evidence to conclude that EMF causes adverse health effects. Neither the medical nor scientific communities have been able to provide any foundation upon which regulatory bodies could establish a standard or level of exposure that is known to be either safe or harmful. Laboratory experiments have shown that magnetic fields can cause biologic changes in living cells, but scientists are not sure whether any risk to human health can be associated with them. Some studies have suggested an association between surrogate measures of magnetic fields and certain cancers while others have not.

California Public Utilities Commission Decision Summary

Background

On January 15, 1991, the CPUC initiated an investigation to consider its role in mitigating the health effects, if any, of electric and magnetic fields from utility facilities and power lines. A working group of interested parties, called the California EMF Consensus Group, was created by the CPUC to advise it on this issue. It consisted of 17 stakeholders representing citizens groups, consumer groups, environmental groups, state agencies, unions, and utilities. The Consensus Group's fact-finding process was open to the public, and its report incorporated concerns expressed by the public. Its recommendations were filed with the Commission in March 1992.

In August 2004 the CPUC began a proceeding known as a “rulemaking” (R.04-08-020) to explore whether changes should be made to existing CPUC policies and rules concerning EMF from electric transmission lines and other utility facilities.

Through a series of hearings and conferences, the Commission evaluated the results of its existing EMF mitigation policies and addressed possible improvements in implementation of these policies. The CPUC also explored whether new policies are warranted in light of recent scientific findings on the possible health effects of EMF exposure.

The CPUC completed the EMF rulemaking in January 2006 and presented these conclusions in Decision D.06-01-042:

- The CPUC affirmed its existing policy of requiring no-cost and low-cost mitigation measures to reduce EMF levels from new utility transmission lines and substation projects.
- The CPUC adopted rules and policies to improve utility design guidelines for reducing EMF, and provides for a utility workshop to implement these policies and standardize design guidelines.
- Despite numerous studies, including one ordered by the Commission and conducted by the California Department of Health Services, the CPUC stated “we are unable to determine whether there is a significant scientifically verifiable relationship between EMF exposure and negative health consequences.”
- The CPUC said it will “remain vigilant” regarding new scientific studies on EMF, and if these studies indicate negative EMF health impacts, the Commission will reconsider its EMF policies and open a new rulemaking if necessary.

In response to a situation of scientific uncertainty and public concern, the decision specifically requires PG&E to consider “no-cost” and “low-cost” measures, where feasible, to reduce exposure from new or upgraded utility facilities. It directs that no-cost mitigation measures be undertaken, and that low-cost options, when they meet certain guidelines for field reduction and cost, be adopted through the project certification process. PG&E was directed to develop, submit and follow EMF guidelines to implement the CPUC decision. Four percent of total project budgeted cost is the benchmark in implementing EMF mitigation, and mitigation measures should achieve incremental magnetic field reductions of at least 15%.

Reviews of EMF Studies

Hundreds of EMF studies have been conducted over the last 20 years in the areas of epidemiology, animal research, cellular studies, and exposure assessment. A number of nationally recognized multi-discipline panels have performed comprehensive reviews of the body of scientific knowledge on EMF. These panels’ ability to bring experts from a variety of disciplines together to review the research gives their reports recognized credibility. It is standard practice in risk assessment and policymaking to rely on the findings and consensus opinions of these distinguished panels. None of these groups have concluded that EMF causes adverse health effects or that the development of standards were appropriate or would have a scientific basis.

Reports by the National Research Council/National Academy of Sciences, American Medical Association, American Cancer Society, National Institute of Environmental Health Sciences, World Health Organization, International Agency for Research on Cancer, and California Department of Health Services conclude that insufficient scientific evidence exists to warrant the adoption of specific health-based EMF mitigation measures. The potential for adverse health effects associated with EMF exposure is too speculative to allow the evaluation of impacts or the preparation of mitigation measures.

National Institute of Environmental Health Sciences

In June of 1999, the federal government completed a \$60-million EMF research program managed by the National Institute of Environmental Health Sciences (NIEHS) and the Department of Energy (DOE). Known as the EMF RAPID (Research And Public Information Dissemination) Program. In their report to the U.S. Congress, the NIEHS concluded that:

The NIEHS believes that the probability that ELF-EMF exposure is truly a health hazard is currently small. The weak epidemiological associations and lack of any laboratory support for these associations provide only marginal, scientific support that exposure to this agent is causing any degree of harm.

The NIEHS report also included the following conclusions:

The National Toxicology Program routinely examines environmental exposures to determine the degree to which they constitute a human cancer risk and produces the 'Report on Carcinogens' listing agents that are 'known human carcinogens' or 'reasonably anticipated to be human carcinogens.' It is our opinion that based on evidence to date, ELF-EMF exposure would not be listed in the 'Report on Carcinogens' as an agent 'reasonably anticipated to be a human carcinogen.' This is based on the limited epidemiological evidence and the findings from the EMF-RAPID Program that did not indicate an effect of ELF-EMF exposure in experimental animals or a mechanistic basis for carcinogenicity.

The NIEHS agrees that the associations reported for childhood leukemia and adult chronic lymphocytic leukemia cannot be dismissed easily as random or negative findings. The lack of positive findings in animals or in mechanistic studies weakens the belief that this association is actually due to ELF-EMF, but cannot completely discount the finding. The NIEHS also agrees with the conclusion that no other cancers or non-cancer health outcomes provide sufficient evidence of a risk to warrant concern.

Epidemiological studies have serious limitations in their ability to demonstrate a cause and effect relationship whereas laboratory studies, by design, can clearly show that cause and effect are possible. Virtually all of the laboratory evidence in animals and humans and most of the mechanistic work done in cells fail to support a causal relationship between exposure to ELF-EMF at environmental levels and changes in biological function or disease status. The lack of consistent, positive findings in animal or mechanistic studies weakens the belief that this association is actually due to ELF-EMF, but it cannot completely discount the epidemiological findings.

The NIEHS suggests that the level and strength of evidence supporting ELF-EMF exposure as a human health hazard are insufficient to warrant aggressive regulatory actions; thus, we do not recommend actions such as stringent standards on electric appliances and a national program to bury all transmission and distribution lines. Instead, the evidence suggests passive measures such as a continued emphasis on educating both the public and the regulated community on means aimed at reducing exposures. NIEHS suggests that the power industry continue its current practice of siting power lines to reduce exposures and continue to explore ways to reduce the creation of magnetic fields around transmission and distribution lines without creating new hazards. We also encourage technologies that lower exposures from neighborhood distribution lines provided that they do not increase other risks, such as those from accidental electrocution or fire.

