Draft

Initial Study
and
Mitigated Negative Declaration

for

Pacific Gas and Electric Company
South of Palermo 115 kV Power Line Reinforcement Project
(Application No. 16-04-023)

May 2017

Prepared for:
California Public Utilities Commission
Energy Division
505 Van Ness Avenue
San Francisco, California 94102

Prepared by:
DUDEK

TABLE OF CONTENTS

Section **Page No.**

TABLE OF CONTENTS (CONTINUED)

Section **Page No.**

TABLE OF CONTENTS (CONTINUED)

Section **Page No.**

TABLE OF CONTENTS (CONTINUED)

Section **Page No.**

TABLE OF CONTENTS (CONTINUED)

Section **Page No.**

FIGURES

TABLE OF CONTENTS (CONTINUED)

Page No.

TABLES

TABLE OF CONTENTS (CONTINUED)

Page No.

INTENTIONALLY LEFT BLANK

ACRONYMS AND ABBREVIATIONS

$\mu g/m^3$	micrograms per cubic meter
AAQS	ambient air quality standards
AB	Assembly Bill
ACOE	U.S. Army Corps of Engineers
ADRP	Archaeological Data Recovery Program
amsl	above mean sea level
APCD	Air Pollution Control District
APM	applicant proposed measure
AQMD	Air Quality Management District
AST	aboveground storage tank
BGEPA	Bald and Golden Eagle Protection Act
BLM	Bureau of Land Management
BMP	best management practice
CAAQS	California Ambient Air Quality Standards
CAFE	Corporate Average Fuel Economy
CAGN	California gnatcatcher
CalARP	California Accidental Release Prevention Program
CalEPA	California Environmental Protection Agency
CAL FIRE	California Department of Forestry and Fire Protection
Cal/OSHA	California Occupational Safety and Health Administration
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CAP	Climate Action Plan
CAT	California Climate Action Team
CBC	California Building Code
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CFSP	Community Fire Safety Program
CH_4	methane
CHRIS	California Historical Resources Information System
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level

CNF	Cleveland National Forest
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CO_2E	carbon dioxide equivalent
CPUC	California Public Utilities Commission
CRHR	California Register of Historic Resources
CRPR	California Rare Plant Rank
CWA	Clean Water Act
dB	decibel
dBA	A-weighted decibel (adjusted for human frequencies)
DOC	California Department of Conservation
EMF	electromagnetic field
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
ESA	environmental site assessment
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FMMP	Farmland Mapping and Monitoring Program
FSS	USFS Sensitive
FTA	Federal Transit Administration
GHG	greenhouse gas
GIS	geographical information system
GPS	Global Positioning System
GWP	global warming potential
H_2O	water vapor
HFC	hydrofluorocarbon
HP	horsepower
IPCC	Intergovernmental Panel on Climate Change
IS	Initial Study
kV	kilovolt
KOP	key observation point
L_{eq}	equivalent sound level
LID	low-impact development
LOS	level of service
LRA	Local Responsibility Area
LST	lattice steel tower
L_{dn}	day-night level

L_{max}	maximum sound level
L_{xx}	percentile exceeded sound level
MBTA	Migratory Bird Treaty Act
MHPA	Multi-Habitat Planning Area
MIS	Management Indicator Species
MLD	most likely descendant
MM	mitigation measure
MMCRP	mitigation monitoring, compliance, and reporting program
$MMTCO_2E$	million metric tons of carbon dioxide equivalent
MND	mitigated negative declaration
mpg	miles per gallon
MRZ	Mineral Resource Zone
MSCP	Multiple Species Conservation Program
MW	megawatt
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Plan
NEPA	National Environmental Policy Act
NF_3	nitrogen trifluoride
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic Safety Administration
NO	nitric oxide
NO_2	nitrogen dioxide
NO_x	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
O_3	ozone
OPR	Office of Planning and Research
OSHA	Occupational Safety and Health Administration
PAL	project activity level
PEA	Proponent's Environmental Assessment
PCR	Post-Construction Report
PFC	perfluorocarbon
PG&E	Pacific Gas & Electric
PM	particulate matter
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter

PM_{10}	particulate matter less than 10 microns in diameter
ppm	parts per million
PRC	Public Resources Code
PPV	peak particle velocity
PSR	Preactivity Study Report
PTC	Permit to Construct
RAQS	Regional Air Quality Strategy
RCP	Regional Comprehensive Plan
RCRA	Resource Conservation and Recovery Act
RFS	Renewable Fuel Standard
RMWD	Ramona Municipal Water District
ROG	reactive organic gas
ROW	right-of-way
RPS	Renewable Portfolio Standard
RWQCB	Regional Water Quality Control Board
SANDAG	San Diego Association of Governments
SARA	Superfund Amendments and Reauthorization Act
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District
SCIC	South Coastal Information Center
SDAB	San Diego Air Basin
SDAPCD	San Diego Air Pollution Control District
SDG&E	San Diego Gas & Electric Company
SDWA	Safe Drinking Water Act
SF_6	sulfur hexafluoride
SHPO	State Historic Preservation Office
SMARA	Surface Mining and Reclamation Act
SO_2	sulfur dioxide
SR	State Route
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
TCP	traditional cultural property
TMDL	total maximum daily load
TL	tie-line
UST	underground storage tank
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service

USFS	U.S. Forest Service
USGS	U.S. Geological Survey
VOC	volatile organic compound
WPO	Discharge Control Ordinance

INTENTIONALLY LEFT BLANK

PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298

MITIGATED NEGATIVE DECLARATION

Pacific Gas & Electric
Permit to Construct
A.16-04-023
South of Palermo 115 kV Power Line Reinforcement Project

INTRODUCTION

The Pacific Gas and Electric Company (PG&E or the applicant) filed an application (16-04-023) that included a Proponent's Environmental Assessment (PEA) and required fee pursuant to Rules 2.4 and 2.5 of the California Public Utilities Commissions (CPUC) Rule of Practice and Procedure with the CPUC for an Authority to Construct and for Deviation from Public Utilities Code Section 320 for the South of Palermo 115-kilovolt (kV) Power Line Reinforcement Project (proposed project). On April 28, 2016, the applicant filed an amended application and an updated PEA to reflect proposed changes for the original filing. Accordingly, the amended application and PEA describes the proposed project.

Under the CPUC's rules, approval of the proposed project must comply with the California Environmental Quality Act (CEQA), including assessment of the potential environmental impacts of the proposed project. This Mitigated Negative Declaration (MND) has been prepared based upon the assessment of the potential environmental impacts outline in the attached Initial Study.

Pursuant to CEQA (California Public Resources Code, Section 21000 et seq.), the CPUC must prepare an Initial Study (IS) for discretionary projects such as the proposed project to determine whether the proposed project may have a significant adverse effect on the environment. The IS uses the significance criteria outlined in Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.).

Article 6, Section 15070, Decision to Prepare a Negative Declaration or Mitigated Negative Declaration, of the CEQA Guidelines states the following:

> A public agency shall prepare or have prepared a proposed negative declaration or mitigated negative declaration for a project subject to CEQA when:
>
> a) The initial study shows that there is no substantial evidence, in light of the whole record before the agency, that the project may have a significant effect on the environment, or
>
> b) The initial study identifies potentially significant effects, but:
>
> 1) Revisions in the project plans or proposals made by, or agreed to by, the applicant before a proposed mitigated negative declaration and initial study are released for public review would avoid the

effects or mitigate the effects to a point where clearly no significant effects would occur, and

2) There is no substantial evidence, in light of the whole record before the agency, that the project as revised may have a significant effect on the environment (14 CCR 15070).

Based on the analysis in the IS, it has been determined that all project-related environmental impacts would be reduced to a less-than-significant level with the incorporation of feasible applicant proposed measures (APMs; i.e., measures adopted by the applicant as project features) and four mitigation measures. Therefore, adoption of an MND will satisfy the requirements of CEQA.

The information contained in the proposed project's PEA and additional information requested by the CPUC during the PEA review were fully considered during the preparation of this Draft IS/MND.

Copies of the project application, PEA, and supporting technical studies are available on the project website at:

http://www.cpuc.ca.gov/environment/info/dudek/Palmero/index.htm

PROJECT DESCRIPTION

Following is a summary of the proposed project; the attached IS presents more details in Section 4, Project Description.

PG&E has filed an application with the CPUC for a Permit to Construct the proposed project. The application was filed April 28, 2016, and includes the PEA prepared by PG&E (2016a). The application, PEA, and PG&E's response to Data Request 1 (PG&E 2016b) describe the proposed project.

PG&E is proposing the South of Palermo 115 kV Power Line Reinforcement Project to reinforce the existing 115 kV overhead electric power line system between Palermo, Pease, Bogue, and Rio Oso Substations near the City of Oroville and through a small portion of Marysville in Butte, Yuba, and Sutter Counties. The proposed project would replace the existing conductor and modify/replace existing lattice steel towers along approximately 59.5 miles of PG&E's existing Palermo–Rio Oso 115 kV transmission system. Proposed modifications to existing facilities would take place within PG&E's existing utility corridor.

PROJECT OBJECTIVE

In 2010 and again in 2015, the California Independent System Operator (CAISO) transmission plan identified the need to improve and upgrade this system to address potential overloads and power outages that would affect customers in the service area.

According to PG&E, the primary objectives of the proposed project are to:

- Maintain transmission system reliability. The main project objective is to ensure that the Palermo–Rio Oso 115 kV transmission system would continue to meet planning standards and criteria established by the CAISO and North American Electric Reliability Council (NERC).
- Replace aging facilities. Parts of the Palermo–Rio Oso system were constructed in the early 1900s; consequently, some structures and lines need to be replaced.

MITIGATION MEASURES AND APPLICANT PROPOSED MEASURES

The PEA details project protocols that would be followed during project-related activities (PG&E 2016a). Project protocols are specific to environmental issue areas and are herein termed APMs. Table 1 lists APMs proposed as project design features. These APMs are analyzed as part of the proposed project.

Table 1
Applicant Proposed Measures

APM Number	Description
	Agricultural and Forestry Resources
APM AG-1	**Coordinate with Landowners Prior to Construction and During Restoration Efforts** PG&E will coordinate with landowners prior to construction and during restoration efforts. Measures to be implemented may include, but are not limited to, the following: • Provide written notice to landowners outlining construction activities and restoration efforts. • In areas containing permanent crops (i.e., grape vines, orchard crops, etc.) that must be removed to gain access to pole sites for construction purposes, PG&E may provide compensation to the farmer and/or landowner in coordination with the landowner. • Complete pre-project, post-project, and post-restoration site visit with landowners. • Take photos of pre-project, post-project, and post-restoration conditions in the affected areas.
	Air Quality
APM AQ-1	**Implement Feather River Air Quality Management District[(FRAQMD) Standard Construction Mitigation Measures** The project applicant shall implement the following standard construction mitigation measures (SMMs) required by the FRAQMD to help reduce construction-related emissions. Note that some FRAQMD SMMs are not listed below, as they are included in the APM identified in Section 3.7, Greenhouse Gas Emissions [of the PEA]. 1. Implement the Fugitive Dust Control Plan. PG&E shall prepare and submit a Fugitive Dust Control Plan to the FRAQMD to help reduce construction-related fugitive dust emissions. The Fugitive Dust Control Plan must be submitted by PG&E to the FRAQMD prior to the commencement of construction activities. 2. Utilize existing power sources (e.g., power poles) or clean fuel generators rather than temporary power generators, as practical. 3. Implement a traffic plan to minimize traffic flow interference from construction activities. The above measures will be applied across the entire project area.

Table 1
Applicant Proposed Measures

APM Number	Description
APM AQ-2	**Implement Butte County Air Quality Management District (BCAQMD) Construction Best Practices** PG&E shall implement the following standard construction best practices recommended by the BCAQMD to help reduce construction-related emissions. Note that some BCAQMD construction best practices are not listed below, as they are identified in the APM GHG-1 described in Section 3.7, Greenhouse Gas Emissions [of the PEA]. 1. Diesel PM Exhaust from Construction Equipment a. Avoid idling, staging, and queuing of diesel equipment within 1,000 feet of sensitive receptors. b. Install diesel particulate filters or implement other California Air Resources Board (CARB)-verified diesel emission control strategies. c. To the extent feasible, construction truck trips shall be scheduled during non-peak hours to reduce peak hour emissions. 2. Fugitive Dust: The following is a list of measures that may be required throughout the duration of the construction activities: a. Reduce the amount of the disturbed area where possible. b. Use water trucks or sprinkler systems in sufficient quantities to prevent airborne dust from leaving the site. c. All dirt stockpile areas should be sprayed daily as needed, and covered. d. Exposed ground areas that will be reworked at dates more than 1 month after initial grading should be sown with a fast-germinating noninvasive grass seed and watered until vegetation is established. e. All disturbed soil areas not subject to revegetation should be stabilized using approved chemical soil binders or jute netting. f. Vehicle speed for all construction vehicles shall not exceed 15 mph on any unpaved surface at the construction site. g. All trucks hauling dirt, sand, soil, or other loose materials are to be covered or should maintain at least 2 feet of freeboard (minimum vertical distance between top of load and top of trailer) in accordance with local regulations. h. Post a sign in a prominent location visible to the public with the telephone numbers of the contractor and Air District for any questions or concerns about dust from the project. The above measures will be applied across the entire project area.
APM AQ-3	**Off-Site Mitigation Measures in FRAQMD** PG&E shall enter into an off-site mitigation agreement with the FRAQMD to offset construction emissions in excess of 4.5 tons per year of NOX to levels below the FRAQMD's 4.5 tons per year significance threshold. The off-site mitigation rate shall be based on the current project cost effectiveness factor from the Carl Moyer Memorial Air Quality Standards Attainment Program. The current off-site mitigation rate is $18,030 per ton of O_3 precursor emissions (NOX or ROG) over the District threshold calculated over the length of the expected exceedance.
Biological Resources	
APM BIO-1	**Conduct Worker Environmental Awareness Training Program** A qualified biologist will develop an environmental awareness training program that is specific to the project. All on-site construction personnel will attend the training before they begin work on the project. Training will include a discussion of the avoidance and minimization measures that are being implemented to protect biological resources as well as the terms and conditions of project permits. Training will include information about the federal Endangered Species Act and the California Endangered Species Act, special-status species as defined in this chapter, and the consequences of noncompliance with these acts. Under this program, workers will be informed about the presence, life history, and habitat requirements of all

Table 1
Applicant Proposed Measures

APM Number	Description
	special-status species that may be affected in the project area. Training also will include information on state and federal laws protecting nesting birds, wetlands, and other water resources. An educational brochure will be produced for construction crews working on the project. The brochure will include color photos of sensitive species as well as a discussion of relevant APMs. In particular, construction personnel will be directed to stop work and contact the biological monitor if special-status species are observed.
APM BIO-2	**Conduct Preconstruction Survey(s) For Special-Status Species and Sensitive Resource Areas** A qualified biologist will conduct pre-construction survey(s) for special-status species and sensitive resource areas immediately prior to construction activities within suitable aquatic and upland habitat for special-status species. If a special-status species is encountered during the pre-construction survey(s), PG&E will be contacted immediately to determine the appropriate course of action. For state- or federally listed species, PG&E will contact the appropriate resource agency (California Department of Fish and Wildlife (CDFW) and/or U.S. Fish and Wildlife Service [USFWS]), as required.
APM BIO-3	**Identification and Marking of Sensitive Resources** Sensitive biological resource areas identified during pre-construction surveys in the project area will be clearly marked in the field or on project maps. Sensitive resource areas will include active bird nests within specified buffer zones (see APM BIO-11), special-status plants, special-status vegetation types, vernal pools and wetland boundaries in/or adjacent to work sites. Such areas will be avoided during construction to the extent practicable.
APM BIO-4	**Biological Monitoring** A qualified biologist will monitor ground-disturbing activities in and adjacent to areas identified in APM BIO-3 to ensure compliance with best management practices (BMPs) and APMs, unless the area has been protected by barrier fencing to protect sensitive biological resources and has been cleared by the qualified biologist. The monitor will have authority to stop or redirect work if construction activities are likely to affect sensitive biological resources. If a listed wildlife species is encountered during construction, project activities will cease in the area where the animal is found until the qualified biologist determines that the animal has moved out of harm's way, or, with prior authorization from the U.S. Fish and Wildlife Service (USFWS) and/or California Department of Fish and Wildlife (CDFW), if required, the qualified biologist relocates the animal out of harm's way and/or takes other appropriate steps to protect the animal. Work may resume once the qualified biologist has determined that construction activities will not harm any listed wildlife species. The qualified biologist will be responsible for any necessary reporting to USFWS and/or CDFW.
APM BIO-5	**Restore Habitat for Special-Status Plants Disturbed During Construction** In the unlikely event special-status plant species cannot be avoided, PG&E will stockpile separately the upper 6 inches of topsoil during excavations of special-status plant species habitat. PG&E will use the stockpiled topsoil to restore the area after temporary construction has been completed. When this topsoil is replaced, compaction will be minimized to the extent consistent with utility standards. Restoration and reseeding methods using a California native seed mix will be used to restore the sites.
APM BIO-6	**Avoid or Minimize Impacts on Habitat For Special-Status Vernal Pool Species** PG&E will implement the following measures to reduce potential impacts on vernal pool species and habitat within the project area. These measures may be refined during the Section 7 consultation process or Section 10 Habitat Conservation Plan (HCP) process conducted for the project with the USFWS, as applicable. • Where feasible, the project will avoid and minimize direct and indirect impacts on vernal pool species and their habitat. • Where feasible, new structures will be located outside of suitable habitat features; and work areas and temporary overland access routes will avoid vernal pool habitats.

Table 1
Applicant Proposed Measures

APM Number	Description
	• Where feasible, ground-disturbing activities in and adjacent to vernal pools will be conducted during the dry season (generally May 1 to October 15). • Any ground-disturbing activities taking place within 50 feet of suitable aquatic habitat for vernal pool species will be minimized by: limiting the duration of work, using rubber tire vehicles to reduce soil compaction, and restricting ground disturbance to well-defined, small work areas. • If construction activities must occur on the ground during the wet season, PG&E will implement BMPs consistent with the Storm Water Pollution Prevention Plan (SWPPP) (see APM HYDRO-1), which may include silt fencing to minimize impacts on vernal pool habitat.
APM BIO-7	**Compensate for Permanent Impacts on Habitat for Vernal Pool Species in Accordance with USFWS Permit** PG&E will provide off-site compensation for permanent impacts on vernal pool species habitat at a minimum ratio of 1 acre preserved or created for each acre of direct impact by the project. PG&E will provide this compensatory amount of vernal pool habitat at an off-site location, which may include acquiring mitigation credits at a USFWS-approved conservation area that supports vernal pool fairy shrimp. Final compensation ratios will be based on site-specific information and determined through coordination with the USFWS as part of the permitting processes for the project.
APM BIO-8	**Avoid, Minimize, or Compensate for Any Impacts on Valley Elderberry Longhorn Beetle** PG&E's Valley Elderberry Longhorn Beetle (VELB) Conservation Program allows PG&E to perform routine operations and maintenance activities and new construction, subject to certain terms and conditions as specified in the USFWS Biological Opinion (BO) (File 1-1-01-F-0114). The VELB BO provides for 30 years of incidental take coverage and was issued on June 27, 2003. It defines reasonable and prudent measures required to avoid and minimize impacts on habitat for the federally listed VELB. PG&E will implement the surveying, avoidance, and any necessary compensation measures required for the Conservation Program as authorized by USFWS. These measures may include: (1) surveying for and flagging all elderberry plants with one or more stems measuring 1 inch or more in diameter at ground level that are within 20 feet of work sites; (2) avoiding all such elderberry plants to the extent feasible; and (3) reporting unavoidable impacts on elderberry shrubs to USFWS for coverage under the Conservation Program's funding of VELB habitat acquisition, development, and protection.
APM BIO-9	**Avoid and Minimize Impacts on Giant Garter Snake** PG&E will implement the following avoidance and minimization measures as may be refined during the permitting processes with USFWS and CDFW for the project: • To the fullest extent possible, PG&E will avoid construction activities within 200 feet of the banks of giant garter snake (GGS) aquatic habitat. Habitat disturbance areas and vegetation clearance will be confined to the minimal area necessary to facilitate construction activities. • As feasible, construction activity within GGS aquatic and upland habitat in and around agricultural ditches, irrigation and drainage canals, rice fields, and marshes and sloughs, will be conducted within the active period for GGS (May 1 through October 1). Depending on weather conditions and consultation with USFWS and CDFW, it may be possible to extend the construction period into mid- or late October. • When construction work must occur during the GGS dormant period (October 2 through April 30), additional protective measures will be implemented, which may include: having a biological monitor in sensitive habitat areas or installation of exclusion fencing to prevent giant garter snakes from establishing hibernacula in work areas. • Prior to any construction within suitable GGS aquatic habitat, the habitat will be dewatered and must remain dry for at least 15 consecutive days after April 15 and prior to excavating or filling dewatered habitat.

Table 1
Applicant Proposed Measures

APM Number	Description
	• Pre-construction surveys in suitable GGS habitat will be conducted in accordance with APM BIO-2. The construction area will be resurveyed whenever there is a lapse in construction activity of 2 weeks or more. • If a GGS is encountered within the construction work area, construction activities will be suspended in accordance with APM BIO-4. Based on the results of preconstruction surveys conducted under APM BIO -2, the qualified biologist will coordinate with the PG&E biologist to determine whether to install exclusion fencing to keep GGS out of the construction area. • In accordance with APM BIO-12, service and refueling procedures will be conducted in uplands at least 100 feet away from wetlands or waterways to minimize potential harm to aquatic species from water quality degradation.
APM BIO-10	**Compensate for Permanent Loss of Giant Garter Snake Aquatic and Upland Habitat in Accordance with USFWS Permit** For any permanent loss of GGS aquatic and upland habitat that cannot be avoided, PG&E will preserve a compensatory amount of GGS habitat, including acquiring mitigation credits at a USFWS-approved conservation area that supports GGS. PG&E will provide off-site compensation for permanent impacts on GGS habitat at a minimum ratio of 1 acre preserved for each acre of impacts, or as otherwise required by the USFWS and the CDFW during the permitting processes for the project.
APM BIO-11	**Avoidance and Minimization of Impacts on Nesting Birds** If work is scheduled during the nesting season (February 15 through August 31), nest detection surveys will be conducted within a standard buffer for individual species in accordance with the species-specific buffers set forth in Appendix D of the PEA and will occur within 15 days prior to the start of work activities at designated construction areas, staging areas, and landing zones to determine nesting status by a qualified wildlife biologist. Nest surveys will be accomplished by ground surveys and/or by helicopter and will support phased construction, with surveys scheduled to be repeated if construction lapses in a work area for 15 days between March and July. Access for ground surveys will be subject to property access permission. Helicopter flight restrictions for nest detection surveys may be in effect for densely populated residential areas, and will include observance of appropriate established buffers and avoidance of hovering in the vicinity of active nest sites. If active nests containing eggs or young are found, the biologist will establish a species-specific nest buffer, as defined in Appendix D of the PEA. Where feasible, standard buffers will apply, although the biologist may increase or decrease the standard buffers in accordance with the factors set forth in Appendix D. Nesting pair acclimation to disturbance in areas with regularly occurring human activities will be considered when establishing nest buffers. The established buffers will remain in effect until the young have fledged or the nest is no longer active as confirmed by the biologist. Active nests will be periodically monitored until the biologist has determined that the young have fledged or all construction is finished. Per the discretion of the biologist, vegetation removal by hand may be allowed within nest buffers or in areas of potential nesting activity. Inactive nests may be removed in accordance with PG&E's approved avian permits. The biologist will have authority to order the cessation of nearby project activities if nesting pairs exhibit signs of disturbance.
APM BIO-12	**Implement General Protection Measures for Wetlands and Other Waters** PG&E will implement the following general measures, in addition to those outlined in Section 2.8.8, Best Management Practices, to minimize or avoid impacts on wetlands and other waters: • Avoid wetlands and other waters as identified in BIO APM-3. • Establish overland access routes to avoid wetlands and other waters to the extent feasible. • Conduct all fueling of vehicles at least 100 feet from wetlands and other water bodies.

Table 1
Applicant Proposed Measures

APM Number	Description
	• Set staging areas back at least 50 feet from streams, creeks, or other water bodies. Additionally, per APM HYDRO-1, PG&E will prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) to prevent construction-related erosion and sediments from entering nearby waterways.
APM BIO-13	**Compensate for Permanent Impacts on Wetlands and Other Waters in Accordance with Project Permits** PG&E will compensate for permanent impacts on wetlands with at least a 2:1 ratio of acre restored or created to acre filled. Final compensation ratios will be based on site-specific information and determined through coordination with the U.S. Army Corps of Engineers and the Central Valley Regional Water Quality Control Board as part of the permitting processes for the project.
APM BIO-14	**Restore Temporarily Impacted Wetlands and Other Waters** All wetlands and other waters that are temporarily disturbed as a result of project activities will be restored upon completion of construction.
Cultural Resources	
APM CR-1	**Workers Environmental Awareness Training** PG&E will provide environmental awareness training on archeological and paleontological resources protection. This training may be administered by the principal cultural resources specialist as a stand-alone training or included as part of the overall environmental awareness training as required by the project and will at minimum include: types of cultural resources or fossils that could occur at the project site; types of soils or lithologies in which the cultural resources or fossils could be preserved; procedures that should be followed in the event of a cultural resource, human remain, or fossil discovery; and penalties for disturbing cultural or paleontological resources.
APM CR-2	**Flag and Avoid Resources P-51-000150, P-58-001372, P-58001369, PL-Palermo-011H, Old Marysville Road** A qualified archaeologist will flag sites P-51-000150, P-58-001372, PL-Palermo-011H, and the Old Marysville Road for avoidance. Sites will be marked with flagging tape, safety fencing, and/or sign designated it as an "environmentally sensitive area" to ensure that PG&E construction crews and heavy equipment will not intrude on these sites during construction. For those sites that contain an existing access road within their site boundary or are an existing road (e.g., Old Marysville Road), the road will be used as-is (i.e., no grading, widening, or other substantial improvements), and signs or safety fencing will be established on either side of the road within the site's boundary to avoid impacts caused by construction vehicles. If it is determined that the project cannot avoid impacts on one or more of the sites, then, for those sites that have not been previously evaluated, evaluation for inclusion in the National Register of Historic Places (NRHP)/California Register of Historic Resources (CRHR) will be conducted. Should the site be found eligible, appropriate measures to reduce the impact to a less-than-significant level will be implemented, including but not limited to data recovery, photographic and archival documentation, or other measures as deemed appropriate in consultation with CPUC and interested parties. If it is determined that sites that have been previously determined to be eligible for inclusion in either the NRHP or CRHR cannot be avoided, measures will be implemented to reduce the impact to a less-than-significant level, including but not limited to data recovery, photographic and archival documentation, or other measures as deemed appropriate in consultation with the CPUC and interested parties.
APM CR-3	**Manage Unanticipated Cultural Resources Discoveries Properly** a. Buried Cultural Resources. If buried cultural resources are inadvertently discovered during site preparation or construction activities, work will stop in that area and within 100 feet of the find until a qualified cultural resources specialist/archaeologist can assess the significance of the find and, if necessary, develop appropriate treatment measures in consultation with PG&E and other appropriate agencies. Work may continue on

Table 1
Applicant Proposed Measures

APM Number	Description
	other portions of the site with the cultural resources specialist/archaeologist's approval. PG&E will implement the cultural resources specialist/archaeologist's recommendations for treatment of discovered cultural resources. b. Human Remains. In the unlikely event that human remains or suspected human remains are uncovered during pre-construction testing or during construction, all work within 100 feet of the discovery will be halted and redirected to another location. The find will be secured, and PG&E's cultural resources specialist or designated representative will be contacted immediately to inspect the find and determine whether the remains are human. If the remains are not human, the cultural resources specialist will determine whether the find is an archaeological deposit and whether paragraph (a) of this APM should apply. If the remains are human, the cultural resources specialist will immediately implement the applicable provisions in PRC Sections 5097.9 through 5097.996, beginning with the immediate notification to the affected county coroner. The coroner has two working days to examine human remains after being notified. If the coroner determines that the remains are Native American, California Health and Safety Code 7050.5 and PRC Section 5097.98 require that the cultural resources specialist contact the Native American Heritage Commission (NAHC) within 24 hours. The NAHC, as required by PRC Section 5097.98, will determine and notify the Most Likely Descendant. c. Paleontological Discoveries. If significant paleontological resources are discovered during construction activities, work will stop within 100 feet and the project cultural resource specialist will be contacted immediately. The project cultural resources specialist will work with the qualified paleontologist to evaluate the discovery. If the discovery is determined to be significant, PG&E will implement measures to protect and document the paleontological resource. Work may not resume within 100 feet of the find until approval by the cultural resource specialist in coordination with the paleontologist. In the event that significant paleontological resources are encountered during the project, protection and recovery of those resources may be required. Treatment and curation of fossils will be conducted in consultation with the landowner, PG&E, and CPUC. The paleontologist will be responsible for developing the recovery strategy and will lead the recovery effort, which will include establishing recovery standards, preparing specimens for identification and preservation, documentation and reporting, and securing a curation agreement from the approved agency.
APM CR-4	**Paleo Monitoring** Interval (spot check) monitoring for paleontological resources will be required for excavation activities larger than 3 feet in diameter and grading to depths greater than 2 feet that intersect undisturbed sediments in the Riverbank, Modesto, and Laguna formations. Monitoring is not required for shallow excavations into sediments previously disturbed by agricultural activities, development, or construction related to the existing Palermo–East Nicolaus 115 kV Transmission Line regardless of the mapped geologic unit sensitivity ranking because fossils found within such sediments would lack provenience data critical to scientific significance. In the unlikely event that a highly fossiliferous facies is encountered, monitoring will be conducted full time until excavations within that facies are complete. Conversely, monitoring may be reduced or suspended in the absence of encountering paleontologically sensitive sediments. Monitoring will be done by a qualified paleontological monitor. The paleontological monitor will document monitoring activities on monitoring logs. Monitoring logs and reports will include the activities observed, geology encountered, description of any resources encountered, and measures taken to protect or salvage fossils discovered. Photographs and other supplemental information will be included as necessary.

Table 1
Applicant Proposed Measures

APM Number	Description
	Geology and Soils
APM GEO-1	**Minimize Construction in Soft or Loose Soils** Where soft or loose soils are encountered during project construction, several measures are available, feasible and can be implemented to avoid, accommodate, replace, or improve such soils. Depending on site-specific conditions and permit requirements, one or more of these measures may be implemented to eliminate impacts from soft or loose soils: • Locating construction facilities and operations away from areas of soft and loose soil. • Over-excavating soft or loose soils and replacing them with engineered backfill materials. • Increasing the density and strength of soft or loose soils through mechanical vibration and/or compaction. • Installing material, such as aggregate rock, steel plates, or timber mats, over access roads. • Treating soft or loose soils in place with binding or cementing.
	Greenhouse Gas Emissions
APM GHG-1	**Minimize Greenhouse Gas Emissions** • Encourage construction workers to carpool to the job site to the extent feasible. The ability to develop an effective carpool program for the project will depend upon the proximity of carpool facilities to the area, the geographical commute departure points of construction workers, and the extent to which carpooling will not adversely affect worker arrival time and the project's construction schedule. • Minimize unnecessary construction vehicle idling time for on-road and off-road vehicles. The ability to limit construction vehicle idling time will depend on the sequence of construction activities and when and where vehicles are needed or staged. Certain vehicles, such as large diesel-powered vehicles, have extended warm-up times following start-up that limit their availability for use following start-up. Where such diesel-powered vehicles are required for repetitive construction tasks, these vehicles may require more idling time. The project will apply a "common sense" approach to vehicle use, so that idling is reduced as far as possible below the maximum of 5 consecutive minutes allowed by California law; if a vehicle is not required for use immediately or continuously for construction activities, its engine will be shut off. Construction foremen will include briefings to crews on vehicle use as part of pre-construction conferences. Those briefings will include discussion of a "common sense" approach to vehicle use. • Maintain construction equipment in proper working conditions in accordance with PG&E standards. • Minimize construction equipment exhaust by using low-emission or electric construction equipment where feasible. Portable diesel fueled construction equipment with engines 50 horsepower or larger and manufactured in 2000 or later will be registered under the CARB Statewide Portable Equipment Registration Program. • Minimize welding and cutting by using compression of mechanical applications where practical and within standards. • Encourage use of natural gas-powered vehicles for passenger cars and light-duty trucks where feasible and available. • Encourage recycling construction waste where feasible.
	Hazards and Hazardous Material
APM HAZ-1	**Hazardous-Substance Control and Emergency Response** PG&E will implement its hazardous substance control and emergency response procedures to ensure the safety of the public and site workers during construction. The procedures identify methods and techniques to minimize the exposure of the public and site workers to potentially hazardous materials during all phases of project construction through operation. They address worker training appropriate to the site worker's role in

Table 1
Applicant Proposed Measures

APM Number	Description
	hazardous substance control and emergency response. The procedures also require implementing appropriate control methods and approved containment and spill-control practices for construction and materials stored on-site. If it is necessary to store chemicals on-site, they will be managed in accordance with all applicable regulations. Material safety data sheets will be maintained and kept available on-site, as applicable. Project construction will involve soil surface blading/leveling, excavation of up to several feet, and augering to a maximum depth of 35 feet in some areas. In the event that soils suspected of being contaminated (on the basis of visual, olfactory, or other evidence) are removed during site grading activities or excavation activities, the excavated soil will be tested, and if contaminated above hazardous waste levels, will be contained and disposed of at a licensed waste facility. The presence of known or suspected contaminated soil will require testing and investigation procedures to be supervised by a qualified person, as appropriate, to meet state and federal regulations. All hazardous materials and hazardous wastes will be handled, stored, and disposed of in accordance with all applicable regulations, by personnel qualified to handle hazardous materials. The hazardous substance control and emergency response procedures include, but are not limited to, the following: • Proper disposal of potentially contaminated soils. • Establishing site-specific buffers for construction vehicles and equipment located near sensitive resources. • Emergency response and reporting procedures to address hazardous material spills. • Stopping work at that location and contacting the County Fire Department Hazardous Materials Unit immediately if visual contamination or chemical odors are detected. Work will be resumed at this location after any necessary consultation and approval by the Hazardous Materials Unit. PG&E will complete a standard Emergency Action Plan Form as part of project tailboard meetings. The purpose of the form is to gather emergency contact numbers, first aid location, work site location, and tailboard information.
APM HAZ-2	**Worker Environmental Awareness Program for Health, Safety, and Environment (WEAP-HSE)** The program will include the following components related to hazards and hazardous materials: • PG&E Health, Safety, and Environmental expectations and management structure. • Applicable regulations. • Summary of the hazardous substances and materials that may be handled and/or to which workers may be exposed. • Summary of the primary workplace hazards to which workers may be exposed. • Overview of the measures identified in APM HAZ-1. • Overview of the controls identified in the Storm Water Pollution Prevention Plan (SWPPP under APM HYDRO-1.
APM HAZ-3	**Fire Risk Management** PG&E will follow its standard fire risk management procedures, including safe work practices, work permit programs, training, and fire response. Project personnel will be directed to park away from dry vegetation. During fire season in designated State Responsibility Areas, all motorized equipment driving off paved or maintained gravel/dirt roads will have federally approved or State-approved spark arrestors. All off-road vehicles will be equipped with a backpack pump (filled with water) and a shovel. Fire-resistant mats and/or windscreens will be used when welding. In addition, during fire "red flag" conditions (as determined by CalFire), welding will be curtailed. Every fuel truck will carry a large fire extinguisher with a minimum rating of 40 B:C, and all flammable materials will be removed from equipment parking and storage areas.

Table 1
Applicant Proposed Measures

APM Number	Description
	Hydrology and Water Quality
APM HYDRO-1	**Prepare and Implement a Storm Water Pollution Prevention Plan (SWPPP**) PG&E will prepare and implement a SWPPP to prevent construction-related erosion and sediments from entering nearby waterways. The SWPPP will include a list of BMPs to be implemented in areas with potential to drain to any water body in Butte, Yuba, or Sutter counties. BMPs to be part of the project-specific SWPPP may include, but are not limited to, the following control measures. • Implementing temporary erosion control measures (such as silt fences, staked straw bales/wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, grass buffer strips, high infiltration substrates, grassy swales, and temporary revegetation or other ground cover) to control erosion from disturbed areas. • Protecting drainage facilities in downstream off-site areas from sediment using BMPs accepted to Butte, Sutter, and Yuba counties, and the Central Valley RWQCB. • Protecting the quality of surface water from non-stormwater discharges such as equipment leaks, hazardous materials spills, and discharge of groundwater from dewatering operations. • Restoring disturbed areas, after project construction is completed, unless otherwise requested by the landowner in agricultural land use areas. Requirements of the SWPPP would be coordinated with the requirements of any Section 401 Water Quality Certification issued for the project under the Clean Water Act and/or Streambed Alteration Agreement issued under Fish and Game Code Section 1602, as applicable.
	Noise
APM NO-1	**Employ Noise-Reducing Construction Practices during Temporary Construction Activities** PG&E will employ standard noise-reducing construction practices such as the following: • Ensure that all equipment is equipped with mufflers that meet or exceed factory new-equipment standards. • Locate stationary equipment as far as practical from noise-sensitive receptors. • Limit unnecessary engine idling. • Limit all construction activity near sensitive receptors to daytime hours unless required for safety or to comply with line clearance requirements. Minimize noise-related disruption by notifying residents. Should nighttime project construction be necessary because of planned clearance restrictions, affected residents will be notified at least 7 days in advance by mail, personal visit, or door hanger, and informed of the expected work schedule.
	Transportation
APM TRA-1	**Temporary Traffic Controls** PG&E will obtain any necessary transportation and encroachment permits from Caltrans and the local jurisdictions, as required, including those related to state route crossings and the transport of oversized loads and certain materials, and will comply with permit requirements designed to prevent excessive congestion or traffic hazards during construction. PG&E will develop road and lane closure or width reduction or traffic diversion plans as required by the encroachment permits. Construction activities that are in or along or that cross local roadways will follow best management practices and local jurisdictional encroachment permit requirements—such as traffic controls in the form of signs, cones, and flaggers—to minimize impacts on traffic and transportation in the project area.
APM TRA-2	**Air Transit Coordination** PG&E will implement the following protocols related to helicopter use during construction and air traffic: • PG&E will comply with all applicable Federal Aviation Administration (FAA) regulations regarding air traffic within 2 miles of the project alignment. • PG&E's helicopter operator will coordinate all project helicopter operations with local airports before

Table 1
Applicant Proposed Measures

APM Number	Description
	and during project construction. • Helicopter use and landing zones will be managed to minimize impacts on local residents. PG&E will submit to CPUC staff a Helicopter Use Plan, which will identify the anticipated landing zones, flight paths and general helicopter operation procedures.
APM TRA-3	**Coordinate Road Closures with Emergency Service Providers** At least 24 hours prior to implementing any road or lane closure, PG&E will coordinate with applicable emergency service providers in the project vicinity. PG&E will provide emergency service providers with information regarding the road or lanes to be closed; the anticipated date, time, and duration of closures; and a contact telephone number.

MITIGATION MEASURES

The following mitigation measures (Table 2), agreed to by the applicant, would reduce project-related impacts to a less-than-significant level.

Table 2
Mitigation Measures

MM Number	Description
	Biological Resources
MM BIO-1	Prior to initiation of ground-disturbing activities, special-status plant surveys will be conducted by a qualified biologist familiar with the species' biology and habitat requirements in suitable habitat in the project area. The surveys shall be conducted in the appropriate bloom season prior to the commencement of construction, when plants are evident and identifiable. The surveys will be conducted in accordance with applicable California Native Plant Society (CNPS), California Department of Fish and Wildlife (CDFW), and U.S. Fish and Wildlife Service (USFWS) survey protocols. If no special-status plant species are observed during preconstruction surveys, no further mitigation is necessary. If special-status plant species are observed, the population(s) shall be avoided to the maximum extent practicable and flagged during construction to ensure avoidance. If avoidance is not possible, appropriate relocation, seed collection and establishment, or other mitigation measures approved in coordination CDFW and/or USFWS, as appropriate, shall be implemented.
MM BIO-2	This mitigation measure is an extension to Applicant Proposed Measure (APM) BIO-7. Where impacts from construction activities result in permanent loss of function or permanent change to vernal pool species habitat, Pacific Gas and Electric Company (PG&E) will provide off-site compensation. Impacts to vernal pool species habitat will be compensated at a minimum ratio of 1 acre preserved or created for each acre of disturbance. PG&E will provide this compensatory habitat at an off-site location, which may include acquiring mitigation credits at a U.S. Fish and Wildlife Service (USFWS)-approved conservation area that supports vernal pool fairy shrimp. This mitigation ratio may be refined as appropriate during the future federal Endangered Species Act (ESA) Section 7 or Section 10 consultation process conducted for the project.
MM BIO-3	Where impacts from construction activities result in permanent loss of function or permanent change to northern hardpan vernal pool habitat Pacific Gas and Electric Company (PG&E) will provide off-site compensation. Impacts to northern hardpan vernal pool habitat will be compensated at a minimum ratio of 1 acre preserved or created for each acre impacted by the project. PG&E will provide this compensatory habitat

Table 2
Mitigation Measures

MM Number	Description
	at an off-site location, which may include acquiring mitigation credits at a U.S. Fish and Wildlife Service (USFWS-approved conservation area). This mitigation ratio may be refined as appropriate during the future federal Endangered Species Act (ESA) Section 7 or Section 10 consultation process conducted for the project.
	Hazards and Hazardous Materials
MM HAZ-1	**Develop and Implement Construction Fire Risk Management Plan.** The applicant shall develop a Fire Risk Management Plan that addresses training of construction and maintenance crews, and provides details of fire-suppression procedures and equipment to be used during construction. At minimum, the plan will include the following: • Procedures for minimizing potential ignition, including, but not limited to, helicopter operations, vegetation clearing, parking requirements/restrictions, idling restrictions, smoking restrictions, proper use of gas-powered equipment, use of spark arrestors, and hot work restrictions; • Work restrictions during Red Flag Warnings and High to Extreme Fire Danger days; • Fire coordinator and fire patrol roles and responsibilities; • Detailed information for responding to fires; • Worker training for fire prevention, initial attack firefighting, and fire reporting; • Emergency communication, response, and reporting procedures; • Coordination with local fire agencies to facilitate agency access through the project site; • Emergency contact information; • Demonstrate compliance with applicable wildland fire management plans and policies established by state and local agencies. Information contained in the Plan and location of fire-suppression materials and equipment shall be included as part of the employee environmental training discussed in APM HAZ-2. At a minimum, fire-suppression equipment and materials shall be kept adjacent to all areas of work and in staging areas, and shall be clearly marked. Water tanks shall be sited in the project area to protect against fire, and all vehicles shall carry fire-suppression equipment. The applicant shall contact and coordinate with local and county fire departments to determine the minimum amounts of fire equipment to be carried on the vehicles and appropriate locations for the water tanks.
	Traffic and Transportation
MM TRA-1	PG&E shall obtain all necessary transportation and/or encroachment permits and transport of oversized loads and certain materials, and shall comply with permit requirements designed to prevent excessive congestion or traffic hazards during temporary lane closures. PG&E would develop lane closure/width reduction or traffic diversion plans as required by the encroachment permits. Construction activities that are in, along, or cross local roadways shall follow best management practices and/or local jurisdictional encroachment permit requirements, to minimize impacts to traffic and transportation in the Project area. PG&E will demonstrate to the CPUC that it has obtained all permits prior to construction activity in a given jurisdiction or location.

ENVIRONMENTAL DETERMINATION

The IS has been prepared to identify the potential effects on the environment from implementation of the proposed project and to evaluate the significance of these effects. The IS is based on the applicant's PEA filed on April 28, 2016; proposed project site inspections by the CPUC environmental team; and other environmental analysis for the proposed project. APMs proposed by the applicant as project design features are incorporated into Section 4, Project Description, of this IS.

Based on the IS, the proposed project, with integration of APMs and mitigation measures where applicable, would result in less-than-significant effects or have no impacts in the areas of aesthetics, agriculture and forestry resources, air quality, biological resources, cultural resources, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation and traffic, and utilities and service systems.

REVIEW PERIOD

The 30-day public review period for the re-issued Draft MND begins on May 15, 2017. The CPUC will be accepting comments on the document during this timeframe. Written comments will be accepted until 5:00 p.m. on June 14, 2017.

The IS/MND, as well as PG&E's application and PEA for the South of Palermo 115 kV Power Line Reinforcement Project, are available at the project's website:

http://www.cpuc.ca.gov/environment/info/dudek/Palmero/index.htm

Contact Person

May 10, 2017
Date

Andrew Barnsdale, Project Manager
Energy Division
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, California 94102
415.703.3221

INTENTIONALLY LEFT BLANK

1 INITIAL STUDY ENVIRONMENTAL CHECKLIST FORM

1.1 Project Title

South of Palermo 115-kilovolt (kV) Power Line Reinforcement Project.

1.2 Lead Agency Name and Address

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

1.3 Contact Person and Phone Number

Andrew Barnsdale
Project Manager
Energy Division
415.703.3221

1.4 Project Location

The proposed project is made up of five segments located between the communities of Oroville to the north and East Nicolaus to the south, spanning portions of Butte, Sutter, and Yuba Counties (see Figure 4-1, Regional Map, and Figures 4-2a and 4-2b, Project Vicinity – Overview). The proposed project would rebuild the 115 kV line between Palermo and Rio Oso, as well as lines that feed into Yuba City and Marysville.

1.5 Project Sponsor's Name and Address

Pacific Gas and Electric Company
77 Beale Street
San Francisco, California 947105

1.6 General Plan Designation

The project spans portions of Butte, Sutter, and Yuba Counties, and passes through a small portion of the Cities of Oroville, Marysville, and Yuba City. General Plan designations include agriculture, very low density residential, valley neighborhood (Sutter), and commercial mixed use.

1.7 Zoning

Zoning land use designations include general agricultural, exclusive agricultural, agricultural/residential, low-density residential, light industrial, industrial, and general commercial uses.

1.8 Description of Project

The Pacific Gas and Electric Company (PG&E) is proposing the South of Palermo 115 kV Power Line Reinforcement Project to reinforce the existing 115 kV overhead electric power line system between Palermo, Pease, Bogue, and Rio Oso Substations near the City of Oroville and through a small portion of Marysville in Butte, Sutter, and Yuba Counties. The proposed project would replace the existing conductor and modify/replace existing lattice steel towers along approximately 59.5 miles of PG&E's existing Palermo–Rio Oso 115 kV transmission system. Proposed modifications to existing facilities would take place within PG&E's existing utility corridor.

The project would consist of the following five segments:

- South of Palermo Line (38.7 miles) - Located between Palermo Junction near the communities of Oroville and Palermo and Rio Oso Junction in the community of East Nicolaus.
- Palermo Sub-Line Segment (1.6 miles) - Extends eastward approximately 1.6 miles from Palermo Junction to Palermo Substation, which is near the intersection of Stageline Road and Drescher Tract Road northeast of the community of Palermo
- Pease Sub-Line Segment (5.2 miles) - Extends approximately 5.2 miles west from the South of Palermo Line, crossing over the Feather River, State Route (SR) 70, SR 99, and a small portion of Yuba City.
- Bogue Sub-Line Segment (6.4 miles) - Extends approximately 6.4 miles west from the South of Palermo Line and crosses over the Feather River. It connects to the South of Palermo Line at Bogue Junction, near George Avenue in the unincorporated town of Olivehurst.
- Rio Oso Sub-Line Segment Loop (7.6 miles) - Extends northeast from the South of Palermo Line at Rio Oso Junction to Rio Oso Substation on Hicks Road, and then loops back to Rio Oso Junction along an alignment to the south, for a total of approximately 7.6 miles.

1.9 Surrounding Land Uses and Setting

The predominant land uses surrounding the proposed project alignment include semi-rural residential development and agricultural uses, primarily orchards and rice fields. In the portions of the proposed project area near developed communities, the land use is primarily residential, interspersed with industrial development. Prominent geographic features that intersect the project alignment include the Feather River; Yuba River; Bear River; and numerous highways, including SR 99, SR 70, SR 65, and SR 20.

1.10 Other Public Agencies Whose Approval Is Required

In addition to the Authority to Construct required by the CPUC for overall project approval and California Environmental Quality Act review, Table 1-1 describes additional permits that the applicant will likely be required to obtain for project implementation.

Table 1-1
Required Permits and Approvals

Permit/Authorization	Agency	Purpose
Federal		
Section 7 Consultation (Biological Opinion)	U.S. Fish and Wildlife Service (consulting through the U.S. Army Corps of Engineers)	Potential impacts on federally listed species
Section 106 Consultation (National Historic Preservation Act)	State Historic Preservation Officer (consulting through the U.S. Army Corps of Engineers)	Consultation regarding impacts to cultural resources
Notification of Proposed Construction or Alteration	Federal Aviation Administration	Height increase of power line structures
Section 404 Permit (Clean Water Act)	U.S. Army Corps of Engineers	Potential impacts on wetlands
State		
Permit to Construct	California Public Utilities Commission	Overall project approval, CEQA review, and issuance of a Permit to Construct
Section 2081 Incidental Take Permit or Consistency Determination 2080.1	California Department of Fish and Wildlife	Coverage for potential take of state-listed species
Section 1602 Streambed Alteration Agreement		Coverage for modification of a streambed or bank
Encroachment Permits	California Department of Transportation	Activities related to the placement of encroachments within, under, or over state highway rights-of-way
National Pollutant Discharge Elimination System – General Construction Storm Water Permit (ministerial)	Central Valley Regional Water Quality Control Board	Stormwater discharges associated with construction activities disturbing more than one acre of land

Table 1-1
Required Permits and Approvals

Permit/Authorization	Agency	Purpose
Section 401 Water Quality Certification (Clean Water Act)		Potential discharge into water body
Encroachment Permits	Central Valley Flood Protection Board	Activities related to the placement of encroachments near levees or designated waters
Local		
Encroachment Permit (ministerial)	Butte, Sutter, and Yuba Counties	Work within county roads/road ROW or property, and railroads

2 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agricultural and Forestry Resources	☐ Air Quality
☒ Biological Resources	☐ Cultural Resources	☐ Geology/Soils
☐ Greenhouse Gas Emissions	☒ Hazards and Hazardous Materials	☐ Hydrology/ Water Quality
☐ Land Use/Planning	☐ Mineral Resources	☐ Noise
☐ Population/Housing	☐ Public Services	☐ Recreation
☒ Transportation/Traffic	☐ Utilities/Service Systems	☒ Mandatory Findings of Significance

INTENTIONALLY LEFT BLANK

3 ENVIRONMENTAL DETERMINATION

On the basis of this initial evaluation:

I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION (ND) will be prepared. ☐

I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared. ☒

I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT (EIR) is required. ☐

I find that the proposed project MAY have a "potentially significant impact" or "potentially significant impact unless mitigated" on the environment, but a least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An EIR is required, but it must analyze only the effects that remain to be addressed. ☐

I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or ND pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or ND, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required. ☐

May 10, 2017

Mary Jo Borak
Energy Division
California Public Utilities Commission

Date

INTENTIONALLY LEFT BLANK

4 PROJECT DESCRIPTION

4.1 Introduction

Pacific Gas and Electric Company (PG&E) has filed an application with the California Public Utilities Commission (CPUC) for a Permit to Construct the South of Palermo 115-kilovolt (kV) Power Line Reinforcement Project (proposed project). The application was filed April 28, 2016, and includes the Proponent's Environmental Assessment (PEA) prepared by PG&E (PG&E 2016a). The application, PEA, and PG&E's response to Data Request 1 (PG&E 2016b) describe the proposed project.

PG&E is proposing the South of Palermo 115 kV Power Line Reinforcement Project to reinforce the existing 115 kV overhead electric power line system between Palermo, Pease, Bogue, and Rio Oso Substations near Yuba City and through a small portion of Marysville and Oroville in Butte, Yuba, and Sutter Counties. The proposed project would replace the existing conductor and modify/replace existing structures along approximately 59.5 miles of PG&E's existing Palermo–Rio Oso 115 kV transmission system. Proposed modifications to existing facilities would take place within PG&E's existing utility corridor.

4.2 Project Objectives

In 2010 and again in 2015, the California Independent System Operator (CAISO) transmission plan identified the need to improve and upgrade this system to address potential overloads and power outages that would affect customers in the service area.

According to PG&E, the primary objectives of the proposed project are to:

- Maintain transmission system reliability. The main project objective is to ensure that the Palermo–Rio Oso 115 kV transmission system would continue to meet planning standards and criteria established by the CAISO and North American Electric Reliability Council (NERC).
- Replace aging facilities in a cost-effective and environmentally sensitive manner to maintain a safe transmission system. Parts of the Palermo–Rio Oso system were constructed in the early 1900s; consequently, aging electric transmission conductors and support structures need to be replaced.

4.3 Project Location

The proposed project is made up of five segments located between the communities of Oroville to the north and East Nicolaus to the south, spanning portions of Butte, Yuba, and Sutter

Counties (see Figure 4-1, Regional Map, and Figures 4-2a and 4-2b, Project Vicinity – Overview). The proposed project would rebuild the 115 kV line between Palermo and Rio Oso, as well as lines that feed into Yuba City and Marysville.

The predominant land uses surrounding the proposed project alignment include semi-rural residential development and agricultural uses, primarily orchards and rice fields. In the portions of the proposed project area near developed communities, the land use is primarily residential, interspersed with industrial development. Prominent geographic features that intersect the project alignment include the Feather River; Yuba River; Bear River; and numerous highways, including State Route (SR) 99, SR-70, SR-65, and SR-20.

4.3.1 South of Palermo Line (38.7 miles)

This portion of the proposed project is located between Palermo Junction near the communities of Oroville and Palermo and Rio Oso Junction in the community of East Nicolaus. The alignment crosses portions of Butte, Yuba, and Sutter Counties and crosses the Yuba and Bear Rivers, SR-20, SR-65, and SR-70 (see Figures 4-2a and 4-2b).

This portion of the proposed project includes replacing the conductor on the 115 kV single-circuit power line between Palermo Junction and Rio Oso Junction. To support the new conductor, approximately 279 existing structures would be replaced with a combination of hybrid poles, tubular steel poles (TSPs), lattice steel poles (LSPs), and lattice steel towers (LSTs).

4.3.2 Palermo Sub-Line Segment (1.6 miles)

The Palermo Sub-Line Segment is located at the northern end of the project in southern Butte County. It extends eastward approximately 1.6 miles from Palermo Junction to Palermo Substation, which is near the intersection of Stageline Road and Drescher Tract Road northeast of the community of Palermo (see Figure 4-2a). This portion of the proposed project would replace the existing double-circuit Palermo Sub-Line Segment conductor. The 10 lattice steel towers supporting the conductor would not be replaced, although they may be modified pending final engineering of the project.

4.3.3 Pease Sub-Line Segment (5.2 miles)

The Pease Sub-Line Segment is located in Yuba and Sutter Counties and extends approximately 5.2 miles west from the South of Palermo Line, crossing over the Feather River, SR-70, SR-99, and a small portion of Yuba City. It connects to the South of Palermo Line at Pease Junction northeast of Marysville, near the intersection of Jack Slough Road and Kimball Lane, and terminates at Pease Substation at the intersection of Pease Road and Tierra Buena

Road near the community of Tierra Buena (see Figure 4-2a). The conductor on the double-circuit Pease Sub-Line Segment is supported by approximately 25 towers. The proposed project would replace the conductor and approximately one tower on this line segment and install top cage extensions on approximately five towers. The exact number of replacements and extensions will be determined during final engineering of the project.

4.3.4 Bogue Sub-Line Segment (6.4 miles)

The Bogue Sub-Line Segment is in western Yuba and eastern Sutter Counties. It extends approximately 6.4 miles west from the South of Palermo Line and crosses over the Feather River. It connects to the South of Palermo Line at Bogue Junction, near George Avenue in the unincorporated town of Olivehurst. The line terminates at Bogue Substation near the intersection of Bogue Road and Railroad Avenue (see Figure 4-2b).

To support new conductor on the double-circuit Bogue Sub-Line Segment, existing lattice steel towers and LSPs would likely be replaced with a combination of hybrid poles, tubular steel poles, and lattice steel towers at approximately 56 locations. Foundation and structural modifications rather than full tower replacements may be possible depending on final engineering. To keep this line segment in service during construction, PG&E would construct a temporary line to support the conductor during construction, which would be removed once the new poles are installed.

4.3.5 Rio Oso Sub-Line Segment Loop (7.6 miles)

The Rio Oso Sub-Line Segment Loop is at the southern end of the proposed project area in eastern Sutter County. It extends northeast from the South of Palermo Line at Rio Oso Junction to Rio Oso Substation on Hicks Road, and then loops back to Rio Oso Junction along an alignment to the south, for a total of approximately 7.6 miles (see Figure 4-2b).

On the Rio Oso Sub-Line Segment Loop, conductor would be replaced on both double-circuit lines. Approximately 15 of the 45 lattice steel towers that support the two double-circuit lines creating the loop would be raised with top cage extensions to support the new conductor. Approximately one tower may be replaced. The exact number of replacements and extensions will be determined during final engineering of the project.

4.4 Project Components

The proposed project would replace the existing conductor, modify approximately 30 existing

lattice steel towers, and replace approximately 335 existing lattice steel towers and light-duty steel (LDS) poles along approximately 59.5 miles of PG&E's existing 115 kV power lines. Minor modifications would also be made to equipment and facilities at Palermo, Pease, Bogue, and Rio Oso Substations to tie in to the new conductor.

4.4.1 Replacement and Modified Structures

The project would include a combination of replacing and modifying existing lattice steel towers and LDS poles that range in height from 75 to 140 feet tall with a combination of hybrid poles, TSPs, and LSPs. No guy wires are planned for these structures. On average, replacement poles proposed for installation would be spaced 20 feet from existing towers they would replace. Figures 4-3a through 4-3c identify typical designs for these structures.

Hybrid poles combine conventional tubular steel and spun concrete to form a sectional composite pole design (Figure 4-3a). The pole is buried approximately 14–35 feet in the ground and does not require a poured concrete foundation. Pole diameter is approximately 35–60 inches. The upper pole is galvanized and dull gray in color. The hybrid poles would be approximately 75–110 feet tall, or possibly taller to reduce potential conflicts with agricultural uses.

Tubular Steel Poles (TSPs) would be used at angle, dead-end, conductor transposition, and equipment (switch) poles where a stronger structure is needed. This structure consists of a prefabricated steel top that is bolted to a poured-in-place concrete foundation extending approximately 16–24 feet into the ground (Figure 4-3b). Pole diameter is 30–50 inches. The pole would be galvanized and dull gray in color. The height of these poles would be approximately 90–140 feet, or possibly taller to reduce potential conflicts with agricultural uses.

Lattice Steel Poles (LSPs) would be installed in locations where there is not sufficient room to install TSPs or hybrid poles (Figure 4-3c). Pole diameter is 24–48 inches. The pole would be galvanized and dull gray in color. Like TSPs, the LSPs would be installed onto a poured-in-place foundation. The height of these structures would be approximately 85 feet or possibly taller to reduce potential conflicts with agricultural uses.

Lattice Steel Towers (LSTs) may be replaced in three locations. One structure would be located on the Bogue Sub-Line Segment at the crossing of the Feather River, where soil conditions may not be favorable for hybrid poles or TSPs. Two other towers may be installed on the South of Palermo Line in order to accommodate a potential future extension of Plumas Lake Boulevard. The replacement towers would have four foundations, approximately 36 inches in diameter extending approximately 8-12 feet into the ground. The structures would be galvanized and dull gray in color. The height of these structures would be approximately 75 to 160 feet.

South of Palermo Line

Work on the single-circuit South of Palermo Line would include the replacement of approximately 279 existing lattice steel towers with a combination of hybrid poles, TSPs, and LSPs.

Palermo Sub-Line Segment

No structures would be replaced and only minor modifications may be made to structures on the Palermo Sub-Line Segment.

Pease Sub-Line Segment

Top cage extensions would be installed on approximately 5 of the approximately 25 lattice steel towers on the Pease Sub-Line Segment to raise the height of the towers by approximately 10–20 feet. It is anticipated that only one lattice steel tower would be replaced with a new lattice steel tower.

Bogue Sub-Line Segment

Approximately 56 existing lattice steel towers and LSPs on the Bogue Sub-Line Segment would be replaced with a combination of hybrid poles and TSPs.

Rio Oso Sub-Line Segment Loop

One existing lattice steel tower would be replaced with a new lattice steel tower and top cage extensions would be installed on approximately 15 existing towers on the Rio Oso Sub-Line Segment Loop. Approximately one existing tower may be replaced.

4.4.2 Reconductoring

With the exception of four spans over the Bear River, the proposed project would replace all the existing 115 kV conductors along the five project segments with new aluminum conductor, as described below. Insulators would be replaced as part of reconductoring. Minimum ground clearance would be 28 feet.

South of Palermo Line

With the exception of four spans over the Bear River that were reconductored during the Palermo–East Nicolaus Project, the proposed project would replace the existing conductors; current plans are that the new conductors would be 1.092-inch-diameter, nonspecular (dulled finish) type 477 aluminum steel supported (ACSS) conductor or 1113 all aluminum conductor

(AAC). Exact conductor specifications would be determined during final engineering of the project. The span distances between structures vary from approximately 351 to 1,372 feet.

Palermo Sub-Line Segment

Under current plans, the line would be reconductored with 477 new ACSS conductor. The span distances between structures vary from approximately 235 to 1,082 feet.

Pease Sub-Line Segment

Under current plans, the line would be reconductored with new 477 ACSS conductor. The span distances between structures vary from approximately 380 to 1,170 feet.

Bogue Sub-Line Segment

Under current plans, the line would be reconductored with 477 ACSS or 1,113 AAC. Exact conductor specifications would be determined during final engineering of the project. The span distances between structures vary from approximately 380 to 1,231 feet.

Rio Oso Sub-Line Segment Loop

Under current plans, the line would be reconductored with new 477 ACSS. The span distances between structures vary from approximately 155 to 1,419 feet.

4.4.3 Substation Modifications

Minor modifications to equipment and facilities at the Palermo, Pease, Bogue, and Rio Oso Substations would be required to accommodate the proposed project. No expansion of these substations would result. Substation modifications would include installing conduits, rewiring and rerouting of cabling, and upgrading equipment. All substation improvements would occur within the existing facility footprints and would not affect the bulk and scale of the existing substations.

4.4.4 Temporary Structures

Guard Structures

Temporary guard structures would be installed at certain road, rail, and aboveground utility crossings to prevent conductors from falling to the ground should they be dropped or sag excessively during reconductoring. These structures would be temporary direct-bury wood poles that typically extend approximately 50 feet aboveground and approximately 7 feet belowground.

Alternatively, bucket or line trucks may be staged at crossings to minimize ground disturbance or to accommodate other construction-related needs.

Some guard structures would include netting that would be installed at highway and railroad crossings to provide additional protection against falling or sagging conductor. The netting would be attached to guard structures placed on both sides of protected routes or lines. To install the nets, it is anticipated that a combination of temporary lane closures and rolling road blocks would be required.

Snub Poles

Snub poles are temporary wood poles used to facilitate pulling operations. Approximately four temporary snub poles may be required at each pull site where the conductor cannot be attached directly to the structure because of structure design. Snub poles typically extend approximately 70 feet aboveground and approximately 10 feet belowground. Snub poles would be removed upon completion of each wire pull.

Shoofly

The Bogue Sub-Line Segment must remain energized during construction. To facilitate this, a temporary offset line consisting of wood poles (i.e., the shoofly) would be installed immediately adjacent to the line to support the energized conductors.

4.5 Ground Disturbance and Right-of-Way Requirements

Table 4-1 provides the estimated temporary and permanent ground disturbance required for construction of the proposed project.

Table 4-1
Total Temporary and Permanent Land Requirements

Construction Component	Approximate Total Temporary Work Area (acres)	Approximate Total Permanent Impacts (acres)
TSP, LSP, modified LSP	6.36	—
Hybrid	38.80	—
No recorded pole type	1.55	—
All poles	46.72	0.38
Tower modification	8.93	0
HLZs/staging areas	36.16	0
Pull sites	32.76	0
Temporary guard structures/snub poles	2.62	0
Temporary Access routes	2216	0

— = No data, HLZ = helicopter landing zone, LSP = lattice steel pole, TSP = tubular steel pole.

The proposed project is considered a replacement project and is located within an existing utility corridor; therefore, project components are expected to be located in PG&E's existing easements and fee-owned substation property. Some minor adjustments in land entitlements may be needed to accommodate structure or conductor replacement, and easement rights may be updated or clarified to avoid future land conflicts. Temporary construction easements may be obtained to accommodate pull sites, landing zones, and access areas located outside of easements (see Section 4.6, Construction Activities).

4.6 Construction Activities

Construction of the proposed project would include removal of existing towers; pouring of foundations for TSPs, LSPs, and LSTs; installation of direct-embedded hybrid poles and guard poles; conductor stringing; dewatering at pole locations where groundwater is identified; and establishment of temporary work areas. Temporary work areas would include staging and storage areas, helicopter landing zones (HLZs), stringing sites, pole sites, erection sites for temporary guard structures, and access roads. Appropriate and applicable best management practices (BMPs) to prevent erosion and sedimentation would be implemented during construction activities, such as dewatering, should such construction techniques be required at individual pole sites.

4.6.1 Temporary Construction Work Areas

During construction activities, temporary work areas would be required for helicopter use, pull sites, storage of materials and equipment, refueling of vehicles and off-road equipment, staging of construction trailers and portable restrooms, construction worker parking, and lighting.

Approximately 27 HLZs would be established for reconductoring. These areas would also be used as staging areas, with a temporary footprint of averaging about 1.5 acres. Locations of staging areas and HLZs are identified on Figures 4-4a and 4-4b. Site preparation of the staging yards and HLZs may require minor vegetation clearing and mowing. No grading is anticipated. In addition to staging areas and HLZs, temporary work sites for stringing and pole installation would be required. HLZs would be used during all seasons for a variety of duties.

Approximately 24 pull sites would be established for tie-line installation. Locations for pull sites are identified on Figures 4-4a and 4-4b. Access to pull sites would be required in both wet and dry seasons. Pull sites would be approximately 1.0 acre; however, additional or alternate pull sites may be identified during construction based on field conditions.

Pole installation would require temporary work spaces, which would largely be confined to previously disturbed areas around individual pole bases. It is anticipated that lattice poles and

TSPs would require all-season ground access, while installation of hybrid poles would require only dry-season ground access.

Access

Construction access would occur primarily within existing PG&E ROW easements and along existing roads. Where existing access roads are damaged, minor repairs would be made. Improvements to existing roads are anticipated to include minor repairs and maintenance, such as leveling ruts and potholes, supplemental gravelling, mowing, and removal or trimming of vegetation. Most creeks and wetlands would be crossed using existing roads and improvements in these areas are not anticipated at bridged or culverted crossings. Forded crossings would be matted or plated to facilitate crossings.

A total of approximately 22 acres (about 11.4 miles in length) of temporary overland access routes would also be required for project construction. All temporary construction work areas would be restored to pre-construction conditions once construction activities have ceased.

4.6.2 Construction Methods

Pole and Tower Installation

The proposed project includes use of hybrid poles for most of the alignment. Hybrid poles enable the use of a two-stage installation process, which minimizes the overland access to each pole location. Installation of the lower concrete base section would typically occur in the drier summer season when it is feasible to get ground equipment in, including augers and concrete trucks, with minimal ground disturbance. The tubular steel upper section would then be installed by helicopter, typically during the wet season, although some structures may be installed during the dry season in order to address safety concerns or to minimize environmental impacts. Installation of TSPs, LSPs, angles, and dead-end poles could occur throughout the year. It is anticipated that ground access for both wet-season and dry-season work would be required for these pole types.

Installation of poles would consist of the following steps:

- Staking the pole location
- Flagging the work area (if required)
- Installing BMPs for erosion control (as applicable)
- Preparing the crane pad (if required)
- Excavating the hole (all structures would have a maximum 7.5-foot-diameter excavation)
- Installing forms, rebar, and anchor bolts (for TSP and LSP structures)

- Pouring concrete
- Removing forms
- Placing gravel around and grooming the base area
- Installing the new pole
- Removing the old conductor and stringing the new conductor
- Spreading the excess soil on site and trucking other construction materials off site for disposal.

Auger hole and foundation depths for new TSP and LSP structures would be approximately 16–24 feet belowground and hybrid poles are expected to require a hole with maximum diameter of approximately 8 feet and be placed 14–35 feet belowground. Approximately 192 cubic yards of soil would be excavated during construction activities for each TSP and LSP foundation construction and 105 cubic yards would be excavated for each hybrid pole. In most locations, on-site reuse of soil would be feasible where extensive grading and excavation is not necessary. Any excess soil generated during construction activities that cannot be reused on site would be transported to an appropriate recycling or ultimate disposal facility location.

Most structure installation and removal is expected to be accomplished using a helicopter. Where use of a helicopter is infeasible, it is anticipated that approximately four to five truck trips to each structure location would be required to install new structures and remove existing structures. Temporary work area requirements for pole and tower installation are provided in Table 4-1.

Tower and Pole Removal

It is anticipated that a combination of cranes and helicopters would be used to remove existing towers and LSPs. Some removal may require ground access; however, most structures would be removed using a helicopter. To remove the existing structures, a crane or helicopter would be rigged to the top of the structure tower and the legs would be cut off just above the foundations. The structure would be lowered to the ground where it would be either crushed on site or transported to a staging area and crushed there. Crushed structures would be transported by truck to a recycling facility. Existing foundations would be removed entirely, including all concrete and steel, unless cutting them off below ground surface would reduce environmental impacts. The excavation would be filled in with the soils excavated from the new foundation sites.

Tower Modification

Installing cage top extensions may be accomplished using a helicopter, crew trucks, pickups, or boom trucks. Some towers may require ground access; however, it is anticipated that most tower modifications would be accomplished using a helicopter. The existing structures would be prepared for the insertion of the extension with the installation of any necessary braces or additional plates. The extensions are assembled at the nearest work area and then delivered to the structure to be modified.

Reconductoring

During reconductoring activities, when existing conductor is replaced with new conductor, the existing power line and any distribution lines that cross may be taken out of service. The only exception to this is the Bogue Sub-Line Segment, which would be placed on temporary poles to remain in service. Temporary poles (snub poles) would be approximately 70 feet aboveground and buried to a depth of approximately 10 feet. Snub poles would also be used to facilitate conductor installation and assumed to be located within each pull site.

Once the replacement steel poles have been erected, a mechanical pulling machine and/or helicopter would be used for reconductoring. To replace a conductor with a new conductor, the existing conductor first would be detached from its support structure and temporarily lifted. Rollers then would be installed at the conductor's attachment point, and the conductor would be placed onto the rollers. The rollers would allow the conductor to be pulled through each structure until the conductor is ready to be pulled up to the final tension position. Installing rollers and detaching the existing conductor typically would be accomplished using a helicopter to transport workers and materials to each pole. Where helicopter access is not feasible, a bucket truck would be used. Crews would access each tower or pole work area by pickup truck or bucket truck using identified existing access roads or temporary overland routes. Crews may also need to access mid-span locations to structurally reinforce splices (joints where conductor is connected) along the existing conductor to avoid conductor breakage during pulling operations. These locations may be accessed by truck, helicopter, or on foot, depending on site conditions at the time of construction. Once the rollers are in place for an entire section of conductor, the existing conductor would be pulled out of place. A cable would be attached between the old conductor and new conductor, which would be on a reel attached to a line truck at a pull site. A line truck with a drum puller and empty conductor reel would pull the old conductor onto the reel, where it would be collected for salvage. Reel stands mounted on a line truck at the pull site would feed new conductor along the rollers that were previously installed at each structure, while also maintaining tension in the line so that it does not sag to the ground. After the conductor is pulled into place, conductor sags would be adjusted to required tensions. The conductor would then be clamped to the end of each insulator as

the rollers are removed. Vibration dampers and other accessories would be installed onto the conductor, and old conductor would be removed from sites on a line truck.

To avoid potential safety concerns, guard structures may be installed. Guard structures typically extend 50–140 feet aboveground and would be buried to a depth of 7 feet below ground. Alternatively, should guard structures be infeasible or the work of a temporary duration, a road closure or a rolling stop would be arranged before conductor installation begins at certain locations where lines cross over roads. Any road closures that must occur on private and county roads typically would not exceed a few minutes in duration and would be coordinated with the applicable county or landowner.

Installation of Temporary Structures

Shooflies (or wood poles) would be required for work on the Bogue line. Installation of shooflies involve these steps:

- Staking the pole location
- Flagging the work area (if required)
- Installing BMPs for erosion control (as applicable)
- Excavating a 2- to 3-foot-diameter hole
- Installing the pole
- Backfilling with native spoils or gravel
- Transferring wire and equipment
- Removing the pole
- Backfilling.

Guard and crossing structures would be installed across major roads, railroads, and other aerial utilities. Temporary structures would be installed in disturbed areas adjacent to these facilities.

4.6.3 Construction Equipment and Personnel

Table 4-2 provides equipment and vehicle types anticipated during construction. It is anticipated that up to 20 workers may be at any site at any one time with a total of 45 workers present at various sites at any one time.

Table 4-2
Anticipated Construction Equipment

Equipment	Use
Aerial lift	Lift crew members to make line connections
Auger	Drill holes for pole installation
Concrete truck	Deliver concrete for foundations
Crane	Lift heavy equipment and materials
Crew-cab truck or pickup truck	Transport workers
Dump truck	Remove trash
Excavator	Install mats, trenching
Forklifts	Install mats
Generator set	Generate power for operation of tools
Hand-digging equipment	Use for air or hydrologic-operated tooling
Helicopter (light- and heavy-duty)	Transport personnel workers, materials, and equipment. Install new poles and remove old towers
Line truck (with auger, puller, worker-lift bucket, and crane/boom)	Install and remove holes, poles, and conductor
Mechanics service trucks	Service and repair vehicles
Pickup truck (1 ton)	Transport equipment and materials
Plate compactor	Grade
Puller/tensioner/reel (line truck or trailer-mounted)	Install conductor
Pump	Dewater if groundwater is encountered; water for dirt suppression, if necessary
Reel trailers with reel stands (semi-trailer or truck-mounted type)	Haul conductor
Semi-truck (with trailer)	Haul motor grader, conductor reel, or TSP
Sweeper/scrubber	Clean roads, if necessary
Tensioner (line truck-mounted)	Install conductor
Tractor/loader/backhoe	Grade and remove foundation; backfill holes
Vacuum trailer	Clean up potential concrete washout during foundation installation
V-groove puller	Install conductor
Water truck	Suppress dust
Worker-lift (truck-mounted)	Lift workers to perform work on structures

Helicopter Use

Helicopters would be used during the duration of the project for structural removal, installation, and reconductoring (PG&E 2016c). Power line structure removal is expected to be accomplished primarily through use of a helicopter. Structure installation would typically be accomplished using a helicopter, with the exception of certain structures that require ground access and TSPs,

which due to their weight, likely would be installed using cranes. The helicopter flight path is assumed to generally follow the existing alignment and avoid areas above residences.

Helicopter use would only occur during daylight hours within the existing ROW (except for takeoff and landing periods).

4.6.4 Water Usage

During construction, approximately 9.16 acre-feet (2,985,000 gallons) of water would be used for dust control and worker needs. Water trucks, typically with a capacity of approximately 4,000 gallons, would support project construction activities and dust suppression. Construction water may be obtained from local municipal sources, trucked in by a water supply vendor, or derived from local wells.

4.6.5 Construction Schedule

The project is anticipated to be built out in three overlapping phases to be completed in 36–48 months. Most work is anticipated to be during daylight hours; however, some nighttime work will likely be required for safety, clearance, or other reasons.

As shown on Figure 4-5, the three phases likely would be broken down into construction of: (1) Rio Oso Sub-Line Segment Loop and south of Palermo to Pease Junction; (2) Pease Sub-Line Segment, south of Palermo to Palermo Junction, and Palermo Substation Segment; and (3) Bogue Sub-Line Segment. Each phase would last approximately 12 months.

In general, ground-disturbing activities (i.e., installation of hybrid pole butts, pouring TSP foundations, and removing old foundations) would occur in the spring and summer months, and structure replacement and reconductoring would occur in fall and winter. However, some foundation work may need to take place in the winter to address clearance and safety issues. The total duration of construction at a particular location would typically last only a few days; however, these days may be spread out over a period of months during the phase.

4.7 Operation and Maintenance

Following construction of the proposed project, operation and maintenance activities would consist of routine inspection, repair, and maintenance activities, which would be conducted as they are under existing conditions. There will be no change in operation and maintenance activities from the existing baseline conditions.

4.8 Applicant Proposed Measures

Section 2.11 of the PG&E PEA details the project protocols that would be followed during all project-related activities (PG&E 2016a). Project protocols are specific to environmental issue areas, such as air quality, biological resources, cultural resources, or traffic impacts. PG&E's protocols are herein termed Applicant Proposed Measures (APMs). Table 4-3 lists the APMs proposed as project design features in the PEA.

Table 4-3
Applicant Proposed Measures

APM Number	Description
	Agricultural and Forestry Resources
APM AG-1	**Coordinate with Landowners Prior to Construction and During Restoration Efforts** PG&E will coordinate with landowners prior to construction and during restoration efforts. Measures to be implemented may include, but are not limited to, the following: • Provide written notice to landowners outlining construction activities and restoration efforts. • In areas containing permanent crops (i.e., grape vines, orchard crops, etc.) that must be removed to gain access to pole sites for construction purposes, PG&E may provide compensation to the farmer and/or landowner in coordination with the landowner. • Complete pre-project, post-project, and post-restoration site visit with landowners. • Take photos of pre-project, post-project, and post-restoration conditions in the affected areas.
	Air Quality
APM AQ-1	**Implement Feather River Air Quality Management District[(FRAQMD) Standard Construction Mitigation Measures** The project applicant shall implement the following standard construction mitigation measures (SMMs) required by the FRAQMD to help reduce construction-related emissions. Note that some FRAQMD SMMs are not listed below, as they are included in the APM identified in Section 3.7, Greenhouse Gas Emissions [of the PEA]. 1. Implement the Fugitive Dust Control Plan. PG&E shall prepare and submit a Fugitive Dust Control Plan to the FRAQMD to help reduce construction-related fugitive dust emissions. The Fugitive Dust Control Plan must be submitted by PG&E to the FRAQMD prior to the commencement of construction activities. 2. Utilize existing power sources (e.g., power poles) or clean fuel generators rather than temporary power generators, as practical. 3. Implement a traffic plan to minimize traffic flow interference from construction activities. The above measures will be applied across the entire project area.
APM AQ-2	**Implement Butte County Air Quality Management District (BCAQMD) Construction Best Practices** PG&E shall implement the following standard construction best practices recommended by the BCAQMD to help reduce construction-related emissions. Note that some BCAQMD construction best practices are not listed below, as they are identified in the APM GHG-1 described in Section 3.7, Greenhouse Gas Emissions [of the PEA]. 1. Diesel PM Exhaust from Construction Equipment a. Avoid idling, staging, and queuing of diesel equipment within 1,000 feet of sensitive receptors. b. Install diesel particulate filters or implement other California Air Resources Board (CARB)-verified diesel emission control strategies.

Table 4-3
Applicant Proposed Measures

APM Number	Description
	c. To the extent feasible, construction truck trips shall be scheduled during non-peak hours to reduce peak hour emissions. 2. Fugitive Dust: The following is a list of measures that may be required throughout the duration of the construction activities: a. Reduce the amount of the disturbed area where possible. b. Use water trucks or sprinkler systems in sufficient quantities to prevent airborne dust from leaving the site. c. All dirt stockpile areas should be sprayed daily as needed, and covered. d. Exposed ground areas that will be reworked at dates more than 1 month after initial grading should be sown with a fast-germinating noninvasive grass seed and watered until vegetation is established. e. All disturbed soil areas not subject to revegetation should be stabilized using approved chemical soil binders or jute netting. f. Vehicle speed for all construction vehicles shall not exceed 15 mph on any unpaved surface at the construction site. g. All trucks hauling dirt, sand, soil, or other loose materials are to be covered or should maintain at least 2 feet of freeboard (minimum vertical distance between top of load and top of trailer) in accordance with local regulations. h. Post a sign in a prominent location visible to the public with the telephone numbers of the contractor and Air District for any questions or concerns about dust from the project. The above measures will be applied across the entire project area.
APM AQ-3	**Off-Site Mitigation Measures in FRAQMD** PG&E shall enter into an off-site mitigation agreement with the FRAQMD to offset construction emissions in excess of 4.5 tons per year of NOX to levels below the FRAQMD's 4.5 tons per year significance threshold. The off-site mitigation rate shall be based on the current project cost effectiveness factor from the Carl Moyer Memorial Air Quality Standards Attainment Program. The current off-site mitigation rate is $18,030 per ton of O_3 precursor emissions (NOX or ROG) over the District threshold calculated over the length of the expected exceedance.
Biological Resources	
APM BIO-1	**Conduct Worker Environmental Awareness Training Program** A qualified biologist will develop an environmental awareness training program that is specific to the project. All on-site construction personnel will attend the training before they begin work on the project. Training will include a discussion of the avoidance and minimization measures that are being implemented to protect biological resources as well as the terms and conditions of project permits. Training will include information about the federal Endangered Species Act and the California Endangered Species Act, special-status species as defined in this chapter, and the consequences of noncompliance with these acts. Under this program, workers will be informed about the presence, life history, and habitat requirements of all special-status species that may be affected in the project area. Training also will include information on state and federal laws protecting nesting birds, wetlands, and other water resources. An educational brochure will be produced for construction crews working on the project. The brochure will include color photos of sensitive species as well as a discussion of relevant APMs. In particular, construction personnel will be directed to stop work and contact the biological monitor if special-status species are observed.
APM BIO-2	**Conduct Preconstruction Survey(s) For Special-Status Species and Sensitive Resource Areas** A qualified biologist will conduct pre-construction survey(s) for special-status species and sensitive resource areas immediately prior to construction activities within suitable aquatic and upland habitat for special-status species. If a special-status species is encountered during the pre-construction survey(s), Pacific Gas and

Table 4-3
Applicant Proposed Measures

APM Number	Description
	Electric Company (PG&E) will be contacted immediately to determine the appropriate course of action. For state- or federally listed species, PG&E will contact the appropriate resource agency (California Department of Fish and Wildlife (CDFW) and/or U.S. Fish and Wildlife Service (USFWS)), as required.
APM BIO-3	**Identification and Marking of Sensitive Resources** Sensitive biological resource areas identified during pre-construction surveys in the project area will be clearly marked in the field or on project maps. Sensitive resource areas will include active bird nests within specified buffer zones (see APM BIO-11), special-status plants, special-status vegetation types, vernal pools and wetland boundaries in/or adjacent to work sites. Such areas will be avoided during construction to the extent practicable.
APM BIO-4	**Biological Monitoring** A qualified biologist will monitor ground-disturbing activities in and adjacent to areas identified in APM BIO-3 to ensure compliance with best management practices (BMPs) and APMs, unless the area has been protected by barrier fencing to protect sensitive biological resources and has been cleared by the qualified biologist. The monitor will have authority to stop or redirect work if construction activities are likely to affect sensitive biological resources. If a listed wildlife species is encountered during construction, project activities will cease in the area where the animal is found until the qualified biologist determines that the animal has moved out of harm's way, or, with prior authorization from the U.S. Fish and Wildlife Service (USFWS) and/or California Department of Fish and Wildlife (CDFW), if required, the qualified biologist relocates the animal out of harm's way and/or takes other appropriate steps to protect the animal. Work may resume once the qualified biologist has determined that construction activities will not harm any listed wildlife species. The qualified biologist will be responsible for any necessary reporting to USFWS and/or CDFW.
APM BIO-5	**Restore Habitat for Special-Status Plants Disturbed During Construction** In the unlikely event special-status plant species cannot be avoided, PG&E will stockpile separately the upper 6 inches of topsoil during excavations of special-status plant species habitat. PG&E will use the stockpiled topsoil to restore the area after temporary construction has been completed. When this topsoil is replaced, compaction will be minimized to the extent consistent with utility standards. Restoration and reseeding methods using a California native seed mix will be used to restore the sites.
APM BIO-6	**Avoid or Minimize Impacts on Habitat For Special-Status Vernal Pool Species** PG&E will implement the following measures to reduce potential impacts on vernal pool species and habitat within the project area. These measures may be refined during the Section 7 consultation process or Section 10 Habitat Conservation Plan (HCP) process conducted for the project with the USFWS, as applicable. • Where feasible, the project will avoid and minimize direct and indirect impacts on vernal pool species and their habitat. • Where feasible, new structures will be located outside of suitable habitat features; and work areas and temporary overland access routes will avoid vernal pool habitats. • Where feasible, ground-disturbing activities in and adjacent to vernal pools will be conducted during the dry season (generally May 1 to October 15). • Any ground-disturbing activities taking place within 50 feet of suitable aquatic habitat for vernal pool species will be minimized by: limiting the duration of work, using rubber tire vehicles to reduce soil compaction, and restricting ground disturbance to well-defined, small work areas. • If construction activities must occur on the ground during the wet season, PG&E will implement BMPs consistent with the Storm Water Pollution Prevention Plan (SWPPP) (see APM HYDRO-1), which may include silt fencing to minimize impacts on vernal pool habitat.