U.S. National Research Council/ National Academy of Sciences

In May 1999, the National Research Council/ National Academy of Sciences, an independent scientific agency responsible for advising the federal government on science, technology, and medicine, released its evaluation of the scientific and technical content of research projects conducted under the U.S. EMF RAPID Program, concluding that:

The results of the EMF-RAPID program do not support the contention that the use of electricity poses a major unrecognized public-health danger. Basic research on the effects of power-frequency magnetic fields on cells and animals should continue, but a special research-funding effort is not required. Investigators should compete for funding through traditional research-funding mechanisms. If future research on this subject is funded through such mechanisms, it should be limited to tests of well-defined mechanistic hypotheses or replications of reported positive effects. If carefully performed, such experiments will have value even if their results are negative. Special efforts should be made to communicate the conclusions of this effort to the general public effectively.

The following specific recommendations are made by the committee:

1. The committee recommends that no further special research program focused on possible health effects of power-frequency magnetic fields be funded. Basic research on the effects of power-frequency magnetic fields on cells and animals should continue but investigators should compete for funding through traditional research funding mechanisms.
2. If, however, Congress determines that another time-limited, focused research program on the health effects of power-frequency magnetic fields is warranted, the committee recommends that emphasis be placed on replications of studies that have yielded scientifically promising claims of effects and that have been reported in peer-reviewed journals. Such a program would benefit from the use of a contract-funding mechanism with a requirement for complete reports and/or peer-reviewed publications at program's end.
3. The engineering studies were initiated without the guidance of a clearly established biologic effect. The committee recommends that no further engineering studies be funded unless a biologic effect that can be used to plan the engineering studies has been determined.
4. Much of the information from the EMF-RAPID biology program has not been published in peer-reviewed journals. NIEHS should collect all future peer-reviewed information resulting from the EMF-RAPID biology projects and publish a summary report of such information periodically on the NIEHS Web site.
5. The communication effort initiated by EMF-RAPID is reasonable. The two booklets and the telephone information line are useful, as is the EMF-RAPID Internet site. There are two limitations to the effort. First, it is largely passive, responding to inquiries and providing information, rather than being active. Second, much of the information produced is in a scientific format not readily understandable by the public. The committee recommends that further material produced to disseminate information on

power-frequency magnetic fields be written for the general public in a clear fashion. The Web site should be made more user-friendly. The booklet *Questions and Answers about EMF* should be updated periodically and made available to the public.

World Health Organization

The World Health Organization (WHO) established the International EMF Project in 1996 to investigate potential health risks associated with exposure to electric and magnetic fields (EMF). A WHO Task Group recently concluded a review of the health implications of extremely low frequency (ELF) EMF.

A Task Group of scientific experts was convened in 2005 to assess any risks to health that might exist from exposure to ELF electric and magnetic fields. Previously in 2002, the International Agency for Research on Cancer (IARC) examined the evidence regarding cancer; this Task Group reviewed evidence for a number of health effects, and updated the evidence regarding cancer. The conclusions and recommendations of the Task Group are presented in a WHO report titled: "Extremely Low Frequency Fields Environmental Health Criteria Monograph No.238" and Factsheet No 322.

"New human, animal and in vitro studies, published since the 2002 IARC monograph, do not change the overall classification of ELF magnetic fields as a possible human carcinogen."

"A number of other diseases have been investigated for possible association with ELF magnetic field exposure. These include cancers in both children and adults, depression, suicide, reproductive dysfunction, developmental disorders, immunological modifications and neurological disease. The scientific evidence supporting a linkage between ELF magnetic fields and any of these diseases is much weaker than for childhood leukaemia and in some cases (for example, for cardiovascular disease or breast cancer) the evidence is sufficient to give confidence that magnetic fields do not cause the disease."

"The epidemiological evidence is weakened by methodological problems, such as potential selection bias. In addition, there are no accepted biophysical mechanisms that would suggest that low-level exposures are involved in cancer development. Thus, if there were any effects from exposures to these low-level fields, it would have to be through a biological mechanism that is as yet unknown. Additionally, animal studies have been largely negative. Thus, on balance, the evidence related to childhood leukaemia is not strong enough to be considered causal."

"Policy-makers should establish an ELF EMF protection programme that includes measurements of fields from all sources to ensure that the exposure limits are not exceeded either for the general public or workers."

"Government and industry should monitor science and promote research programmes to further reduce the uncertainty of the scientific evidence on the health effects of ELF field exposure."

“Policy-makers, community planners and manufacturers should implement very low-cost measures when constructing new facilities and designing new equipment including appliances.”

“Changes to engineering practice to reduce ELF exposure from equipment or devices should be considered, provided that they yield other additional benefits, such as greater safety, or little or no cost.”

“When changes to existing ELF sources are contemplated, ELF field reduction should be considered alongside safety, reliability and economic aspects.”

International Agency for Research on Cancer

In June of 2001, the International Agency for Research on Cancer (IARC), a branch of the World Health Organization (WHO), evaluated the carcinogenic risk to humans of static and extremely low-frequency EMF. In October of 2001, the WHO published a Fact Sheet that summarized the IARC findings. Below is an excerpt from the fact sheet:

In June 2001, an expert scientific working group of IARC reviewed studies related to the carcinogenicity of static and ELF electric and magnetic fields. Using the standard IARC classification that weighs human, animal and laboratory evidence, ELF magnetic fields were classified as possibly carcinogenic to humans based on epidemiological studies of childhood leukaemia. Evidence for all other cancers in children and adults, as well as other types of exposures (i.e. static fields and ELF electric fields) was considered not classifiable either due to insufficient or inconsistent scientific information.

"Possibly carcinogenic to humans" is a classification used to denote an agent for which there is limited evidence of carcinogenicity in humans and less than sufficient evidence for carcinogenicity in experimental animals.

This classification is the weakest of three categories ("is carcinogenic to humans", "probably carcinogenic to humans" and "possibly carcinogenic to humans") used by IARC to classify potential carcinogens based on published scientific evidence. Some examples of well-known agents that have been classified by IARC are listed below:

Classification	Examples of Agents
Carcinogenic to humans (usually based on strong evidence of carcinogenicity in humans)	Asbestos Mustard gas Tobacco (smoked and smokeless) Gamma radiation
Probably carcinogenic to humans (usually based on strong evidence of carcinogenicity in animals)	Diesel engine exhaust Sun lamps UV radiation Formaldehyde
Possibly carcinogenic to humans (usually based on evidence in humans which is considered credible, but for which other explanations could not be ruled out)	Coffee Styrene Gasoline engine exhaust Pickled Vegetables ELF magnetic fields

DO ELF FIELDS CAUSE CANCER?