Table 4-3
Applicant Proposed Measures

APM Number	Description
APM BIO-7	**Compensate for Permanent Impacts on Habitat for Vernal Pool Species in Accordance with USFWS Permit** PG&E will provide off-site compensation for permanent impacts on vernal pool species habitat at a minimum ratio of 1 acre preserved or created for each acre of direct impact by the project. PG&E will provide this compensatory amount of vernal pool habitat at an off-site location, which may include acquiring mitigation credits at a USFWS-approved conservation area that supports vernal pool fairy shrimp. Final compensation ratios will be based on site-specific information and determined through coordination with the USFWS as part of the permitting processes for the project.
APM BIO-8	**Avoid, Minimize, or Compensate for Any Impacts on Valley Elderberry Longhorn Beetle** PG&E's Valley Elderberry Longhorn Beetle (VELB) Conservation Program allows PG&E to perform routine operations and maintenance activities and new construction, subject to certain terms and conditions as specified in the USFWS Biological Opinion (BO) (File 1-1-01-F-0114). The VELB BO provides for 30 years of incidental take coverage and was issued on June 27, 2003. It defines reasonable and prudent measures required to avoid and minimize impacts on habitat for the federally listed VELB. PG&E will implement the surveying, avoidance, and any necessary compensation measures required by the VELB BO as authorized by USFWS. These measures may include: (1) surveying for and flagging all elderberry plants with one or more stems measuring 1 inch or more in diameter at ground level that are within 20 feet of work sites; (2) avoiding all such elderberry plants to the extent feasible; and (3) reporting unavoidable impacts on elderberry shrubs to USFWS for coverage under the Conservation Program's funding of VELB habitat acquisition, development, and protection.
APM BIO-9	**Avoid and Minimize Impacts on Giant Garter Snake** PG&E will implement the following avoidance and minimization measures as may be refined during the permitting processes with USFWS and CDFW for the project: • To the fullest extent possible, PG&E will avoid construction activities within 200 feet of the banks of giant garter snake (GGS) aquatic habitat. Habitat disturbance areas and vegetation clearance will be confined to the minimal area necessary to facilitate construction activities. • As feasible, construction activity within GGS aquatic and upland habitat in and around agricultural ditches, irrigation and drainage canals, rice fields, and marshes and sloughs, will be conducted within the active period for GGS (May 1 through October 1). Depending on weather conditions and consultation with USFWS and CDFW, it may be possible to extend the construction period into mid- or late October. • When construction work must occur during the GGS dormant period (October 2 through April 30), additional protective measures will be implemented, which may include: having a biological monitor in sensitive habitat areas or installation of exclusion fencing to prevent giant garter snakes from establishing hibernacula in work areas. • Prior to any construction within suitable GGS aquatic habitat, the habitat will be dewatered and must remain dry for at least 15 consecutive days after April 15 and prior to excavating or filling dewatered habitat. • Pre-construction surveys in suitable GGS habitat will be conducted in accordance with APM BIO-2. The construction area will be resurveyed whenever there is a lapse in construction activity of 2 weeks or more. • If a GGS is encountered within the construction work area, construction activities will be suspended in accordance with APM BIO-4. Based on the results of preconstruction surveys conducted under APM BIO-2, the qualified biologist will coordinate with the PG&E biologist to determine whether to install exclusion fencing to keep GGS out of the construction area.

Table 4-3
Applicant Proposed Measures

APM Number	Description
	• In accordance with APM BIO-12, service and refueling procedures will be conducted in uplands at least 100 feet away from wetlands or waterways to minimize potential harm to aquatic species from water quality degradation.
APM BIO-10	**Compensate for Permanent Loss of Giant Garter Snake Aquatic and Upland Habitat in Accordance with USFWS Permit** For any permanent loss of GGS aquatic and upland habitat that cannot be avoided, PG&E will preserve a compensatory amount of GGS habitat, including acquiring mitigation credits at a USFWS-approved conservation area that supports GGS. PG&E will provide off-site compensation for permanent impacts on GGS habitat at a minimum ratio of 1 acre preserved for each acre of impacts, or as otherwise required by the USFWS and CDFW during the permitting processes for the project.
APM BIO-11	**Avoidance and Minimization of Impacts on Nesting Birds** If work is scheduled during the nesting season (February 15 through August 31), nest detection surveys will be conducted within a standard buffer for individual species in accordance with the species-specific buffers set forth in Appendix D of the PEA and will occur within 15 days prior to the start of work activities at designated construction areas, staging areas, and landing zones to determine nesting status by a qualified wildlife biologist. Nest surveys will be accomplished by ground surveys and/or by helicopter and will support phased construction, with surveys scheduled to be repeated if construction lapses in a work area for 15 days between March and July. Access for ground surveys will be subject to property access permission. Helicopter flight restrictions for nest detection surveys may be in effect for densely populated residential areas, and will include observance of appropriate established buffers and avoidance of hovering in the vicinity of active nest sites. If active nests containing eggs or young are found, the biologist will establish a species-specific nest buffer, as defined in Appendix D of the PEA. Where feasible, standard buffers will apply, although the biologist may increase or decrease the standard buffers in accordance with the factors set forth in Appendix D. Nesting pair acclimation to disturbance in areas with regularly occurring human activities will be considered when establishing nest buffers. The established buffers will remain in effect until the young have fledged or the nest is no longer active as confirmed by the biologist. Active nests will be periodically monitored until the biologist has determined that the young have fledged or all construction is finished. Per the discretion of the biologist, vegetation removal by hand may be allowed within nest buffers or in areas of potential nesting activity. Inactive nests may be removed in accordance with PG&E's approved avian permits. The biologist will have authority to order the cessation of nearby project activities if nesting pairs exhibit signs of disturbance.
APM BIO-12	**Implement General Protection Measures for Wetlands and Other Waters** PG&E will implement the following general measures, in addition to those outlined in Section 2.8.8, Best Management Practices, to minimize or avoid impacts on wetlands and other waters: • Avoid wetlands and other waters as identified in APM BIO-3. • Establish overland access routes to avoid wetlands and other waters to the extent feasible. • Conduct all fueling of vehicles at least 100 feet from wetlands and other water bodies. • Set staging areas back at least 50 feet from streams, creeks, or other water bodies. Additionally, per APM HYDRO-1, PG&E will prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) to prevent construction-related erosion and sediments from entering nearby waterways.
APM BIO-13	**Compensate for Permanent Impacts on Wetlands and Other Waters in Accordance with Project Permits** PG&E will compensate for permanent impacts on wetlands with at least a 2:1 ratio of acre restored or created to acre filled. Final compensation ratios will be based on site-specific information and determined through coordination with the U.S. Army Corps of Engineers and the Central Valley Regional Water Quality Control Board as part of the permitting processes for the project.

Table 4-3
Applicant Proposed Measures

APM Number	Description
APM BIO-14	**Restore Temporarily Impacted Wetlands and Other Waters** All wetlands and other waters that are temporarily disturbed as a result of project activities will be restored upon completion of construction.
	Cultural Resources
APM CR-1	**Workers Environmental Awareness Training** PG&E will provide environmental awareness training on archeological and paleontological resources protection. This training may be administered by the principal cultural resources specialist as a stand-alone training or included as part of the overall environmental awareness training as required by the project and will at minimum include: types of cultural resources or fossils that could occur at the project site; types of soils or lithologies in which the cultural resources or fossils could be preserved; procedures that should be followed in the event of a cultural resource, human remain, or fossil discovery; and penalties for disturbing cultural or paleontological resources.
APM CR-2	**Flag and Avoid Resources P-51-000150, P-58-001372, P-58001369, PL-Palermo-011H, Old Marysville Road** A qualified archaeologist will flag sites P-51-000150, P-58-001372, PL-Palermo-011H, and the Old Marysville Road for avoidance. Sites will be marked with flagging tape, safety fencing, and/or sign designated it as an "environmentally sensitive area" to ensure that PG&E construction crews and heavy equipment will not intrude on these sites during construction. For those sites that contain an existing access road within their site boundary or are an existing road (e.g., Old Marysville Road), the road will be used as-is (i.e., no grading, widening, or other substantial improvements), and signs or safety fencing will be established on either side of the road within the site's boundary to avoid impacts caused by construction vehicles. If it is determined that the project cannot avoid impacts on one or more of the sites, then, for those sites that have not been previously evaluated, evaluation for inclusion in the National Register of Historic Places (NRHP)/California Register of Historic Resources (CRHR) will be conducted. Should the site be found eligible, appropriate measures to reduce the impact to a less-than-significant level will be implemented, including but not limited to data recovery, photographic and archival documentation, or other measures as deemed appropriate in consultation with CPUC and interested parties. If it is determined that sites that have been previously determined to be eligible for inclusion in either the NRHP or CRHR cannot be avoided, measures will be implemented to reduce the impact to a less-than-significant level, including but not limited to data recovery, photographic and archival documentation, or other measures as deemed appropriate in consultation with the CPUC and interested parties.
APM CR-3	**Manage Unanticipated Cultural Resources Discoveries Properly** a. Buried Cultural Resources. If buried cultural resources are inadvertently discovered during site preparation or construction activities, work will stop in that area and within 100 feet of the find until a qualified cultural resources specialist/archaeologist can assess the significance of the find and, if necessary, develop appropriate treatment measures in consultation with PG&E and other appropriate agencies. Work may continue on other portions of the site with the cultural resources specialist/archaeologist's approval. PG&E will implement the cultural resources specialist/archaeologist's recommendations for treatment of discovered cultural resources. b. Human Remains. In the unlikely event that human remains or suspected human remains are uncovered during pre-construction testing or during construction, all work within 100 feet of the discovery will be halted and redirected to another location. The find will be secured, and PG&E's cultural resources specialist or designated representative will be contacted immediately to inspect the find and determine whether the

Table 4-3
Applicant Proposed Measures

APM Number	Description
	remains are human. If the remains are not human, the cultural resources specialist will determine whether the find is an archaeological deposit and whether paragraph (a) of this APM should apply. If the remains are human, the cultural resources specialist will immediately implement the applicable provisions in PRC Sections 5097.9 through 5097.996, beginning with the immediate notification to the affected county coroner. The coroner has two working days to examine human remains after being notified. If the coroner determines that the remains are Native American, California Health and Safety Code 7050.5 and PRC Section 5097.98 require that the cultural resources specialist contact the Native American Heritage Commission (NAHC) within 24 hours. The NAHC, as required by PRC Section 5097.98, will determine and notify the Most Likely Descendant. c. Paleontological Discoveries. If significant paleontological resources are discovered during construction activities, work will stop within 100 feet and the project cultural resource specialist will be contacted immediately. The project cultural resources specialist will work with the qualified paleontologist to evaluate the discovery. If the discovery is determined to be significant, PG&E will implement measures to protect and document the paleontological resource. Work may not resume within 100 feet of the find until approval by the cultural resource specialist in coordination with the paleontologist. In the event that significant paleontological resources are encountered during the project, protection and recovery of those resources may be required. Treatment and curation of fossils will be conducted in consultation with the landowner, PG&E, and CPUC. The paleontologist will be responsible for developing the recovery strategy and will lead the recovery effort, which will include establishing recovery standards, preparing specimens for identification and preservation, documentation and reporting, and securing a curation agreement from the approved agency.
APM CR-4	**Paleo Monitoring** Interval (spot check) monitoring for paleontological resources will be required for excavation activities larger than 3 feet in diameter and grading to depths greater than 2 feet that intersect undisturbed sediments in the Riverbank, Modesto, and Laguna formations. Monitoring is not required for shallow excavations into sediments previously disturbed by agricultural activities, development, or construction related to the existing Palermo–East Nicolaus 115 kV Transmission Line regardless of the mapped geologic unit sensitivity ranking because fossils found within such sediments would lack provenience data critical to scientific significance. In the unlikely event that a highly fossiliferous facies is encountered, monitoring will be conducted full time until excavations within that facies are complete. Conversely, monitoring may be reduced or suspended in the absence of encountering paleontologically sensitive sediments. Monitoring will be done by a qualified paleontological monitor. The paleontological monitor will document monitoring activities on monitoring logs. Monitoring logs and reports will include the activities observed, geology encountered, description of any resources encountered, and measures taken to protect or salvage fossils discovered. Photographs and other supplemental information will be included as necessary.
Geology and Soils	
APM GEO-1	**Minimize Construction in Soft or Loose Soils** Where soft or loose soils are encountered during project construction, several measures are available, feasible and can be implemented to avoid, accommodate, replace, or improve such soils. Depending on site-specific conditions and permit requirements, one or more of these measures may be implemented to eliminate impacts from soft or loose soils: • Locating construction facilities and operations away from areas of soft and loose soil. • Over-excavating soft or loose soils and replacing them with engineered backfill materials. • Increasing the density and strength of soft or loose soils through mechanical vibration and/or compaction.

Table 4-3
Applicant Proposed Measures

APM Number	Description
	• Installing material, such as aggregate rock, steel plates, or timber mats, over access roads. • Treating soft or loose soils in place with binding or cementing.
	Greenhouse Gas Emissions
APM GHG-1	**Minimize Greenhouse Gas Emissions** • Encourage construction workers to carpool to the job site to the extent feasible. The ability to develop an effective carpool program for the project will depend upon the proximity of carpool facilities to the area, the geographical commute departure points of construction workers, and the extent to which carpooling will not adversely affect worker arrival time and the project's construction schedule. • Minimize unnecessary construction vehicle idling time for on-road and off-road vehicles. The ability to limit construction vehicle idling time will depend on the sequence of construction activities and when and where vehicles are needed or staged. Certain vehicles, such as large diesel-powered vehicles, have extended warm-up times following start-up that limit their availability for use following start-up. Where such diesel-powered vehicles are required for repetitive construction tasks, these vehicles may require more idling time. The project will apply a "common sense" approach to vehicle use, so that idling is reduced as far as possible below the maximum of 5 consecutive minutes allowed by California law; if a vehicle is not required for use immediately or continuously for construction activities, its engine will be shut off. Construction foremen will include briefings to crews on vehicle use as part of pre-construction conferences. Those briefings will include discussion of a "common sense" approach to vehicle use. • Maintain construction equipment in proper working conditions in accordance with PG&E standards. • Minimize construction equipment exhaust by using low-emission or electric construction equipment where feasible. Portable diesel fueled construction equipment with engines 50 horsepower or larger and manufactured in 2000 or later will be registered under the CARB Statewide Portable Equipment Registration Program. • Minimize welding and cutting by using compression of mechanical applications where practical and within standards. • Encourage use of natural gas-powered vehicles for passenger cars and light-duty trucks where feasible and available. • Encourage recycling construction waste where feasible.
	Hazards and Hazardous Material
APM HAZ-1	**Hazardous-Substance Control and Emergency Response** PG&E will implement its hazardous substance control and emergency response procedures to ensure the safety of the public and site workers during construction. The procedures identify methods and techniques to minimize the exposure of the public and site workers to potentially hazardous materials during all phases of project construction through operation. They address worker training appropriate to the site worker's role in hazardous substance control and emergency response. The procedures also require implementing appropriate control methods and approved containment and spill-control practices for construction and materials stored on-site. If it is necessary to store chemicals on-site, they will be managed in accordance with all applicable regulations. Material safety data sheets will be maintained and kept available on-site, as applicable. Project construction will involve soil surface blading/leveling, excavation of up to several feet, and augering to a maximum depth of 35 feet in some areas. In the event that soils suspected of being contaminated (on the basis of visual, olfactory, or other evidence) are removed during site grading activities or excavation activities, the excavated soil will be tested, and if contaminated above hazardous waste levels, will be contained and disposed of at a licensed waste facility. The presence of known or suspected contaminated

Table 4-3
Applicant Proposed Measures

APM Number	Description
	soil will require testing and investigation procedures to be supervised by a qualified person, as appropriate, to meet state and federal regulations. All hazardous materials and hazardous wastes will be handled, stored, and disposed of in accordance with all applicable regulations, by personnel qualified to handle hazardous materials. The hazardous substance control and emergency response procedures include, but are not limited to, the following: • Proper disposal of potentially contaminated soils. • Establishing site-specific buffers for construction vehicles and equipment located near sensitive resources. • Emergency response and reporting procedures to address hazardous material spills. • Stopping work at that location and contacting the County Fire Department Hazardous Materials Unit immediately if visual contamination or chemical odors are detected. Work will be resumed at this location after any necessary consultation and approval by the Hazardous Materials Unit. PG&E will complete a standard Emergency Action Plan Form as part of project tailboard meetings. The purpose of the form is to gather emergency contact numbers, first aid location, work site location, and tailboard information.
APM HAZ-2	**Worker Environmental Awareness Program for Health, Safety, and Environment (WEAP-HSE)** The program will include the following components related to hazards and hazardous materials: • PG&E Health, Safety, and Environmental expectations and management structure. • Applicable regulations. • Summary of the hazardous substances and materials that may be handled and/or to which workers may be exposed. • Summary of the primary workplace hazards to which workers may be exposed. • Overview of the measures identified in APM HAZ-1. • Overview of the controls identified in the Storm Water Pollution Prevention Plan (SWPPP under APM HYDRO-1.
APM HAZ-3	**Fire Risk Management** PG&E will follow its standard fire risk management procedures, including safe work practices, work permit programs, training, and fire response. Project personnel will be directed to park away from dry vegetation. During fire season in designated State Responsibility Areas, all motorized equipment driving off paved or maintained gravel/dirt roads will have federally approved or State-approved spark arrestors. All off-road vehicles will be equipped with a backpack pump (filled with water) and a shovel. Fire-resistant mats and/or windscreens will be used when welding. In addition, during fire "red flag" conditions (as determined by CalFire), welding will be curtailed. Every fuel truck will carry a large fire extinguisher with a minimum rating of 40 B:C, and all flammable materials will be removed from equipment parking and storage areas.
	Hydrology and Water Quality
APM HYDRO-1	**Prepare and Implement a Storm Water Pollution Prevention Plan (SWPPP**) PG&E will prepare and implement a SWPPP to prevent construction-related erosion and sediments from entering nearby waterways. The SWPPP will include a list of BMPs to be implemented in areas with potential to drain to any water body in Butte, Yuba, or Sutter counties. BMPs to be part of the project-specific SWPPP may include, but are not limited to, the following control measures. • Implementing temporary erosion control measures (such as silt fences, staked straw bales/wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, grass buffer strips, high infiltration substrates, grassy swales, and temporary revegetation or other ground cover) to control erosion from disturbed areas. • Protecting drainage facilities in downstream off-site areas from sediment using BMPs accepted to

Table 4-3
Applicant Proposed Measures

APM Number	Description
	Butte, Sutter, and Yuba counties, and the Central Valley RWQCB. • Protecting the quality of surface water from non-stormwater discharges such as equipment leaks, hazardous materials spills, and discharge of groundwater from dewatering operations. • Restoring disturbed areas, after project construction is completed, unless otherwise requested by the landowner in agricultural land use areas. Requirements of the SWPPP would be coordinated with the requirements of any Section 401 Water Quality Certification issued for the project under the Clean Water Act and/or Streambed Alteration Agreement issued under Fish and Game Code Section 1602, as applicable.
Noise	
APM NO-1	**Employ Noise-Reducing Construction Practices during Temporary Construction Activities** PG&E will employ standard noise-reducing construction practices such as the following: • Ensure that all equipment is equipped with mufflers that meet or exceed factory new-equipment standards. • Locate stationary equipment as far as practical from noise-sensitive receptors. • Limit unnecessary engine idling. • Limit all construction activity near sensitive receptors to daytime hours unless required for safety or to comply with line clearance requirements. Minimize noise-related disruption by notifying residents. Should nighttime project construction be necessary because of planned clearance restrictions, affected residents will be notified at least 7 days in advance by mail, personal visit, or door hanger, and informed of the expected work schedule.
Transportation	
APM TRA-1	**Temporary Traffic Controls** PG&E will obtain any necessary transportation and encroachment permits from Caltrans and the local jurisdictions, as required, including those related to state route crossings and the transport of oversized loads and certain materials, and will comply with permit requirements designed to prevent excessive congestion or traffic hazards during construction. PG&E will develop road and lane closure or width reduction or traffic diversion plans as required by the encroachment permits. Construction activities that are in or along or that cross local roadways will follow best management practices and local jurisdictional encroachment permit requirements—such as traffic controls in the form of signs, cones, and flaggers—to minimize impacts on traffic and transportation in the project area.
APM TRA-2	**Air Transit Coordination** PG&E will implement the following protocols related to helicopter use during construction and air traffic: • PG&E will comply with all applicable Federal Aviation Administration (FAA) regulations regarding air traffic within 2 miles of the project alignment. • PG&E's helicopter operator will coordinate all project helicopter operations with local airports before and during project construction. • Helicopter use and landing zones will be managed to minimize impacts on local residents. PG&E will submit to CPUC staff a Helicopter Use Plan, which will identify the anticipated landing zones, flight paths and general helicopter operation procedures.
APM TRA-3	**Coordinate Road Closures with Emergency Service Providers** At least 24 hours prior to implementing any road or lane closure, PG&E will coordinate with applicable emergency service providers in the project vicinity. PG&E will provide emergency service providers with information regarding the road or lanes to be closed; the anticipated date, time, and duration of closures; and a contact telephone number.

Source: PG&E 2016a.

4.9 Other Permits and Approvals

The CPUC is the lead agency for California Environmental Quality Act (CEQA) review of this project. If the CPUC issues a Permit to Construct, it would provide overall project approval and certify compliance of the project with CEQA. While the CPUC has exclusive authority to approve or deny PG&E's application, permits from other agencies may be required to build the proposed project. In addition to the Permit to Construct, Table 4-4 summarizes the other permits or approvals from other federal, state, and local agencies that may be needed for the project.

Table 4-4
Permits and Approvals that May be Required

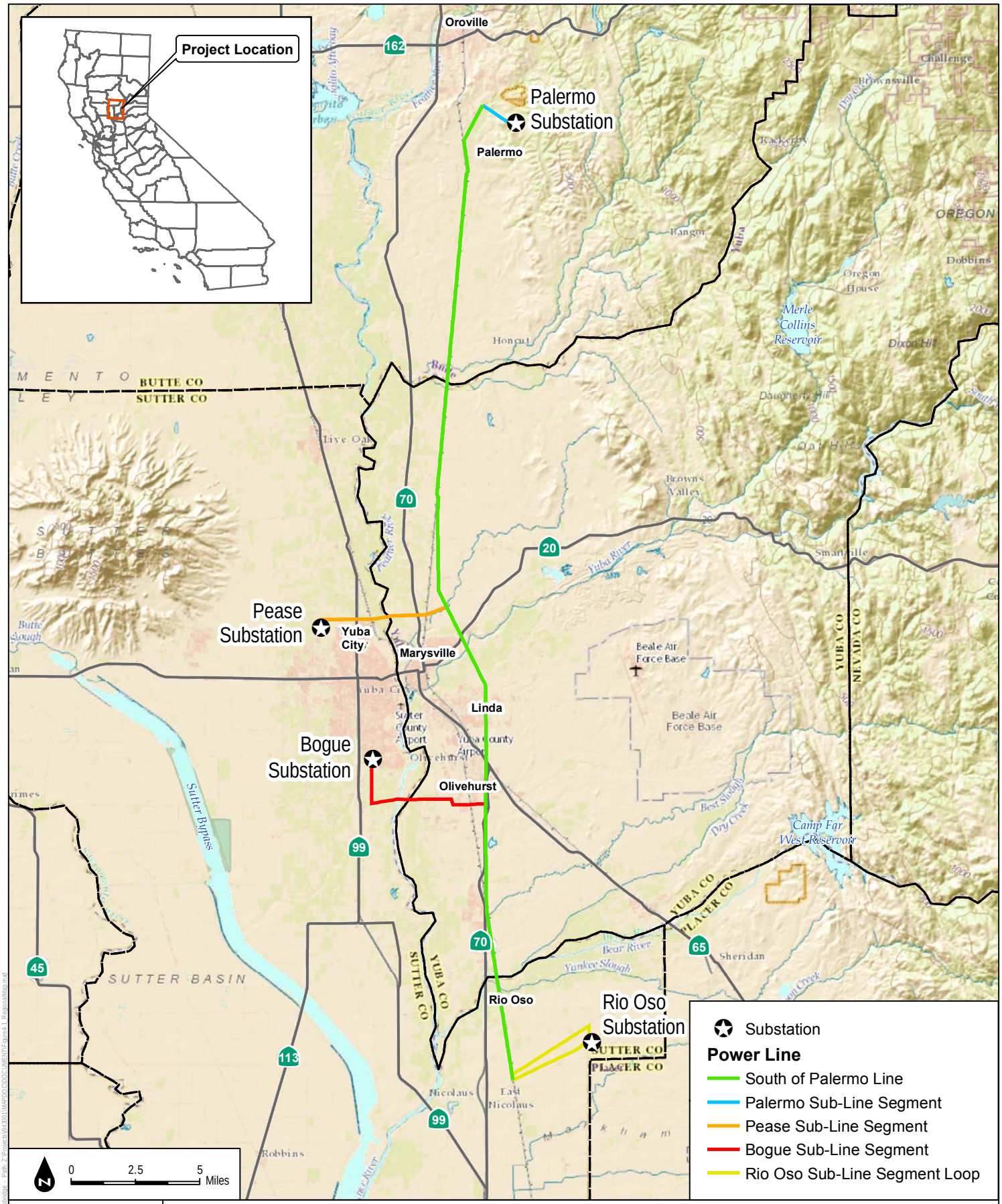
Permit/Authorization	Agency	Purpose
Federal		
Section 7 Consultation (Biological Opinion or a Section 10 Habitat Conservation Plan)	U.S. Fish and Wildlife Service (consulting through the U.S. Army Corps of Engineers)	Potential impacts on federally listed species
Section 106 Consultation (National Historic Preservation Act)	State Historic Preservation Officer (consulting through the U.S. Army Corps of Engineers)	Consultation regarding impacts to cultural resources
Notification of Proposed Construction or Alteration	Federal Aviation Administration	Height increase of power line structures
Section 404 Permit (Clean Water Act)	U.S. Army Corp of Engineers	Potential impacts on wetlands
State		
Permit to Construct	California Public Utilities Commission	Overall project approval, CEQA review, and issuance of a Permit to Construct
Section 2081 Incidental Take Permit or Consistency Determination 2080.1	California Department of Fish and Wildlife	Coverage for potential take of state-listed species
Section 1602 Streambed Alteration Agreement		Coverage for modification of a streambed or bank
Encroachment Permits	California Department of Transportation	Activities related to the placement of encroachments within, under, or over state highway rights-of-way
National Pollutant Discharge Elimination System – General Construction Storm Water Permit (ministerial)	Central Valley Regional Water Quality Control Board	Stormwater discharges associated with construction activities disturbing more than one acre of land
Section 401 Water Quality Certification (Clean Water Act)		Potential discharge into water body
Encroachment Permits	Central Valley Flood Protection Board	Activities related to the placement of encroachments near levees or designated waters
Local		
Encroachment Permit (ministerial)	Butte, Sutter, and Yuba Counties	Work within county roads/road ROW or property, and railroads

4.10 References

PG&E (Pacific Gas and Electric Company). 2016a. *Proponent's Environmental Assessment: South of Palermo 115 kV Power Line Reinforcement Project*. Prepared for PG&E. Sacramento, California: ICF International. April 2016.

PG&E. 2016b. "Pacific Gas and Electric South of Palermo 115 kV Power Line Reinforcement Project: Response to Data Request 1." June 17, 2016.

PG&E. 2016c. *Preliminary Helicopter Use Plan: South of Palermo 115 kV Power Line Reinforcement Project*.



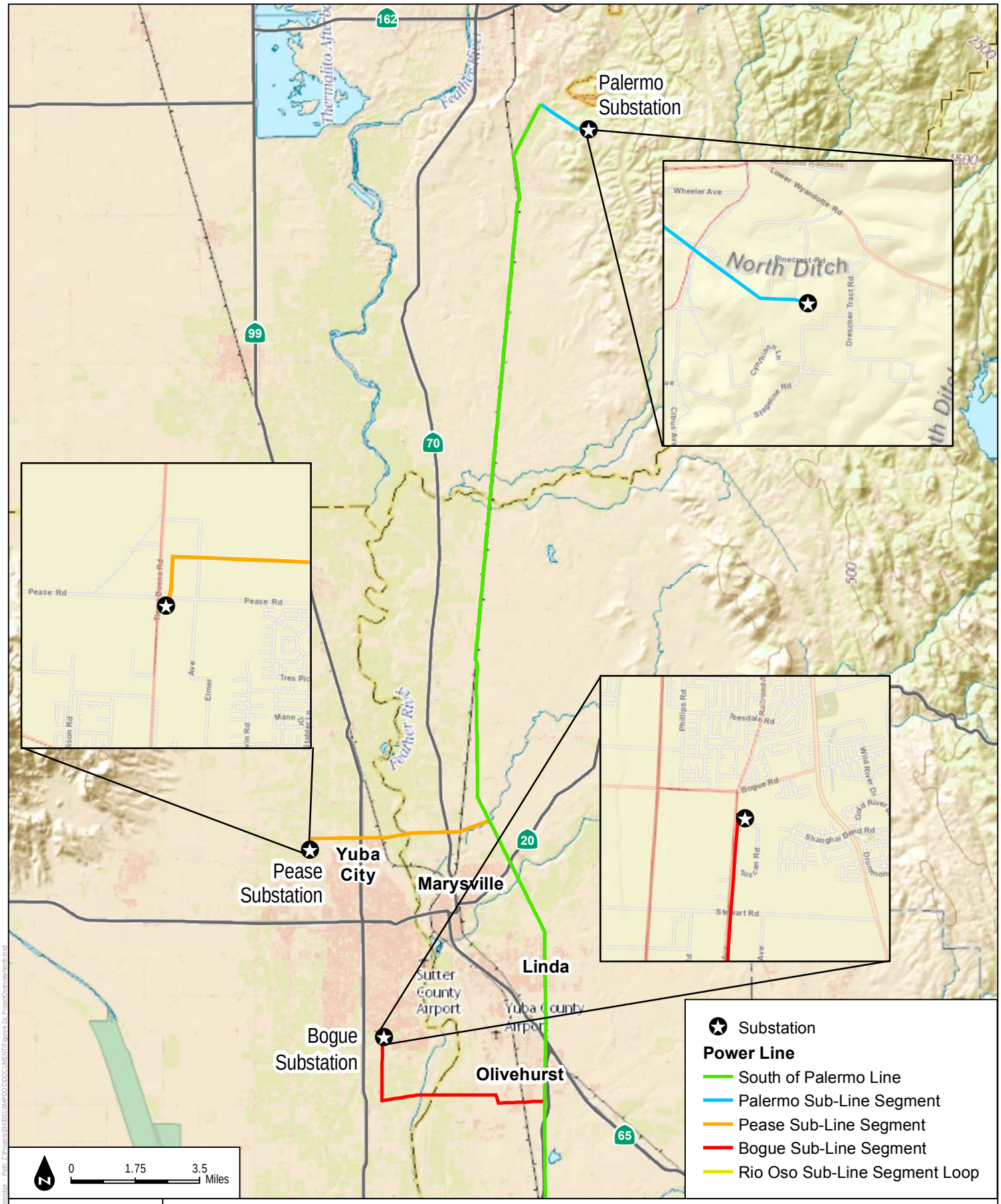
SOURCE: PG&E (2016)

FIGURE 4-1
Regional Map

DUDEK

South of Palermo 115 kV Power Line Reinforcement Project

INTENTIONALLY LEFT BLANK



SOURCE: PG&E (2016)

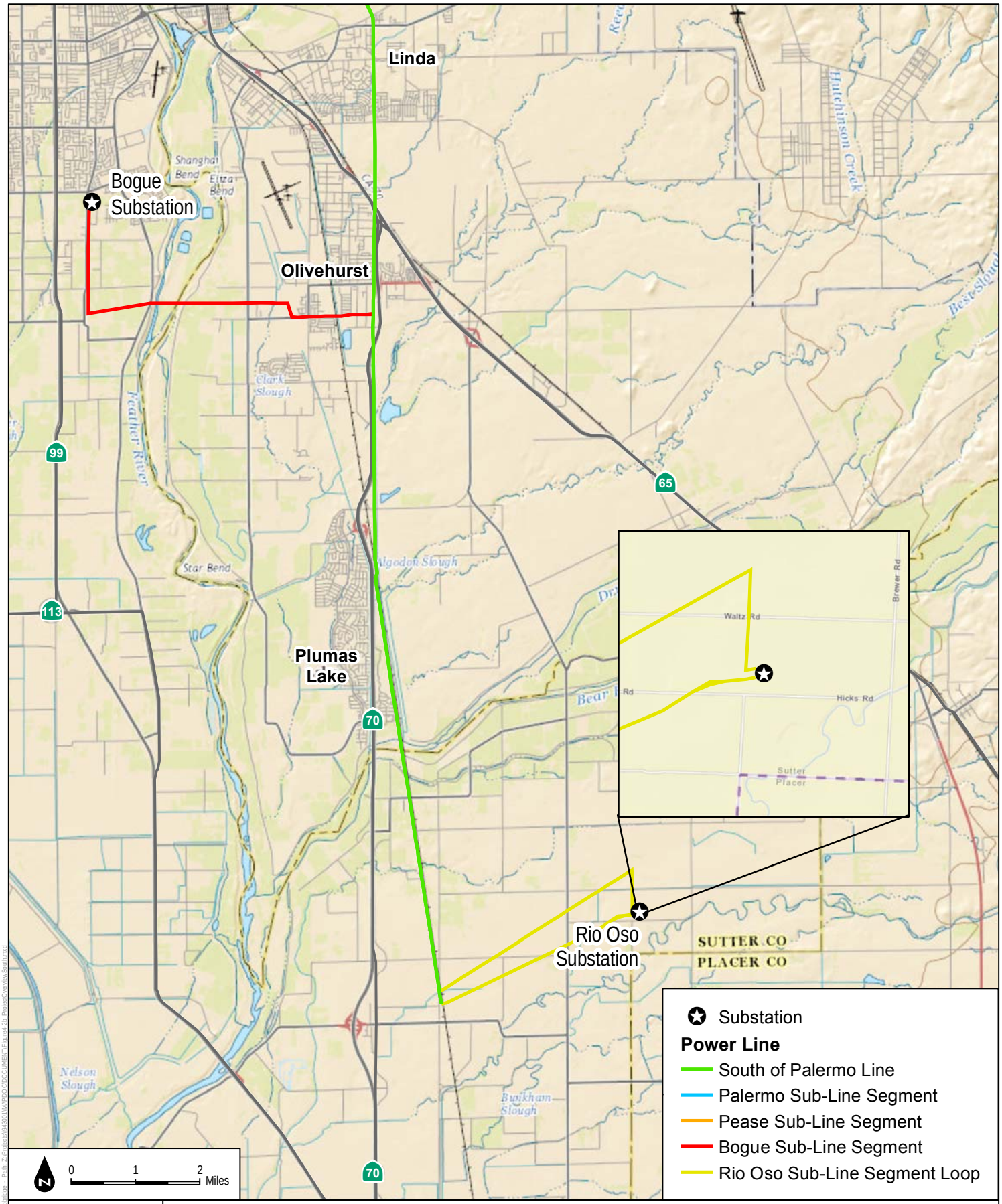
FIGURE 4-2a

Project Vicinity - Overview (North)

South of Palermo 115 kV Power Line Reinforcement Project

DUDEK

INTENTIONALLY LEFT BLANK



SOURCE: PG&E (2016)

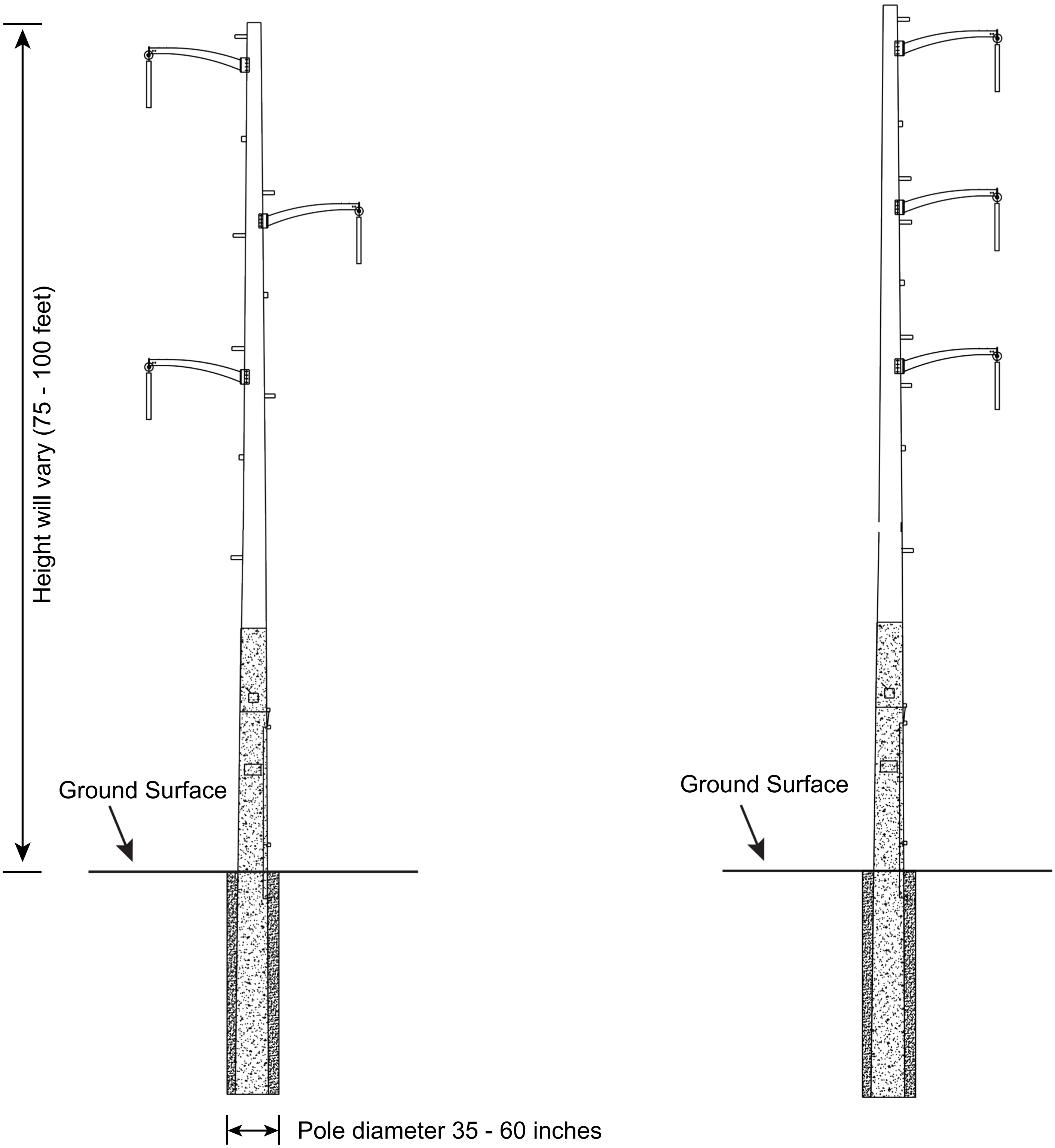
FIGURE 4-2b

Project Vicinity - Overview (South)

DUDEK

South of Palermo 115 kV Power Line Reinforcement Project

INTENTIONALLY LEFT BLANK



SOURCE: ICF International (2016)

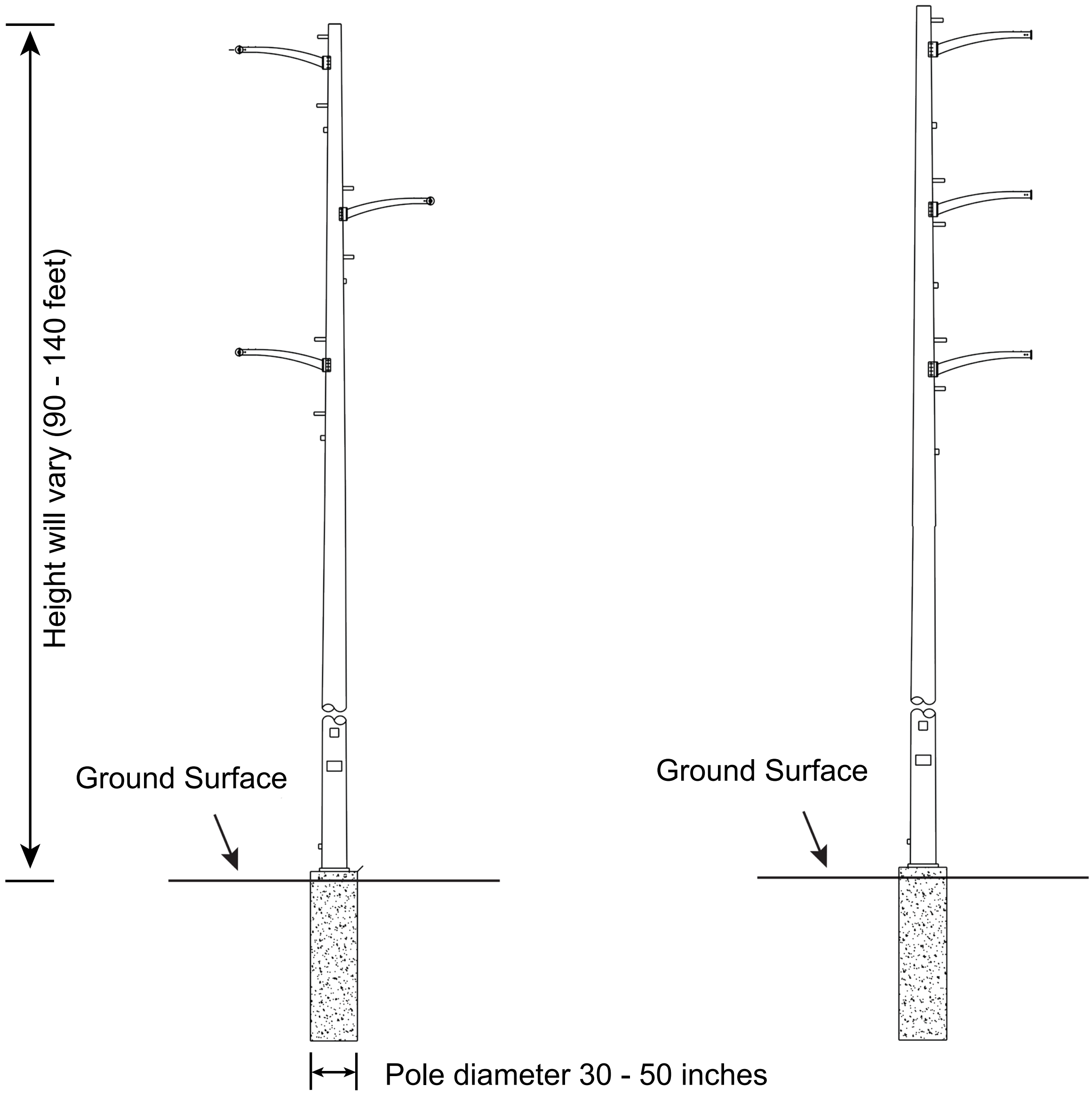
FIGURE 4-3a

Hybrid Pole Design

DUDEK

South of Palermo 115 kV Power Line Reinforcement Project

INTENTIONALLY LEFT BLANK



SOURCE: ICF International (2016)