ELF fields are known to interact with tissues by inducing electric fields and currents in them. This is the only established mechanism of action of these fields. However, the electric currents induced by ELF fields commonly found in our environment are normally much lower than the strongest electric currents naturally occurring in the body such as those that control the beating of the heart.

Since 1979 when epidemiological studies first raised a concern about exposures to power line frequency magnetic fields and childhood cancer, a large number of studies have been conducted to determine if measured ELF exposure can influence cancer development, especially leukaemia in children.

There is no consistent evidence that exposure to ELF fields experienced in our living environment causes direct damage to biological molecules, including DNA. Since it seems unlikely that ELF fields could initiate cancer, a large number of investigations have been conducted to determine if ELF exposure can influence cancer promotion or co-promotion. Results from animal studies conducted so far suggest that ELF fields do not initiate or promote cancer.

However, two recent pooled analyses of epidemiological studies provide insight into the epidemiological evidence that played a pivotal role in the IARC evaluation. These studies suggest that, in a population exposed to average magnetic fields in excess of 0.3 to 0.4 μT , twice as many children might develop leukaemia compared to a population with lower exposures. In spite of the large number data base, some uncertainty remains as to whether magnetic field exposure or some other factor(s) might have accounted for the increased leukaemia incidence.

Childhood leukaemia is a rare disease with 4 out of 100,000 children between the ages of 0 to 14 diagnosed every year. Also average magnetic field exposures above 0.3 or 0.4 μT in residences are rare. It can be estimated from the epidemiological

study results that less than 1% of populations using 240 volt power supplies are exposed to these levels, although this may be higher in countries using 120 volt supplies.

The IARC review addresses the issue of whether it is feasible that ELF-EMF pose a cancer risk. The next step in the process is to estimate the likelihood of cancers in the general population from the usual exposures and to evaluate evidence for other (non-cancer) diseases. This part of the risk assessment should be finished by WHO in the next 18 months.

American Cancer Society

In the journal, *A Cancer Journal for Clinicians*, the American Cancer Society (ACS) reviewed EMF residential and occupational epidemiologic research in an article written by Dr. Clark W. Heath, Jr., ACS's vice president of epidemiology and surveillance research. Dr. Heath reviews 13 residential epidemiologic studies of adult and childhood cancer. Dr. Heath wrote:

Evidence suggesting that exposure to EMF may or may not promote human carcinogenesis is mostly based on...epidemiologic observations.... While those observations may suggest such a relationship for leukemia and brain cancer in particular, the findings are weak, inconsistent, and inconclusive.... The weakness and inconsistent nature of epidemiologic data, combined with the continued dearth of coherent and reproducible findings from experimental laboratory research, leave one uncertain and rather doubtful that any real biologic link exists between EMF exposure and carcinogenicity.

American Medical Association

The AMA adopted recommendations of its Council on Scientific Affairs (CSA) regarding EMF health effects. The report was prepared as a result of a resolution passed by AMA's membership at its 1993 annual meeting. The following recommendations are based on the CSA's review of EMF epidemiologic and laboratory studies to date, as well as on several major literature reviews:

- Although no scientifically documented health risk has been associated with the usually occurring levels of electromagnetic fields, the AMA should continue to monitor developments and issues related to the subject.
- The AMA should encourage research efforts sponsored by agencies such as the National Institutes of Health, the U.S. Department of Energy, and the National Science Foundation. Continuing research should include study of exposures to EMF and its effects, average public exposures, occupational exposures, and the effects of field surges and harmonics.
- The AMA should support the meeting of an authoritative, multidisciplinary committee under the auspices of the National Academy of Sciences or the National Council on Radiation Protection and Measurements to make recommendations about exposure levels of the public and workers to EMF and radiation.

References

American Cancer Society. 1996. "Electromagnetic Field Exposure and Cancer: a Review of Epidemiologic Evidence." *A Cancer Journal for Clinicians*, the American Cancer Society. January/February.

American Medical Association. 1994. *Effects of Electric and Magnetic Fields*. Report of the Council on Scientific Affairs to the American Medical Association. December.

California Public Utilities Commission. 1993. Order instituting investigation on the Commission's own motion to develop policies and procedures for addressing the potential health effects of electric and magnetic fields of utility facilities. Decision 93-11-013. November 2.

California Public Utilities Commission. 2006. Order Instituting Rulemaking to update the Commission's policies and procedures related to electromagnetic fields emanating from regulated utility facilities. Decision 06-01-042 January 26, 2006

National Institute of Environmental Health Sciences, National Institutes of Health. 1999. *NIEHS Report on Health Effects from Exposure to Power-Line Frequency Electric and Magnetic Fields. Prepared in Response to the 1992 Energy Policy Act*. June

National Research Council/ National Academy of Sciences. 1999. *Research on Power-Frequency Fields Completed Under the Energy Policy Act of 1992 [Final Report, 1999]*. May.

World Health Organization International EMF Project, 2001. Fact Sheet N° 263, ELECTROMAGNETIC FIELDS AND PUBLIC HEALTH Extremely low frequency fields and cancer. October.

World Health Organization. 2007 *Extremely low frequency (ELF) fields. Environmental Health Criteria, Vol. 238*.

World Health Organization. 2007 *Electromagnetic Fields and Public Health: Exposure to extremely low frequency fields*. Fact Sheet Number 322.

Pacific Gas & Electric Company. 2006. EMF Design Guidelines for Electrical Facilities.

Appendix E
Cumulative Impacts Reference



Lompoc Area Discretionary Development (09/24/08)

Development Information	Contact Information/Project Location	Land Area	# of units, sq. footage, or type	Status
<p>1) Marketing Name: Providence Landing Planner: Alice McCurdy Case Numbers: 98-RZ-004, 98-CP-083, 98-LA-022, , 03DVP-00000-00029, 06RMM-00000-00001, 06RVP-00000-00006 APN: 097-371-021 Zoning: 3-E-1, DR-10, REC, RR-5, and 7-R-1</p>	<p>Contact Company: Capital Pacific Homes, Inc. Contact Information: Sarah Bronstad Capital Pacific Homes, Inc. 4050 Calle Real, Suite 200B Santa Barbara, CA 93110 Phone: (805) 692-2006 Location: South Vandenberg Village</p>	<p>141 acres</p>	<p>284 SFD and 72 low-income units</p>	<p>Under Construction</p>
<p>2) Marketing Name: Bluffs at Mesa Oaks Planner: Alice McCurdy Case Numbers: TM 14,999, 98-DP-043, 02LUP-00000-01100 APN: 097-250-047, 048, 066 Zoning: DR-4.6</p>	<p>Contact Company: Martin-Farell Homes Contact Information: Jon Martin Martin-Farell Homes 330 E. Canon Perdido St., Suite F Santa Barbara, CA 93101 (805)962-8299 Location: Harris Grade & Onstott Roads</p>	<p>35 acres</p>	<p>72 SFD and 2 duplexes (4 units)</p>	<p>Occupied</p>
<p>3) Marketing Name: Clubhouse Estates Planner: Brian Tetley Case Numbers: TM 14,629,03-TRM-003 APN: 097-371-008 Zoning: RES-3.3</p>	<p>Contact Company: Urban Planning Concepts, Inc. Contact Information: Laurie Tamura Urban Planning Concepts, Inc. 2450 Professional Parkway, Ste 120 Santa Maria, CA 93455 (805) 934-5760 Location: Bisected by Clubhouse Drive in the Vandenberg Village Country Club area</p>	<p>162.31 acres</p>	<p>53 lots, 1 open space lot</p>	<p>Under Construction</p>

Development Information	Contact Information/Project Location	Land Area	# of units, sq. footage, or type	Status
<p>4) Marketing Name: Burton Ranch Specific Plan Planner: City of Lompoc Case Numbers: EIR 02-01 APN: 097-250-040, -062, 005, 051, 050, 002, 069, 070, 006, 013, 039 Zoning: LDR (Low Density Residential)</p>	<p>Contact Company: Martin Farrell Homes, Inc. and the Towbes Group, Inc Contact Information: Martin Farrell Homes, Inc. and the Towbes Group, Inc. 330 E. Canon Perdido St., Suite F Santa Barbara, CA 93101 Location: Located north of the City of Lompoc, situated between State Highway 1 to the west and south, Harris Grade Road to the east, and the Burton Mesa Management area to the north.</p>	149 acres	Annexation for the incorporation of 149 acres of the Burton Ranch Specific Plan area into the City of Lompoc City Limit Line.	City of Lompoc project
<p>5) Marketing Name: Fire Station 51 Planner: Gary Kaiser Case Numbers: 05GOV-00000-00004 APN: (State of California) Zoning: Unlimited Agricultural</p>	<p>Contact Company: County of Santa Barbara Contact Information: Ronn Carlentine General Services Department 195 East Anapamu Street, Room 108, Santa Barbara, CA 93101 Location: located at the intersection of Harris Grade and Burton Mesa Roads</p>	15.35 acres	1 fire station and 1 sheriff sub-station	Occupied
<p>6) Marketing Name: Oak Hills Planner: Nathan Eady Case Numbers: 08CNS-00000-00060 TM 14,392, EIR 020-012, 96-DPP-011, APN: 097-371-010 Zoning: RR-10</p>	<p>Contact Company: Carneros Development LLC Contact Information: Frances Romero Urban Planning Concepts, Inc. 2450 Professional Parkway, Ste 120 Santa Maria, CA 93455 (805) 934-5760 Location: Located on the north side of Oak Hill Drive, Vandenberg Village area</p>	16.88 acres	21-22 lot subdivision for single-family development	Planner consultation underway
<p>7) Marketing Name: Story Tentative Parcel Map Planner: Florence Trotter-Cadena Case Numbers: 05TPM-00000-0020 APN: 097-260-018 Zoning: 1-E-1</p>	<p>Contact Company: Fletcher Cross and Associates Contact Information: David Cross (Agent) Fletcher Cross and Associates 801 S. Broadway , Ste 1 Santa Maria CA 93454 Location: approximately 137 feet southwest of the intersection of Onstott and Rucker Roads</p>	4.55 acres	Two way split into 1 parcel with 1 acre, and another parcel with 3.55 acres	Withdrawn

Development Information	Contact Information/Project Location	Land Area	# of units, sq. footage, or type	Status
8) Marketing Name: Duckett Caretaker/Watchman Dwelling Planner: Florence Trotter-Cadena Case Numbers: 03-CUP-00000-0010 APN: 097-590-002 Zoning: C-2, Retail Commercial	Contact Company: Mr. Mike Duckett (owner) Contact Information: Mr. Mike Duckett 5940 Olney Street Goleta, CA 93117 Location: Located approximately 160 feet northeast on the intersection of Burton Mesa Boulevard and Constellation Road, known as 178 Burton Mesa Boulevard, in the Lompoc area	34,108 square feet	Request for allowing the construction of a 1,500 square foot single family dwelling under the provisions of Section 35-225.5.20 of the C—2 Zone District.	Approved by Zoning Administrator, August 2008
9) Hunter Planner: Nathan Eady Case Numbers: 08GPA-00000-00002 APN: 099-131-008;-009;-010; Zoning: 100-AG	Contact Company: La Purisima Golf Course Contact Information: Agent: Dudek and Associates 521 Chapala Street Santa Barbara, CA 93101 (805) 963-0651 Location: 3455 East Highway 246 at Cebada Canyon	306 acres	80-room resort/hotel, restaurant, spa, and 80 casitas	Initiation hearing scheduled for PC November 12, 2008
10) Gaffaney Planner: Nathan Eady Case Numbers: 06GPA-00000-00015 APN: 099-650-001; -002; -003; -004; -011; -012; -013 Zoning: (EDRN); RR-10 and RR-20	Contact Company: Fletcher Cross & Associates Contact Information: Dave Cross 801 S Broadway, Suite 1 Santa Maria, CA 93454 (805) 928-6463 Location: North of Tularosa Road and Hwy 246, on either side of Tularosa Road where it becomes a private road.	150 acres	Rezone EDRN to RR-5	Denied by the BS
11) Stoker Planner: Nathan Eady Case Numbers: 06GPA-00000-00009 APN: 097-730-021 Zoning: REC	Contact Company: Higginbotham Development, LLC Contact Information: Mike Stoker 431 Valley Dairy Drive Buellton, CA 93427 Location: Oakhill Drive	Approx. 2.82 acres	Convert Recreation/Open Space to Residential 1.8 and DR-6; 16-lot subdivision, and develop 14 homes.	PC recommended denial on 9/24/08, scheduled BOS hearing of 10/28/08
12) PXP housing project/proposed annexation to the City of Lompoc; APN 097-350-018; portion of APN 099-010-056; portion of APN 097-360-010.	Application to City of Lompoc for annexation and development	804 acres	1300 homes; possible school; fire station	City of Lompoc project