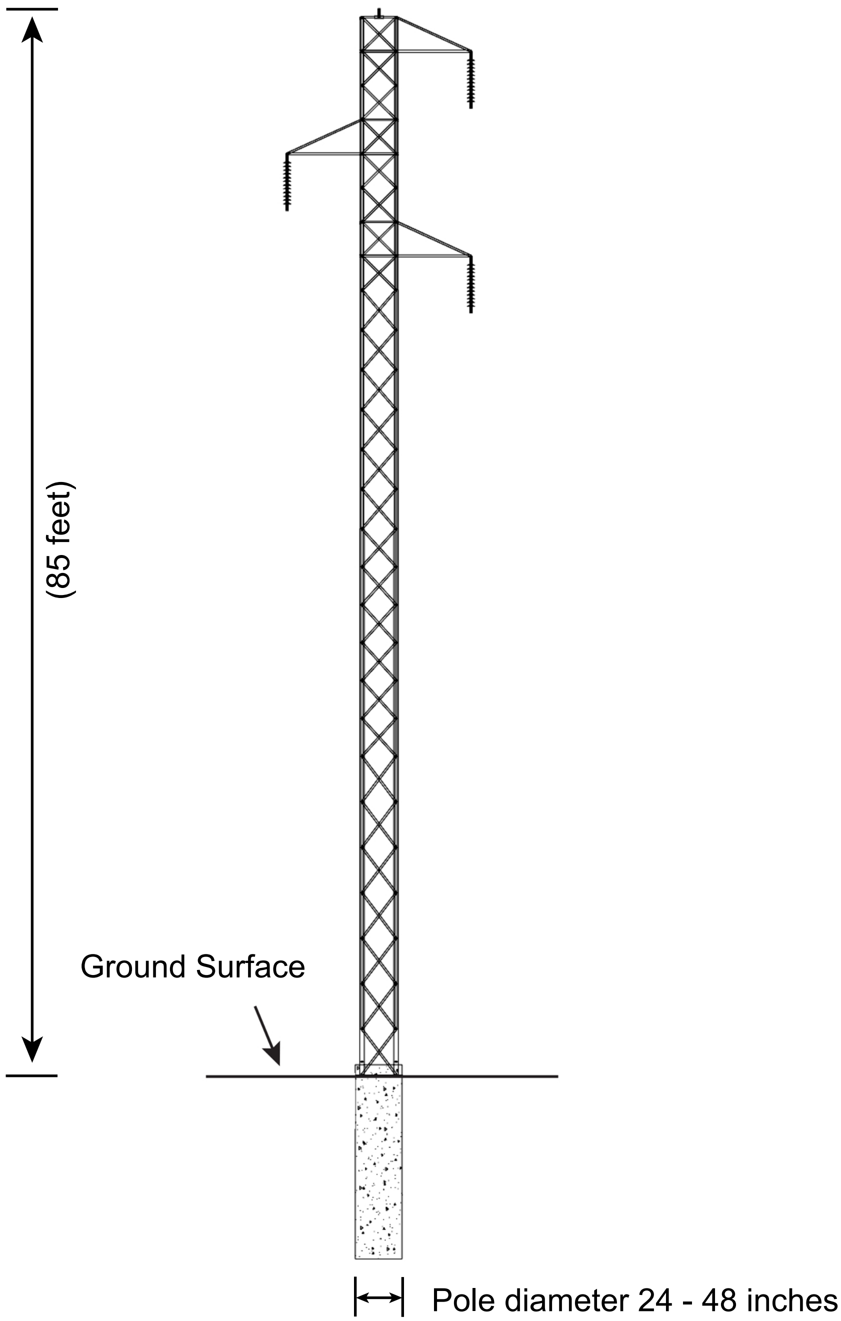
FIGURE 4-3b

Tubular Steel Pole Design

DUDEK

South of Palermo 115 kV Power Line Reinforcement Project

INTENTIONALLY LEFT BLANK



SOURCE: ICF International (2016)

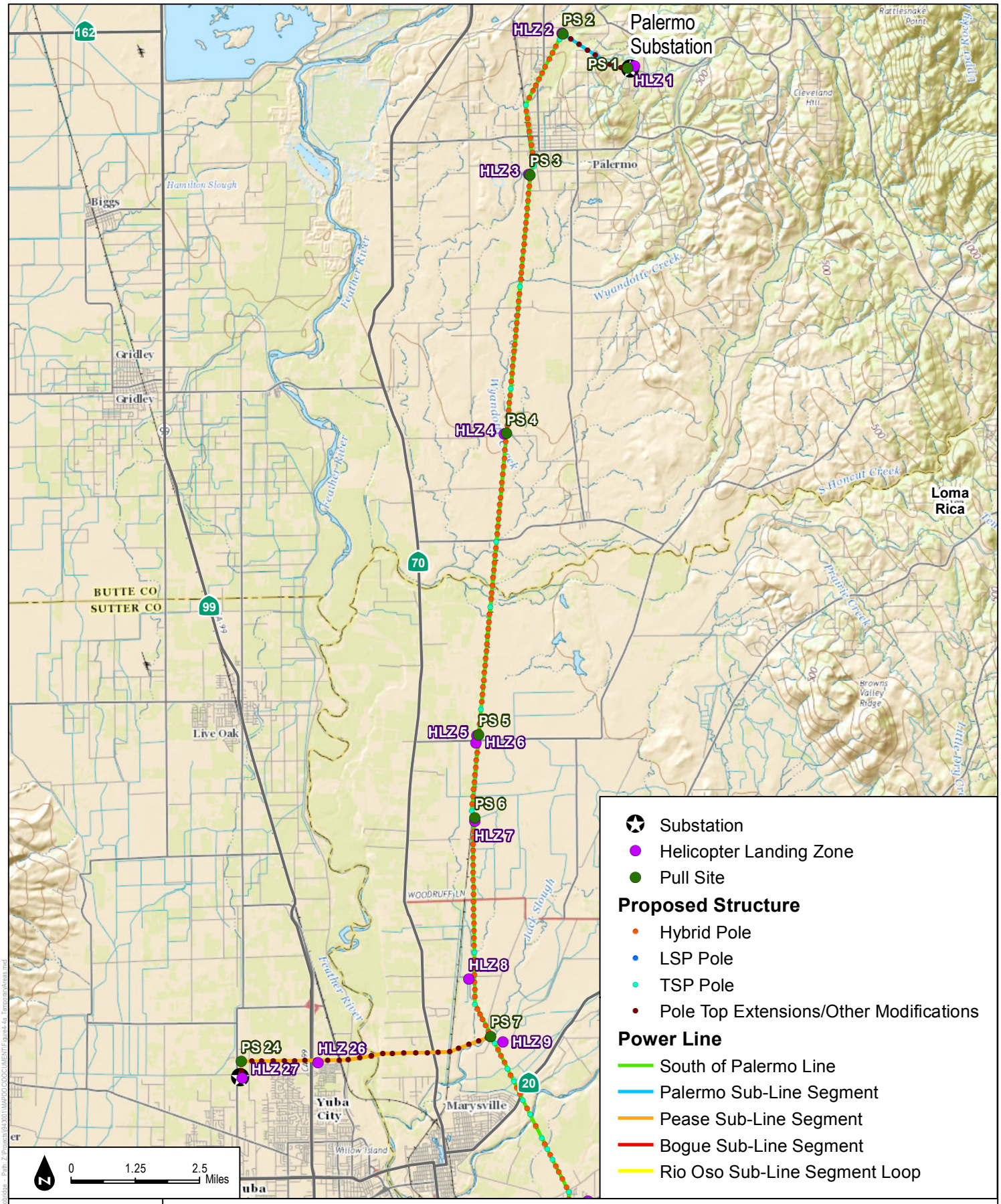
FIGURE 4-3c

Lattice Steel Pole Design

DUDEK

South of Palermo 115 kV Power Line Reinforcement Project

INTENTIONALLY LEFT BLANK



SOURCE: PG&E (2016)

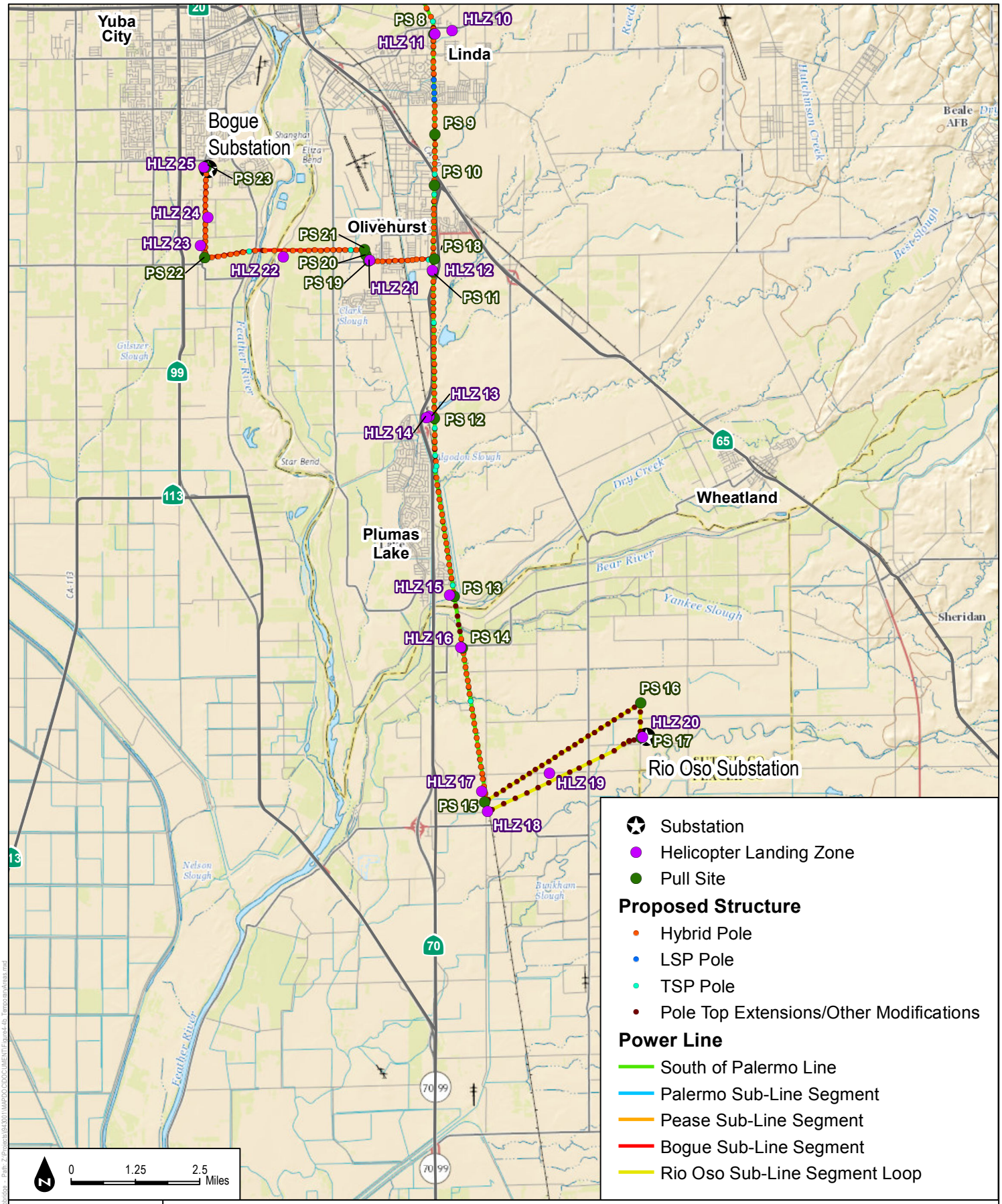
FIGURE 4-4A

Locations of Project Elements

South of Palermo 115 kV Line Reinforcement Project

DUDEK

INTENTIONALLY LEFT BLANK



SOURCE: PG&E (2016)

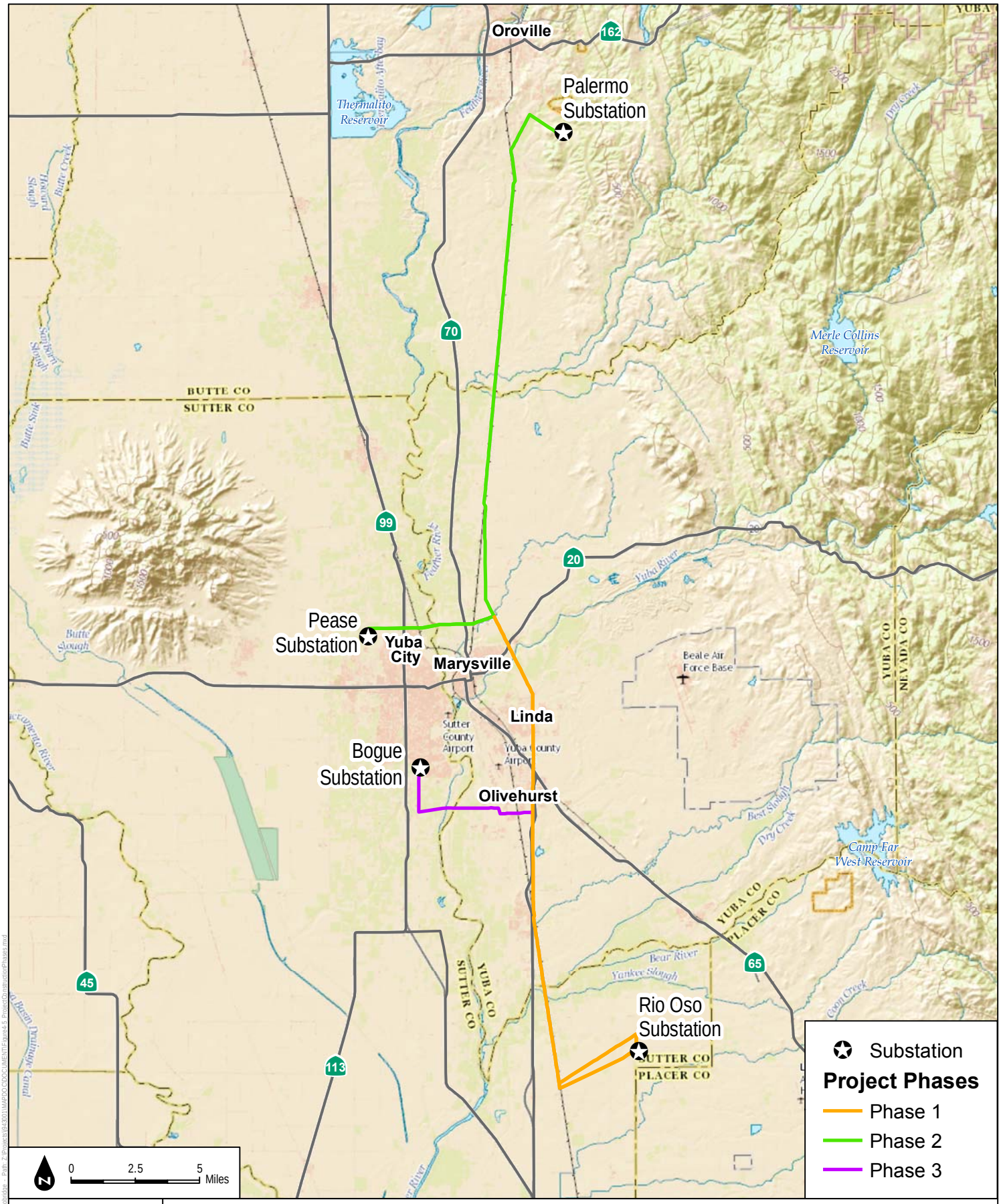
FIGURE 4-4B

Locations of Project Elements

South of Palermo 115 kV Line Reinforcement Project

DUDEK

INTENTIONALLY LEFT BLANK



SOURCE: PG&E (2016)

FIGURE 4-5

Project Construction Phases

DUDEK

South of Palermo 115 kV Power Line Reinforcement Project

INTENTIONALLY LEFT BLANK

5 ENVIRONMENTAL CHECKLIST AND DISCUSSION

This Initial Study includes analyses of the 17 environmental issue areas listed below by section number. These issue areas incorporate the topics presented in the California Environmental Quality Act (CEQA) Environmental Checklist (14 CCR 15000 et seq., Appendix G).

5.1 Aesthetics
5.2 Agriculture and Forestry Resources
5.3 Air Quality
5.4 Biological Resources
5.5 Cultural Resources
5.6 Geology and Soils
5.7 Greenhouse Gas Emissions
5.8 Hazards and Hazardous Materials
5.9 Hydrology and Water Quality
5.10 Land Use and Planning
5.11 Mineral Resources
5.12 Noise
5.13 Population and Housing
5.14 Public Services
5.15 Recreation
5.16 Transportation and Traffic
5.17 Utilities and Service Systems

Explanations for the checklist findings, as well as existing conditions, are provided for each environmental issue area.

Environmental Setting

The Environmental Setting sections present a description of the physical environment for each of the 17 environmental parameters analyzed for the South of Palermo 115-kilovolt (kV) Power Line Reinforcement Project (proposed project). The discussion of environmental setting varies among the parameters. The content and level of detail of the Environmental Setting section is relative to the parameter discussed and the extent of the potential impacts that could occur from project activities.

Regulatory Setting

Current regulatory settings are presented in the Regulatory Setting sections of the 17 environmental parameter sections. Federal, state, regional, and local regulations applicable to the project are identified.

Applicant Proposed Measures

Pacific Gas and Electric Company (PG&E), the proposed project applicant (applicant), has proposed project design features to be integrated into the proposed project. These features are

elements of the project design, construction and operation that are specifically designed to avoid and minimize impacts to environmental resources. These are referred to as applicant proposed measures (APMs), these are numbered and provided in full in this section of each environmental parameter discussion.

Environmental Impacts and Mitigation

The results of the environmental analyses conducted for the proposed project are presented in these portions of Sections 5.1 through 5.17. Each of the environmental analysis discussions presents the following:

- Significance criteria
- Impact discussion
- Levels of significance
- Mitigation measures.

The significance criteria are a benchmark for determining whether a project would result in significant environmental impacts when evaluated against the baseline (i.e., existing conditions). Each of the environmental analysis sections presents discussions about the potential effects of the proposed project on the environment. Analyses are presented for each CEQA Environmental Checklist question, accompanied by a determination made as to whether or not the proposed project would result in a significant environmental impact based on the established thresholds of significance. Mitigation measures are identified, if warranted, that could reduce the impact to a less-than-significant level. The impact analyses are divided into the basic phases of the project (i.e., construction, operation, and maintenance) and further divided by component if warranted by the environmental parameter, significance criterion, or impact analysis.

5.1 Aesthetics

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
AESTHETICS – Would the project**:**				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b) Substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

5.1.1 Environmental Setting

Scenic Vistas

For purposes of this analysis, a scenic vista is defined as a wide or particularly broad and distant public view through a view corridor or from a scenic transportation corridor that is recognized and valued for its scenic quality.

Although they do not formally recognize or designate individual points or locations as scenic vistas, the general plans of counties and local jurisdictions in the project area identify scenic areas and visual resources of importance. These scenic areas and visual resources are conceivably visible from local public roads, state routes, residences, and/or recreation areas. For example, scenic areas identified in the Butte County General Plan and within the general project area include the Table Mountain Spring Floral Area (also known as the California Department of Fish and Wildlife-managed North Table Mountain Ecological Reserve) and Lake Oroville (both approximately 6 miles from the Palermo Substation) (County of Butte 2010). Both the North Table Mountain Ecological Reserve and the Lake Oroville State Recreation Area are state-managed ecological and/or recreation areas accessible to the public. In addition to Table Mountain and Lake Oroville (more specifically, the Oroville Dam Area Preserve), the City of Oroville General Plan identifies the North and South Thermalito Forebay Preserve and the Thermalito Afterbay Preserve as scenic resources (City of Oroville 2015). In the Yuba County General Plan, distant views of the Sutter Buttes and the Sierra Nevada foothills are identified as visual resources (County of Yuba 2011) and the Sutter Buttes are noted as scenic amenities in the Sutter County General Plan (County of Sutter 2011).

Scenic Highways

Scenic highways include freeways and state routes that are designated as such by the State Legislature (through inclusion in Section 263 of the Streets and Highways Code) and are included in the California Department of Transportation (Caltrans) Scenic Highway System. In addition, regional and local jurisdictions often designate state routes and local roads as scenic byways or corridors. While local byways and corridors are often not included in the state Scenic

Highway System and thus not specifically included in the significance criteria set forth in Appendix G of the CEQA Guidelines, they are discussed in this section for disclosure purposes and for consideration by the public and decision makers.

There are no officially designated state scenic highways within Butte County (Caltrans 2016a). However, State Route 70 (SR-70) from SR-149 near Wicks Corner northeast to the Plumas County line is an eligible state scenic highway (i.e., not officially designated but listed in Section 263 of the Streets and Highways Code). The SR-70 and SR-149 junction is located approximately 10 miles northwest of the Palermo Substation. There are no other eligible state scenic highways in Butte County.

According to the Butte County General Plan, SR-70 through the Feather River Canyon and a portion of SR-32 north of Forest Ranch in the northern portion of the county are County Scenic Highways (County of Butte 2010). Project components would be located more than 20 miles from the nearest Butte County scenic designated segment of SR-70 and more than 30 miles from the nearest Butte County scenic designated segment of SR-32.

There are no officially designated or eligible state scenic highways in Sutter County (Caltrans 2016b) and no officially designated state scenic highways in Yuba County (Caltrans 2016c). In the northeastern corner of Yuba County, SR-49 from the Yuba River crossing near Alleghany Ridge Road to the unincorporated community of Oak Valley is an eligible state scenic highway. As measured from the Yuba River crossing near Alleghany Ridge Road, SR-49 is located 23 miles east of the Palermo Substation and 25 miles east of the South of Palermo single-circuit power line (South of Palermo Line).

Lastly, the SR-70 crossing of the Yuba River between Yuba City and Marysville is considered a scenic route per the City of Marysville General Plan (City of Marysville 1985).

Existing Visual Character

A regional map depicting the location of the various project components is included as Figure 4-1, Regional Map (see Chapter 4, Project Description). As shown on Figure 4-1, proposed project components are located in the Sacramento Valley and within Butte, Yuba, and Sutter Counties. The existing north–south-trending South of Palermo Line generally parallels existing power lines along the SR-70 corridor. The South of Palermo Line, and the four sub lines that spur off the north–south line and provide connectivity to existing substations, are located within a largely rural and agricultural landscape marked by lands planted with row crops, rice fields, grazing areas, and orchards and punctuated by occasional marshes and riparian corridors. In addition, the existing alignments traverse or pass near the rural communities of Palermo, Craig, Honcut, Rio Oso, and East Nicolaus; the suburban communities of Tierra Buena, Linda, and

Plumas Lake; and the urban cities of Marysville and Yuba City. In addition to active and inactive agricultural lands and riparian areas, the project area landscape is dotted with golf courses, mobile home parks, railroad corridors, college campuses, and undeveloped floodplains. The winding Feather, Yuba, and Bear Rivers (and several smaller creeks and branching waterways, including Wyandotte Creek, North and South Honcut Creeks, Jack Slough, and Dry Creek) are spanned by the existing alignments, as are several state routes, including SR-20, SR-65, and SR-70, and numerous local surface roads. Although the terrain of the largely rural and agricultural landscape is generally flat, the Sacramento Valley is abutted by the rugged Sierra Nevada foothills to the east, and the circular and domed Sutter Buttes rise from the valley floor near the Yuba City and Marysville area.

Photographs of the project area landscape under existing conditions are included in Figures 5.1-1A through 5.1-1G.

Figures 5.1-1A through 5.1-1C provide representative views of the project area landscape from the Palermo Substation south to the northern boundary of the City of Marysville near SR-20. As depicted in the figures, this portion of the project area is sparsely populated and the landscape is marked by gently rolling terrain covered with mature forests that gradually transition to low-lying grassland-covered valleys of Wyandotte and Honcut Creeks. Power lines and support structures are present in landscape and contribute to the existing visual character. In addition to SR-70, local roads including Upper Palermo Road, East Palermo Street, North and South Villa Avenues, Cox Lane, and Woodruff Lane are crossed by existing power lines. The existing alignments parallel numerous other local roads and a railway corridor. In addition to rural residential areas and agricultural lands, this segment of the proposed project (more specifically, the Pease Sub-Line Segment) spans the Yuba College Sutter County Campus in northern Yuba City.

Figures 5.1-1C (Photograph 12) through 5.1-1E provide representative views of the project area landscape from SR-20 to the unincorporated community of Olivehurst. In addition to Olivehurst, this portion of the project area includes the unincorporated community of Linda and the cities of Marysville and Yuba City. This area represents the portion of the project area landscape with the densest population and most numerous receptors. In addition to spanning low-lying farmlands, orchards, and a country club (the Peachtree Golf and Country Club in Marysville), the existing power lines cross several local and regional roadways, including Hammonton Smartville Road, SR-20, SR-65, and SR-70. Single-family residences, Yuba College, local parks, and undeveloped creek corridors are the primary land uses and features along the existing power-line alignment in this portion of the project area landscape.

Figures 5.1-1E (Photograph 20) through 5.1-1G provide representative views of the project area landscape from between unincorporated Olivehurst and the Rio Oso Substation and along the

Bogue Sub-Line Segment, which extends west from the South of Palermo Line to the Bogue Substation in southern Yuba City. Existing power lines, newer single-family residential development, and sparsely populated agricultural areas of grasslands, rice fields, and fruit orchards mark the landscape. The tan soil slopes of levees are relatively commonplace in the area and several water features are spanned by existing power-line alignments. The Rio Oso Sub-Line Segment Loop terminates at the Rio Oso Substation, which rises from the surrounding low-lying rice field landscape and displays an impressive and chaotic series of horizontal and vertical forms and lines.

Light and Glare

Existing sources of nighttime lighting in the project area are relatively limited and consist of interior and exterior lighting associated with scattered rural residential development and more orderly suburban and urban residential development and tall overhead cobra-style streetlights aligned along major roadways in both suburban and urban settings. For example, as it passes through rural areas north of the City of Marysville, the SR-70 right-of-way is devoid of regularly occurring overhead light poles. However, through the city, overhead streetlights and traffic signals flank the roadway. Although rural roads outside suburban and urban areas, including those located in the community of Palermo, are not typically lined with overhead lighting, single lights atop thin metal poles are occasionally installed near the junctions of local rural roads and residential driveways. In addition, railroad crossings in rural areas typically traverse local roads and at these locations, red lights flash prior to, during, and immediately following train crossings. Nighttime lighting in the project area also includes security lighting mounted on building exteriors and installed within commercial and recreational area parking lots (including those installed at the Peachtree Golf and Country Club in Marysville, the main Yuba College campus near Linda, and the Yuba College Sutter County Campus in Yuba City) and vehicle headlights on state routes and local surface roads.

In addition to vehicle headlights and overhead streetlights and parking lot lighting in suburban and urban settings, existing sources of glare in the project area include metallic-siding buildings, which are relatively common in rural and agricultural areas. For example, metal-siding-exterior buildings located along Lincoln Boulevard and east of the South of Palermo Line in the community of Palermo and agricultural outbuildings topped with metal-siding roofs in the Vista Robles neighborhood of Palermo may generate daytime glare that could be received by nearby receptors. Pre-engineered agricultural buildings constructed along Railroad Avenue and the Bogue Sub-Line Segment in Yuba City may generate daytime glare. In addition, existing steel lattice towers and transmission and distribution conductors in the landscape may also generate glare that could be received by receptors in the surrounding area.

5.1.2 Regulatory Setting

Federal

There are no federal regulations or policies related to aesthetics, light, or glare that would be applicable to the proposed project.

State

California Department of Transportation Scenic Highway Program

In 1963, the California Legislature created the Scenic Highway Program to preserve and protect scenic highway corridors from changes that would diminish the aesthetic value of lands adjacent to the highways. The state regulations and guidelines governing the Scenic Highway Program are found in Section 260 et seq. of the Streets and Highways Code. A highway may be designated as scenic depending on how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the travelers' enjoyment of the view (Caltrans 2008). A state route must be included on the list of highways eligible for scenic highway designation in Streets and Highways Code Section 263 for it to be nominated for official designation (eligible state routes are those that have been listed in Section 263 by the State Legislature). The application to nominate eligible scenic highways for official designation requires the preparation of a visual assessment and a Scenic Highway Proposal. The proposal must include a letter of intent from the local governing body, topographic and zoning maps, and a narrative description of the scenic elements in the corridor that includes a discussion of any visual intrusions on scenic views (Caltrans 2008). In addition, the local governing body must also develop, adopt, and submit to Caltrans for review and approval a corridor protection program composed of protection measures in the form of protective ordinances, zoning, and/or planning policies that apply to the area of land within the scenic corridor (Caltrans 2008).

Local

Pursuant to Article 12, Section 8, of the California Constitution, the California Public Utilities Commission has sole jurisdiction over project siting, design, and construction. Therefore, because discretionary permits from the Counties of Butte, Sutter, and Yuba would not be required for construction and operation of the proposed project and because these counties do not have land use jurisdiction over the project, the project is not subject to local standards and ordinances. However, state agencies are required to consider local land use policies and regulations when making decisions; therefore, this section includes a summary of applicable local standards or ordinances. This summary is provided for informational purposes and to aid in the CEQA review process. As shown in this section, the general plans of counties and cities (and

two specific plans) in the project area identify scenic resources and amenities and contain goals and policies related to aesthetics.

Butte County General Plan

One of 10 elements, the Conservation and Open Space Element of the Butte County General Plan addresses the conservation, development, and utilization of natural resources, including scenic resources. Significant scenic resources in the county are depicted on Figure COS-7, Scenic Resources, and in the central and southern portions of the county include Table Mountain Spring Floral Area, Lake Oroville, the Central Buttes, and the Thermalito Afterbay (County of Butte 2010).

The following goals and policies pertain to the aesthetic and/or scenic resources in Butte County:

- **Goal COS-17:** Maintain and enhance the quality of Butte County's scenic and visual resources.
- **Policy COS-P17.1**: Views of Butte County's scenic resources, including water features, unique geologic features and wildlife habitat areas shall be maintained.
- **Goal COS-18:** Protect and enhance scenic areas adjacent to and visible from highways for enjoyment by residents and visitors.
- **Policy COS-P18.3:** The County shall require utility companies to choose the least conspicuous locations for distribution lines, to avoid impacts to scenic corridors where there is reasonable choice (County of Butte 2010).

Yuba County General Plan

The Natural Resources Element of the Yuba County General Plan presents the county's overarching conservation, open space, and resource management policy framework. Visual resources are identified as important county resources and in the valley floor region of the county, agricultural lands (particularly croplands and rice fields), rivers, and distant views of the Sutter Buttes and Sierra Nevada foothills are identified as visual resources (County of Yuba 2011).

The Natural Resources Element also contains the following policies pertaining to Yuba County visual resources:

- **Policy NR9.2:** New plans and projects in western Yuba County should be designed to provide view corridors to the Sutter Buttes, where practical.

- **Policy NR9.3:** Development in Rural Communities should be designed to preserve important scenic resources, landmarks, and icons that positively contribute to the rural character (County of Yuba 2011).

Sutter County General Plan

According to its General Plan, Sutter County is committed to the protection of its scenic amenities, and views to natural open space areas and habitats are to be preserved (County of Sutter 2011). Identified scenic amenities in the project area consist of the Sutter Buttes.

The Land Use and Environmental Resources Elements of the Sutter County General Plan contain the following policies pertaining to visual resources:

- **Policy LU1.16:** Views from Rural Roadways and Highways. Prohibit new projects and activities that would obscure, detract from, or negatively impact the quality of views from the County's rural roadways and highways. Limit off-site advertising along County roadways and highways.
- **Policy ER7.1:** Scenic Resources. Protect views of Sutter County's unique scenic resources including the Sutter Buttes, wildlife and habitat areas, the Sacramento, Feather, and Bear Rivers, and other significant resources.
- **Policy ER7.2:** Scenic Roadways. Enhance the visual character along the County's key transportation corridors, in particular Highways 99 and 20, through application of consistent design and landscape standards (County of Sutter 2011).

East Linda Specific Plan

A segment of the South of Palermo Line crosses through the East Linda specific planning area. Although the East Linda Specific Plan does not contain goals and policies related to aesthetics, it recognizes open spaces, including power-line easements, as visual amenities within the plan area (County of Yuba 1990).

Plumas Lake Specific Plan

A segment of the South of Palermo Line is aligned along the eastern boundary of the Plumas Lake specific planning area. Similar to the East Linda Specific Plan, the Plumas Lake Specific Plan does not include goals and policies regarding the protection of visual resources but it does acknowledge that open space provides visual relief (County of Yuba 1993).

City of Marysville General Plan

The City of Marysville General Plan Open Space, Conservation, and Recreation Element contain the following general policy related to visual resources:

- Conservation and Preservation of Resources Policy 4: To ensure that existing natural resource areas and parks are protected from encroachment or destruction by development (City of Marysville 1985).

Also, per the Circulation and Scenic Highways Element, the only existing scenic route in the City is SR-70 as it crosses the Yuba River Bridge entering Marysville (City of Marysville 1985). This segment of SR-70 is located approximately 2.3 miles south of the nearest project component, the Pease Sub-Line Segment.

City of Oroville General Plan

The City of Oroville General Plan identifies several features, including Table Mountain, the Sierra Nevada foothills, Feather River Nature Center and Native Plant Park, Oroville Dam Area Preserve, Feather River Waterfront Preserve, Oroville Wildlife Refuge Preserve, North and South Thermalito Forebay Preserve, and Thermalito Afterbay Preserve, as scenic resources within the plan area (City of Oroville 2015).

The following goals and policies of the Open Space, Natural Resources, and Conservation Element address scenic resources within the City of Oroville:

- **Goal OPS-5:** Maintain and enhance the quality of Oroville's scenic and visual resources.
- **Policy P5.1:** Maintain the appearance of Oroville, as seen from the freeway, as a city to be visited, enjoyed and admired.
- **Policy P5.3:** Maintain the scenic view of the Feather River and Table Mountain (City of Oroville 2015).

The following policy of the Public Facilities and Services Element pertains to the provision of electrical services:

- **Policy P10.1:** Ensure that utilities, including electricity, natural gas, telecommunications, and cable television, are available or can be provided to serve the projected population within the City in a manner which is fiscally and environmentally responsible, aesthetically acceptable, and safe (City of Oroville 2015).

Yuba City General Plan

The Yuba City General Plan considers open spaces within and around Yuba City as valuable resources for providing natural scenic quality (City of Yuba 2004).

The following policies for the Yuba City General Plan relate to the preservation of visual and scenic resources within the city:

- **Policy 8.1-G-3:** Preserve and enhance the visual and scenic resources of the Planning Area (City of Yuba 2004).

5.1.3 Applicant Proposed Measures

With the exception of landscape restoration measures included in APM-HYDRO-1 (prepare and implement a stormwater pollution prevention plan; see Section 5.9, Hydrology and Water Quality), PG&E has not proposed APMs for aesthetic and/or scenic resources.

5.1.4 Environmental Impacts and Mitigation

a) Would the project have a substantial adverse effect on a scenic vista?

Less-than-Significant Impact. As stated in Section 5.1.1, Environmental Setting, a scenic vista is defined as a wide or particularly broad and distant public view through an opening or from a corridor that recognized and valued for its scenic quality. Regional and local general plans do not formally recognize or designate individual points or locations as scenic vistas. Because there are no formally recognized or designated scenic vistas within the project viewshed and because the proposed project entails replacement of or modifications to existing features (i.e., power lines, support structures, and electrical substations) in the landscape, implementation of the proposed project would not result in a substantial adverse effect on a scenic vista. The proposed replacement of and/or modifications to existing electrical infrastructure in the project area setting would also not substantially affect views to regional or local scenic areas, visual resources of importance, or scenic amenities. The tall form and vertical line of support poles and the horizontal, slightly concave line displayed by conductor wiring strung between support poles already mark the landscape and are present in existing views. Lastly, because the proposed modifications would not affect the bulk or scale of existing substations, no new or increased obstruction or interruption of views to scenic areas, visual resources of importance, or scenic amenities is anticipated. Therefore, implementation of the project would not have a substantial adverse effect on a scenic vista and impacts would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant.**

b) Would the project substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No Impact. As discussed in Section 5.1.1, there are no officially designated or eligible state scenic highways in the proposed project area. The nearest eligible state scenic highway, SR-70 near Wicks Corner, is located approximately 10 miles northwest of the Palermo Substation. Due to distance and the presence of intervening structures and terrain, project components would not be visible from the eligible state scenic highway segment of SR-70. As such, **no impacts** to scenic resources would occur.

In addition, because the proposed project entails the replacement of or modification to existing power lines, support structures, and electrical substations, implementation of the proposed project would not substantially affect views from county or locally designated scenic highways or routes.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

c) Would the project substantially degrade the existing visual character or quality of the site and its surroundings?

Less-than-Significant Impact. To assist in the visual character analysis, five viewpoints in the project area from which views of proposed project components would be available were selected. The five viewpoints are representative of available public views of project components and consider the views of sensitive receptors in the area. The viewpoints also reflect the various distances, viewing angles, and visibility conditions at locations from which sensitive receptors would view project components. To that end, the existing landscape setting as viewed from each viewpoint was documented and photographed and visual simulations of proposed project components were prepared. The visual simulations depict the anticipated visual change associated with implementation of the proposed project, and along with photographs of the existing landscape setting, present a before-and-after view of existing and proposed conditions. ICF International prepared visual simulations and the preparation process is documented in detail in PG&E's Proponent's Environmental Assessment (PG&E 2016).

The locations of the five representative viewpoints considered in this analysis are depicted on Figure 5.1-2, Viewpoint Locations. The view orientation of each viewpoint is also depicted on the figure, as are the locations of proposed project components. The

discussion in this section examines existing and proposed conditions at each of the five viewpoints and characterizes the anticipated visual change and visual contrast.

Viewpoint 1 – South Villa Avenue

Viewpoint 1 is situated on South Villa Avenue, approximately 240 feet west of Railroad Avenue, in the unincorporated community of Palermo. View orientation is to the northwest toward the existing South of Palermo 115 kV power line (South of Palermo Line) (supported by steel lattice towers) and an existing adjacent overhead power line (supported by tubular steel poles (TSPs)) (see Figure 5.1-3A). The existing geometric lattice towers and comparatively thin TSPs and skylined conductor lines are located within a disturbed yet in some locations densely vegetated power-line corridor bordered by a dense, tall row of mature trees to the west and low grasslands dotted with riparian vegetation and occasional palm trees to the east. Viewpoint 1 is representative of views available to passing motorists on local surface roads and project area residents located within the immediate foreground (i.e., within 500 feet) to foreground (i.e., 500 feet to 0.25 miles) distance of existing power lines.

Implementation of the proposed project would entail the replacement of existing steel lattice structures supporting the South of Palermo Line with hybrid poles. As depicted in the Figure 5.1-3B visual simulation, the replacement hybrid poles would be taller (approximately 6 to 16 feet taller) than the existing towers and would be constructed of solid steel as opposed to lattice steel. When compared to lattice steel, the solid composition of the hybrid poles would be more visually prominent and would create greater contrast when viewed against the darkly colored vegetation near the base and the background sky. However, under existing conditions, insulators appear as dark, bundled cylindrical features that remain visible and prominent on lattice towers extending northerly into the foreground. In contrast, the replacement hybrid poles would be equipped with three insulators that would not be visually prominent and would not produce strong color contrast when viewed against the background sky. When compared to the existing conductor line, the line and color displayed by new non-specular (dulled finish) all aluminum conductor (AAC) line would be similar. Despite the increased prominence of the hybrid pole compared to steel lattice, replacement poles would display a form, line, and color consistent with that of the TSPs that are currently used in the power line corridor. Due to consistency in character elements, implementation of the proposed project would result in enhanced unity amongst visible man-made elements and would achieve a more orderly visual pattern. As such, when viewed from Viewpoint 1, beneficial visual change is anticipated.

Viewpoint 2 – Wildwood Drive

Viewpoint 2 is located on Wildwood Drive, approximately 0.4 miles south of North Beale Road, within a suburban residential development in unincorporated Linda. Viewpoint 2 is also located approximately 475 feet west of the existing South of Palermo Line. View orientation is to the east, toward the existing South of Palermo Line (supported by steel lattice towers) and an existing adjacent overhead power line (supported by lattice steel poles (LSPs)) (see Figure 5.1-4A). The existing geometric tower and the taller LSP are skylined (the base and lower segments of both structures is blocked by residential structures and vegetation) and are located beyond the single-family residential neighborhood that occupies the immediate foreground of the viewpoint. Viewpoint 2 is representative of views available to project area residents located within the immediate foreground (i.e., within 500 feet) distance of existing power lines.

As viewed from Viewpoint 2, implementation of the proposed project would entail the replacement of existing steel lattice towers supporting the South of Palermo Line with LSPs. The replacement LSP depicted in Figure 5.1-4B would be approximately 11 feet taller than the existing steel lattice tower but the LSP would display a thinner profile and a form and line similar to the existing LSP in the landscape. In addition, the new insulators would be shorter and lighter in color than the existing insulators and would create a similar straight line to the insulators on the existing LSP. Because the new LSP would display an appearance similar to that of the existing LSP, implementation of the proposed project would result in enhanced unity amongst visible man-made elements and would achieve a more orderly visual pattern. As such, when viewed from Viewpoint 2, reduced visual contrast is anticipated.

Viewpoint 3 – Chateau Drive

Viewpoint 3 is situated on Chateau Drive, approximately 0.15 miles east of Aboga Drive, within a suburban residential development in unincorporated Olivehurst. View orientation is to the northeast, toward single-family homes lining Chateau Drive and the existing Bogue Sub-Line Segment, which is supported by LSPs. Three tall, thin, geometric LSPs, each with six insulators hanging from trapezoidal cross-arms, are visible in the existing condition photograph in Figure 5.1-5A. Due to the light blue background sky, existing conductor strung between poles recedes somewhat into the landscape and is not visually prominent.

Following implementation of the proposed project, existing LSPs visible from Viewpoint 3 would be replaced with solid steel hybrid poles (see Figure 5.1-5B). Although the

replacement solid steel hybrid poles would be approximately 9 feet taller than the existing lattice poles, the increased height would not be overly discernible to ground-level receptors at Viewpoint 5. Furthermore, compared to LSPs, hybrid poles would display a thinner vertical profile and simpler horizontal crossarms. New 1,113 MCM AAC strung between replaced hybrid poles would display a darker color and would create slightly greater line contrast (the line would not tend to recede into the background sky) than the existing conductor. Still, because hybrid poles would display simple vertical and horizontal lines, implementation of the project would result in reduced form and line contrast and hybrid poles would replicate the thin, vertical line displayed by light poles lining Chateau Drive. Due to reduced complexity in line and consistency with existing vertical features in the landscape, implementation of the proposed project would result in an overall low level of visual change as viewed from Viewpoint 5.

Viewpoint 4 – SR-70

Viewpoint 4 is situated on southbound SR-70, approximately 1 mile south of McGowan Parkway, and south of the unincorporated community of Olivehurst. View orientation is to the south across the southbound and northbound SR-70 travel lanes and to the existing power-line corridor that includes the South of Palermo Line (supported by steel lattice towers) and an adjacent power line (supported by steel hybrid poles). Existing towers and poles in the foreground are located on low, depressed terrain where seasonal ponding is assumed to occur and the corridor is aligned parallel to an adjacent earthen levee. From Viewpoint 4, existing towers and poles appear to be aligned in a straight, regular line and seemingly extend to the southern horizon (see Figure 5.1-6A).

As proposed, the existing steel lattice towers supporting the South of Palermo Line would be replaced with TSPs. Similar to existing conditions, the replacement poles would feature three insulators and would be constructed at a similar height to the steel lattice towers (see Figure 5.1-6B). When compared to the steel lattice towers, TSPs would display a thinner vertical profile and a simpler line. In addition, pole replacement would increase the visual unity of structures within the power-line corridor through enhanced aesthetic consistency with existing hybrid poles in the corridor. Specifically, the line contrast between existing hybrid poles and steel lattice towers would be reduced with the proposed introduction of TSPs, which mimic the tall, solid form and straight, regular line of hybrid poles. Proposed reconductoring of the line would not cause overly discernible visual change when viewed from Viewpoint 4. Because replacement poles would display a solid form and straight, regular line that would be consistent with the form and line of existing hybrid poles in the corridor, existing visual contrast between structures would be reduced and visual change would be beneficial.

Viewpoint 5 – Hicks Road

Viewpoint 5 is located on Hicks Road, approximately 200 feet west of the Rio Oso Sub-Line Segment Loop (and an adjacent power line) Hicks Road crossing and 0.5 miles southwest of the Rio Oso Substation, outside the communities of East Nicolaus and Trowbridge. View orientation is to the northeast, across the paved, two-lane Hicks Road and adjacent overgrown grasslands and recently harvested rice fields dotted with tall steel lattice towers, LSPs, and H-frame steel lattice structures (see Figure 5.1-7A). The busy and layered vertical and horizontal lines displayed by metallic structures at the Rio Oso Substation are visible in the middleground viewing distance. The low, hazy silhouettes of the Sierra Nevada foothills are detectable in the background.

As viewed from Viewpoint 5, implementation of the proposed project would result in subtle, nearly imperceptible visual change. As proposed, a top cage extension would be added to the existing steel lattice tower supporting the Rio Oso Sub-Line Segment Loop. The top cage extension would be incorporated onto the more distant of the two steel lattice structures located in the foreground of Viewpoint 5 (see Figure 5.1-7B). While incorporation of a cage extension would result in a slightly taller steel lattice tower, the increased height would be largely imperceptible due to the viewing angle afforded to receptors at Viewpoint 5 and the overall jumbled visual pattern resulting from the inclusion of numerous vertical and horizontal forms and lines in the landscape. Because multiple encroaching elements are included in the Viewpoint 5 landscape, the slightly taller scale of a Rio Oso Sub-Line Segment Loop steel lattice tower in the foreground would result in subtle, nearly imperceptible visual change.

As proposed, construction of the project is anticipated to occur over three overlapping phases that would be completed in 36 months. Since project activities would proceed from pole to pole along the various power-line alignments, construction aesthetic impacts would be transitory in nature. During construction, workers, construction equipment and vehicles would mobilize near construction sites, complete required activities and tasks, and then move to the next location along the project route. At major road and railroad crossings, temporary guard and crossing structures may be installed in disturbed areas adjacent to facilities and would be visible to passing motorists and other receptors in the local areas. These structures (approximately 50–140 feet tall) would be installed over a short duration (i.e., for the time it takes to complete proposed reconductoring) and would then be removed. Due to the transitory nature of construction activities along power-line alignments and the temporary, short-term duration of construction worker, equipment, and vehicle presence in the landscape, construction activities would not substantially

degrade the existing visual character and quality of the site and its surroundings. Impacts would be less than significant.

Because the existing visual character and quality of available views in the project area have been influenced by existing power-line conductor and support poles that display similar scale and color as the corresponding elements from the proposed project, the existing visual character and quality of the project area would not be substantially degraded by the proposed project. Furthermore, as detailed in Figures 5.1-3B through 5.1-7B, implementation of the proposed project would generally result in beneficial visual change because replacement poles along the power-line alignments would display a similar form and line as existing hybrid poles and/or LSPs in the power-line corridors. As such, implementation of the proposed project would result in enhanced visual unity amongst power-line structures and a more consistent visual pattern in the power-line corridors. Because the proposed project replaces and modifies existing power-line support structures and would generally result in beneficial visual change and reduced visual contrast in the landscape, the existing visual character and quality of the site and surroundings would not be substantially degraded; impacts would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

d) Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Light

Less-than-Significant Impact. Construction activities associated with the proposed project would generally occur during daytime hours and would not regularly require the use of portable temporary lighting at active work areas. However, construction activities may occasionally be required during nighttime hours to minimize disturbances to the construction schedule or to comply with adjacent property owners or agencies, such as the California Independent System Operator. During these limited occurrences, portable temporary lighting would be used to illuminate the immediate work area and would be shielded and directed downward to avoid unnecessary skyglow and light trespass onto adjacent properties. Furthermore, when necessary, nighttime lighting would operate for only a limited duration. Once constructed, project components would not require new lighting sources to be introduced to the landscape. Therefore, construction and operation of the proposed project would not entail the introduction of a new source of substantial light that would adversely affect nighttime views in the surrounding area. Impacts would be **less than significant**.

Glare

Less-than-Significant Impact. The replacement of existing steel lattice structures with TSPs and/or hybrid poles may result in a slight increase in glare during daytime hours. The steel structure of TSPs and hybrid poles display a solid, regular form, as opposed to the transparent, geometric form of steel lattice structures that creates an increased surface area upon which inbound light may reflect and create noticeable glare in the surrounding landscape. Compared to steel lattice structures, the increased glare potential of TSP and hybrid poles would be minor and negligible. In addition, TSPs and hybrid poles would be constructed of galvanized steel and as a result, the glare potential of the poles would be reduced (as compared to non-galvanized steel) and would continue to diminish during the operational life of the poles. Therefore, the anticipated increase in glare that would result from the replacement of steel lattice structures with TSPs and/or hybrid poles would not be substantial and would not substantially affect daytime views in the surrounding area. Impacts would be less than significant.

In addition, reconductoring existing power lines is not anticipated to create a new source of substantial glare that would adversely affect daytime views. With the exception of the Bear River spans that were reconductored during the Palermo–East Nicolaus Project, the South of Palermo Line would be reconductored with non-specular AAC. The dulled finish would reduce the reflectivity of the conductor and the potential for the new conductor to create visible glare in the landscape. The remaining power line segments (i.e., the Palermo Sub-Line Segment, Pease Sub-Line Segment, Bogue Sub-Line Segment, and Rio Oso Sub-Line Segment Loop) included in the proposed project would be reconductored with conductor (AAC or aluminum conductor steel supported (ACSS)) similar to that currently strung on existing power line segments in the project area. Therefore, proposed reconductoring with materials similar to those present in the existing landscape would not create a new source of substantial glare that would adversely affect daytime views. As such, impacts would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

5.1.5 References Cited

14 CCR 15000–15387 and Appendices A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

Caltrans (California Department of Transportation). 2008. *Landscape Architecture Program Scenic Highway Guidelines*. October 2008.

Caltrans. 2016a. California Scenic Highway Mapping Project: Butte County.

Caltrans. 2016b. California Scenic Highway Mapping Project: Sutter County.

Caltrans. 2016c. California Scenic Highway Mapping Project: Yuba County.

City of Marysville. 1985. *City of Marysville General Plan*. August 1985.

City of Oroville. 2015. "Circulation and Transportation Element." *City of Oroville 2030 General Plan*. Adopted March 31, 2015.

City of Yuba. 2004. *Yuba City General Plan*. Adopted April 8, 2004.

County of Butte. 2010. "Conservation and Open Space Element." Chapter 10, *Butte County General Plan 2030*. Adopted October 26, 2010. Amended November 6, 2012.

County of Sutter. 2011. *Sutter County 2030 General Plan*. Adopted March 29, 211.

County of Yuba. 1990. East Linda Specific Plan. Adopted May 14, 1990.

County of Yuba. 1995. Plumas Lake Specific Plan. Adopted August 4, 1995.

County of Yuba. 2011. "Natural Resources." *Yuba County General Plan*. Adopted June 7, 2011.

PG&E (Pacific Gas and Electric Company). 2016. *Proponent's Environmental Assessment for South of Palermo 115 kV Power Line Reinforcement Project*. Prepared by ICF International. April 2016.

INTENTIONALLY LEFT BLANK

Photograph 1 - View of Palermo Double-Circuit Sub-Line and adjacent power lines from Upper Palermo Road

Photograph 2 - View of South of Palermo Single-Circuit Line and existing utilities from Lincoln Boulevard (Palermo)

Photograph 3 - View of South of Palermo Single-Circuit Line and adjacent power line from North Villa Avenue (Palermo)

Photograph 4 - View of South of Palermo Single-Circuit Line and adjacent power line from South Villa Avenue (Palermo)

DUDEK

SOURCE: ICF (2015)

FIGURE 5.1-1a

Project Area Landscape (Photographs 1-4)

South of Palermo 115 kV Power Line Reinforcement Project

INTENTIONALLY LEFT BLANK

Photograph 5 - View of South of Palermo Single-Circuit Line and adjacent power line from Cox Lane (South Butte County)

Photograph 6 - View of South of Palermo Single-Circuit Line and adjacent power line from Lower Honcut Road (South Butte County)

Photograph 7 - View of South of Palermo Single-Circuit Line and adjacent power line from Ramirez Road (North Yuba County)

Photograph 8 - View of South of Palermo Single-Circuit Line and adjacent power line from Woodruff Lane (North Yuba County)

DUDEK

SOURCE: ICF (2015)

FIGURE 5.1-1b

Project Area Landscape (Photographs 5-8)

South of Palermo 115 kV Power Line Reinforcement Project

INTENTIONALLY LEFT BLANK

Photograph 9 - View of Pease Single-Circuit Sub-Line Segment from Jack Slough Road (Marysville)

Photograph 10 - View of Pease Single-Circuit Sub-Line Segment from SR-70 (Marysville)

Photograph 11 - View of Pease Single-Circuit Sub-Line Segment from Yuba College Sutter County Campus (Yuba City)

Photograph 12 - View of South of Palermo Single-Circuit Line and adjacent power line from SR-20 (Marysville)

SOURCE: ICF (2015)

FIGURE 5.1-1c

Project Area Landscape (Photographs 9-12)

INTENTIONALLY LEFT BLANK

Photograph 13 - View of South of Palermo Single-Circuit Line and adjacent power line from Yuba College campus (Marysville)

Photograph 14 - View of South of Palermo Single-Circuit Line and adjacent power line from Wildwood Drive (Marysville)

Photograph 15 - View of South of Palermo Single-Circuit Line and adjacent power line from Waterville Drive (Marysville)

Photograph 16 - View of South of Palermo Single-Circuit Line and adjacent power line from Riverbank Drive (Marysville)

DUDEK

SOURCE: ICF (2015)

FIGURE 5.1-1d

Project Area Landscape (Photographs 13-16)

South of Palermo 115 kV Power Line Reinforcement Project

INTENTIONALLY LEFT BLANK

Photograph 17 - View of South of Palermo Single-Circuit Line and adjacent power line from 9th Avenue (Olivehurst)

Photograph 18 - View of South of Palermo Single-Circuit Line and adjacent power line from Powerline Road (Olivehurst)

Photograph 19 - View of South of Palermo Single-Circuit Line and adjacent power line from McGowan Parkway (Olivehurst)

Photograph 20 - View of Bogue Single-Circuit Sub-Line Segment and adjacent power line from Chateau Drive (Olivehurst)

DUDEK

SOURCE: ICF (2015)

FIGURE 5.1-1e

Project Area Landscape (Photographs 17-20)

South of Palermo 115 kV Power Line Reinforcement Project

INTENTIONALLY LEFT BLANK

Photograph 21 - View of Bogue Single-Circuit Sub-Line Segment and distribution line from Garden Highway (South Yuba City area)

Photograph 22 - View of South of Palermo Single-Circuit Line and adjacent power line from SR-70 (Olivehurst)

Photograph 23 - View of South of Palermo Single-Circuit Line and adjacent power line from Feather Ridge Drive (Plumas Lake)

Photograph 24 - View of South of Palermo Single-Circuit Line and adjacent power line from Rio Oso Road (Rio Oso)

DUDEK

SOURCE: ICF (2015)

FIGURE 5.1-1f

Project Area Landscape (Photographs 21-24)

South of Palermo 115 kV Power Line Reinforcement Project

INTENTIONALLY LEFT BLANK

Photograph 25 - View of Rio Oso Single-Circuit Sub-Line Segment Loop, adjacent power line, and Rio Oso Substation from Hicks Road

Photograph 26 - View of South of Palermo Single-Circuit Line and adjacent power line from Cornelius Avenue (East Nicolaus area)

DUDEK

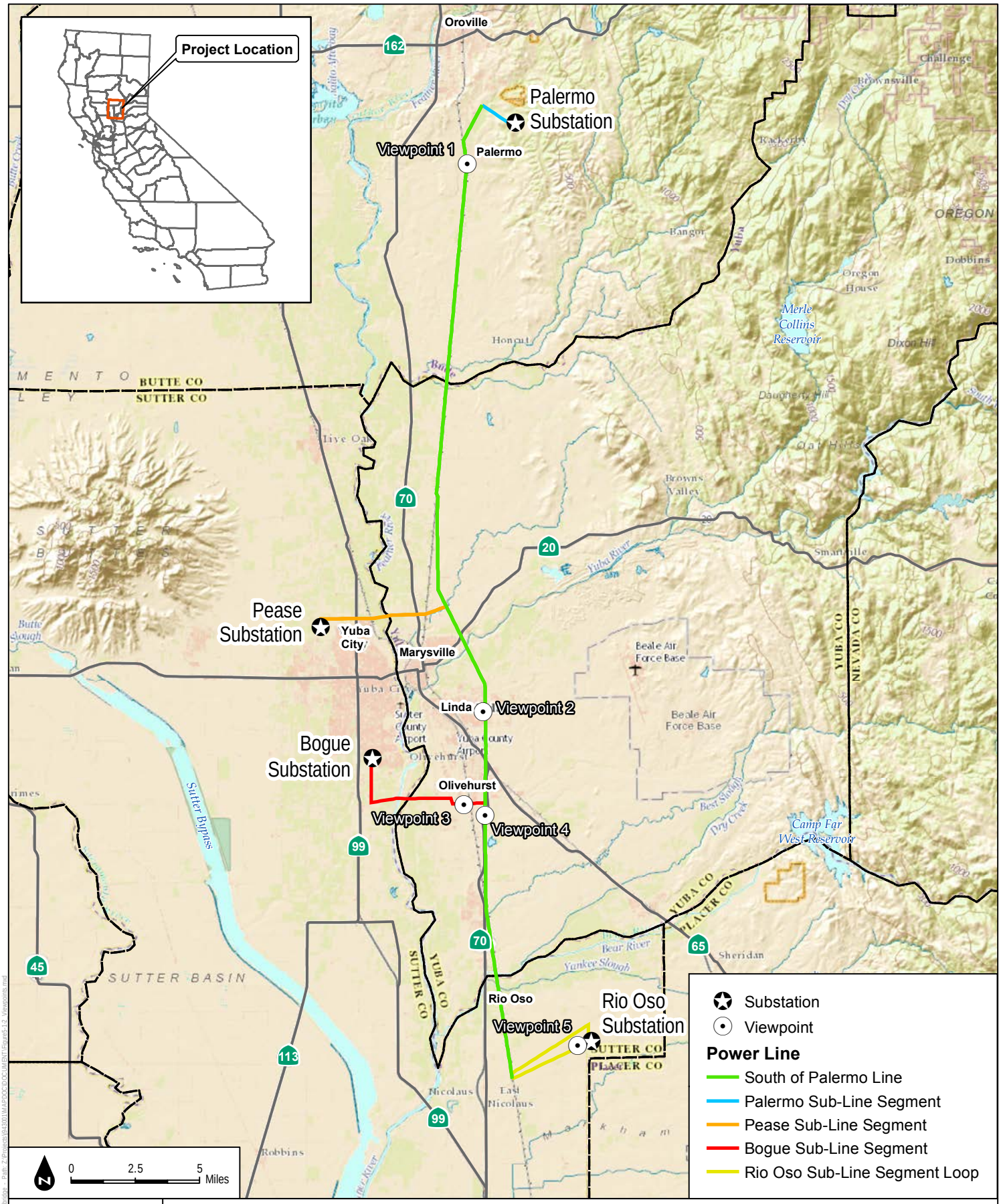
SOURCE: ICF (2015)

FIGURE 5.1-1g

Project Area Landscape (Photographs 25-26)

South of Palermo 115 kV Power Line Reinforcement Project

INTENTIONALLY LEFT BLANK



SOURCE: PG&E (2016)

FIGURE 5.1-2

Viewpoint Locations

South of Palermo 115 kV Power Line Reinforcement Project

DUDEK

INTENTIONALLY LEFT BLANK

Existing view of South of Palermo Single-
Circuit Line from South Villa Avenue

DUDEK

SOURCE: ICF (2015)

FIGURE 5.1-3a

Viewpoint 1

South of Palermo 115 kV Power Line Reinforcement Project

INTENTIONALLY LEFT BLANK

Visual simulation of the proposed project

DUDEK

SOURCE: ICF (2015)

FIGURE 5.1-3b
Viewpoint 1

South of Palermo 115 kV Power Line Reinforcement Project

INTENTIONALLY LEFT BLANK

Existing view of South of Palermo Single-Circuit Line from Wildwood Drive

DUDEK

SOURCE: ICF (2015)

FIGURE 5.1-4a
Viewpoint 2

South of Palermo 115 kV Power Line Reinforcement Project

INTENTIONALLY LEFT BLANK

Visual simulation of the proposed project

DUDEK

SOURCE: ICF (2015)

FIGURE 5.1-4b

Viewpoint 2

South of Palermo 115 kV Power Line Reinforcement Project

INTENTIONALLY LEFT BLANK

Existing view of the Bogue Single-Circuit Sub-Line
Segment from Chateau Drive

SOURCE: ICF (2015)

FIGURE 5.1-5a

Viewpoint 3

DUDEK

South of Palermo 115 kV Power Line Reinforcement Project

INTENTIONALLY LEFT BLANK

Visual simulation of the proposed project

SOURCE: ICF (2015)

FIGURE 5.1-5b
Viewpoint 3

DUDEK

South of Palermo 115 kV Power Line Reinforcement Project

INTENTIONALLY LEFT BLANK

Existing view of the South of Palermo
Single-Circuit Line from SR-70

DUDEK

SOURCE: ICF (2015)

FIGURE 5.1-6a
Viewpoint 4

South of Palermo 115 kV Power Line Reinforcement Project

INTENTIONALLY LEFT BLANK

Visual simulation of the proposed project

DUDEK

SOURCE: ICF (2015)

FIGURE 5.1-6b
Viewpoint 4

South of Palermo 115 kV Power Line Reinforcement Project

INTENTIONALLY LEFT BLANK

Existing view of the Rio Oso Single-Circuit Sub-Line Loop
and Rio Oso Substation from Hicks Road

SOURCE: ICF (2015)

FIGURE 5.1-7a
Viewpoint 5

DUDEK

South of Palermo 115 kV Power Line Reinforcement Project

INTENTIONALLY LEFT BLANK

Visual simulation of the proposed project

SOURCE: ICF (2015)

FIGURE 5.1-7b

Viewpoint 5

DUDEK

South of Palermo 115 kV Power Line Reinforcement Project

INTENTIONALLY LEFT BLANK

5.2 Agriculture and Forestry Resources

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
AGRICULTURE AND FORESTRY RESOURCES – In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☒	☐
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☒	☐
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☒	☐

5.2.1 Environmental Setting

The proposed project spans portions of Butte, Yuba, and Sutter Counties. The predominant land uses surrounding the proposed project alignment include agricultural uses, primarily orchards and rice fields, and semi-rural residential development. In the portions of the proposed project area near developed communities, the land use is primarily residential, interspersed with industrial development. Prominent geographic features that intersect the project alignment include the Feather, Yuba, and Bear Rivers and numerous highways, including State Route (SR) 99, SR-70, SR-65, and SR-20.

Tables 5.2-1 and 5.2-2 show the acreage of farmland and existing Williamson Act Contract Land within the project area.

Table 5.2-1
Existing Farmland within the Project Area

Farmland Classification	All Season	Dry Season	Total Temporary	Total Permanent
Helicopter Landing Zones				
Grazing Land	7.41		7.41	
Other Land	0.00		0.00	
Helicopter Landing Zone Subtotal	*7.41*		*7.41*	
Construction Access Routes				
Farmland of Statewide Importance	0.05		0.05	
Grazing Land	3.82		3.82	
Other Land	2.06		2.06	
Prime Farmland	1.58		1.58	
Urban and Built Up Land	0.11		0.11	
Construction Access Route Subtotal	*7.62*		*7.62*	
Proposed Structures				
Grazing Land	0.00	0.04	0.04	0.04
Other Land	0.00	0.03	0.03	0.03
Prime Farmland		0.01	0.01	0.01
Urban and Built Up Land		0.01	0.01	0.01
Proposed Structure Subtotal	*0.01*	*0.08*	*0.09*	*0.09*
Pull Sites				
Grazing Land	2.78		2.78	
Other Land	0.68		0.68	
Prime Farmland	0.49		0.49	
Urban and Built Up Land	0.17		0.17	
Pull Site Subtotal	*4.11*		*4.11*	
Temporary Structures				
Farmland of Statewide Importance		0.00	0.00	
Grazing Land	0.01	0.00	0.01	
Other Land	0.01	0.00	0.02	
Urban and Built Up Land	0.02		0.02	
Temporary Structure Subtotal	*0.04*	*0.01*	*0.05*	
Work Area				
Farmland of Statewide Importance		0.14	0.14	
Grazing Land	0.69	5.18	5.87	
Other Land	1.09	3.67	4.76	
Prime Farmland		0.95	0.95	
Urban and Built Up Land		1.01	1.01	
Work Area Subtotal	*1.78*	*10.95*	*12.73*	
Total	**20.97**	**11.04**	**32.01**	**0.09**

Source: CDOC 2014.

Table 5.2-2
Existing Williamson Act Contract Land within the Project Area

Williamson Act Land	Acres (±)
Prime	10.23
Non-Prime	21.75
Total[a]	**31.98**

Source: CDOC 2014.
[a] Sutter County only

5.2.2 Regulatory Setting

Federal

There are no applicable federal regulations or policies related to agriculture and forestry resources for the proposed project.

State

California Department of Conservation's Farmland Mapping and Monitoring Program

The California Department of Conservation Farmland Mapping and Monitoring Program (FMMP) produces maps and statistical data used to monitor the conversion of the state's farmland to and from agricultural use. Every 2 years the maps are updated using data obtained from aerial photographs, public review, and field reconnaissance. The FMMP is an informational service only and does not have regulatory jurisdiction over local land use decisions. For the purpose of this environmental analysis and consistency with the Farmland Policy Act of 1981, the term "Farmland" includes Prime Farmland, Unique Farmland, and Farmland of Statewide Importance, and any conversion of land within these categories is typically considered to be an adverse impact.

Descriptions of the FMMP Farmland categories are provided below.

Prime Farmland

Prime Farmland has the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Prime Farmland must have been used for irrigated agriculture production at some time during the 4 years prior to the FMMP mapping date.

Farmland of Statewide Importance

Farmland of Statewide Importance is similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. In addition, to be considered, lands must have been used for irrigated agricultural production at some time during the 4 years prior to the mapping date.

Unique Farmland

Unique Farmland consists of lands supporting lesser quality soils used for the production of the state's leading agricultural crops. Lands are usually irrigated but may also include non-irrigated orchards or vineyards. Lastly, to be considered, lands must have been cropped at some time during the 4 years prior to the mapping date.

California Land Conservation Act of 1965 (Williamson Act)

The California Land Conservation Act of 1965 (commonly referred to as the Williamson Act) (California Government Code Sections 51200–51297.4, as amended), enables local governments to enter into rolling 10-year contracts with private landowners to restrict specific parcels of land to agricultural or related open-space use. In return for their commitment, landowners receive property tax assessments based on farming and open space uses rather than other potentially higher tax bases. In August 1998, the Williamson Act was amended to establish Farmland Security Zones that grant greater tax reductions for property owners in return for 20-year contract commitments.

Forest Land and Timberland

California Public Resources Code Section 12220(g) defines "Forest land" as "land that can support 10% native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits." In turn, "timberland" is defined by California Public Resources Code Section 4526 as "land, other than land owned by the federal government, which is available for, and capable of, growing a crop of trees of any commercial species used to produce lumber and other forest products, including Christmas trees." Finally, "Timberland production zone," or "TPZ," is defined by California Code Section 51104(g) as "an area which has been zoned pursuant to [Government Code] Section 51112 or 51113 and is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses, as defined in subdivision (h). With respect to the general plans of cities and counties, 'timberland preserve zone' means 'timberland production zone."

Local

Butte County General Plan

The Butte County General Plan 2030 includes an Agricultural Element (County of Butte 2012a). Key goals of the plan include:

> **AG-1** Protect, maintain, promote and enhance Butte County's agriculture uses and resources, a major source of food, employment and income in Butte County.
>
> **AG-2** Protect Butte County's agricultural lands from conversion to non-agricultural uses.

It does not contain goals or policies specific to energy infrastructure in agricultural areas.

Butte County Zoning Ordinance

Portions of the project site in Butte County are designated as Agriculture (AG).

> **Agriculture (AG).** The purpose of the AG zone is to support, protect, and maintain a viable, long term agricultural sector in Butte County. Standards for the AG zone maintain the vitality of the agricultural sector by retaining parcel sizes necessary to sustain viable agricultural operations, protecting agricultural practices and activities by minimizing land-use conflicts, and protecting agricultural resources by regulating land uses and development intensities in agricultural areas. Permitted uses include crop cultivation, animal grazing, stock ponds, and agricultural processing. More intensive agricultural activities, such as animal processing, dairies, hog farms, stables, forestry and logging, and mining and oil extraction, are permitted with the approval of a Conditional Use Permit. One single-family home and one second unit is permitted on each legally established parcel within the AG zone, and residential uses for agricultural employees are permitted as an accessory use within the AG zone. The minimum permitted parcel size in the AG zone ranges from 20 acres to 160 acres. The AG zone implements the Agriculture land use designation in the General Plan (County of Butte 2012b, p. 15).

Transmission lines are not specifically discussed in the zoning ordinance, although "power lines" are permitted in the AG zone, and transmission substations are conditionally permitted in the AG zone.

Yuba County General Plan

The Yuba County General Plan includes an Agricultural chapter (County of Yuba 1996). It includes the following goals:

> Retain the most productive agricultural lands in agricultural use, and clearly define areas suitable for urbanization and other forms of non-agricultural development.
>
> Protect productive agricultural land.

It does not contain goals or policies specific to energy infrastructure in agricultural areas.

Yuba County Zoning Ordinance

Portions of the project site in Yuba County are designated Exclusive Agriculture (AE), Agricultural Industrial (AI), and Agricultural/Rural Residential (AR).

> **Exclusive Agriculture (AE).** The purpose of the Exclusive Agriculture district is to provide for development of land with the space and conditions compatible with agricultural pursuits; to promote and encourage these pursuits by providing opportunities for agricultural operations that may increase their economic viability; to protect against encroachment by unrelated and incompatible land uses that may adversely affect the development or use of these lands; and to prevent unnecessary conversion of agricultural land to urban or other uses.
>
> **Agricultural Industrial (AI).** The purpose of the Agricultural Industrial district is to provide for development of land with the space and conditions compatible with agricultural and industrial pursuits; to promote and encourage these pursuits by providing opportunities for agricultural uses to establish new compatible support industries and operations that may increase their economic vitality; and to protect against encroachment by unrelated and incompatible land uses that may adversely affect the development or use of these lands.
>
> **Agricultural/Rural Residential (AR).** The purpose of the Agricultural/Rural Residential district is to provide for development of land with the space and conditions compatible for low density rural residential uses and small agricultural operations; to promote and encourage opportunities for specialty crops, boutique farming, and agritourism; and to protect against encroachment by unrelated and incompatible land uses that may adversely affect the development or use of these lands (County of Yuba 2010).

The zoning ordinance that states in all three of these zones that the following utility uses are conditionally allowed: "Public utility buildings and public service or utility uses, (transmission and distribution lines excepted), including but not limited to reservoirs, storage tanks, pumping stations, telephone exchanges, power stations, transformer stations, service yards and parking lots." The language indicates that transmission lines are excepted from the requirement for a conditional use permit.

Sutter County General Plan

The Sutter County 2030 General Plan contains a chapter on Agriculture (County of Sutter 2011). The plan includes the following goal:

> **AG 1** Preserve and protect high-quality agricultural lands for long-term agricultural production.

The implementing policies for Goal AG 1 include the following:

> **Agricultural Land Conversion.** Discourage the conversion of agricultural land to other uses unless all of the following findings can be made:
>
> a. The net community benefit derived from conversion of the land outweighs the need to protect the land for long-term agricultural use
> b. There are no feasible alternative locations for the proposed use that would appreciably reduce impacts upon agricultural lands
> c. The use will not have significant adverse effects, or can mitigate such effects, upon existing and future adjacent agricultural lands and operations

Sutter County Zoning Ordinance

Portions of the project site in Sutter County are designated Agriculture (AG).

> **Agriculture (AG).** The AG District is intended to protect and promote the long-term viability and productivity of Sutter County's agricultural resources, uses and economy. This district provides for parcel sizes to sustain a wide variety of agricultural and farming activities, low intensity rural uses and open space. Agricultural support services and industries that are compatible with adjacent uses and operations are encouraged. The AG District implements the General Plan Agricultural (AG-20, AG-40, and AG-80) and Open Space (OS) land use designations (County of Sutter 2016).

The Sutter County zoning ordinance defines transmission lines as a major community facility, which is permitted in the AG zone with a "Zoning Clearance." A Zoning Clearance is a ministerial action approved by the planning director.

5.2.3 Applicant Proposed Measures

The following applicant proposed measure (APM) will be incorporated into the project design to reduce impacts to agriculture and forestry resources:

APM AG-1 Coordinate With Landowners Prior to Construction and During Restoration Efforts. Pacific Gas and Electric Company (PG&E) will coordinate with landowners prior to construction and during restoration efforts. Measures to be implemented may include, but are not limited to, the following:

- Provide written notice to landowners outlining construction activities and restoration efforts.
- In areas containing permanent crops (e.g., grape vines, orchard crops) that must be removed to gain access to pole sites for construction purposes, PG&E may provide compensation to the farmer and/or landowner in coordination with the landowner.
- Complete pre-project, post-project, and post-restoration site visit with landowners.
- Take photos of pre-project, post-project, and post-restoration conditions in the affected areas.

5.2.4 Environmental Impacts and Mitigation

a) Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

Less-than-Significant Impact. As shown in Table 5.2-1, the project would temporarily impact 3.2 acres of important farmland (total temporary impact to Prime Farmland and Farmland of Statewide Importance for all phases)). The project would permanently convert 0.01 acres of Prime Farmland. In addition, the existing facilities, which would be removed, have a larger footprint than the proposed facilities, and therefore the amount of farmland in the project site may actually increase compared to existing conditions. Therefore, impacts would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

b) Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

Less-than-Significant Impact. The agricultural zoning districts in Butte, Yuba, and Sutter Counties have been described previously. Transmission lines are either a permitted use or a conditional use in these districts. Note that the California Public Utilities Commission's authority over transmission facilities preempts local zoning. Nevertheless, it is important to note that the local ordinances consider such facilities to be a compatible use with agriculture. As shown in Table 5.2-1, the permanent footprint of the project, particularly within existing agricultural area, is quite small, and would not prevent continued agricultural use of lands zoned for such use.

The project alignment and the temporary construction areas cross parcels that are under Williamson Act contracts within Sutter County. No Williamson Act parcels are affected in Butte County, and Yuba County does not participate in the Williamson Act. Total contracted lands affected by the project total 31.98 acres, approximately 10 acres of which are Prime Farmland contracts. The Williamson Act, in California Government Code Section 51238, states: "Notwithstanding any determination of compatible uses by the county or city pursuant to this article, unless the board or council after notice and hearing makes a finding to the contrary, the erection, construction, alteration, or maintenance of gas, electric, water, communication, or agricultural laborer housing facilities are hereby determined to be compatible uses within any agricultural preserve."

Therefore, the project would not conflict with zoning for agricultural uses or a Williamson Act contract, and impacts would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

c) Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?

No Impact. The project site does not contain lands zoned for forest land, timberland, or Timberland Production. Therefore, **no impact** would occur.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

d) Would the project result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. The project site does not contain forest land, and **no impact** would occur.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

e) Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

Less-than-Significant Impact. As noted previously, the amount of farmland to be converted as a result of the project is quite small, 0.01 acres of Prime Farmland. The temporary area is somewhat larger, 3.2 acres of important farmland, and a further 20 acres of grazing land (which is not categorized as important farmland for purposes of the California Environmental Quality Act). Construction activities within the temporary disturbance area has the potential to impair agricultural uses by compacting agricultural soils, damaging facilities (fences, irrigation, etc.), and debris. However, the area of disturbance is not substantial (3.2 acres). In addition, implementation of post-construction restoration and pre- and post-project documentation and landowner consultation, as described in APM AG-1 (see Section 5.2.3, Applicant Proposed Measures), would reduce any negative effects of construction on future agricultural use. The impact is therefore **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

5.2.5 References Cited

CDOC (California Department of Conservation). 2014. Farmland Mapping and Monitoring Program (FMMP). 2014.

County of Butte. 2012a. "Agriculture Element." *Butte County General Plan 2030*.

County of Butte. 2012b. Butte County Zoning Ordinance, Part 2: Zoning Districts, Land Uses, and Development Standards; Article 4: Agriculture Zones; 24-12: Purpose of the Agriculture Zones. Adopted November 6, 2012.

County of Sutter. 2011. "Agricultural Resources." In *Sutter County General Plan*, Chapter 4.

County of Sutter. 2016. Sutter County Zoning Code, Part 2: District Specific Regulations; Article 5: Agricultural, Recreation and Open Space Districts. Prepared by ESA Associates. June 2016.

County of Yuba. 1996. "Agricultural Lands." In *Yuba County General Plan, Land Use, Circulation, Open Space and Conservation Elements, S*ection 8. December 1996.

County of Yuba. 2010. Yuba County Zoning Ordinance. Title XII of the Yuba County Code. January 14, 2010.

INTENTIONALLY LEFT BLANK

5.3 Air Quality

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
AIR QUALITY – Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

5.3.1 Environmental Setting

Ambient air quality is generally affected by climatological conditions, the topography of the air basin, the type and amounts of pollutants emitted, and, for some pollutants, sunlight. The project is located in Butte, Yuba, and Sutter Counties, which are within the Sacramento Valley Air Basin (SVAB). The SVAB includes Sacramento, Shasta, Tehama, Butte, Glenn, Colusa, Sutter, Yuba, Yolo, and portions of Solano and Placer counties. The SVAB extends from south of Sacramento to north of Redding and is bounded on the west by the Coast Ranges and on the north and east by the Cascade Range and the Sierra Nevada. Topographical and climatic factors in the SVAB create the potential for high concentrations of regional and local air pollutants.

5.3.2 Regulatory Setting

Federal and State

The federal Clean Air Act requires the U.S. Environmental Protection Agency to identify National Ambient Air Quality Standards (NAAQS) to protect public health and welfare. National standards have been established for ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), coarse particulate matter (PM_{10}; particulate matter less than or equal to 10

microns in diameter), fine particulate matter ($PM_{2.5}$; particulate matter less than or equal to 2.5 microns in diameter), and lead. These air pollutants are termed "criteria air pollutants" because they are regulated by developing specific public health- and welfare-based criteria as the basis for setting permissible levels. Pursuant to the 1990 Federal Clean Air Act Amendments, the U.S. Environmental Protection Agency classifies air basins (or portions thereof) as attainment, nonattainment, or unclassified for each criteria air pollutant, based on whether or not the NAAQS has been achieved. California has adopted ambient standards that are more stringent than the federal standards for the criteria air pollutants. Under the California Clean Air Act, the California Air Resources Board has designated areas as attainment, nonattainment, or unclassified with respect to the California Ambient Air Quality Standards (CAAQS). The U.S. Environmental Protection Agency and the California Air Resources Board use air quality monitoring data to determine whether each air basin or county is in compliance with the applicable standards. If the concentration of a criteria air pollutant is lower than the standard or is not monitored in an area, the area is classified as attainment or unclassified (and unclassified areas are treated as attainment areas). If an area exceeds the standard, the area is classified as nonattainment for that pollutant. An area is designated nonattainment–transitional to signify that the area is close to attaining the standard for that pollutant. Table 5.3-1 depicts the attainment status of the project area.

Table 5.3-1
Attainment Status for Criteria Pollutants of Concern in Project Area

Pollutant	Butte County		Sutter County		Yuba County	
	State Designations	*National Designations*	*State Designations*	*National Designations*	*State Designations*	*National Designations*
8-Hour O_3	Nonattainment	Marginal nonattainment	Nonattainment–transitional	South Sutter County: severe nonattainment The balance of Sutter County: attainment	Nonattainment –transitional	Attainment
CO	Attainment	Unclassified/ attainment[1]	Attainment	Attainment	Unclassified	Attainment
PM_{10}	Nonattainment	Attainment	Nonattainment	Attainment	Nonattainment	Attainment
$PM_{2.5}$	Nonattainment	Moderate nonattainment	Attainment	Attainment	Attainment	Attainment

Sources: CARB 201; EPA 2016.
O_3 = ozone; CO = carbon monoxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.
[1] Chico urban area is designated a maintenance area for CO, whereas the rest of Butte County is designated as attainment.

Regional

The project alignment would be located within two air districts with regulatory authority: the Butte County Air Quality Management District (BCAQMD) and the Feather River Air Quality Management District (FRAQMD). Both air districts have adopted guidance documents in order to advise lead agencies on how to evaluate potential air quality impacts under the California Environmental Quality Act (CEQA), including establishing quantitative and qualitative thresholds of significance. The air quality impact analysis in this section uses these thresholds to determine the potential impacts of the proposed project. Notably, for O_3, thresholds are established for precursor emissions of reactive organic gases (ROG) and oxides of nitrogen (NO_x). The BCAQMD thresholds from the CEQA Air Quality Handbook (BCAQMD 2014) are summarized in Table 5.3-2.

Table 5.3-2
BCAQMD Significance Thresholds for Criteria Pollutants of Concern

Project Phase	NO_x	ROG	PM_{10}
Operational	25 lb/day	25 lb/day	80 lb/day
Construction	137 lb/day (not to exceed 4.5 tons/year)	137 lb/day (not to exceed 4.5 tons/year)	80 lb/day

Source: BCAQMD 2014.
lb/day = pounds per day; NO_x = oxides of nitrogen; PM_{10} = coarse particulate matter; ROG = reactive organic gases.

The FRAQMD thresholds from the Indirect Review Guidelines (FRAQMD 2010) are summarized in Table 5.3-3.

Table 5.3-3
FRAQMD Significance Thresholds for Criteria Pollutants of Concern

Project Phase	NO_x	ROG	PM_{10}	$PM_{2.5}$
Operational	25 lb/day	25 lb/day	80 lb/day	Not yet established
Construction	25 lb/day multiplied by project length, not to exceed 4.5 tons/year[1]	25 lb/day multiplied by project length, not to exceed 4.5 tons/year[1]	80 lb/day	Not yet established

Source: FRAQMD 2010.
Notes: lb/day = pounds per day; NO_x = oxides of nitrogen; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; ROG = reactive organic gases.
[1] NO_x and ROG construction emissions may be averaged over the life of the project, but may not exceed 4.5 tons/year.