Development Information	Contact Information/Project Location	Land Area	# of units, sq. footage, or type	Status
13) Courtney Recorded Map Modification 05RMM-00000-00002 APN # 097-700-046 Planner: Florence Trotter Zoning: 3-E-1	Contact: Mr. Dave Cross Fletcher – Cross and Associates 801 S. Broadway, Suite 1 Santa Maria, CA 93454 Location: La Valley Road (which intersects Purisima Road between Harris Grade Road and Rucker Road).	3.06 acres	Request to relocate designated building envelope	Approved
14) Marketing Name: Mission Oaks Planner: Gary Kaiser Case Numbers: 05 TRM-00000-00002, 05GPA-00000-00004, 05RZN-00000-00006 APN: 097-111-002 Zoning: SC (Shopping Center)	Contact Company: Burton Mesa Partners, LLC Contact Information: Burton Mesa Partners, LLC 1735 Ballard Canyon Road Solvang, CA 93463 Location: located in the 1400 block of East Burton Mesa Blvd., Lompoc area	3.65 acres	Subdivide the 3.56-acre site into a total of fifteen (15) lots that would contain a total of twenty-seven (27) residential units.	Preapp Pending

CITY OF LOMPOC - CURRENT PROJECT LIST

Maintained by the Planning Division

TAZ	Location/Address	Project Name/Number	Development Type	Acreage/ Sq. Footage	Project Status
❖ Approved Projects – Under Construction					
49	501 West Central Avenue (APN: 93-450-43)	In Shape City (CUP 07-05)	Health Club facility in existing building	23,500 sq. ft.	Completed
37	211 North K Street (APN: 91-061-08)	Residential Project (DR 06-10)	5 Unit Apartment Complex	4,770 sq. ft.	Withdrawn
35	112 North F Street (APN: 85-131-13)	Yanez Electric (DR 03-15)	Three (3) New Commercial Buildings	6,700 sq. ft.	Under construction
35	300 North G Street (APN: 85-022-02)	Barto Industrial Building (DR 04-12, CUP 06-06)	Office/Warehousing	12,580 sq. ft.	Phase 1 – complete Phase 2 – Under construction
35	127 North C Street (APN: 85-133-03, 04)	Foursquare Church (CUP 06-07)	Church Addition	1,995 sq. ft.	Under construction
31	Northeast Corner of Ocean Avenue & Seventh Street (APN: 90-140-28, 24)	Lompoc Hospital (EIR 05-01, DR 05-28)	New 60 Bed Hospital	111,000 sq. ft.	Under construction
38	1119 West Laurel Avenue (APN: 89-200-22)	Bean Warehouse (CUP 08-03)	Office Addition and Tenant Improvement	500 sq. ft. and 3,200 sq. ft.	Under construction
49	2200 Briar Creek Way (APN: 93-550-81)	DS Ventures Seabreeze Apartments (LOM 545, DR 04-28)	64 Apartment Units	2.7 acres	Under construction
36	516 North I Street (APN: 87-191-12)	Commercial Project (DR 06-06)	Mini Market	700 sq. ft.	Under construction

CITY OF LOMPOC - CURRENT PROJECT LIST

Maintained by the Planning Division

TAZ	Location/Address	Project Name/Number	Development Type	Acreage/ Sq. Footage	Project Status
35	340 North G Street (APN: 85-022-04)	Townsend/Hancock Industrial (DR 07-12, LOM 575-P)	Two (2) New Industrial Buildings	3,500 sq. ft. 2,400 sq. ft.	Under construction
34	513 North G Street (APN: 87-192-19, 20)	Transitions Facility (CUP 05-06)	Counseling & Advocacy Facility and 39 Extended Stay Units	.48 acres	Under construction
35	North C St & Walnut Avenue (APN: 85-133-03)	Lompoc Foursquare Church (CUP 07-03)	Church Building	4,000 sq. ft.	Under construction
35	320 East Walnut Avenue (APN: 85-131-01)	Office use of existing building (CUP 06-10)	Office and tenant improvement	2,860 sq. ft.	Under construction
38	Northeast Corner of Laurel Avenue and V Street (APN: 89-500-81)	Crown Laurel (DR 04-35, LOM 544, ZC 04-07, GP 04-05)	73 Single Family Residences	9.53 acres	Model homes under construction Grading residential site
41	Southeast Corner of North Avenue and V Street (APN: 89-040-28)	George Ann Estates (DR 06-19, LOM 550)	8 Unit Residential Project	3.31 acres	Grading permit issued Building permit issued for model home
49	Northeast Corner of North Avenue & Bailey Avenue (APN: 93-070-62)	The Gardens At Briar Creek – Centex Homes (GP 01-02, ZC 01-02, LOM 508, DR 01-02)	150 Single-Family Residences	39.4 acres	Under construction Certificate of Occupancy issued for 70 homes
49	Southeast Corner of Central Avenue & Bailey Avenue (APN: 93-070-63)	The Courtyards at Briar Creek – Centex Homes (GP 04-04, ZC 04-06, DR 04-28)	80 Single-Family Residences	36.4 acres	Under construction Certificate of Occupancy issued for 14 homes

CITY OF LOMPOC - CURRENT PROJECT LIST

Maintained by the Planning Division

TAZ	Location/Address	Project Name/Number	Development Type	Acreage/ Sq. Footage	Project Status
47	1025 block of North H Street (APN: 89-011-22)	Palm Square (DR 06-09)	Façade remodel and construction of new pad building	5,000 sq. ft. new building	Façade improvement under construction Pad Building plans in plan check
❖ Approved Projects – Plan Check					
49	1800 block of West Central Avenue (APN: 93-070-62)	Mini Storage Facility at Briar Creek (DR 06-21)	New Industrial Building	62,140 sq. ft.	Approved by Planning Commission 3-12-07 Grading plans in plan check Modifications approved by Planning Commission 9-10-08
35	112-118 North H Street (APN: 85-122-16)	Lompoc Housing Community Development Corporation (LHCDC) Lompoc Theater Project (DR 06-25)	Construction of a 4,000 addition to existing Theater and second floor renovations in OTC	4,000 sq. ft. addition	Building plans in plan check
49	425 Commerce Court (APN: 93-450-03)	Raytheon addition (DR 08-08)	1,500 sq. ft. addition and 1,150 sq. ft. building	2.35 acres	Approved by Planning Commission 10- 8-08
27	119 South H Street (APN: 85-161-10)	City Park in OTC (DR 05-27)	Pocket Park and 3,000 sq. ft. Building	.16 acres	Approved by Planning Commission 10-10-05 Building plans in plan check