5.3.3 Applicant Proposed Measures

Pacific Gas and Electric Company (PG&E; the applicant) will implement the following applicant proposed measures (APMs) during construction:

APM AQ-1 **Implement FRAQMD Standard Construction Mitigation Measures.** PG&E shall implement the following standard construction mitigation measures (SMMs) required by the Feather River Air Quality Management District (FRAQMD) to help reduce construction-related emissions. Note that some FRAQMD SMMs are not listed below, as they are identified in APM GHG-1 described in Section 5.7, Greenhouse Gas Emissions.

1. Implement the Fugitive Dust Control Plan. PG&E shall prepare and submit a Fugitive Dust Control Plan to the FRAQMD to help reduce construction-related fugitive dust emissions. The Fugitive Dust Control Plan must be submitted by PG&E to the FRAQMD prior to the commencement of construction activities.
2. Utilize existing power sources (e.g., power poles) or clean fuel generators rather than temporary power generators, as practical.
3. Implement a traffic plan to minimize traffic flow interference from construction activities, in coordination with any traffic plans required by APM TRA-1.

APM AQ-2 **Implement BCAQMD Construction Best Practices.** PG&E shall implement the following standard construction best practices recommended by the BCAQMD to help reduce construction-related emissions. These measures will be applied across the entire project area. Note that some BCAQMD construction best practices are not listed below, as they are identified in APM GHG-1 described in Section 5.7, Greenhouse Gas Emissions.

1. Diesel Particulate Matter (PM) Exhaust from Construction Equipment
    a. Avoid idling, staging, and queuing of diesel equipment within 1,000 feet of sensitive receptors.
    b. Install diesel particulate filters or implement other California Air Resources Board (CARB)-verified diesel emission control strategies.
    c. To the extent feasible, truck trips shall be scheduled during non-peak hours to reduce peak hour emissions.

2. Fugitive Dust: The following is a list of measures that may be required throughout the duration of the construction activities:

   a. Reduce the amount of the disturbed area where possible.

   b. Use water trucks or sprinkler systems in sufficient quantities to prevent airborne dust from leaving the site.

   c. All dirt stockpile areas should be sprayed daily as needed, and covered.

   d. Exposed ground areas that will be reworked at dates more than 1 month after initial grading should be sown with a fast-germinating noninvasive grass seed and watered until vegetation is established.

   e. All disturbed soil areas not subject to revegetation should be stabilized using approved chemical soil binders or jute netting.

   f. Vehicle speed for all construction vehicles shall not exceed 15 miles per hour (mph) on any unpaved surface at the construction site.

   g. All trucks hauling dirt, sand, soil, or other loose materials are to be covered or should maintain at least 2 feet of freeboard (minimum vertical distance between top of load and top of trailer) in accordance with local regulations.

   h. Post a sign in a prominent location visible to the public with the telephone numbers of the contractor and Air District for any questions or concerns about dust from the project.

APM AQ-3 **Off-Site Mitigation Measures.** PG&E shall enter into an off-site mitigation agreement with the FRAQMD to offset construction emissions in excess of 4.5 tons per year of oxides of nitrogen (NO_x) to levels below the FRAQMD's 4.5 tons per year significance threshold. The off-site mitigation rate shall be based on the current project cost effectiveness factor from the Carl Moyer Memorial Air Quality Standards Attainment Program. The current off-site mitigation rate is $18,030 per ton of ozone (O_3) precursor emissions (NO_x or reactive organic gases (ROG)) over the District threshold calculated over the length of the expected exceedance.

5.3.4 Environmental Impacts and Mitigation

a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

Less-than-Significant Impact. Air quality plans describe air pollution control strategies to be implemented by a city, county, or region. The primary purpose of an air quality plan is to maintain attainment of CAAQS or NAAQS, or to bring an area that does not attain a CAAQS or NAAQS into compliance with the requirements of the federal and state Clean Air Acts.

As shown in Table 5.3-1, the project area is designated nonattainment for the NAAQS and CAAQS for O_3 and $PM_{2.5}$ standards, as well as the CAAQS for PM_{10}. The BCAQMD and FRAQMD are responsible for formulating and implementing air quality plans to address federal and state planning requirements within their respective jurisdictions. The air quality attainment plans and reports present comprehensive strategies to reduce emissions of O_3 precursors (ROG and NO_x) and PM_{10} from stationary, area, mobile, and indirect sources. Such strategies include the adoption of rules and regulations, enhancement of CEQA participation, adoption of local air quality plans, and implementation of control measures for stationary, mobile, and indirect sources.

The proposed project would replace the existing conductor and modify/replace existing lattice steel towers along approximately 59.5 miles of PG&E's existing Palermo–Rio Oso 115-kilovolt (kV) transmission system, within PG&E's existing utility corridor. The air quality impacts of the project would be primarily construction-related emissions that are temporary and short term in nature and would not result in increased long-term operational emissions or population growth. Since construction of the proposed project would not substantially increase air pollutant emissions within the SVAB (with implementation of APMs), as explained in further detail in Section 5.3.4(b), the project would not interfere with the BCAQMD or the FRAQMD plans to achieve or maintain attainment for criteria air pollutants. The project would not conflict with or obstruct implementation of applicable air quality plans, and this impact would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

b) Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Less-than-Significant Impact. According to the BCAQMD and FRAQMD guidance for CEQA documents, a project could result in adverse air quality effects if temporary, short-term construction-related or operational emissions of criteria air pollutants or precursors would exceed the thresholds of significance established by the air district (see Tables 5.3-2 and 5.3-3). In the case of the proposed project, the maintenance activities for the modified/replaced power lines would be similar to those currently required for the existing facilities and no new long-term operational emissions would occur. Thus, this analysis relates only to construction activities, which would result in air emissions that would be short term or temporary. Such emissions have the potential to represent an impact with respect to air quality. Fugitive dust emissions are primarily associated with site preparation during construction and vary as a function of such parameters as soil silt content, soil moisture, wind speed, acreage of disturbance area, and miles traveled by construction vehicles on and off site. ROG and NO_x are primarily associated with exhaust from off-road equipment, on-road vehicles, and helicopters.

Construction of the project would occur in three phases over 36 months (2018 through 2021) and would generate emissions of ROG, NO_x, CO, PM_{10}, and $PM_{2.5}$ in the project area. PG&E provided project-specific information regarding construction schedule, off-road equipment, earthwork quantities, haul truck trips, and helicopter use. For short-term construction emissions quantification, the California Emissions Estimator Model (CalEEMod) software (version 2013.2.2) was used to estimate off-road construction equipment emissions and fugitive dust. In addition, the California Air Resources Board's EMFAC2014 emission factors were used to estimate on-road emissions from workers and trucks. Finally, fuel use factors developed by Switzerland's Federal Office of Civil Aviation were used to estimate helicopter emissions (FOCA 2015). Notably, criteria air pollutant emissions reductions associated with APM AQ-2 (specifically, Level 1 diesel particulate filters and diesel oxidation catalysts sufficient to achieve 40% NO_x reduction) were included in the analysis. Detailed construction emission assumptions and model outputs are included in Appendix C, Air Quality Analysis.

Tables 5.3-4 and 5.3-5 summarize estimated unmitigated and mitigated (without inclusion of APM AQ-3 off-site mitigation) daily construction emissions within the BCAQMD jurisdiction (Butte County) and compare emissions to the BCAQMD construction criteria air pollutant thresholds.

Table 5.3-4
Construction-Related Emissions within BCAQMD Jurisdiction (Unmitigated)

Year/Phase	ROG (lb/day)	NO_x (lb/day)	CO (lb/day)	PM_{10} Total (lb/day)	$PM_{2.5}$ Total (lb/day)
2018					
Land-based construction emissions	1.4	15.3	23.6	0.6	0.6
Helicopter emissions[1]	25.7	38.1	37.1	1.1	1.1
2018 Total	**27.1**	**53.4**	**60.7**	**1.7**	**1.7**
2019					
Land-based construction emissions	2.1	22.7	43.0	0.9	0.8
Helicopter emissions[1]	25.7	38.1	37.1	1.1	1.1
2019 Total	**27.8**	**60.7**	**80.0**	**2.0**	**1.9**
2020					
Land-based construction emissions	1.2	17.1	10.8	0.5	0.5
Helicopter emissions[1]	25.7	38.1	37.1	1.1	1.1
2020 Total	**26.9**	**55.2**	**47.9**	**1.6**	**1.6**
2021					
Land-based construction emissions	0.5	8.6	5.0	0.2	0.2
Helicopter emissions[1]	25.7	38.1	37.1	1.1	1.1
2021 Total	**26.2**	**46.7**	**42.0**	**1.3**	**1.3**
Worst-Case Combined Yearly Maximum for Overlapping Phases (2019)					
2019	27.8	60.7	80.0	2.0	1.9
BCAQMD threshold (lb/day)	137	137	N/A	80	N/A
Exceedance of threshold?	No	No	N/A	No	N/A

Source: PG&E 2016.

lb/day = pounds per day; CO = carbon monoxide; NO_X = oxides of nitrogen; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; ROG = reactive organic gases; N/A = not applicable.

[1] Although land-based equipment from phases 1, 2, and 3 may sometimes overlap, there will be no more than three helicopters operating on any given day. Helicopter emissions in this table are therefore not described by which phase they are working on.

Table 5.3-5
Construction-Related Emissions within BCAQMD Jurisdiction
(Mitigated Without Off-Site Mitigation)

Year/Phase	ROG (lb/day)	NO_x (lb/day)	CO (lb/day)	PM_{10} Total (lb/day)	$PM_{2.5}$ Total (lb/day)
2018					
Land-based construction emissions	1.4	10.8	23.6	0.5	0.4
Helicopter emissions[1]	25.7	38.1	37.1	1.1	1.1
2018 Total	**27.1**	**48.9**	**60.7**	**1.6**	**1.5**
2019					
Land-based construction emissions	2.1	16.5	43.0	0.7	0.6
Helicopter emissions[1]	25.7	38.1	37.1	1.1	1.1
2019 Total	**27.8**	**54.6**	**80.0**	**1.8**	**1.7**

Table 5.3-5
Construction-Related Emissions within BCAQMD Jurisdiction
(Mitigated Without Off-Site Mitigation)

Year/Phase	ROG (lb/day)	NO_x (lb/day)	CO (lb/day)	PM_{10} Total (lb/day)	$PM_{2.5}$ Total (lb/day)
2020					
Land-based construction emissions	1.2	13.2	10.8	0.4	0.4
Helicopter emissions[1]	25.7	38.1	37.1	1.1	1.1
2020 Total	**26.9**	**51.2**	**47.9**	**1.5**	**1.5**
2021					
Land-based construction emissions	0.5	6.9	5.0	0.2	0.2
Helicopter emissions[1]	25.7	38.1	37.1	1.1	1.1
2021 Total	**26.2**	**45.0**	**42.0**	**1.3**	**1.3**
Worst-Case Combined Yearly Maximum for Overlapping Phases (2019)					
2019	27.8	54.6	80.0	1.8	1.7
BCAQMD threshold (lb/day)	137	137	N/A	80	N/A
Exceedance of threshold?	No	No	N/A	No	N/A

Source: PG&E 2016.

lb/day = pounds per day; CO = carbon monoxide; NO_x = oxides of nitrogen; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; ROG = reactive organic gases; N/A = not applicable.

[1] Although land-based equipment from phases 1, 2, and 3 may sometimes overlap, there will be no more than three helicopters operating on any given day. Helicopter emissions in this table are therefore not described by which phase they are working on.

As indicated in Tables 5.3-4 and 5.3-5, project construction activities within Butte County would not exceed applicable BCAQMD thresholds without mitigation.

Tables 5.3-6 and 5.3-7 summarize estimated unmitigated and mitigated (without inclusion of APM AQ-3 off-site mitigation) daily construction emissions within the FRAQMD jurisdiction (Yuba and Sutter Counties) and compare emissions to the FRAQMD construction criteria air pollutant thresholds. Table 5.3-8 shows annual criteria air pollutant emissions in the FRAQMD jurisdiction with inclusion of APM AQ-3 (off-site mitigation measures).

Table 5.3-6
Construction-Related Emissions within FRAQMD Jurisdiction (Unmitigated)

Year/Phase	ROG (lb/day)	NO_x (lb/day)	CO (lb/day)	PM_{10} Total (lb/day)	$PM_{2.5}$ Total (lb/day)
2018					
Land-based construction emissions	5.2	56.4	87.0	2.3	2.2
Helicopter emissions[1]	25.7	38.1	37.1	1.1	1.1
2018 Total	**30.9**	**94.5**	**124.1**	**3.4**	**3.3**

Table 5.3-6
Construction-Related Emissions within FRAQMD Jurisdiction (Unmitigated)

Year/Phase	ROG (lb/day)	NO_x (lb/day)	CO (lb/day)	PM_{10} Total (lb/day)	$PM_{2.5}$ Total (lb/day)
2019					
Land-based construction emissions	7.9	83.5	158.1	3.2	3.0
Helicopter emissions[1]	25.7	38.1	37.1	1.1	1.1
2019 Total	**33.6**	**121.5**	**195.2**	**4.4**	**4.1**
2020					
Land-based construction emissions	4.3	62.9	39.8	1.9	1.8
Helicopter emissions[1]	25.7	38.1	37.1	1.1	1.1
2020 Total	**30.0**	**100.9**	**76.9**	**3.0**	**2.9**
2021					
Land-based construction emissions	2.0	31.6	18.2	0.8	0.8
Helicopter emissions[1]	25.7	38.1	37.1	1.1	1.1
2021 Total	**27.7**	**69.7**	**55.3**	**1.9**	**1.9**
Worst-Case Combined Yearly Maximum for Overlapping Phases (2019)					
2019	33.6	121.5	195.2	4.4	4.1
FRAQMD threshold (lb/day)	25	25	N/A	80	N/A
Exceedance of threshold?	Yes	Yes	N/A	No	N/A

Source: PG&E 2016.

lb/day = pounds per day; CO = carbon monoxide; NO_x = oxides of nitrogen; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; ROG = reactive organic gases; N/A = not applicable.

[1] Although land-based equipment from phases 1, 2, and 3 may sometimes overlap, there will be no more than three helicopters operating on any given day. Helicopter emissions in this table are therefore not described by which phase they are working on.

Table 5.3-7
Construction-Related Emissions within FRAQMD Jurisdiction
(Mitigated Without Off-Site Mitigation)

Year/Phase	ROG (lb/day)	NO_x (lb/day)	CO (lb/day)	PM_{10} Total (lb/day)	$PM_{2.5}$ Total (lb/day)
2018					
Land-based construction emissions	5.2	39.7	87.0	1.8	1.6
Helicopter emissions[1]	25.7	38.1	37.1	1.1	1.1
2018 Total	**30.9**	**77.8**	**124.1**	**2.9**	**2.7**
2019					
Land-based construction emissions	7.9	60.7	158.1	2.5	2.3
Helicopter emissions[1]	25.7	38.1	37.1	1.1	1.1
2019 Total	**33.6**	**98.8**	**195.2**	**3.6**	**3.4**
2020					
Land-based construction emissions	4.3	48.4	39.8	1.5	1.4

Table 5.3-7
Construction-Related Emissions within FRAQMD Jurisdiction (Mitigated Without Off-Site Mitigation)

Year/Phase	ROG (lb/day)	NO_x (lb/day)	CO (lb/day)	PM_{10} Total (lb/day)	$PM_{2.5}$ Total (lb/day)
Helicopter emissions[1]	25.7	38.1	37.1	1.1	1.1
2020 Total	**30.0**	**86.5**	**76.9**	**2.6**	**2.5**
2021					
Land-based construction emissions	2.0	25.5	18.2	0.6	0.6
Helicopter emissions[1]	25.7	38.1	37.1	1.1	1.1
2021 Total	**27.7**	**63.5**	**55.3**	**1.7**	**1.7**
Worst-Case Combined Yearly Maximum for Overlapping Phases (2019)					
2019	33.6	98.8	195.2	3.6	3.4
FRAQMD threshold (lb/day)	25	25	N/A	80	N/A
Exceedance of threshold?	Yes	Yes	N/A	No	N/A

Source: PG&E 2016.

lb/day = pounds per day; CO = carbon monoxide; NO_x = oxides of nitrogen; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; ROG = reactive organic gases; N/A = not applicable.

[1] Although land-based equipment from phases 1, 2 and 3 may sometimes overlap, there will be no more than three helicopters operating on any given day. Helicopter emissions in this table are therefore not described by which phase they are working on.

Table 5.3-8
Annual Construction-Related Emissions within FRAQMD Jurisdiction (Mitigated)

Year/Phase	ROG (tons/year)	NO_x (tons/year)	CO (tons/year)	PM_{10} Total (tons/year)	$PM_{2.5}$ Total (tons/year)
2018					
Land-based construction emissions	0.2	1.6	2.2	0.06	0.06
Helicopter emissions[1]	1.13	1.67	1.63	0.05	0.05
2018 Total	**1.3**	**3.2**	**3.8**	**0.1**	**0.1**
2019					
Land-based construction emissions	0.3	2.6	3.7	0.1	0.1
Helicopter emissions[1]	2.26	3.35	3.26	0.1	0.1
2019 Total	**2.6**	**5.9**	**6.9**	**0.2**	**0.2**
2020					
Land-based construction emissions	0.1	1.5	1.3	0.0	0.0
Helicopter emissions[1]	1.70	2.51	2.45	0.0	0.1
2020 Total	**1.8**	**4.0**	**3.7**	**0.0**	**0.1**
2021					
Land-based construction emissions	0.0	0.4	0.3	0.0	0.0
Helicopter emissions[1]	0.37	0.55	0.54	0.00	0.02
2021 Total	**0.4**	**1.0**	**0.9**	**0.0**	**0.0**

Table 5.3-8
Annual Construction-Related Emissions within FRAQMD Jurisdiction (Mitigated)

Year/Phase	ROG (tons/year)	NO_x (tons/year)	CO (tons/year)	PM_{10} Total (tons/year)	$PM_{2.5}$ Total (tons/year)
Worst-Case Combined Yearly Maximum for Overlapping Phases (2019)					
2019	2.6	5.9	6.9	0.0	0.2
FRAQMD significance threshold (tons/year)	4.5	4.5	N/A	N/A	N/A
Amount of required offsets	—	1.4	—	—	—
Exceedance of threshold?	No	No[2]	N/A	No	N/A

Source: PG&E 2016.

lb/day = pounds per day; CO = carbon monoxide; NO_x = oxides of nitrogen; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; ROG = reactive organic gases; N/A = not applicable.

1 Although land-based equipment from phases 1, 2, and 3 may sometimes overlap, there will be no more than three helicopters operating on any given day. Helicopter emissions in this table are therefore not described by which phase they are working on.

2 With incorporation of APM AQ-3, 1.4 tons will be offset to reduce emissions from 5.9 tons/year to FRAQMD's 4.5 ton/year significance threshold.

As indicated in Tables 5.3-6 and 5.3-7, project construction activities within the FRAQMD jurisdiction would exceed applicable daily construction thresholds for ROG and NO_x, even with incorporation of APM AQ-2 (Level 1 diesel particulate filters and diesel oxidation catalysts sufficient to achieve 40% NO_x reduction). PM_{10} emissions would not exceed the FRAQMD construction threshold. As shown in Table 5.3-8, on an annual basis, the only pollutant that would exceed the applicable threshold would be NO_x. However, APM AQ-3 (off-site mitigation measures) would require offsets of 1.4 tons of NO_x to meet the FRAQMD annual construction threshold of 4.5 tons NO_x per year. Since APMs are part of the project and would reduce criteria air pollutant emissions to levels below the applicable thresholds, construction emissions would be considered **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

c) Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Less-than-Significant Impact. As discussed in Section 5.3.4(b), implementation of APMs, including exhaust reduction, fugitive dust control measures, and off-site mitigation through NO_x offsets, would ensure that the project's regional air emissions would be less than significant. The applicable BCAQMD and FRAQMD thresholds are designed to assist the region in attaining the applicable CAAQS and NAAQS by reducing

potential criteria air pollutant emissions that would otherwise occur. Therefore, the project's temporary construction criteria air pollutant emissions would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment. This impact would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

d) Would the project expose sensitive receptors to substantial pollutant concentrations?

Less-than-Significant Impact. In addition to regional impacts from criteria pollutants, the project would have the potential of resulting in localized impacts from emissions of pollutants identified by the state and federal government as toxic air contaminants or hazardous air pollutants, respectively. Sensitive receptors include residences, schools, convalescent homes, and hospitals. The project alignment would occur within the existing utility corridor, primarily through agricultural lands and open-space areas. However, sensitive receptors proximate to the project alignment include residences and schools, with the closest homes about 10 feet from project work areas and schools (including Yuba Community College, East Nicolaus High School, Yuba Gardens Middle School, and Linda Elementary School) within approximately 100 feet of the alignment.

The greatest potential for substantial localized pollutant concentrations are associated with fugitive dust and toxic air contaminant emissions during construction. Fugitive dust would be generated by grading activities and toxic air contaminants (primarily diesel particulate matter) would be emitted in fuel combustion exhaust. Notably, the project alignment is linear and spans approximately 59.5 miles, whereby the duration of construction activities (and exposure of an individual receptor to pollutants) would be minimal at any one location. Also, heavy-duty construction equipment and diesel trucks are subject to California Air Resources Board Airborne Toxics Control Measures to reduce diesel particulate emissions. In regard to helicopter activities, operations would be infrequent and landing zones would be sited to avoid sensitive receptor locations. Finally, implementation of APM AQ-1 through APM AQ-3 and APM GHG-1 (described in Section 5.7) would further reduce exposure of sensitive receptors to air pollutants by requiring fugitive dust control and reducing idling times. Based on these considerations, sensitive receptors would not be exposed to substantial pollutant concentrations and this impact would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

e) Would the project create objectionable odors affecting a substantial number of people?

Less-than-Significant Impact. Odors would be potentially generated from vehicles and equipment exhaust emissions during construction of the project. Odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment. Such odors are temporary and generally occur at magnitudes that would not affect substantial numbers of people. In addition, the long-term project maintenance activities would not result in sources of objectionable odors that would affect a substantial number of people. This impact would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

5.3.5 References Cited

BCAQMD (Butte County Air Quality Management District). 2014. *CEQA Air Quality Handbook.* Adopted October 23, 2014.

CARB (California Air Resources Board). 2016. "Air Quality Standards and Area Designations." Area Designations Maps/State and National. Page last reviewed May 5, 2016. Accessed August 31, 2016. http://www.arb.ca.gov/desig/desig.htm.

EPA (U.S. Environmental Protection Agency). 2016. "The Green Book Nonattainment Areas – Current Nonattainment Counties for All Criteria Pollutants." Last revised June 17, 2016. Accessed August 31, 2016. https://www3.epa.gov/airquality/greenbook/ancl.html#CA.

FOCA (Switzerland Federal Office of Civil Aviation). 2015. *Guidance on the Determination of Helicopter Emissions*. Last updated: December 2015. Accessed on August 31, 2016. https://www.bazl.admin.ch/bazl/en/home/specialists/regulations-and-guidelines/environment/pollutant-emissions/triebwerkemissionen/guidance-on-the-determination-of-helicopter-emissions.html.

FRAQMD (Feather River Air Quality Management District). 2010. *Indirect Source Review Guidelines*. Adopted June 7, 2010.

PG&E (Pacific Gas and Electric Company). 2016. *Proponent's Environmental Assessment for South of Palermo 115 kV Power Line Reinforcement Project.* Prepared by ICF International. April 2016.

5.4 Biological Resources

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
BIOLOGICAL RESOURCES – Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

The proposed project would involve modifications to existing facilities and associated construction activities largely within PG&E's existing utility corridors. Project construction activities would involve replacement of the existing conductor and modifications to, and replacement of, existing lattice steel towers along approximately 59.5 miles of PG&E's existing Palermo–Rio Oso 115 kV transmission system. The project alignment extends through a variety of natural communities and habitats that could support special-status plant and wildlife species, as well as sensitive habitats that could support these species. This section describes these biological resources, identifies potential impacts to biological resources resulting from project implementation, and analyzes the significance of potential impacts after considering the

incorporation of applicant proposed measures (APMs) into the project to avoid and minimize impacts on biological resources.

5.4.1 Regulatory Setting

Federal

Endangered Species Act

The Endangered Species Act (ESA) protects fish and wildlife species that have been listed by the U.S. Fish and Wildlife Service (USFWS) or the National Marine Fisheries Service (NMFS) as threatened or endangered.

In general, NMFS is responsible for protection of federally listed marine species and anadromous fishes, while other listed species are under USFWS jurisdiction. Provisions of ESA Section 9, which prohibits take of threatened or endangered species, and Sections 7 and 10, which require permits for take of listed species, may be relevant to the proposed project. "Take" is defined under ESA as to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct," including loss of habitat of listed species that would result in "harm."

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (16 U.S.C. 703 et seq.) prohibits the take of any migratory bird or any part, nest, or eggs of any such bird. Under the act, "take" is defined as the action of or attempt to "pursue, hunt, shoot, capture, collect, or kill." This act applies to all persons and agencies in the United States, including federal agencies.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act of 1940 (16 U.S.C. 668) specifically protects bald and golden eagles and their nests from harm or trade in parts of these species. The 1972 amendments increased penalties for violating provisions of the Bald and Golden Eagle Protection Act or regulations issued pursuant thereto and strengthened other enforcement measures. Rewards are provided for information leading to arrest and conviction for violation of the Bald and Golden Eagle Protection Act.

Clean Water Act

The Clean Water Act (33 U.S.C. 1251) establishes the basic structure for regulating discharges of pollutants (including dredged or fill material) into waters of the United States (U.S.),

including wetlands, and for regulating quality standards for surface waters. The Clean Water Act provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters.

Clean Water Act Section 404 prohibits the discharge of dredged or fill material into waters of the U.S., including wetlands, without a permit from the U.S. Army Corps of Engineers (USACE). Clean Water Act Section 401 requires that an applicant for a federal license or permit that allows activities with the potential to result in a discharge to waters of the U.S., including wetlands, obtain a state 401 water quality certification.

State

California Endangered Species Act

The state implemented California Endangered Species Act (CESA) in 1984. The act prohibits the take of state-listed endangered and threatened species; however, habitat destruction is not included in the state's definition of "take." Under CESA, "take" is defined as an activity that would directly or indirectly kill an individual of a species. Section 2090 requires state agencies to comply with endangered species protection and recovery and to promote conservation of these species. CDFW administers the act and may authorize take through Section 2081 agreements (except for species designated as fully protected). Regarding rare plant species, CESA defers to the California Native Plant Protection Act of 1977, which prohibits importing, taking, and selling rare and endangered plants. State-listed plants are protected in cases where state agencies are involved in projects under CEQA. In these cases, plants listed as rare under the California Native Plant Protection Act are not protected under CESA but can be addressed under CEQA.

California Fish and Game Code

In addition to CESA, the California Fish and Game Code (F&G Code) includes various statutes and regulations that protect biological resources, including the Native Plant Protection Act of 1977 (NPPA) and requirements triggering notification to CDFW of any activities proposing lake or streambed alteration.

The NPPA (F&G Code Sections 1900–1913) authorizes the Fish and Game Commission to designate plants as endangered or rare and prohibits take of any such plants, except as authorized under limited circumstances.

F&G Code Sections 3503, 3513, and 3800 protect native and migratory birds, including their active or inactive nests and eggs, from all forms of take. In addition, Sections 3511, 4700, 5050, and 5515 identify species that are fully protected from all forms of take. Section 3511 lists fully

protected birds, Section 5515 lists fully protected fish, Section 4700 lists fully protected mammals, and Section 5050 lists fully protected amphibians.

CDFW regulates activities that will interfere with the natural flow of, or substantially alter, the channel, bed, or bank of a lake, river, or stream. Section 1602 of the F&G Code requires that CDFW be notified of lake or streambed alteration activities. If CDFW subsequently determines that such an activity might adversely affect an existing fish and wildlife resource, it has the authority to issue a streambed alteration agreement, including requirements to protect biological resources and water quality. The proposed project does not propose alterations to the channel, bed, or bank of any lake, river, or stream, and would not affect any riparian habitat associated with any lake, river, or stream; therefore, the proposed project is not subject to notification requirements under Section 1602 of the F&G Code.

Porter-Cologne Water Quality Control Act

The State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (RWQCB) have jurisdiction over all surface water and groundwater in California, including wetlands, headwaters, and riparian areas. The SWRCB or applicable RWQCB must issue waste discharge requirements for any activity that discharges waste that could affect the quality of waters of the state, as described in more detail in Section 3.9, Hydrology and Water Quality.

Local

Butte County

Several conservation goals and policies identified in Chapter 10, Conservation and Open Space, of the *Butte County General Plan 2030* (Butte County 2012) apply to biological resources in the project area. The chapter describes biological habitat in the county that supports wildlife species, and associated protection policies. High mountain areas and lower foothills provide habitat for deer; marsh and stream vegetation supports waterfowl, game birds, and small animals; and Lake Oroville and the county's larger streams are valuable habitat for trout, salmon, bass, and other game fish. Special-status plant and wildlife species are known to occur in the county, as are several rare or endangered plants and animals. The chapter includes the following goals to protect and manage biological resources:

- Conserve and enhance habitat for protected species and sensitive biological communities.
- Maintain and promote native vegetation, including the avoidance of invasive plant introduction and spread.

- Identify and protect, where feasible, fish and wildlife habitat including: lower foothills that provide habitat for deer; marsh areas and stream vegetation that support waterfowl, game birds, and small animals; and the county's larger streams that are valuable habitat for trout, salmon, bass, and other game fish.
- Protect identified special-status plant and animal species. This includes construction barrier fencing around sensitive resources on or adjacent to construction sites, environmental training of construction staff by a qualified biologist, and construction monitoring by a qualified biologist when construction is taking place near the habitat of a protected species.

Sutter County

Sutter County's General Plan vision is to preserve and protect its significant natural assets. These assets include the wetland and riparian habitats, wildlife and vegetation, and unique natural open-space land and water resources, including the corridors of the Sacramento, Feather, and Bear Rivers. Chapter 9, Environmental Resources, of the *Sutter County 2030 General Plan* (Sutter County 2011) specifically addresses the county's biological resources and wildlife habitat and includes the following goals to preserve and protect its significant natural assets:

- Support a comprehensive approach for the conservation, enhancement, and regulation of Sutter County's significant habitat and natural open-space resources. This should focus on areas that have very high and high habitat value.
- Conserve, protect, and enhance Sutter County's significant natural wetland and riparian habitats.
- Conserve, protect, and enhance Sutter County's varied wildlife and vegetation resources. This includes, where feasible, preserving special-status fish, wildlife, and plant species (e.g., rare, threatened, or endangered species), supporting the preservation and re-establishment of fisheries in the rivers and streams within Sutter County, preserving and protecting waterfowl resources, preserving important areas of natural vegetation, and preserving native oak trees.
- Conserve, protect, and enhance Sutter County's unique natural open-space lands and resources. This entails, where feasible, preserving and enhancing wildlife movement corridors and contiguous habitat areas, and preserving natural landforms, natural vegetation, and natural resources.

Yuba County

The *Yuba County General Plan 2030* (adopted June 7, 2011) (Yuba County 2011) provides goals, objectives, and policies that apply to biological resources in the project area. Chapter 7, Natural Resources, addresses issues related to natural resources, including protecting rural landscapes and natural resource areas. Provisions in the Yuba County General Plan provide for the protection of resident and migratory deer herds and management of winter and critical winter range (i.e., portions of the winter range in the county that are considered critical to the survival of the migratory deer herds during severe winter conditions) (Yuba County 2011). Many of the specific goals relating to biological resources apply to new development and therefore would not apply to this project even if it were within County jurisdiction.

City of Marysville General Plan

Section B, Open Space, Conservation, and Recreation Element, of the *City of Marysville General Plan* applies portions of the project area located within the City of Marysville. The goal in Section B that applies to biological resources in the project area is to designate, protect, and conserve the natural resources, open space, and recreation lands in the city; and provide opportunities for recreation activities to meet citizen needs (City of Marysville 1985). The policies associated with this goal include encouraging the preservation of wildlife habitat areas, protecting the fisheries of adjacent waterways; ensuring that existing natural resources areas, scenic areas, open-space areas, and parks are protected from encroachment or destruction by development; permitting open space and conservation land use within floodplains; and assuring that floodplains and waterways will not be polluted.

5.4.2 Environmental Setting

Methodology

Dudek biologists and wetland ecologists conducted a review of PG&E's Proponent's Environmental Assessment (PEA; PG&E 2016a) and supporting documents in April and May 2016. The PEA included an evaluation of special-status species and sensitive habitats occurring or having potential to occur along the project alignment. The biological analysis presented in this Initial Study was conducted to confirm and verify the biological resources information presented in the PEA. The analysis in the PEA is based on a combination of database searches, literature reviews and field surveys to determine the potential for occurrence of special-status species and sensitive communities in the project area.

Geographic Definition of the Project Area and Survey Area

For the purposes of this analysis, the project area is defined as the entire project footprint needed for construction. The biological survey area (survey area) is defined as all areas surveyed for biological resources, including areas outside of the project footprint. The biological survey area included a 250-foot-wide corridor centered on the power line ROW following the entire project alignment. In addition, the survey area encompassed pull and tensioning sites, staging areas, access roads, material laydown areas, and helicopter landing zones. Cross-country and native surface access routes were also covered in the biological surveys, including a 25-foot buffer on either side of the route.

Database and Literature Review

The following biological databases and other information sources were reviewed for records of special-status plants, animals, and sensitive natural communities that might have potential to occur within 10 miles of the project area:

- A CNDDB database search for special-status species in the following USGS 7.5-minute quadrangles: Palermo, Honcut, Yuba City, Sutter, Olivehurst, Gilsizer Slough, Nicolaus, and Sheridan and 24 surrounding quadrangles (CDFW 2016a).
- USFWS Information for Planning and Conservation (IPaC) online database was queried for federally listed and proposed endangered, threatened, and candidate species and their designated critical habitat. The following USGS 7.5-minute quadrangle maps were searched: Butte, Yuba, and Sutter Counties, and the Palermo, Honcut, Sutter, Yuba City, Olivehurst, Gilsizer Slough, Nicolaus, and Sheridan (USFWS 2015a).
- California Native Plant Society's (CNPS) online Inventory of Rare and Endangered Vascular Plants of California for the Palermo, Honcut, Sutter, Yuba City, Olivehurst, Gilsizer Slough, Nicolaus, and Sheridan USGS 7.5-minute quadrangles and the 24 surrounding quadrangles (CNPS 2016).

Other information sources that were reviewed for special-status species occurrence information include: (1) CDFW's Special Animals List (CDFW 2016b); (2) CDFW's Special Vascular Plants, Bryophytes, and Lichens List (CDFW 2016c); (3) Biological Resources Constraints Analysis for the PG&E Palermo–Pease Tower Replacement Project (ICF 2009a); (4) Biological Constraints Analysis for the PG&E Palermo–East Nicolaus 115 kV Transmission Line Project (ICF 2009b); (5) Soil maps (Natural Resources Conservation Service 2015); (6) CDFW's List of Vegetation Alliances and Associations (CDFG 2010); (7) A Manual of California Vegetation, 2nd Edition (Sawyer et al. 2009); (8) eBird, an online database of bird distribution and abundance

(eBird 2015); (9) Jepson Manual: Vascular Plants of California, 2nd edition (Baldwin et al. 2012); and (10) Final Western Pacific Interceptor Canal Wetland Delineation (Three Rivers Levee Improvement Authority [TRLIA] 2015).

Field Surveys

A variety of field survey efforts including reconnaissance-level assessments, general biological field investigations, and protocol-level surveys were conducted by ICF wildlife biologists, botanists, and wetland ecologists to support the preparation of the PEA. As applicable, survey data collected for PG&E's prior Palermo–East Nicolaus 115 kV Transmission Line Project, which parallels the north–south portion of the project area, and the Palermo–Pease Tower Replacement Project were updated and incorporated into the biological analysis for the PEA. Key field survey efforts are summarized below:

- Initial delineation of wetlands and other waters of the United States was conducted by a team of wetland specialists/botanists from September through December 2015
- Field surveys for wetlands and other aquatic features, including GGS habitat, for the entire project area were conducted in October and November 2014
- Field investigation of the survey area to determine the extent of branchiopod habitat was conducted in December 2015
- Presence/absence protocol branchiopod surveys were conducted in late December 2015 to supplement results of prior protocol-level surveys for listed vernal pool invertebrates conducted in 2006–2008 for the prior Palermo–East Nicolaus 115 kV Transmission Line Project

Natural Communities

Aerial photograph interpretation and field verifications were completed and used to describe and map vegetation and land cover types occurring within the survey area (PG&E 2016a). The purpose of the mapping effort was to identify the locations of sensitive biological resources and to support preliminary project constraints analyses. Biologists completed most of the vegetation and land cover mapping by reviewing aerial imagery and by collecting data during reconnaissance-level and wetland surveys between September and December 2015 and during scoping surveys for aquatic resources and giant gartersnake (GGS) (*Thamnophis gigas*) habitat in 2014 and 2015 (as described above).

Most of the vegetation community types that were mapped for PG&E's Palermo–East Nicolaus 115 kV Transmission Line Project were present and identifiable in the current project area,

particularly when previously mapped vegetation communities were contiguous with unmapped vegetation of the same aerial signature. Mapping updates were completed by interpretation of current aerial photographs and field verification, and compiled using Esri ArcGIS software. Vegetation communities observed in the project area were categorized primarily according to CDFW's 2010 List of Natural Communities Recognized by the CNDDB (CDFG 2010), which are modeled on vegetation alliances and associations described in A Manual of California Vegetation, Second Edition (Sawyer et.al. 2009).

A total of 8 upland land cover types/vegetation communities and 12 aquatic land cover types/ vegetation communities are present within the project area. The acreages of these land cover types/communities are shown in Table 5.4-1 and a brief discussion of each, as defined and characterized in the PEA, is provided in this section.

Upland Land Cover Types/Vegetation Communities

Annual Grassland

Annual grassland is present throughout the project area and encompasses a total area of approximately 840 acres. This habitat type is dominated by nonnative annual grass species but also contains a mixture of native and nonnative forbs. Nonnative grassland occurs within the herbaceous understory of other vegetation communities (e.g., valley oak savanna woodland, oak/foothill pine woodland). Dominant nonnative annual grass species observed in the project area were soft chess (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), big quakinggrass (*Briza maxima*), and medusa-head (*Elymus caput-medusae*). Associate annual grasses observed were foxtail chess (*Bromus madritensis* ssp. *rubens*) and slender wild oat (*Avena barbata*). Annual grasslands contain both native and nonnative forbs. Representative native forbs observed were shining peppergrass (*Lepidium nitidum*), Spanish lotus (*Lotus purshianus*), common fiddleneck (*Amsinckia intermedia*), and miniature lupine (*Lupinus bicolor*). Nonnative forbs commonly observed were black mustard (*Brassica nigra*), yellow star-thistle (*Centaurea solstitialis*), bristly oxtongue (*Helminthotheca echioides*), filaree (*Erodium* spp.), and dovefoot geranium (*Geranium molle*). Although dominated by nonnative species, annual grasslands provide habitat for a variety of wildlife species such as ground-nesting birds, small mammals, and reptiles. Annual grassland is not considered a sensitive vegetation community.

Valley Oak Woodland

Approximately 24 acres of valley oak woodland is present in the project area. Valley oak woodland in the project area is characterized by a relatively open canopy dominated by mature valley oaks (*Quercus lobata*). Other tree species that were observed in valley oak woodland were

interior live oak (*Q. wislizeni*) and Fremont cottonwood (*Populus fremontii* ssp. *fremontii*). Representative species observed in the understory layer of this habitat type were Himalayan blackberry (*Rubus armeniacus*), coyotebrush (*Baccharis pilularis*), and plants also characteristic of nonnative grassland. Valley oak woodland provides habitat for a number of wildlife species such as deer and other mammals, and bird species. Valley oak woodland is considered a sensitive natural community in California with a global rank of 3 (G3) and a state rank of 3 (S3), meaning it is at moderate risk of extinction due to limited or restricted range (CDFW 2016a).

Interior Live Oak Woodland

Approximately 3 acres of interior live oak woodland occurs within the project area. This habitat type occurs primarily in the northern portions of the project alignment. Interior live oak woodland exhibits a relatively open canopy that is dominated by interior live oak but also contains scattered blue oak (*Q. douglasii*) and foothill pine (*Pinus sabiniana*). Interior live oak woodland has a sparse herbaceous understory of nonnative grassland vegetation, and the shrub layer contains coyotebrush, common manzanita (*Arctostaphylos manzanita*), and whiteleaf manzanita (*A. viscida*). Like valley oak woodlands, interior live oak woodlands provide nesting, rearing, and foraging habitat for a variety of wildlife species.

Foothill Pine–Oak Woodland

Foothill pine-oak woodland distribution is limited to approximately 44 acres in the northernmost portion of the survey area. Foothill pine is the dominant species in the tree overstory, but blue oak and interior live oak are also present. The shrub layer and herbaceous understory of foothill pine-oak woodland are comparable to those observed in interior live oak woodland. Foothill pine-oak woodland is used by a variety of common and special-status wildlife, including birds, deer, small mammals. This habitat type is not considered a sensitive vegetation community.

Urban/Developed

Urban/developed portions of the survey area consist of the towns of Palermo, Yuba City, Linda, and Olivehurst. Urban habitat includes industrial and commercial areas surrounding these towns (e.g., grocery store and parking lots), public right-of-ways and road medians, urban parks, schools, and golf courses. Urban habitat encompasses approximately 433 acres within the survey area. The density of urban/developed areas varies from low to high density. Vegetation within urban habitat primarily consists of nonnative or ornamental trees and shrubs used for landscaping, including crepe myrtle (*Lagerstroemia indica*), Chinese pistache (*Pistacia chinensis*), mulberry (*Morus alba*), ornamental plum (*Prunus* sp.), ornamental pear (*Pyrus* sp.), and oleander (*Nerium oleander*). Urban vegetation also includes native tree species such as oaks

(*Quercus* spp.) and willows (*Salix* spp.). Developed areas also contain ruderal vegetation consisting of weedy species, such as mustard (*Brassica* spp.), yellow star-thistle, and thistle (*Cirsium* sp.) that thrive in disturbed areas. Urban areas provide only marginally suitable habitat for wildlife and are not considered a sensitive vegetation community.