CITY OF LOMPOC - CURRENT PROJECT LIST

Maintained by the Planning Division

TAZ	Location/Address	Project Name/Number	Development Type	Acreage/ Sq. Footage	Project Status
49	1600 North O Street (APN: 93-450-57)	SeaSmoke Winery (DR 07-16) (LOM 579-P)	New Industrial Building	24,800 q. ft.	Approved by Planning Commission 4-9-08 Map approved Building plans in plan check
49	1501 North L Street (APN: 93-450-59)	Perry Winery Building (DR 07-15)	New Industrial Building	49,265 sq. ft.	Approved by Planning Commission 5-14-08 Building plans in plan check
47	1201 North H Street (APN: 89-490-13)	Hilton Garden Inn Hotel (DR 08-03)	New Hotel – 155 rooms	108,000 sq. ft.	Approved by Planning Commission 7-9-08 Building and grading plans in plan check
❖ Approved Projects					
38	1408 West College Avenue (APN: 89-151-02, -03)	Habitat for Humanity (LOM581-P, DR 07-22, ZC 08-02)	4-Unit Residential Project	12,700 sq. ft.	Approved by City Council 8-19-08
42	600 block of North H Street (APN: 89-110-03)	Starbucks Coffee Company (DR 06-23)	New commercial pad building	1,700 sq. ft.	Approved by Planning Commission 5-14-09 Time extension to 5-14-09

CITY OF LOMPOC - CURRENT PROJECT LIST

Maintained by the Planning Division

TAZ	Location/Address	Project Name/Number	Development Type	Acreage/ Sq. Footage	Project Status
34	204 East Laurel Avenue (APN: 85-022-07)	Melville Winery (DR 07-19, LOM 578)	New Industrial Building	6,927 sq. ft.	Approved by Planning Commission 11-13-07 Modifications approved by Planning Commission 9-10-08
27	211 South I Street (APN: 91-153-05)	Charlotte's Web Children's Library (DR 07-21)	New Public Facility	4,650 sq. ft.	Approved by Planning Commission 12-10-07 Time extension to 12-10-09
262	The Cottages at Burton Ranch (APN: 97-250-02, -69, -70)	Residential Project (DR 07-02, LOM 567)	55 Residential units with common open space	14.3 acres	Approved by Planning Commission 5-14-08
262	The Towbes Residential Development (APN: 97-250- 05, -51, -62)	Residential Project (DR 07-01, LOM 570)	210 Residential units in four (4) distinct neighborhood areas with common open space	100.96 acres	Approved by Planning Commission 5-14-08
36	410 North K Street (APN: 89-232-10)	Residential Project (LOM 560, ZC 06-02, DR 06-03)	5 Unit Residential Project	.24 acres	Grading plans in plan check Time extension to 5-8-09

CITY OF LOMPOC - CURRENT PROJECT LIST

Maintained by the Planning Division

TAZ	Location/Address	Project Name/Number	Development Type	Acreage/ Sq. Footage	Project Status
24	115 South Third Street (APN: 85-150-47)	Las Casitas (DR 07-03, LOM 528)	15 Single Family Residential Development	41,650 sq. ft.	Approved by Planning Commission 3-12-07 Grading plan in plan check Time extension to 8-11-10
29	Southeast Corner of Ocean Avenue & U Street (APN: 85-171-03, 15)	The Olson Company (LOM 555, DR 05-30, ZC 05-04)	60 Unit Residential Project	5.13 acres	Approved by City Council 8-1-06 Map in plan check Time extension to 7-10-10
29	Southeast Corner of Ocean Avenue and R Street (APN: 91-110-47)	The Olson Company (LOM 554, DR 05-29, ZC 05-03)	13 Unit Residential Project	1.36 acres	Approved by City Council 8-1-06 Map in plan check Time extension to 7-10-10
35	Chestnut Avenue & H Street (APN: 85-081-01, 02, 85- 082-03, 04, 05, 14, 15)	Chestnut Crossing (LOM 552, ZC 05-06, DR 05-36)	34 Residential Units and 27,550 sq. ft. Commercial Space	1.85 acres	Approved by City Council 8-01-06 Time extension to 6-12-09

CITY OF LOMPOC - CURRENT PROJECT LIST Maintained by the Planning Division

TAZ	Location/Address	Project Name/Number	Development Type	Acreage/ Sq. Footage	Project Status
31	Laurel Avenue & Twelfth Street (APN: 99-140-21)	River Terrace (EIR 04-01, LOM 533, DR 04-03, GP 04-01, ZC 04-01)	Residential / Commercial Development 308 Units - Single-Family Residences, Town Homes, Condominiums	26.31 acres	Approved by City Council 8-16-05 Phase I grading plans in plan check Map in plan check Time extension to 8-16-10
49	1275 North V Street (APN: 93-070-36)	Coastal Meadows (LOM 557, DR 05-39)	42 Unit Residential Project	3.09 acres	Approved by City Council 7-18-06 Time extension to 6-12-09

Appendix F
Authors and Contributors

APPENDIX F

PEA Report Preparation

The following PG&E individuals were involved in the preparation of the PEA.

Name	Organization	Role
Sam Danner	PG&E	Land Planner
Christophe Descantes	PG&E	Cultural Resources
Lee Ellis	PG&E	Project Manager
Jeff Glenn	PG&E	Construction Supervisor
Rick Hernandez	PG&E	Air Quality, Geology, Hazards and Hazardous Materials and Noise
Michael Herz	PG&E	EMF
Keith Larson	PG&E	Transmission Line Estimator
Jim Layugan	PG&E	Construction Foreman
Sally Krenn	PG&E	Biological Resources
Jo Lynn Lambert	PG&E Outside Counsel	Legal Counsel

The following individuals were involved in the preparation of the PEA.