Orchard

Orchards are common throughout the survey area and encompass approximately 548 acres. This habitat type consist mainly of English walnuts (*Juglans regia*), stone fruit (almonds, peaches, and plums (*Prunus* spp.)), olives (*Olea* spp.), and kiwi fruit (*Actinidia chinensis*). Due to recurring vegetation management practices, the orchard understory is typically limited to patches of nonnative annual grasses and herbaceous species found in the nonnative grassland community, or is completely devoid of vegetation. Orchards provide only limited habitat for nesting and foraging birds and are not considered a sensitive vegetation community.

Row Crop

Row crops are scattered throughout the central portion of the survey area and cover approximately 86 acres. Row crops typically consist of alfalfa (*Medicago sativa*), barley (*Hordeum* sp.), wheat (*Triticum aestivum*), and corn (*Zea mays*). The condition of these fields during the 2015 field surveys varied from recently planted to fallow with remnants of the season's crops (PEA, PG&E 2016a). Row crops may provide foraging habitat for bird species but are not considered a sensitive vegetation community.

Rice

Active and fallow rice fields are scattered within the middle and southern portions of the survey area and are discussed under Agricultural Wetlands in the section below.

Aquatic Land Cover Types/Vegetation Communities

Northern Hardpan Vernal Pool

Approximately 15 acres of northern hardpan vernal pools occur in the survey area. Vernal pools are typically inundated only during the winter and spring and are characterized by the presence of a restrictive layer (i.e., hardpan) that perches the water table and prevents rainwater from percolating downward. The hardpan layer creates a unique aquatic environment during the winter and spring months that favors the germination of native vernal pool plants and restricts establishment of many of the nonnative grasses common in uplands surrounding vernal pools. Species commonly observed in vernal pools in the survey area were Great Valley eringo

(*Eryngium castrense*), popcornflower (*Plagiobothrys* spp.), short woollyheads (*Psilocarphus brevissimus*), and Carter's buttercup (*Ranunculus bonariensis*). Northern hardpan vernal pool is considered a sensitive terrestrial community tracked by the CNDDB (CDFW 2016a). It has a global rank of 3 (G3) and a state rank of 3 (S3), meaning it is at moderate risk of extinction due to limited or restricted range (CDFW 2016a).

Seasonal Wetland

Seasonal wetlands, which occur within areas of nonnative grassland in the survey area, encompass approximately 60 acres. Seasonal wetlands differ from vernal pools and vernal swales in their floristic composition, and in some cases, their hydrology. Seasonal wetlands typically lack a restrictive layer, such as a hardpan or claypan; therefore, the hydrologic regime in these features is dominated by long periods of saturated soil conditions rather than inundation. The plants growing in these features are adapted to withstand long periods of saturation, but not prolonged periods of inundation during the winter and spring months. Seasonal wetlands often occur in disturbed areas, such as along roads or railroad tracks. Typical species observed in seasonal wetlands were perennial ryegrass (*Festuca perennis*), iris-leaved rush (*Juncus xiphioides*), pale spikerush (*Eleocharis macrostachya*), Bermudagrass (*Cynodon dactylon*), and Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*). Seasonal wetlands may be protected by both the federal and state governments.

Agricultural Wetlands

Agricultural wetlands are actively farmed fields that exhibit positive indicators for all three wetland parameters (i.e., vegetation, hydrology, and soils). All active rice fields were mapped as agricultural wetlands because they had hydrophytic vegetation (primarily rice, *Oryza sativa*), hydric soils (exhibiting the hydric soil indicator of a depleted matrix), and evidence of wetland hydrology (i.e., aquatic invertebrates, biotic crust, high water table, and surface saturation). They encompass approximately 700 acres, which represents 79% of the wetlands (and 75% of the waters of the United States) delineated in the survey area.

Irrigated Pasture

Irrigated pasture encompasses approximately 1.5 acres mapped at one location on the Rio Oso Sub Line Loop. Irrigated pasture is used for livestock grazing, and is actively maintained and irrigated to provide a constant supply of pasture grasses such as dallisgrass (*Paspalum dilatatum*), orchard grass (*Dactylis glomerata*), and perennial ryegrass.

Valley Freshwater Marsh

Valley freshwater marsh encompasses approximately 75 acres within the survey area and was typically associated with perennially inundated areas. Characteristic species observed in valley freshwater marsh in the project area were cattails (*Typha* spp.), tules and bulrushes (*Schoenoplectus* spp.), sedges (*Carex* spp.), nutsedges (*Cyperus* spp.), and rushes (*Juncus* spp.).

Willow Riparian Scrub

Willow riparian scrub encompasses approximately 0.2 acre within the survey area and is associated with agricultural canals. This vegetation community is dominated by sandbar willow (*Salix exigua*), arroyo willow (*S. lasiolepis*), and Himalayan blackberry. The herbaceous understory of riparian scrub consists of sparse nonnative grassland.

Mixed Riparian Forest

Mixed riparian forest occurs in the project area primarily along Honcut Creeks and various intermittent streams. This community type, which encompasses approximately 0.5 acre, consists of a well-developed overstory of mature trees, a shrub layer, and an herbaceous understory. Species observed in the overstory of this community in the project area were Fremont cottonwood, valley oak, and black willow (*Salix gooddingii*). Representative shrubs observed were blue elderberry (*Sambucus nigra* ssp. *caerulea*) and Himalayan blackberry. Sparse nonnative grassland comprises the herbaceous understory of Great Valley mixed riparian forest. Riparian forest types dominated by Fremont cottonwood, valley oak, or black willow are considered highly imperiled by CDFW (CDFG 2010). Great valley mixed riparian forest is a protected habitat and occurs within the project survey area along the banks of the Feather River in the southern portion of the project alignment. Mixed riparian habitat is used by a variety of common and special-status wildlife, including resident and migratory deer herds.

Great Valley valley oak riparian forest is similar to mixed riparian forest described above, except that the tree canopy is dominated by valley oak. This habitat type is extremely imperiled and is known only from isolated stands along rivers and streams in the Central Valley of California. This habitat type occurs within the project area along Honcut Creek.

Great Valley cottonwood riparian forest is also similar to mixed riparian forest except that the canopy is dominated by Fremont cottonwood trees. This habitat type is a protected by the CDFW and occurs in the project area predominantly along the Feather River, about 1 mile south of the City of Yuba City.

Intermittent Stream

Intermittent streams encompass approximately 5 acres within the survey area. These features include natural drainages that convey waters intermittently during the late fall, winter, and spring months, but are usually dry between the late spring and early fall months. Intermittent streams in the project area may or may not be vegetated, and during the period of flow, the water velocity is sufficient to scour a channel into the landscape and often removes unstable vegetation. Hydrology is also influenced by precipitation and groundwater discharge. Upland plant species sometimes colonize these features during the summer when no water is present.

Irrigation Canal

Irrigation canals in the survey area encompass approximately 3 acres and consist of constructed, concrete-lined ditches that exhibit positive indicators of wetland hydrology but lack hydrophytic vegetation and hydric soils due to their concrete lining.

Non-Vegetated Ditch

Approximately 0.5 acre of non-vegetated ditches was mapped within the project area, most of which was located in the central and southern portions of the project area. Non-vegetated ditches in the survey area consist of constructed ditches that exhibit positive indicators of wetland hydrology and hydric soils (e.g., evidence of frequent flooding for long duration) but lack hydrophytic vegetation because of the scouring action of flowing water or because of farming maintenance activities.

Vegetated Ditch

Approximately 30 acres of vegetated ditch were mapped in the project area. Features determined to be vegetated ditches generally consist of constructed ditches that exhibit positive indicators for all three federal wetland criteria (i.e., hydrophytic vegetation, wetland hydrology, and hydric soils). These features are mainly located in the central and southern portions of the project area and were typically dominated by obligate wetland plants such as parrot-feather (*Myriophyllum aquaticum*), narrowleaf cattail (*Typha angustifolia*), water primrose (*Ludwigia hexapetala*), and bulrush.

Open Water

Open water encompasses approximately 2 acres within the project area. Open water habitat in the project area consists of ponds, agricultural irrigation canals, and the Feather, Yuba, and Bear Rivers. Open water features include the deepwater portion(s) of features such as marshes. Deepwater is the area beyond where the littoral zone (shoreline) transitions to the limnetic zone (deep water). Typically, this is the zone where water depth precludes the establishment of emergent vegetation.

Special-Status Species

For the purposes of this analysis, special-status species are defined as species that meet one or more of the following criteria:

- Species listed or proposed for listing as threatened or endangered under the federal ESA; 50 CFR 17.12 for listed plants; 50 CFR 17.11 for listed animals; and various notices in the Federal Register [FR] for proposed species).
- Species that are candidates for possible future listing as threatened or endangered under the federal ESA.
- Species that are listed or proposed for listing by the state of California as threatened or endangered under CESA.
- Plants listed as rare under the California Native Plant Protection Act (California Fish and Game Code Section 1900, et seq.).
- Plants included in CDFW's Special Plants List and CNPS Inventory of Rare and Endangered Species with a California Rare Plant Rank (CRPR) of 1A, 1B, 2A, or 2B (CNPS 2016).
- Species that are not state- or federally listed but under the CEQA Guidelines, Section 15380, meet the definition of rare (species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range) or endangered (species' survival and reproduction in the wild are in immediate jeopardy).

The likelihood of special-status species occurrence was determined based on natural history parameters, including but not limited to, the species' known range, habitat requirements, foraging needs, migration routes, and reproductive requirements. The following general categories:

- **Present –** Reconnaissance-level, focused, or protocol-level surveys documented the occurrence or observation of a species in the project area.
- **Seasonally present –** Individuals were observed in the project area only during certain times of the year.
- **Likely to occur (on site) –** The species has a strong likelihood to be found in the project area prior to or during construction but has not been directly observed to date during project surveys. The likelihood that a species may occur is based on the following considerations: suitable habitat that meets the life history requirements of the species is present on or near the project area; migration routes or corridors are near or within the project area; records of sighting are documented on or near the project area; and, there is

an absence of invasive predators (e.g., bullfrogs). The main assumption is that records of occurrence have been documented within or near the project area, the project area falls within the range of the species, suitable habitat is present, but it is undetermined whether the habitat is currently occupied.

- **Potential to occur –** There is a possibility that the species can be found in the project area prior to or during construction, but has not been directly observed to date. The likelihood that a species may occur is based on the following conditions: suitable habitat that meets the life history requirements of the species is present on or near the project area; migration routes or corridors are near or within the project area; and there is an absence of invasive predators (e.g., bullfrogs). The main assumption is that the project area falls within the range of the species, suitable habitat is present, but no records of sighting are located within or near the project area and it is undetermined whether the habitat is currently occupied.
- **Unlikely to occur –** The species is not likely to occur in the project area based on the following considerations: lack of suitable habitat and features that are required to satisfy the life history requirements of the species (e.g., absence of foraging habitat; lack of reproductive areas, and lack of sheltering areas), presence of barriers to migration/dispersal, presence of predators or invasive species that inhibit survival or occupation (e.g., the presence of bullfrogs or invasive fishes), or lack of hibernacula, hibernation areas, or estivation areas on site.
- **Absent –** Suitable habitat does not exist in the project area, the species is restricted to or known to be present only within a specific area outside of the project area, or focused or protocol-level surveys did not detect the species.

Plants

During April and May 2016, Dudek biologists used aerial images and ArcGIS viewers to review mapped vegetation communities and land cover types and associated special-status plant species habitat within the project footprint, including a 250-foot buffer. As noted above, Dudek also performed updated CNDDB and CNPS database searches to verify potential special-status plant species that could occur in the region of the project (Appendix D).

The database searches identified 34 special-status plant species that have been recorded in the project region. Twenty-one species were determined to be absent or unlikely to occur and were eliminated from further consideration due to the lack of appropriate habitats, absence of suitable edaphic conditions (e.g., alkaline or serpentine soils), extent of habitat degradation and/or disturbance, or location of the project outside of the species known range. The remaining 13

species have some potential to occur in the project area (CNPS 2016; CDFW 2016a). These species are identified and discussed in Table 5.4-1 and Section 5.4.4,

Table 5.4-1
Special-Status Plant Species with Potential to Occur in the Project Area

Common Name *Scientific Name*	Legal Status Federal/ State/CRPR	Habitat Requirements; Geographic Distribution; Blooming Period	Potential for Occurrence in Project Area
Dwarf downingia *Downingia pusilla*	–/–/2B.2	Mesic areas in valley and foothill grassland, vernal pools; below 1,460 feet amsl; inner North Coast Ranges, southern Sacramento Valley, northern and central San Joaquin Valley; Mar–May	**Potential to occur** Suitable habitat and microhabitat present and 10 occurrences are within 10 miles
Boggs Lake hedge-hyssop *Gratiola heterosepala*	–/E/1B.2	Marshes and swamps along lake margins, vernal pools on clay soils; 30–7,795 feet amsl; inner North Coast Ranges, central Sierra Nevada foothills, Sacramento Valley, Modoc Plateau; Apr–Aug	**Potential to occur** Two occurrences within 10 miles of project area and suitable habitat is present
Rose-mallow *Hibiscus lasiocarpos* var. *occidentalis*	–/–/1B.2	Freshwater marshes and swamps; below 395 feet amsl; central and southern Sacramento Valley, deltaic Central Valley, and elsewhere in the United States; Jun–Sep	**Potential to occur** Small amount of suitable habitat present and 5 occurrences are within 10 miles, nearest occurrence is ~5.5 miles away
Ahart's dwarf rush *Juncus leiospermus* var. *ahartii*	–/–/1B.2	Wet areas in valley and foothill grassland, vernal pool margins; 95–330 feet amsl; Eastern Sacramento Valley, northeastern San Joaquin Valley with occurrences in Butte, Calaveras, Placer, Sacramento, and Yuba Counties; Mar–May	**Potential to occur** Suitable habitat present, 9 occurrences are within 10 miles and nearest occurrence is ~1.5 miles away
Red Bluff dwarf rush *Juncus leiospermus* var. *leiospermus*	–/–/1B.1	Vernally mesic areas in chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, vernal pools; 115–3,346 feet amsl; scattered occurrences in the northern Sacramento Valley, Cascade Range foothills from Shasta to Placer Counties; Mar–May	**Potential to occur** Suitable habitat present and 13 occurrences are within 10 miles
Legenere *Legenere limosa*	–/–/1B.1	Vernal pools; below 2,890 feet amsl; Sacramento Valley, North Coast Ranges, northern San Joaquin Valley, and Santa Cruz mountains; May–Jun	**Potential to occur** Suitable habitat present and nearest occurrence is ~4 miles away
Butte County meadowfoam *Limnanthes floccosa* ssp. *californica*	E/E/1B.1	Wet areas in valley and foothill grassland, vernal pools and swales; 165–3,050 feet amsl; endemic to Butte County; Mar–May	**Potential to occur** Suitable habitat present, 5 occurrences within 10 miles and nearest occurrence is ~8 miles away

Table 5.4-1
Special-Status Plant Species with Potential to Occur in the Project Area

Common Name *Scientific Name*	Legal Status Federal/ State/CRPR	Habitat Requirements; Geographic Distribution; Blooming Period	Potential for Occurrence in Project Area
Baker's navarretia *Navarretia leucocephala* ssp. *bakeri*	–/–/1B.1	Mesic areas in cismontane woodland, lower montane coniferous forest, meadows and seeps, valley and foothill grassland, vernal pools; 16–5,710 feet amsl; Inner North Coast Ranges, western Sacramento Valley; Apr–Jul	**Potential to occur** Suitable habitat present, 2 occurrences within 10 miles and nearest occurrence is ~8.5 miles away
Pincushion navarretia *Navarretia myersii* ssp. *myersii*	–/–/1B.1	Clay loam soils in vernal pools; 56–1,100 feet amsl; scattered occurrences on the east side of the southern Sacramento Valley and northern San Joaquin Valley; Apr–May	**Potential to occur** One occurrence within 10 miles, and suitable habitat present
Slender Orcutt grass *Orcuttia tenuis*	T/E/1B.1	Vernal pools; 115–5,775 feet amsl; Sierra Nevada and Cascade Range foothills from Siskiyou to Sacramento Counties; May–Oct	**Potential to occur** Two occurrence within 10 miles, and suitable habitat present
Ahart's paronychia *Paronychia ahartii*	–/–/1B.1	Cismontane woodland, valley and foothill grassland, vernal pools; 95–1,675 feet amsl; Northern Central Valley in Butte, Shasta, and Tehama Counties; Mar–Jun	**Potential to occur** Suitable habitat present, three occurrences within 10 miles and nearest occurrence is ~1.5 miles away
Sanford's arrowhead *Sagittaria sanfordii*	–/–/1B.2	Freshwater marshes, sloughs, canals, and other slow-moving water habitats; below 2,132 feet amsl; scattered locations in Central Valley and Coast Ranges; May–Oct	**Potential to occur** Three occurrences, including one historical occurrence near Rio Oso
Brazilian watermeal *Wolffia brasiliensis*	–/–/2B.3	Shallow freshwater in marshes and swamps; 65–330 feet amsl; known in California from a few occurrences along the Sacramento River in Butte, Glenn, Sutter, and Yuba Counties; widespread elsewhere in the United States; Apr–Dec	**Potential to occur** Only one occurrence within 10 miles, but suitable habitat present

Sources: Baldwin et al. 2012; CDFW 2016b; CNPS 2016
* Known populations believed extirpated from that county.
amsl = above mean sea level.
Legal status codes:
Federal
E = listed as endangered under the federal Endangered Species Act.
T = listed as threatened under the federal Endangered Species Act.
– = no listing.
State
E = listed as endangered under the California Endangered Species Act.
R = listed as rare under the California Native Plant Protection Act; no longer used for newly listed plants, but plants previously listed as rare retain this designation.
– = no listing.

California Rare Plant Rank
1B = rare, threatened, or endangered in California and elsewhere.
2B = rare, threatened, or endangered in California but more common elsewhere.
3 = plants about which more information is needed to determine their status.
Extensions:
.1 = seriously threatened in California.
.2 = moderately threatened in California.
.3 = not very threatened in California.

All but one of these 13 special-status plant species are associated with wetland habitats and the majority are associated with vernal pools and seasonal wetlands. Ahart's paronychia (*Paronychia ahartii*) may be found in shallow margins of vernal pools but is more typically found in sparse grassland on shallow soils. Previous surveys conducted for the Palermo– East Nicolaus 115 kV Transmission Line Project found one former special-status plant in the project area—fox sedge (*Carex vulpinoidea*); however, this species is no longer considered a special-status species (CNPS 2016).

Wildlife

During April and May 2016, Dudek biologists used aerial images and ArcGIS viewers to review mapped vegetation communities and land cover types and associated special-status wildlife species habitat within the project footprint, including a 250-foot buffer. Based on surveys conducted from September through December 2015, several special-status wildlife species and potentially suitable habitat for special-status wildlife were identified within and adjacent to the project survey area (PG&E 2016a).

The CNDDB and IPaC database searches initially identified 31 special-status wildlife species with potential to occur in the biological resources survey area (CDFW 2016a; USFWS 2015a; PEA, PG&E 2016a). Three of these species (Delta smelt (*Hypomesus transpacificus*), California tiger salamander (*Ambystoma californiense*), and Marysville California kangaroo rat (*Dipodomys californicus eximius*)) were eliminated from further consideration either because of a lack of suitable habitat in the project area or because the project area is outside of the species' current range. None of these three species have been documented in the survey area and they are considered unlikely to occur in the project area (CDFW 2016a); therefore, they are not discussed further in this section. Twenty-eight special-status wildlife species are present, seasonally present, likely to occur, or have potential to occur in the project area. These species are identified and discussed in Table 5.4-2 and in Section 5.4.4.

Table 5.4-2
Special-Status Wildlife Species with Potential to Occur in the Project Area

Species Name	Listing Status[a]	Geographic Distribution	Potential for Occurrence in Project Area
Invertebrates			
Conservancy fairy shrimp *Branchinecta conservatio*	E/–	Found in northern two-thirds of the Central Valley floor. Disjunct occurrences in Solano, Merced, Stanislaus, Tehama, Butte, and Glenn Counties.	**Potential to Occur** One occurrence from 2012 in the project area. Nearest occurrence located approximately 4.4 miles southeast of Rio Oso Substation.
Vernal pool fairy shrimp *Branchinecta lynchi*	T/–	Known from the Central Valley and central and south Coast Ranges from Tehama County to Santa Barbara County. Isolated populations also in Riverside County.	**Potential to Occur** Suitable habitat is present in the project area and 69 occurrences within 10 miles of the project area. The closest occurrence is located along the Pease-Rio Oso line near Plumas Lake and Olivehurst.
Vernal pool tadpole shrimp *Lepidurus packardi*	E/–	Known from Shasta County south to Merced County.	**Potential to Occur** Suitable habitat is present and 29 occurrences within 10 miles of the project area. The closest occurrences are along the Pease-Rio Oso line near Plumas Lake and Olivehurst. One occurrence is 430 feet south of Bogue-Rio Oso Line.
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	T/–	Found in streamside habitats below 3,000 feet throughout the Central Valley. Largest known populations are associated with the Sacramento River, American River, San Joaquin River, and Putah Creek watersheds.	**Potential to Occur** Suitable habitat is present and 28 occurrences within 10 miles of the project area. Several occurrences in or near the Feather River, Bear River, Yuba River, North Honcut Creek, and Wilson Creek drainages.
Fish			
Chinook salmon Central Valley Spring-Run ESU *Oncorhynchus tshawytscha*	T/T	Wild populations are found in the Sacramento River and its tributaries, including the Yuba River, Mill Creek, Deer Creek, and Butte Creek. Feather River spring-run salmon are primarily hatchery fish. Critical habitat is designated in the Feather River up to Lake Oroville, the lower Yuba River, and the lower Bear River.	**Potential to Occur** One occurrence from 1995 in the project area along Feather River from Thermalito Afterbay outlet upstream to the fish barrier at Feather River fish hatchery in Butte County.
Sacramento splittail *Pogonichthys macrolepidotus*	SSC	Endemic to the Central Valley and range centers on the San Francisco Estuary.	**Potential to Occur** One occurrence from 1995 in the project area. The nearest occurrence is along the Sacramento River from Missouri Bend to North of Knights Landing.

Table 5.4-2
Special-Status Wildlife Species with Potential to Occur in the Project Area

Species Name	Listing Status[a]	Geographic Distribution	Potential for Occurrence in Project Area
Steelhead—Central Valley DPS *Oncorhynchus mykiss irideus*	T/–	Found along California Coastal and Central Valley drainages; recent declines in the tributaries of the Sacramento River.	**Potential to Occur** May occur in lower Feather River, lower Yuba River, Bear River, Auburn Ravine upstream to Gold Hill Dam, and Sutter Bypass. Four occurrences in the project area and suitable habitat present at these drainage crossings.
Amphibians			
California red-legged frog *Rana draytonii*	T/SSC	Found along the coast and coastal mountain ranges of California from Marin County to San Diego County and in the Sierra Nevada from Tehama County to Fresno County.	**Potential to Occur** No known occurrences within 10 miles of the project area. Suitable habitat present in the project area along creeks and streams. Possibly extirpated from Central Valley floor.
Western spadefoot *Spea hammondii*	SSC	Found in the Sierra Nevada foothills, Central Valley, Coast ranges, coastal counties in southern California.	**Potential to Occur** One known occurrence (from 1956) within the project area, approximately 3 miles southeast of Palermo. Suitable habitat is present.
Reptiles			
Coast horned lizard = Blainsville's horned lizard *Phrynosoma blainvillii*	SSC	Found in the Sacramento Valley, including foothills, south to southern California; Coast Ranges south of Sonoma County; below 4,000 feet in northern California.	**Potential to Occur** One known occurrence (from 2002) within the project area, north of Oroville, East of Coal Canyon. Suitable habitat present in the project area.
Giant garter snake *Thamnophis gigas*	T/T	Known from the Central Valley from the vicinity of Burrel in Fresno County north to near Chico in Butte County; has been extirpated from areas south of Fresno.	**Likely to Occur** Several (72) known occurrences located within 10 miles of the project area. A significant population associated with Feather River. Suitable aquatic habitat is present in several sloughs and rice fields in the project area.
Western pond turtle *Emys marmorata*	SSC	The species occurs from the Oregon border of Del Norte and Siskiyou Counties south along the coast to San Francisco Bay, inland through the Sacramento Valley, and on the western slope of Sierra Nevada.	**Likely to Occur** Several known occurrences in Yuba River, Feather River, Dry Creek, Best Slough, and Wood Duck Slough within 10 miles of the project area. Suitable habitat is present in the project area near the Yuba and Bear Rivers, Honcut and Wyandotte Creeks, Wyman Ravine, as well as along rice field canals. The closest occurrence is approximately 3 miles west of the Palermo line along Feather River.

Table 5.4-2
Special-Status Wildlife Species with Potential to Occur in the Project Area

Species Name	Listing Status[a]	Geographic Distribution	Potential for Occurrence in Project Area
		Birds	
Bald eagle *Haliaeetus leucocephalus*	D*/E/FP	Nests in Siskiyou, Modoc, Trinity, Shasta, Lassen, Plumas, Butte, Tehama, Lake, and Mendocino Counties, and in the Lake Tahoe Basin. Reintroduced into central coast. Winter range includes the rest of California, except the southeastern deserts, very high altitudes in the Sierra Nevada, and east of the Sierra Nevada south of Mono County.	**Potential to Occur** Two known occurrences within 10 miles of the project area. Reported to nest at Lake Oroville, approximately 8 miles north of the project area and along Feather River, approximately 3 miles southeast of Gridley and 3.4 miles west of the Palermo line. Foraging habitat and low quality nesting habitat is present at river crossings within the project area.
Bank swallow *Riparia riparia*	–/T	Occurs along the Sacramento River from Tehama County to Sacramento County, along the Feather and lower American Rivers, in the Owens Valley; and in the plains east of the Cascade Range in Modoc, Lassen, and northern Siskiyou Counties. Small populations near the coast from San Francisco County to Monterey County.	**Likely to Occur** CNDDB reports 40 records of observations within 10 miles of the project area, particularly along Feather River. One occurrence report along Bear River. Suitable nesting and foraging habitat is present at river crossings.
Burrowing owl *Athene cunicularia*	–/–, SSC	Occupies lowlands throughout California, including the Central Valley, northeastern plateau, southeastern deserts, and coastal areas. Rare along south coast. Highly associated with California ground squirrel colonies.	**Likely to Occur** Four documented occurrences within 10 miles of the project area, with the closest occurrence approximately 7.3 miles east of the Pease-Rio Oso line. However, suitable foraging, wintering, and breeding habitat are present in annual grassland habitat.
Cackling (=Aleutian Canada) goose *Branta hutchinsii leucopareia*	D/–	A winter migrant that occupies habitats from Del Norte County, San Francisco Bay Delta, and southern Central Valley.	**Potential to Occur** One CNDDB occurrence within 10 miles of the project area, east of the Sutter Bypass, approximately 5.5 miles west of the Bogue-Rio Oso Line. Suitable foraging and wintering habitat is present, particularly along fallow rice fields.
California black rail *Laterallus jamaicensis coturniculus*	–/T/FP	Permanent resident in the San Francisco Bay and eastward through the Sacramento–San Joaquin River Delta into Sacramento and San Joaquin Counties; small populations in Marin, Santa Cruz, San Luis Obispo, Orange, Riverside, and Imperial Counties.	**Potential to Occur** 19 records of occurrences reported within 10 miles of the project area, with the majority of the occurrences near Loma Rica, Iowa City, and Browns Valley. The closest occurrence is 4 miles east of the Palermo line.
Greater sandhill crane *Grus canadensis tabida*	–/T/FP	Breeds in Siskiyou, Modoc, Lassen, Plumas, and Sierra Counties. Winters in the Central Valley, Southern Imperial County, Lake Havasu National Wildlife Refuge, and the Colorado River Indian Reserve.	**Potential to Occur** One record reported within 10 miles of the project area, near Gridley. Suitable foraging habitat present particularly near rice fields and seasonal wetlands.

Table 5.4-2
Special-Status Wildlife Species with Potential to Occur in the Project Area

Species Name	Listing Status[a]	Geographic Distribution	Potential for Occurrence in Project Area
Least Bell's vireo *Vireo bellii pusillus*	E/E/SSC	Summer resident in western Sierra Nevada, throughout Sacramento and San Joaquin Valley, coastal valley and foothills from Santa Clara County south.	**Potential to Occur** One record reported within 10 miles of the project area, near Marysville. Suitable breeding and foraging habitat present along the Feather and Yuba Rivers.
Northern harrier *Circus cyaneus*	SSC	Occurs throughout lowland California. Has been recorded in fall at high elevations.	**Present** Six records of occurrence within 10 miles of the project area. Suitable nesting and foraging habitat is present. Observed foraging in project area during reconnaissance surveys.
Song sparrow ("Modesto" population) *Melospiza melodia mailliardi*	SSC	Locally occurs in the Sacramento Valley, Sacramento–San Joaquin River Delta, and northern San Joaquin Valley. Highest densities occur in the Butte Sink of the Sacramento Valley and Sacramento–San Joaquin River Delta.	**Potential to Occur** Two records reported within 10 miles of the project area, near Marysville and approximately 2 miles east of Sheridan. Suitable nesting and foraging habitat present along the Feather and Yuba Rivers.
Swainson's hawk *Buteo swainsoni*	–/T	Lower Sacramento and San Joaquin Valleys, the Klamath Basin, and Butte Valley. Highest nesting densities occur near Davis and Woodland, Yolo County.	**Present** Known to nest in the project area; over 100 records of nesting activity and additional records of foraging reported within 10 miles of the project area since 1979. Suitable nesting and foraging habitat is present in several areas.
Tricolored blackbird *Agelaius tricolor*	–/SC	Permanent resident in the Central Valley from Butte County to Kern County. Breeds at scattered coastal locations from Marin County south to San Diego County; and at scattered locations in Lake, Sonoma, and Solano Counties. Rare nester in Siskiyou, Modoc, and Lassen Counties.	**Potential to Occur** CNDDB reports 49 records of occurrence within 10 miles of the project area, of which only 24 are presumed extant. Low quality habitat suitable for relatively small colonies is present, particularly near slough northeast of Marysville, fields southeast of Arboga, habitat east and west of Plumas Lake, and marsh habitat southwest of Rio Oso.
Western yellow-billed cuckoo *Coccyzus americanus occidentalis*	T/E	Nests along the upper Sacramento, lower Feather, south fork of the Kern, Amargosa, Santa Ana, and Colorado Rivers.	**Potential to Occur** CNDDB reports six records of occurrence within 10 miles of the project area, with the most recent positive observation from 1995. Historic records of occurrence reported from the Feather River and Yuba River confluence. Low quality suitable habitat may be present in riparian forest along the Bear River, Yuba River, Feather River, and Honcut Creeks.

Table 5.4-2
Special-Status Wildlife Species with Potential to Occur in the Project Area

Species Name	Listing Status[a]	Geographic Distribution	Potential for Occurrence in Project Area
White-tailed kite *Elanus leucurus*	FP	Lowland areas west of Sierra Nevada from the head of the Sacramento Valley south, including coastal valleys and foothills to western San Diego County at the Mexico border.	**Present** One reported CNDDB occurrence; however, numerous documented eBird records within the project area. Suitable grassland foraging habitat is present throughout the project area and suitable nesting habitat may be present in groves of trees located near open agricultural fields, rural residences, and riparian corridors along the rivers.
Mammals			
Pallid bat *Antrozous pallidus*	SSC	Occurs throughout California except the high Sierra from Shasta to Kern County and the northwest coast, primarily at lower and mid-elevations. This species inhabits a wide range of habitats, including arid desert regions, oak savanna, shrub-steppe, and pine-oak woodlands.	**Potential to Occur** One record of occurrence, from 2003, reported within 10 miles of the project area. Suitable roosting habitat may be present.
Townsend's big-eared bat *Corynorhinus townsendii*	–/T/SSC	Occurs throughout California except subalpine and alpine habitats.	**Potential to Occur** One record of occurrence, from 1990, reported within 10 miles of project area, near Oroville. Suitable roosting habitat may be present.
Western mastiff bat *Eumops perotis californicus*	–/SSC	Uncommon resident in southeastern San Joaquin Valley and Coastal Ranges from Monterey County south through Southern California. In California, the species has been observed roosting up to 1,300 feet and foraging at more than 8,800 feet.	**Potential to Occur** CNDDB reports three records of occurrence near Oroville, approximately 3.5 miles north of the project area. Low quality suitable habitat may be present.

Sources: CDFW 2016a; eBird 2015; USFWS 2015
DPS = distinct population segment
ESU = evolutionarily significant unit
CNDDB = California Natural Diversity Database
Federal listing codes:
E = Federally Endangered Species
T = Federally Threatened Species
D = Federally Delisted
D^8 = Federally protect under Bald Eagle and Golden Eagle Protection Act
P = Proposed for listing under the federal Endangered Species Act
C = species for which USFWS has on file sufficient information on biological vulnerability and threat(s) to support issuance of a proposed rule to list, but issuance of the proposed rule is precluded
– = no listing
California listing codes:
T = State-listed as Threatened
E = State-listed as Endangered
SC = State candidate for listing
FP = Fully Protected Species
SS = Species of Special Concern
– = no listing status

Vernal pools and wetlands within the project area provide suitable habitat for conservancy fairy shrimp, vernal pool fairy shrimp, vernal pool tadpole shrimp, western pond turtle, western spadefoot (breeding), and giant gartersnake. Giant gartersnake is also likely to occur in intermittent streams, freshwater marshes, irrigation canals, agricultural ditches, rice fields and open water habitat within the project area. California black rail is likely to utilize wetland habitat within the project area for foraging and nesting.

Irrigated pasture and annual grassland communities in the project area contain suitable nesting and/or foraging habitat for Swainson's hawk, northern harrier, cackling goose (*Branta hutchinsii leucopareia*), burrowing owl, greater sandhill crane, tricolored blackbird, and white-tailed kite. Additionally, California red-legged frog, western spadefoot toad, coast horned lizard, and western pond turtle are likely to use these upland areas.

Perennial and intermittent streams and open water within the project area provide suitable spawning habitat for Central Valley Spring-run chinook salmon, Sacramento splittail and the Central Valley population of steelhead. Bald eagle and sandhill crane also have potential to forage in these areas.

Willow riparian scrub and mixed riparian forest within the project area could be used for nesting by bald eagle, bank swallow, least Bell's vireo, Northern harrier, song sparrow, Swainson's hawk, western yellow- billed cuckoo and white-tailed kite.

Valley oak woodland, foothill pine-oak woodland and interior live oak woodland within the project area contains suitable nest trees for bald eagle, white-tailed kite and potentially Swainson's hawk. These land cover types also provide roosting and foraging habitat for pallid bat and western mastiff bat, and foraging habitat for Townsend's big-eared bat. Bats are also likely to forage in orchard and row crop habitat within the project area, as are Swainson's hawk, white-tailed kite, and burrowing owl.

Valley elderberry longhorn beetle has the potential to utilize elderberry shrubs that occur throughout the project area.

5.4.3 Applicant Proposed Measures

To reduce the potential for biological impacts associated with the project, the applicant will implement the following applicant proposed measures (APMs) as part of the proposed project (PG&E 2016a). These measures are considered part of the project and are not mitigation for potential impacts.

APM BIO-1 **Conduct Worker Environmental Awareness Training Program.** A qualified biologist will develop an environmental awareness training program that is specific to the project. All on-site construction personnel will attend the training before they begin work on the project. Training will include a discussion of the avoidance and minimization measures that are being implemented to protect biological resources as well as the terms and conditions of project permits. Training will include information about the federal Endangered Species Act and California Endangered Species Act and special-status species as defined in this chapter, and the consequences of noncompliance with these acts.

Under this program, workers will be informed about the presence, life history, and habitat requirements of all special-status species that may be affected in the project area. Training also will include information on state and federal laws protecting nesting birds, wetlands, and other water resources.

An educational brochure will be produced for construction crews working on the project. The brochure will include color photos of sensitive species as well as a discussion of relevant APMs. In particular, construction personnel will be directed to stop work and contact the biological monitor if special-status species are observed.

APM BIO-2 **Conduct Preconstruction Survey(s) For Special-Status Species and Sensitive Resource Areas.** A qualified biologist will conduct pre-construction survey(s) for special-status species and sensitive resource areas immediately prior to construction activities within suitable aquatic and upland habitat for special-status species. If a special-status species is encountered during the pre-construction survey(s), Pacific Gas and Electric Company (PG&E) will be contacted immediately to determine the appropriate course of action. For state- or federally listed species, PG&E will contact the appropriate resource agency (California Department of Fish and Wildlife (CDFW) and/or U.S. Fish and Wildlife Service (USFWS)), as required.

APM BIO-3 **Identification and Marking of Sensitive Resources.** Sensitive biological resource areas identified during pre-construction surveys in the project area will be clearly marked in the field or on project maps. Sensitive resource areas will include active bird nests within specified buffer zones (see APM BIO-11), special-status plants, special-status vegetation types, vernal pools and wetland boundaries in/or adjacent to work sites. Such areas will be avoided during construction to the extent practicable.

APM BIO-4 **Biological Monitoring.** A qualified biologist will monitor ground-disturbing activities in and adjacent to areas identified in APM BIO-3 to ensure compliance with best management practices (BMPs) and APMs, unless the area has been protected by barrier fencing to protect sensitive biological resources and has been cleared by the qualified biologist. The monitor will have authority to stop or redirect work if construction activities are likely to affect sensitive biological resources.

If a listed wildlife species is encountered during construction, project activities will cease in the area where the animal is found until the qualified biologist determines that the animal has moved out of harm's way, or, with prior authorization from the U.S. Fish and Wildlife Service (USFWS) and/or California Department of Fish and Wildlife (CDFW), if required, the qualified biologist relocates the animal out of harm's way and/or takes other appropriate steps to protect the animal. Work may resume once the qualified biologist has determined that construction activities will not harm any listed wildlife species. The qualified biologist will be responsible for any necessary reporting to USFWS and/or CDFW.

APM BIO-5 **Restore Habitat for Special-Status Plants Disturbed During Construction.** In the unlikely event special-status plant species cannot be avoided, PG&E will stockpile separately the upper 6 inches of topsoil during excavations of special-status plant species habitat. PG&E will use the stockpiled topsoil to restore the area after temporary construction has been completed. When this topsoil is replaced, compaction will be minimized to the extent consistent with utility standards. Restoration and reseeding methods using a California native seed mix will be used to restore the sites.

APM BIO-6 **Avoid or Minimize Impacts on Habitat For Special-Status Vernal Pool Species**
PG&E will implement the following measures to reduce potential impacts on vernal pool species and habitat within the project area. These measures may be refined during the Section 7 consultation process or Section 10 Habitat Conservation Plan (HCP) process conducted for the project with the USFWS, as applicable.

- Where feasible, the project will avoid and minimize direct and indirect impacts on vernal pool species and their habitat.
- Where feasible, new structures will be located outside of suitable habitat features; and work areas and temporary overland access routes will avoid vernal pool habitats.

- Where feasible, ground-disturbing activities in and adjacent to vernal pools will be conducted during the dry season (generally May 1 to October 15).
- Any ground-disturbing activities taking place within 50 feet of suitable aquatic habitat for vernal pool species will be minimized by: limiting the duration of work, using rubber tire vehicles to reduce soil compaction, and restricting ground disturbance to well-defined, small work areas.
- If construction activities must occur on the ground during the wet season, PG&E will implement BMPs consistent with the Storm Water Pollution Prevention Plan (SWPPP) (see APM HYDRO-1), which may include silt fencing to minimize impacts on vernal pool habitat.

APM BIO-7 Compensate for Permanent Impacts on Habitat for Vernal Pool Species in Accordance with USFWS Permit

PG&E will provide off-site compensation for permanent impacts on vernal pool species habitat at a minimum ratio of 1 acre preserved or created for each acre of direct impact by the project. PG&E will provide this compensatory amount of vernal pool habitat at an off-site location, which may include acquiring mitigation credits at a USFWS-approved conservation area that supports vernal pool fairy shrimp. Final compensation ratios will be based on site-specific information and determined through coordination with the USFWS as part of the permitting processes for the project.

APM BIO-8 Avoid, Minimize, or Compensate for Any Impacts on Valley Elderberry Longhorn Beetle. PG&E's Valley Elderberry Longhorn Beetle (VELB) Conservation Program allows PG&E to perform routine operations and maintenance activities and new construction, subject to certain terms and conditions as specified in the USFWS Biological Opinion (BO) (File 1-1-01-F-0114). The VELB BO provides for 30 years of incidental take coverage and was issued on June 27, 2003. It defines reasonable and prudent measures required to avoid and minimize impacts on habitat for the federally listed VELB. PG&E will implement the surveying, avoidance, and any necessary compensation measures required for the Conservation Program as authorized by USFWS. These measures may include: (1) surveying for and flagging all elderberry plants with one or more stems measuring 1 inch or more in diameter at ground level that are within 20 feet of work sites; (2) avoiding all such elderberry plants to the extent feasible; and (3) reporting unavoidable impacts on elderberry shrubs to USFWS for coverage under the Conservation Program's funding of VELB habitat acquisition, development, and protection.

APM BIO-9 **Avoid and Minimize Impacts on Giant Garter Snake.** PG&E will implement the following avoidance and minimization measures as may be refined during the permitting processes with USFWS and CDFW for the project:

- To the fullest extent possible, PG&E will avoid construction activities within 200 feet of the banks of giant garter snake (GGS) aquatic habitat. Habitat disturbance areas and vegetation clearance will be confined to the minimal area necessary to facilitate construction activities.
- As feasible, construction activity within GGS aquatic and upland habitat in and around agricultural ditches, irrigation and drainage canals, rice fields, and marshes and sloughs, will be conducted within the active period for GGS (May 1 through October 1). Depending on weather conditions and consultation with USFWS and CDFW, it may be possible to extend the construction period into mid- or late October.
- When construction work must occur during the GGS dormant period (October 2 through April 30), additional protective measures will be implemented, which may include: having a biological monitor in sensitive habitat areas or installation of exclusion fencing to prevent giant garter snakes from establishing hibernacula in work areas.
- Prior to any construction within suitable GGS aquatic habitat, the habitat will be dewatered and must remain dry for at least 15 consecutive days after April 15 and prior to excavating or filling dewatered habitat.
- Pre-construction surveys in suitable GGS habitat will be conducted in accordance with APM BIO-2. The construction area will be resurveyed whenever there is a lapse in construction activity of 2 weeks or more.
- If a GGS is encountered within the construction work area, construction activities will be suspended in accordance with APM BIO-4. Based on the results of preconstruction surveys conducted under APM BIO-2, the qualified biologist will coordinate with the PG&E biologist to determine whether to install exclusion fencing to keep GGS out of the construction area.
- In accordance with APM BIO-12, service and refueling procedures will be conducted in uplands at least 100 feet away from wetlands or waterways to minimize potential harm to aquatic species from water quality degradation.