Name	Organization	Role
Mark Bastach	CH2M HILL	Noise
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Raul Briones	Terra Pacific Group	Hydrology, Geology and Mineral Resources, and Hazards and Hazardous Materials
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Loni Cooper	Garcia and Associates	Biological Resources
Chuck Cornwall	Environmental Vision	Visual photo-simulations
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Bob Pearson	CH2M HILL	Corona and Induced Current Effects
Barry Price	Applied Earth Works	Cultural Resources
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Eric Wrubel	Garcia and Associates	Rare Plants

Appendix G
Glossary

APPENDIX G

Glossary

$\mu\text{g}/\text{m}^3$	Micrograms per cubic meter.
AAC	All-aluminum conductor.
AAQS	Ambient Air Quality Standards.
AC	Agricultural Commercial
Airborne sound	Sound that travels through the air, as opposed to structure-borne sound.
Ambient noise	The prevailing general noise existing at a location or in a space, which usually consists of a composite of sounds from many sources, near and far.
APMs	Applicant Proposed Measures
Average	As a measure, the sum of the measurements (over a specified period) divided by the number of measurements.
Backfill	Earth that is replaced after a construction excavation.
Backhoe	A self-propelled machine with an arm equipped with a toothed shovel that scoops earth as the shovel is pulled toward the machine.
Basin Plan	Water Quality Control Plan.
BMP	Best Management Practices.
Breaker	A switch that automatically interrupts an electric circuit under an infrequent abnormal condition .
CAA	Clean Air Act.
CAAQS	California Ambient Air Quality Standards.
Caltrans	California Department of Transportation.
Cal-OSHA	California Office of Safety and Health Administration.
CAP	Clean Air Plan.
CARB	California Air Resources Board.
CDFG	California Department of Fish and Game.
CDWR	California Department of Water Resources.
CEQA	California Environmental Quality Act.
CGS	California Geological Survey.

CMP	Congestion Management Program
CNEL	Community Noise Equivalent Level. The L_{eq} of the A-weighted noise level over a 24-hour period, with a 5 dB penalty applied to noise levels between 7 p.m. and 10 p.m., and a 10 dB penalty applied to noise levels between 10 p.m. and 7 a.m.
CO	Carbon monoxide.
CO ₂ and CO _{2e}	Carbon dioxide and Carbon dioxide equivalent.
Comprehensive Plan	Santa Barbara County Comprehensive Plan.
Conductor	A material capable of transmitting another form of energy.
Conductor sags	The deflection of the conductor due to its own weight.
CPCN	Certificate of Public Convenience and Necessity.
CPUC	California Public Utilities Commission.
CSHM	California Seismic Hazard Map
Current	The rate of flow of an electric charge.
CVC	California Vehicle Code.
CWA	Clean Water Act.
CWM	Chemical Waste Management.
dB	Decibel. The decibel is a measure, on a logarithmic scale, of the magnitude of a particular quantity (e.g., sound pressure, sound power, and sound intensity) with respect to a standardized quantity.
dBA	Decibel A-weighted. The sound-pressure level, in decibels, as measured on a sound-level meter using the internationally standardized A-weighting filter, or as computed from sound spectral data to which A-weighting adjustments have been made. A-weighting de-emphasizes the low and very high-frequency components of the sound in a manner similar to the response of the average human ear. A-weighted sound levels correlate well with subjective reactions of people to noise and are universally used for community noise evaluations.
Dc	Direct current.
Dead-end tower	Type of pole configuration used at heavy-angle points and at positions along the power line to separate long straight sections of poles. These poles are required to maintain clearances between the energized conductor and the steel pole body. The poles are considerably heavier and stronger to withstand a structure failure along the line on either side of the dead end.
DHS	Department of Health Services.

Dielectric	Substance that is a poor conductor of electricity and will sustain the force of an electric field passing through it. Also called an insulator.
DNL	Day-night level.
DTSC	California Environmental Protection Agency, Department of Toxic Substances Control.
EMF	Electric and magnetic fields.
Emission	Unwanted substances released by human activity into air or water.
ESCP	Erosion and Sediment Control Plan.
ETMP	Environmental Training and Monitoring Program.
FAA	Federal Aviation Administration.
FEMA	Federal Emergency Management Agency.
FERC	Federal Energy Regulatory Commission.
FHWA	Federal Highway Administration.
Frequency	The number of oscillations per second of a periodic noise (or vibration) expressed in Hertz (Hz).
FTA	Federal Transit Administration.
g	Gravity.
General Order 95	CPUC safety rule relating to utility work.
GHG	Greenhouse gas.
HCP	Habitat Conservation Plan.
Horizontal dry boring	Steerable method for the installation of pipes, conduits and cables in a shallow arc using a surface launched drilling rig.
Insulator	A material that is a poor conductor of electricity. A device made of an electrical insulating material and used for separating or supporting conductors.
km	Kilometers.
kV	Kilovolt.
L_{dn}	Day-night sound level. The L_{eq} of the A-weighted noise level, over a 24-hour period, with a 5 dB penalty applied to noise levels between 7 p.m. and 10 p.m., and a 10 dB penalty applied to noise levels between 10 p.m. and 7 a.m.

L_{eq}	Energy-equivalent level. The level of a steady noise that would have the same energy as the fluctuating noise level integrated over the time period of interest. L_{eq} is widely used as a single-number descriptor of environmental noise. L_{eq} is based on the logarithmic or energy summation, and it places more emphasis on high noise-level periods than does L_{50} or a straight-arithmetic average of noise level over time. This energy average is not the same as the average sound pressure levels over the period of interest, but must be computed by a procedure involving summation or mathematical integration.
Load/Demand	Total of the electrical customers connected to an electrical grid. Normally expressed in megawatts (MW), 1 MW equals 1000 kW, or 1,000,000 watts. A normal household light bulb is usually rated at 100 watts. This loading varies daily and is seasonal, depending on the temperature characteristics of the service territory.
LOS	Level of service.
LUDC	Land Use and Development Code
M	Magnitude.
M_b	Magnitude (body wave).
MCE	Maximum credible earthquake.
MCM	Multi-Chip Model
mg	Miligrams.
Mg/L	Milligrams per liter.
M_L	Magnitude (Richter).
mph	Miles per hour.
M_s	Magnitude (surface wave).
M_w	Moment magnitude.
MW	Megawatt. A measure of electric power. One thousand kilowatts or one million watts.
NAAQS	National Ambient Air Quality Standards.
NCCP	Natural community conservation plan.
NO_2	Nitrogen dioxide.
NO_x	Oxides of Nitrogen.
NPDES	National Pollutant Discharge Elimination System.
NRCS	Natural Resources Conservation Service.

NW	Northwest.
OSHA	Occupational Safety and Health Administration.
PEA	Proponent's Environmental Assessment.
PG&E	Pacific Gas and Electric Company.
PGA	Peak ground acceleration.
PM ₁₀	Particular matter or fugitive dust.
ppm	Parts per million.
Project	Cabrillo – Santa Ynez 115 kV Reconductoring Project
PTC	Permit to Construct
ROC	Reactive organic compounds.
ROW	Right-of-way.
Sa	Spectral acceleration.
S.B.B & M	San Bernardino Base and Meridian.
SBCAG	Santa Barbara County Association of Governments.
SBCAPCD	Santa Barbara County Air Pollution Control District.
SBCFD	Santa Barbara County Fire Department.
SBCWA	Santa Barbara County Water Agency.
SF ₆	Sulfur hexafluoride gas.
Sheaves	Sheaves are rollers attached to the lower end of the insulators that are, in turn, attached to the ends of each supporting-structure cross arm. The sheaves allow the individual conductors to be pulled through each structure, until the conductors are ready to be pulled up to the final tension position.
SIP	State Implementation Plan.
S&HC	California Street and Highways Code.
SO ₂	Sulfur dioxide.
Sock line	A small cable, used to pull in the conductor.
SR	State Route
Staging area	Place for contractor to set up for work.

Substation	(Transmission and distribution) An assemblage of equipment for purposes other than generation or utilization, through which electric energy in bulk is passed for the purpose of switching or modifying its characteristics. Service equipment, distribution-transformer installations, and other minor distribution or transmission equipment are not classified as substations.
SWPPP	Storm Water Pollution Prevention Plan.
SWRCB	State Water Resources Control Board.
Transmission	A general term for the process by which incident flux leaves a surface or medium on a side other than the incident side.
TDS	Total dissolved solids.
TMP	Traffic Management Plan.
US 101	United States Highway 101
USACE	U.S. Army Corps of Engineers.
Uniform Rules	Santa Barbara County Uniform Rules for Agricultural Preserves and Farmland Security Zones.
USDA	U.S. Department of Agriculture.
USDOT	U.S. Department of Transportation.
USEPA	Environmental Protection Agency.
USFWS	United States Fish and Wildlife Service.
USGS	United States Geological Survey.
V/C	volume/capacity
Vibration dampers	A device attached to a conductor to prevent damage caused by wind-induced vibration.
Voltage	Electric potential, or potential difference between two points in a conducting wire. Electromotive force equivalent to the pressure that causes water to flow in a pipe.
Water Board	California Regional Water Quality Control Board, Central Coast Region.

Appendix H
Affected Property Owners

Cabrillo - Santa Ynez 115 kV Reconductoring Project
Property Within 300 Feet of Project

APN	MAILING ADDRESS	CITY, STATE and ZIP CODE
099-141-006	100 CIVIC CENTER PLZ	LOMPOC, CA 93436
099-141-017	2684 QUAIL VALLEY RD	SOLVANG, CA 93463
099-141-018	735 KOLDING AVE	SOLVANG, CA 93463
099-141-021	13030 INGLEWOOD #102 AVE	HAWTHORNE, CA 90250
099-150-006	23639 ARMINTA ST	WEST HILLS, CA 91304
099-150-010	2898 E HIGHWAY 246	LOMPOC, CA 93436
099-150-012	5811 KENNETT PIKE	WILMINGTON, CA 19807
099-150-013	5811 KENNETT PIKE	WILMINGTON, CA 19807
099-150-054	1204 W NECTARINE AVE	LOMPOC, CA 93436
099-150-055	1204 W NECTARINE AVE	LOMPOC, CA 93436
099-150-057	2025 SWEENEY RD	LOMPOC, CA 93436
099-150-065	4874 HAPGOOD RD	LOMPOC, CA93436
099-160-011	640 OCOTLAN WAY	OXNARD, CA
099-160-014	5326 E HIGHWAY 246	LOMPOC, CA 93436
099-160-056	179 EL SUENO RD	SANTA BARBARA, CA 93110
099-160-057	179 EL SUENO RD	SANTA BARBARA, CA 93110
099-160-067	4621 PERHAM RD	CORONA DEL MAR, CA 92625
099-160-089	1704 LINCOLN AVE	DEVILS LAKE, ND 58301
099-160-094	PO BOX 625	LOMPOC, CA 93438
099-160-095	PO BOX 625	LOMPOC, CA 93438
099-170-013	9454 E NAOMI AVE	ARCADIA, CA 91007
099-170-023	1200 UNION SUGAR AVE	LOMPOC, CA 93436
099-170-043	1711 ALAMO PINTADO RD	SOLVANG, CA 93463
099-190-026	410 OAK HILL RD	LOMPOC, CA 93436
099-190-039	690 ALAMO PINTADO RD	SOLVANG, CA 93463
099-190-069	PO BOX 68	SOLVANG, CA 93464
099-190-077	1153 W HIGHWAY 246	BUELLTON, CA 93427
099-220-001	PO BOX 9370	JACKSON, WY 83002
099-220-013	PO BOX 190	PACIFIC PALISADES, CA 90272
099-220-017	705 MAIN RD	LOMPOC, CA 93436
099-220-021	200 W GLENOAKS #201 BLVD	GLENDALE, CA 91202
099-400-073	834 22ND ST	SANTA MONICA, CA 90403
099-420-009	2395 SWEENEY RD	LOMPOC, CA 93436
099-420-010	1309 S BERKLEY ST	ANAHEIM, CA 92804
099-420-011	2351 SWEENEY RD	LOMPOC, CA 93436
099-420-012	150 HINDS AVE	PISMO BEACH, CA 93449
099-430-005	1320 COUGAR RIDGE RD	BUELLTON, CA 93427
099-430-006	PO BOX 2479	MAMMOTH LAKES, CA 93546
099-430-009	579 BLUEBIRD GLEN RD	BUELLTON, CA 93427
099-430-010	PO BOX 274	BUELLTON, CA 93427
099-430-014	1301 COUGAR RIDGE RD	BUELLTON, CA 93427
099-430-018	214 SANTA CATALINA ST	SANTA BARBARA, CA 93109
099-430-027	490 BLUEBIRD GLEN RD	BUELLTON, CA 93427
099-430-028	470 BLUEBIRD GLEN RD	BUELLTON, CA 93427
099-430-029	449 BLUEBIRD GLEN RD	BUELLTON, CA 93427
099-430-049	1318 ROLLING MEADOW LN	BUELLTON, CA 93427
099-430-050	6934 SAINT AUGUSTINE RD	JACKSONVILLE, FL 32217
099-430-052	625 BOBCAT SPRINGS RD	BUELLTON, CA 93427
099-430-053	585 BOBCAT SPRINGS RD	BUELLTON, CA 93427
099-630-001	4970 CAUGHLIN #518 PKWY	RENO, NV 89519
099-630-008	PO BOX 333	BUELLTON, CA 93427