APM BIO-10 Compensate for Permanent Loss of Giant Garter Snake Aquatic and Upland Habitat in Accordance with USFWS Permit. For any permanent loss of GGS aquatic and upland habitat that cannot be avoided, PG&E will preserve a compensatory amount of GGS habitat, including acquiring mitigation credits at a USFWS-approved conservation area that supports GGS. PG&E will provide off-site compensation for permanent impacts on GGS habitat at a minimum ratio of 1 acre preserved for each acre of impacts, or as otherwise required by the USFWS and CDFW during the permitting processes for the project.

APM BIO-11 Avoidance and Minimization of Impacts on Nesting Birds. If work is scheduled during the nesting season (February 15 through August 31), nest detection surveys will be conducted within a standard buffer for individual species in accordance with the species-specific buffers set forth in Appendix D of the PEA and will occur within 15 days prior to the start of work activities at designated construction areas, staging areas, and landing zones to determine nesting status by a qualified wildlife biologist. Nest surveys will be accomplished by ground surveys and/or by helicopter and will support phased construction, with surveys scheduled to be repeated if construction lapses in a work area for 15 days between March and July. Access for ground surveys will be subject to property access permission. Helicopter flight restrictions for nest detection surveys may be in effect for densely populated residential areas, and will include observance of appropriate established buffers and avoidance of hovering in the vicinity of active nest sites.

If active nests containing eggs or young are found, the biologist will establish a species-specific nest buffer, as defined in Appendix D of the PEA. Where feasible, standard buffers will apply, although the biologist may increase or decrease the standard buffers in accordance with the factors set forth in Appendix D. Nesting pair acclimation to disturbance in areas with regularly occurring human activities will be considered when establishing nest buffers. The established buffers will remain in effect until the young have fledged or the nest is no longer active as confirmed by the biologist. Active nests will be periodically monitored until the biologist has determined that the young have fledged or all construction is finished. Per the discretion of the biologist, vegetation removal by hand may be allowed within nest buffers or in areas of potential nesting activity. Inactive nests may be removed in accordance with PG&E's approved avian permits. The biologist will have authority to order the cessation of nearby project activities if nesting pairs exhibit signs of disturbance.

APM BIO-12 Implement General Protection Measures for Wetlands and Other Waters. PG&E will implement the following general measures, in addition to those outlined in Section 2.8.8, Best Management Practices, to minimize or avoid impacts on wetlands and other waters:

- Avoid wetlands and other waters as identified in APM BIO-3.
- Establish overland access routes to avoid wetlands and other waters to the extent feasible.
- Conduct all fueling of vehicles at least 100 feet from wetlands and other water bodies.
- Set staging areas back at least 50 feet from streams, creeks, or other water bodies.

Additionally, per APM HYDRO-1, PG&E will prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) to prevent construction-related erosion and sediments from entering nearby waterways.

APM BIO-13 Compensate for Permanent Impacts on Wetlands and Other Waters in Accordance with Project Permits. PG&E will compensate for permanent impacts on wetlands with at least a 2:1 ratio of acre restored or created to acre filled. Final compensation ratios will be based on site-specific information and determined through coordination with the U.S. Army Corps of Engineers and the Central Valley Regional Water Quality Control Board as part of the permitting processes for the project.

APM BIO-14 Restore Temporarily Impacted Wetlands and Other Waters. All wetlands and other waters that are temporarily disturbed as a result of project activities will be restored upon completion of construction.

5.4.4 Environmental Impacts and Mitigation

Potential impacts on biological resources resulting from the project are described below. Impacts were analyzed based on the proposed project construction and O&M activities as described in Chapter 4 and implementation of applicable APMs to avoid/reduce impacts on biological resources. Because the O&M activities associated with the proposed project will not change in terms of the nature, intensity, extent, or timing when compared to those activities currently implemented for the existing system, no impacts on biological resources will result from O&M activities associated with the proposed project.

The project would replace the existing conductor, modify approximately 25 existing lattice steel towers, and replace approximately 335 existing lattice steel towers and light-duty steel (LDS) poles along approximately 59.5 miles of PG&E's existing 115 kV power lines. Minor modifications would also be made to equipment and facilities at Palermo, Pease, Bogue, and Rio Oso substations to tie in the new conductor. The vast majority of impacts associated with the project will be temporary in nature and will involve temporary work areas, staging and storage areas, helicopter landing zones (HLZs), stringing sites, pull sites, erection sites for temporary guard structures, a temporary ROW, and access roads. Permanent impacts from the project will be limited to small areas that would be permanently impacted from project activities (e.g., placement of new towers and other permanent structures).

a) Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? Less than significant with mitigation.

Construction activities associated with project could result in permanent and/or temporary impacts to a number of special-status plant and wildlife species and their associated habitats, as described in Section 5.4.2, Environmental Setting. Specific impacts and any applicable mitigation measures are discussed in this section for species potentially impacted by the proposed project.

Special-Status Plants

As described above, all but one of the 13 potentially occurring special-status plant species are associated with wetland habitats and the majority are associated with vernal pools and seasonal wetlands. Approximately 890 acres of potential habitat for wetland and vernal pool-dependent plants occurs within 250 feet of the proposed work areas or access roads. Ahart's paronychia may be present in shallow margins of vernal pools but is more typically found in sparse grassland on shallow soils (PEA, PG&E 2016a). Impacts to special-status plant species could occur through ground-disturbing activities associated with installation of poles, vegetation clearing, grading, or construction of temporary access roads and staging areas. Furthermore, inadvertent introduction of non-native, invasive plants through construction activities can jeopardize populations of special-status plants through habitat modification, increased competition for resources and loss of community diversity. However, implementation of Applicant Proposed Measures APM BIO-1 through APM BIO-4, APM BIO-6, APM BIO-7 and APM BIO-12 will ensure impacts to wetland and vernal pool habitat, and potentially occurring special-status plants

species, are avoided and minimized. Additionally, with incorporation of the following Mitigation Measure (MM), potential permanent and temporary impacts to special-status plant species will be reduced to a **less-than-significant** level.

MM BIO-1 Prior to initiation of ground-disturbing activities, special-status plant surveys will be conducted by a qualified biologist familiar with the species' biology and habitat requirements in suitable habitat in the project area. The surveys shall be conducted in the appropriate bloom season prior to the commencement of construction, when plants are evident and identifiable. The surveys will be conducted in accordance with applicable California Native Plant Society (CNPS), California Department of Fish and Wildlife (CDFW), and U.S. Fish and Wildlife Service (USFWS) survey protocols.

If no special-status plant species are observed during preconstruction surveys, no further mitigation is necessary. If special-status plant species are observed, the population(s) shall be avoided to the maximum extent practicable and flagged during construction to ensure avoidance. If avoidance is not possible, appropriate relocation, seed collection and establishment, or other mitigation measures approved in coordination CDFW and/or USFWS, as appropriate, shall be implemented.

Special-Status Wildlife

Invertebrates

Vernal Pool Species. Approximately 15 acres of potential habitat for vernal pool fairy shrimp, vernal pool tadpole shrimp, and Conservancy fairy shrimp occurs within the biological survey area. Three occurrences of vernal pool tadpole shrimp and one occurrence of vernal pool fairy shrimp have been identified directly along the alignment of the South of Palermo Line (PG&E 2016a). Additionally, vernal pool tadpole shrimp were identified at eight locations during the branchiopod assessment and during protocol-level surveys conducted for the Palermo – East Nicolaus 115 kV Transmission Line Project (PG&E 2016a).

The project has been designed to avoid or minimize adverse impacts on vernal pools to the extent practicable. Furthermore, the majority of ground disturbing construction activities will be performed during the dry season which will minimize impacts on vernal pool habitat features. Helicopters will also be used, where feasible, to complete work

necessary in the wet season, which will further minimize ground disturbance. However, construction activities, such as staging, grading, and excavation, will result in unavoidable permanent and temporary impacts to suitable habitat for vernal pool fairy shrimp and vernal pool tadpole shrimp. The construction of new structures and poles would permanently impact 2.3 acres of suitable vernal pool habitat (PG&E 2016a). Construction activities in staging areas, pull sites, and temporary access roads would have temporary impacts on approximately 6.0 acres of suitable vernal pool species habitat. The project would indirectly affect 2.8 acres of suitable habitat within 250 feet of work areas and temporary access roads where work may be conducted during the wet season.

Temporary or permanent disturbance of vernal pools, seasonal wetlands, or other suitable vernal pool species habitat or the surrounding uplands, including removal, filling, or hydrological interruption would constitute a potentially significant impact on vernal pool invertebrate species.

Implementation of APM BIO-1, APM BIO-2, APM BIO-3, APM BIO-4, and APM BIO-6 will avoid and minimize impacts on vernal pool fairy shrimp species. Unavoidable temporary and permanent impacts on vernal pool species habitat will be addressed through the implementation of APM BIO-7 and MM BIO-2 below, which will provide for the acquisition of off-site compensatory mitigation. With the implementation of these APMs, seasonal restrictions, and MM BIO-2 below, impacts on special-status vernal pool species and their habitat will be less than significant.

MM BIO-2 This mitigation measure is an extension to Applicant Proposed Measure (APM) BIO-7. Where impacts from construction activities result in permanent loss of function or permanent change to vernal pool species habitat, Pacific Gas and Electric Company (PG&E) will provide off-site compensation. Impacts to vernal pool species habitat will be compensated at a minimum ratio of 1 acre preserved or created for each acre of disturbance. PG&E will provide this compensatory habitat at an off-site location, which may include acquiring mitigation credits at a U.S. Fish and Wildlife Service (USFWS)-approved conservation area that supports vernal pool fairy shrimp. This mitigation ratio may be refined as appropriate during the future federal Endangered Species Act (ESA) Section 7 or Section 10 consultation process conducted for the project.

Valley Elderberry Longhorn Beetle. The proposed project is not within critical habitat for VELB. However, there is the potential for a significant impact on VELB due to the permanent loss of elderberry shrubs in the project area with one or more stems 1 inch or

greater in diameter at ground level that may be utilized by the beetle. Elderberry shrubs were identified within the construction area and may be directly affected by construction-related activities (PG&E 2016a). Shrubs or clumps located within 20 feet of the proposed construction work area may be indirectly affected by the project. Indirect impacts could result in loss of suitable VELB habitat. Any project activity that will require significant trimming or removal of elderberry shrubs can directly affect VELB and its habitat. Removing riparian vegetation associated with elderberry shrubs may result in overall habitat degradation and indirect impacts on VELB habitat.

Potential impacts on VELB and its habitat will be addressed via PG&E's existing Programmatic Biological Opinion for VELB (June 11, 2014, 81420-2008-F-0194-R001-3). The loss of elderberry shrubs is not likely to substantially reduce the availability of suitable habitat in the overall project region. Implementation of APM BIO-1 through APM BIO-4, and APM BIO-8 will avoid and minimize impacts on VELB and VELB habitat, and APM BIO-8 will also compensate for any unavoidable impacts. Implementation of these APMs will ensure that impacts on VELB and its habitat will be less than significant.

Fish

There is potential for Central Valley spring-run chinook salmon, Sacramento splittail, and Central Valley steelhead to occur within Feather River, Yuba River, Bear River, Honcut Creek, and Wilson Creek (PG&E 2016a). Construction activities crossing perennial rivers and seasonal drainages will occur; however, no in-water work is proposed. Accordingly, the project will not result in any impacts on special-status fish habitat, including spawning, nursery, or rearing habitat. Indirect impacts could occur from trimming riparian trees, which provide in-stream cover, streamside shading to keep water temperatures cool, potential habitat for insects (i.e., a food source for foraging fish), and natural sources of nutrients.

Impacts on riparian vegetation will be avoided or minimized under APM BIO-1, APM BIO-2, and APM BIO-3. By avoiding in-water work and incorporating BMPs and APMs to protect water quality, the project will not affect Chinook salmon and steelhead critical habitat or habitat for Sacramento splittail. Accordingly, project activities will have a less-than-significant impact on special-status fish in the project area.

Reptiles and Amphibians

Giant Garter Snake. The project is located in a region that is known to support GGS. In particular, the power lines cross through rice fields and drainages that provide suitable aquatic habitat for this species. Upland habitats (e.g., banks of drainages and upland grasslands within 200 feet from drainages, including canals and agricultural ditches) provide suitable upland refuges and hibernacula (shelter for hibernation) for GGS. Construction activities (i.e., staging, grading, and excavation) have the potential to cause direct mortality to GGS and crush nests and eggs, reducing local population size, or lowering reproductive success of the species.

The project has been designed to avoid or minimize permanent impacts on GGS habitat to the extent feasible considering project engineering and construction safety requirements. Construction activities associated with the project could result in temporary and permanent loss of aquatic and upland habitats, potential loss of individuals, and disrupt movement during the breeding season would be considered a significant impact on the species. Approximately 0.145 acre of GGS habitat (0.05 acre aquatic, 0.095 acre upland) would be permanently impacted due to the installation of new structures and poles. A total of approximately 71 acres of GGS habitat (3.5 acres aquatic, 22.4 acres rice field, and 44.7 acres upland) would be temporarily impacted (one season) by construction activities within temporary work areas and access roads that need to be located in suitable aquatic and upland habitat for (PG&E 2016a).

Because the project could result in take of GGS, the applicant will complete a Section 7 consultation with USFWS as part of the permitting process with USACE, and will obtain a BO and corresponding incidental take statement prior to construction to cover any potential take of GGS. To avoid or minimize potential take and adverse impacts on GGS and its habitat, the applicant will implement the conditions of the future BO and APM BIO-1 through APM BIO-4, APM BIO-9, and APM BIO-10. Implementing APM BIO-12 may also provide additional benefits for GGS. These measures would minimize impacts on GGS and their habitat and ensure that impacts on GGS will be less than significant.

California Red-legged Frog, Western Spadefoot Toad, and Western Pond Turtle. Suitable upland refugial habitat and dispersal habitat, as well as aquatic breeding habitat for California red-legged frog and Western spadefoot toad occurs within the project footprint and adjacent areas (PG&E 2016a). In addition, suitable habitat for Western pond turtle occurs in the slow-water aquatic habitats and associated upland grassland habitats crossed by the project alignment. Western pond turtle has been observed in the Feather River, Yuba River, Dry Creek and Wyandotte drainages. Impacts from installation of poles and

construction of access roads in grassland, woodland, vernal pools, wetlands, and intermittent streams in the project area could result in temporary loss of breeding and upland habitat for these species. Implementation of APM BIO-1, APM BIO-2, APM BIO-3, APM BIO-4, APM BIO-6, and APM BIO-12 will avoid and minimize impacts on these species and will ensure that impacts will be less than significant.

Coast Horned Lizard. Coast horned lizard could occur within upland habitats in the construction area that support sandy, friable soils. Construction activities could result in direct loss of individuals and disruption of movement during the breeding season. Coast horned lizards could be injured or killed by project vehicles or construction equipment, and coast horned lizard habitat could be removed or damaged during project construction. Impacts on grassland and woodland habitat with sandy soils in the project area could result in temporary loss of habitat for coast horned lizard. Implementation of APM BIO-1 through APM BIO-5 will ensure that impacts on habitat for coast horned lizard is less than significant.

Birds

Special-status Nesting Birds, Nesting Raptors and Other Migratory Birds. Nesting and foraging habitat for raptors, shorebirds, waterfowl, and passerine species occurs throughout the project area in various habitats. Special-status bird species that are known from, or have potential to occur in the project area include: bald eagle, bank swallow, burrowing owl, cackling goose, California black rail, greater sandhill crane, least Bell's vireo, northern harrier, song sparrow, Swainson's hawk, tricolored blackbird, western yellow-billed cuckoo, and white-tailed kite.

Construction activities such as tree and shrub removal or trimming, clearing and grubbing activities, establishment of temporary work areas and access roads or modification to or removal of existing towers, and the use of helicopters within or adjacent to the project alignment, if conducted during the nesting season, could result in impacts to the nesting success of avian species. These activities have the potential to result in take of individuals, nest removal or destruction, modification of potential habitat and/or cause nesting birds to flush from their nests, possibly resulting in loss of eggs and fledglings due to abandonment or predation. Other impacts could result from the degradation of nesting and foraging habitat due to vegetation removal and proximity to increased levels of noise and human activity. Implementation of APM BIO-1 through APM BIO-4, and APM BIO-11, will minimize impacts on special-status, nesting and migratory bird species and will ensure that impacts on these species and their habitat will be less than significant.

Mammals

Bats. Three special-status bat species (Pallid bat, Townsend's big-eared bat, and Western mastiff bat) have the potential to roost or forage in the project area. Suitable roost sites are available along length of the project alignment in the form of bridges, overpasses and railroad crossings, however, the project is not expected to directly affect any of these potential roost sites. Potential disturbance to roosting bats may result from removal of day roosts or maternity roosts in tree cavities as a result of vegetation trimming and increased noise and vibrations associated with construction activities. Vegetation removal (e.g., trimming trees limbs and foliage) may potentially remove or disturb roosting habitat for pallid bat and western mastiff bat. Loss or disturbance of roosting habitat may result in impacts on bat species if the vegetation removal kills roosting bats or removes roosting habitat.

The potential noise and vibration disturbance associated with the project would be temporary and intermittent and is anticipated to be less than the existing level of disturbance at features that provide roosting habitat (e.g., highway overpasses, residential areas, etc.). Given the short duration of construction activity at any single work location and implementation of noise reduction measures, increased noise levels from construction activity in any single location would not significantly affect roosting bats. To reduce potential impacts on roosting habitat (from vegetation trimming activities) PG&E will implement APM BIO-1, APM BIO-2, APM BIO-3 and APM BIO-4 to ensure that roosting habitat would not be disturbed and thereby ensure that impacts on roosting bats will be less than significant.

Significance After Mitigation: This impact would be **less than significant with mitigation**.

b) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

Less-than-Significant Impact. The proposed project could result in temporary and/or permanent impacts to several sensitive natural communities including mixed riparian forest, Great Valley valley oak riparian forest, Great Valley cottonwood riparian forest, and northern hardpan vernal pool.

Riparian habitats and associated freshwater marsh habitat occur in the project area at the Feather River, Yuba River, Bear River, Honcut Creek, Wilson Creek, as well as various intermittent streams and agricultural canals. The project has been designed such that staging areas would be set back a minimum of 50 feet from streams, creeks or other water bodies to avoid impacts on riparian habitat. Although the project will span stream

crossings and riparian areas, and no riparian trees are anticipated to be removed during project construction, potential impacts to these habitats could result from vegetation trimming to facilitate construction access, site preparation work for tower modifications or upgrades, and/or clearing and grubbing activities associated with establishment of temporary work areas and staging areas. With the implementation of APM BIO-1, APM BIO-2, APM BIO-3, APM BIO-4, and APM BIO-5, the project will not have a substantial adverse impact on riparian habitat. Consequently, this impact is considered less than significant.

In addition to the riparian habitats described above, the proposed project has the potential to adversely affect northern hardpan vernal pool habitat that occurs within the survey area; however, with implementation of APM BIO-1 through APM BIO-3, APM BIO-6, APM BIO-7, APM BIO-12, APM BIO-13, and MM BIO-3, the project would avoid and minimize impacts on northern hardpan vernal pool habitat or replace this community in kind. Potential impacts to wetlands and associated mitigation measures are discussed further in the following section.

MM BIO-3 Where impacts from construction activities result in permanent loss of function or permanent change to northern hardpan vernal pool habitat Pacific Gas and Electric Company (PG&E) will provide off-site compensation. Impacts to northern hardpan vernal pool habitat will be compensated at a minimum ratio of 1 acre preserved or created for each acre impacted by the project. PG&E will provide this compensatory habitat at an off-site location, which may include acquiring mitigation credits at a U.S. Fish and Wildlife Service (USFWS-approved conservation area). This mitigation ratio may be refined as appropriate during the future federal Endangered Species Act (ESA) Section 7 or Section 10 consultation process conducted for the project.

Significance After Mitigation: This impact would be **less than significant with mitigation**.

c) Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Less-than-Significant Impact. Potentially jurisdictional waters of the United States (wetlands and non-wetland waters) are present in the project area and have been identified in the project's *Draft Aquatic Resources Delineation Report* (PG&E 2016b).

Due to the presence of jurisdictional wetlands and non-wetland waters within and adjacent to the project alignment, the project has been designed to avoid wetlands, including vernal pools, to the maximum extent practicable. The project will completely avoid impacts on non-wetland waters of the United States, but some impacts on vernal pools and other wetlands are unavoidable. The majority of the potential project impacts on wetlands will be temporary in nature and located in rice fields. Most of these impacts would occur during the dry season to further minimize impacts on wetland features. These impacts are described further below.

As proposed, the project has the potential to permanently impact up to 0.09 acre of wetlands. The extent of the permanent impacts is associated with new structure footing locations and will vary by site. Where practicable, new structure footings have been relocated to avoid wetland areas and the majority of work will be scheduled to occur in the dry season. In addition to permanent impacts on wetlands, project construction activities could result in temporary impacts to 29.1 acres of wetlands, of which, 26.5 acres are cultivated rice fields. Temporary impacts from construction activities during the wet season will be limited to approved landing zones, pull sites, and work areas. Construction activities would be short term, involve primarily surface disturbance and limited to defined work areas.

Implementation of APM BIO-1 through APM BIO-3, APM BIO-5, APM BIO-6 and APM BIO-12 through APM BIO-14 will avoid, minimize and compensate for project impacts on waters of the United States, including wetlands and ensure that impacts on vernal pools and wetlands will be less than significant.

Significance After Mitigation: No mitigation is required because this impact would be **less than significant**.

d) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Less-than-Significant Impact. Wildlife corridors in the project area primarily consist of rivers, creeks, and other drainages and their associated riparian communities. Some of these waterways support special-status fish (Central Valley steelhead and Central Valley spring-run Chinook salmon) and provide migratory corridors and nursery sites for these species. However, project construction activities will not involve any in-water construction and has been designed to maintain a 50-foot buffer from all waterways. In addition, implementation of a SWPPP pursuant to APM HYDRO-1, would prevent

construction related erosion and sediment from entering waterways. Consequently, the project will not have any impact on migratory corridors or nursery sites for native or migratory fish species.

The proposed project involves modifications and upgrades to existing powerlines and associated structures in an existing utility corridor, but will not result in the construction of any permanent features that would block or otherwise impede terrestrial wildlife movement. Common and special-status wildlife species may temporarily avoid areas along the project alignment during construction activities due to noise and disturbance, but these effects will be temporary and such species would be able to move around or through the project area once construction activities at a given site are complete. Furthermore, a large portion of the work will be performed by helicopter; thereby reducing potential on-the-ground disturbance to wildlife movement corridors, migration routes and nursery sites. Based on the above, and with implementation of APM BIO-1 through APM BIO-4 and APM HDRO-1, the proposed project will not substantially interfere with wildlife movement, use of established wildlife corridors, or nursery sites. Consequently, project impacts on movement corridors and nursery sites for native resident or migratory fish or wildlife species would be less-than significant.

Significance After Mitigation: No mitigation is required because this impact would be **less than significant**.

e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

No Impact. The project will not conflict with local ordinances relative to biological resources as specified in the Sutter, Yuba and Butte County General Plans, City of Marysville General Plan, or other existing or planned local ordinances. However, the provisions of these plans apply to development projects within county jurisdiction, and do not apply to this project, which is regulated by the CPUC and will not be subject to local land use regulations. Regardless, the project has been designed to avoid and/or minimize impacts to biological resources wherever possible, consistent with the intent of the general plans noted above, and does not include the removal of any oak trees. Accordingly, the project will not conflict with any local policies or ordinances protecting biological resources and there will be no impact.

Significance After Mitigation: No mitigation would be required because there would be **no impact.**

f) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No Impact. The project would not conflict with an adopted HCP, NCCP, or other conservation plan. Although there are two habitat conservation plans and natural community conservation plans proposed within the project area (Yuba-Sutter Regional Conservation Plan and Butte Regional Conservation Plan), these have not yet been adopted and are therefore not applicable to the project.

Significance After Mitigation: No mitigation would be required because there would be **no impact.**

5.4.5 References Cited

Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken, eds. 2012. *The Jepson Manual: Vascular Plants of California.* 2nd ed. Berkeley, California: University of California Press.

CDFG (California Department of Fish and Game). 2010. List of Vegetation Alliances and Associations. Sacramento, California: CDFG, Vegetation Classification and Mapping Program. September 2010.

CDFW (California Department of Fish and Wildlife). 2016a. California Natural Diversity Database, RareFind 5. Commercial Version 5.1.1. April 2016. Sacramento, California: CDFW.

CDFW. 2016b. "Special Animals List." California Natural Diversity Database. CDFW, Biogeographic Data Branch. April 2016. Accessed June 14, 2016. https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID= 109406&inline=1.

CDFW. 2016c. *Special Vascular Plants, Bryophytes, and Lichens List*. California Natural Diversity Database. April 2016. Accessed June 14, 2016. https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID= 109383&inline=1.

City of Marysville. 1985. *City of Marysville General Plan*. August 1985.

CNPS (California Native Plant Society). 2016. Inventory of Rare and Endangered Plants (online edition, v8-02). Sacramento, California: California Native Plant Society, Rare Plant Program. Accessed September 29, 2016. http://www.rareplants.cnps.org.

County of Butte. 2010. *Butte County General Plan 2030*. Adopted October 26, 2010. Amended November 6, 2012.

County of Sutter. 2011. *Sutter County 2030 General Plan*. Adopted March 29, 2011

County of Yuba. 2014. Yuba County General Plan. Marysville, California: Yuba County, Department of Planning and Building Services. Prepared by Quad Consultants. Updated May 2014.

eBird. 2012. eBird: An Online Database of Bird Distribution and Abundance [web application]. Ithaca, New York: eBird. Accessed March 3, 2016. http://www.ebird.org.

PG&E (Pacific Gas and Electric Company). 2016a. *Proponent's Environmental Assessment (PEA) for South of Palermo 115 kV Power Line Reinforcement Project*. Prepared for PG&E. Sacramento, California: ICF International. April 2016.

PG&E. 2016b. *Draft Aquatic Resources Delineation Report, South of Palermo 115 kV Power Line Reinforcement Project, Butte, Yuba, and Sutter Counties, California*. Prepared by ICF International, Sacramento, California. April 2016.

Sawyer, J. O. and T. Keeler-Wolf. and J. M. Evens. 2009. A Manual of California Vegetation, 2nd ed. Sacramento, California: California Native Plant Society.

TRLIA (Three Rivers Levee Improvement Authority). 2015. *Preliminary Delineation of Waters of the United States, Including Wetlands*. Western Pacific Interceptor Canal 200 Year Standard Project. Unpublished Report. Marysville, CA.

USDA (U.S. Department of Agriculture). 2016. "Official Soil Series Descriptions." USDA National Resources Conservation Service, Soil Survey Staff. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/home/?cid=nrcs142p2_053587.

USFWS (U.S. Fish and Wildlife Service). 2015. [DPS = distinct population segment, ESU = evolutionarily significant unit – PTO table 5.4-3]

INTENTIONALLY LEFT BLANK

5.5 Cultural Resources

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
CULTURAL RESOURCES – Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	☐	☒	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☐	☒	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☐	☒

5.5.1 Environmental Setting

5.5.1.1 Summary of Inventory Efforts

The records searches for the project were conducted at the Northeast Information Center of the California Historical Resources Information System on October 30, 2014, and November 11, 2014, and then again on August 21 and 31, 2015. A Native American Heritage Commission (NAHC) Sacred Lands File search was completed October 14, 2014, followed by letters sent to NAHC-listed Native American representatives requesting additional information. The Northeast Information Center records search and review of previous studies that included portions of the present South of Palermo 115 kV Power Line Reinforcement Project (proposed project) alignment identified 26 recorded cultural resources located within 0.25 miles of the project site, 13 of which were recorded in locations that intersected the project's area of potential effects (APE). Additional review of previous technical study reports identified an additional 3 cultural resources not on record with the Northeast Information Center.

Field inventory included documentation of 4 previously unidentified resources, 10 previously recorded resources, and 3 isolated finds. A total of 10 previously documented resources (including 3 not on file with the Northeast Information Center) were located; an additional 3 resources were not located at their recorded location within the APE and appear to have been either mismapped or destroyed. Seven transmission lines, five of which have at least some components older than 50 years, were documented within the APE. A summary of sites has been provided in Table 5.5-1 and a detailed description of each resource follows the table.

Table 5.5-1
Cultural Resources Identified within Area of Potential Effects

Site ID	Primary Number	Trinomial	Age	Site Type	Management/Significance
PL-Palermo-02H	—	—	Historic	Can scatter	In APE – not eligible for CRHR/NRHP listing
PL-Palermo-03H	—	—	Historic	Refuse scatter	In APE – not eligible for CRHR/NRHP listing
PL-Palermo-011H	—	—	Historic	Agricultural features	In APE – unevaluated – will be avoided Assumed eligible for CRHR/NRHP listing
Old Marysville Road	—	—	Historic	Historic road	In APE – unevaluated – will be avoided Assumed eligible for CRHR/NRHP listing
—	P-040-001694	CA-BUT-1694	Historic	Southern Pacific Railroad/ California Northern Railroad	Not present in APE
Brick Kiln Site	P-51-000081	CA-SUT-081H	Historic	Brick kiln	Not present in APE
Feather River Levee	P-51-000150	CA-SUT-150H	Historic	Feather River Levee	In APE – will be avoided Eligible for CRHR and NRHP listing
Palermo–East Nicolaus Transmission Line	P-51-000222	CA-SUT-222H	Historic	Transmission line	In APE – not eligible for CRHR/NRHP listing
Palermo–Rio Oso No. 2 Transmission Line	P-51-000223	CA-SUT-223H	Historic	Transmission line	In APE – not eligible for CRHR/NRHP listing
Rio Oso Substation	P-51-000224	—	Historic	Transmission line	In APE – not eligible for CRHR/NRHP listing
Southern Pacific Railroad Grade	P-58-001284	CA-YUB-1240H	Historic	Railroad grade	Not present in APE
Western Pacific Railroad Segment	P-58-001372	—	Historic	Railroad	In APE – will be avoided Eligible for CRHR and NRHP listing
—	P-58-001369	CA-YUB-1443H	Historic	Earthen levee	In APE – unevaluated – will be avoided Assumed eligible for CRHR/NRHP listing
Browns Valley Grade Levee	P-58-001618	CA-YUB-1441H	Historic	Earthen levee	In APE – not eligible for CRHR/NRHP listing
Nicolaus–ICF J&S-01-H	—	—	Historic	Historic ranch complex	In APE – not eligible for CRHR/NRHP listing

Table 5.5-1
Cultural Resources Identified within Area of Potential Effects

Site ID	Primary Number	Trinomial	Age	Site Type	Management/Significance
Palermo–ICF J&S-01-H	—	—	Historic	Irrigation complex	In APE – not eligible for CRHR/NRHP listing
Palermo Substation	—	—	Historic	Palermo Substation	In APE – not eligible for CRHR/NRHP listing
Isolate PL-Palermo-01H	—	—	Historic	Isolate – can scatter	In APE – not eligible for CRHR/NRHP listing
Isolate PL-Palermo-ISO-01	—	—	Undetermined	Isolate – battered manuport	In APE – not eligible for CRHR/NRHP listing
Isolate PL-Rio Oso-01	—	—	Prehistoric	Isolate – handstone	In APE – not eligible for CRHR/NRHP listing
Caribou–Palermo 115 kV Transmission Line	—	—	Historic	Transmission line	In APE – not eligible for CRHR/NRHP listing
Palermo–Pease 115 kV Transmission Line	—	—	Historic	Transmission line	In APE – not eligible for CRHR/NRHP listing
Pease–Rio Oso 115 kV Transmission Line	—	—	Historic	Transmission line	In APE – not eligible for CRHR/NRHP listing
Pease–Rio Oso 115 kV Transmission Line	—	—	Historic	Transmission line	In APE – not eligible for CRHR/NRHP listing
Bogue–Rio Oso 115 kV Transmission Line	—	—	Modern	Transmission line	In APE – not eligible for CRHR/NRHP listing
Rio Oso–Nicolaus 115 kV Transmission Line	—	—	Modern	Transmission line	In APE – not eligible for CRHR/NRHP listing
Rio Oso–West Sacramento 115 kV Transmission Line	—	—	Historic	Transmission line	In APE – not eligible for CRHR/NRHP listing

APE = area of potential effects; CRHR = California Register of Historical Resources; NRHP = National Register of Historic Places; kV = kilovolt.

PL-Palermo-02H

This historic-age site, measuring approximately 30 by 30 feet in area, is composed of a refuse scatter consisting of seven cans dating between 1935 and circa (approximately) the 1960s, ceramic insulator fragments, two wooden posts with wire nails, and modern trash. PL-Palermo-02H is located in an open transmission line corridor with a dirt access road. The site is not

considered eligible for California Register of Historical Resources (CRHR) or National Register of Historic Places (NRHP) listing and has been documented to appropriate standards (Pacific Legacy 2015).

PL-Palermo-03H

PL-Palermo-03H is a historic-age and modern refuse scatter, measuring 87 by 37 feet in area, which contains milled lumber, bricks, concrete fragments, amber beer bottle threaded-finish fragments, asphalt shingle fragments, plastic bottles, four mid-1960s aluminum pull-tab beer cans, and at least four bi-metal cans dating from the 1950s to 1984 (Pacific Legacy 2016). The debris scatter is on the South of Palermo Line segment in an open transmission line corridor in a largely agricultural setting with some residences. Site condition is fair, with impacts from access road and transmission line corridor maintenance and deposition of modern trash. The site is not considered eligible for CRHR/NRHP listing and has been documented to appropriate standards (Pacific Legacy 2015).

PL-Palermo-011H

This historic-age agricultural complex consists of three concrete features distributed within a 300- by 295-foot area. Review of historical aerial imagery suggests that the features were present in the late 1940s. Feature 1 is a low, rectangular concrete structural footing with a parallel row of postholes on the west side and a row of concrete block piers on the east. Feature 2 is a rectangular, board-molded concrete trough. Feature 3 is a large concrete pad on which Features 1 and 2 were built. The site is surrounded by a low earthen levee that separates it from adjacent rice fields, and there is a barbed-wire fence and gate on the north side. The site is situated within a proposed Pacific Gas and Electric Company (PG&E) work area on the South of Palermo Line. The site condition is fair, with impacts from vegetation growth, vehicular traffic, storage of farm machinery, pedestrian traffic, and alluvial erosion. The site remains unevaluated for CRHR/NRHP listing, and will be avoided by project impacts (Pacific Legacy 2015).

Old Marysville Road

The Old Marysville Road is a north–south-oriented historic-period road approximately 1.1 miles in length, consisting of two segments. One road segment is north of Plumas Arboga Road, and the other is south of Plumas Arboga Road. The Old Marysville Road is parallel to the Pease–Rio Oso Transmission Line south of Arboga Road (South of Palermo Line). The road varies from 9 to 22 feet in width, and includes both improved gravel and two-track dirt sections. The road remains unevaluated for CRHR/NRHP listing, and will be avoided by project impacts (Pacific Legacy 2015).

P-040-001694/CA-BUT-1694 (Southern Pacific Railroad/California Northern Railroad)

This historic-age railroad grade segment was first recorded by Williams, Medin, and Silva in 2000 (Pacific Legacy 2015). It is composed of a remnant section of the abandoned Southern Pacific Railroad line that connected Marysville and Oroville. The site includes four recorded segments of the overall railroad grade and two associated features: a small wooden trestle and a wood box culvert. This line has been abandoned and the rails, ties, and other structural equipment have been removed. The only remaining cultural constituents are scattered railroad spikes. Segment integrity is variable, with some segments obliterated by later activities. The recorded segment of railroad that ran through the APE is no longer present and appears to have been destroyed (Pacific Legacy 2015).

P-51-000081/CA-SUT-081H (Brick Kiln Site)

The historic-age brick kiln site was first recorded by Berg in 1994 and updated by Roark and Fransen in 2008 to a location within and adjacent to a South of Palermo Line access road (Pacific Legacy 2015). The site consists of the remains of the Rio Oso Brick Company kiln, which operated in 1922. The recorded remains included a light scatter of waste (highly vitrified and deformed) brick fragments that extend into the edge of a cattle pasture near the Western Pacific Railroad Grade (Pacific Legacy 2015). The site was not relocated in 2008 during a pedestrian survey of the area conducted by ICF archaeologists. This area was again visited for the present study, also with negative findings. P-51-000081 is not present within the project APE (Pacific Legacy 2015).

P-51-000150/CA-SUT-150H (Feather River Levee)

This segment of the historic-period Feather River Levee was first recorded by Beason and Freeman in 2007 and re-recorded by Kim and Haley in 2013 (Pacific Legacy 2015). The APE crosses the resource at Palermo–Pease/Pease–Rio Oso Transmission Line near an existing structure north of Odie Way (Pease Sub-Line Segment). It measures 41 miles in length, ranges 20 to 30 feet in height, and averages 60 to 65 feet in width. It passes through agricultural fields as well as the City of Yuba City, where it serves as a divide and barricade between the adjacent river and urbanized area (Pacific Legacy 2015). The construction of the Feather River Levee dates between 1868 and 1910, and the levee was the first river management and flood control mechanism in the region that protected the growing populations from flooding.

This resource has been recommended to be eligible for inclusion in the NRHP under Criterion A and in the CRHR under Criterion 1 for its association with advances in flood control in Northern California. This historical resource will be avoided by the project (Pacific Legacy 2015).

P-51-000222/CA-SUT-222H (Palermo–East Nicolaus Transmission Line)

Bowen and Yates first recorded the historic-period Palermo–East Nicolaus Transmission Line, built in 1908 by the Great Western Power Company, in 2008 (Pacific Legacy 2015). This resource is a double-circuit transmission line supported by steel lattice towers that extends approximately 38 miles on a predominantly north–south alignment between PG&E's Palermo and East Nicolaus Substations. The tower alignment of this line parallels the single-circuit line from Palermo south to Trowbridge. Most of this resource falls within the APE as it parallels, to the east, the segments of the Palermo–Pease and Pease–Rio Oso Transmission Lines that are part of the South of Palermo Line.

The length of the resource was reexamined from October 27 to November 14, 2014, and the historic condition of the resource was found to be poor (Pacific Legacy 2015). Bowen and Yates suggest that the Palermo–East Nicolaus Transmission Line does not appear to be a historic property for the purposes of Section 106 or a historical resource for the purposes of the California Environmental Quality Act (CEQA). The California State Historic Preservation Officer (SHPO) concurred with this determination in a letter dated April 4, 2011. Although this site intersects the project APE, it is not considered eligible for CRHR/NRHP listing (Pacific Legacy 2015).

P-51-000223/CA-SUT-223H (Palermo–Rio Oso No. 2 Transmission Line)

This resource was first recorded in 2008 as the Palermo–Rio Oso No. 2 Transmission Line, built in 1919 by the Great Western Power Company (Pacific Legacy 2015). It is a single-circuit 115-kilovolt (kV) transmission line supported by steel lattice towers that extends 38 miles on a predominantly north–south alignment. It was built on the towers of the historic Caribou–Golden Gate Transmission Line (circa 1921). This resource comprises the segments of the Palermo–Pease and Pease–Rio Oso Transmission Lines that are part of the South of Palermo Line and is entirely within the APE.

The length of the resource was reexamined from October 27 to November 14, 2014, and the historic condition of the resource was found to be poor, unchanged from the condition reported by Bowen and Yates (Pacific Legacy 2015). Bowen and Yates determined that P-51-000223/CA-SUT-223H does not appear to be a historic property for the purposes of Section 106 or a historical resource for the purposes of CEQA. The California SHPO concurred with this determination in a letter dated April 4, 2011. Although this site intersects the project APE, it is not considered eligible for CRHR/NRHP listing (Pacific Legacy 2015).

P-51-000224 (Rio Oso Substation)

PG&E constructed the historic-period Rio Oso Substation in 1952. This resource is within the project APE and marks the southeastern extent of the project and the eastern extent of the Rio Oso Sub-Line Segment Loop. PAR Environmental Services Inc. first recorded it in 2008. This resource was reexamined on November 13, 2014, and the historic condition of the resource was found to be unchanged from that reported by PAR Environmental Services (Pacific Legacy 2015). The substation is surrounded by switchyard structures, including a control building, a shop, and a storage building. At the time of recordation, the structures appeared to retain good integrity and were in operation providing electric power for PG&E. The control building, PG&E Building No. 5937, is 49 feet, 6 inches long by 36 feet, 2 inches wide. It is constructed of reinforced concrete blocks with support pilasters on the interior side of each wall. The main entrance is on the south facade and originally consisted of a set of metal doors that opened to a concrete stoop accessed by two concrete risers with pipe rail handrails. The doors have since been removed and the door jamb modified to accommodate a single hollow-metal door. A single metal door is centrally placed on the rear (north) wall and accessed by a narrow stoop with two concrete risers. Fenestration includes symmetrically placed windows on each elevation. The east elevation has two windows on either side of the entry. There are identically placed windows on the north and south elevations, as well as two on the west elevation. All windows are two-over-four metal sash windows.

In its 2014 evaluation of Rio Oso Substation, PAR Environmental Services described Rio Oso Substation as a utilitarian structure that lacks architectural detail. Located outside of a town, it was not intended for public view. Accordingly, it is a common structure that lacks historical significance. It did not play an important role in local history, as it did not indicate the beginning of electric service to the community, and its construction was not noted in local historical accounts or contemporary newspapers. It is not associated with any person significant in state or local history, nor does it represent the work of a master or a unique type of construction. It lacks integrity of its original materials, most notably original equipment, and its setting and feeling have been altered by the replacement of original switchyard structures. Consequently, Rio Oso Substation does not appear to be eligible for listing in the NRHP or the CRHR. Although this resource does intersect the project APE, it is not considered a historical resource for the purposes of CEQA review and is not eligible for CRHR/NRHP listing (Pacific Legacy 2015).

P-58-001284/CA-YUB-1240H (Southern Pacific Railroad Grade)

The Southern Pacific Railroad Grade is a historic-age railroad line segment that was first recorded by Williams, Medin, and Silva in 2000 and updated by Berg and Nolte in 2008 (Pacific Legacy 2015). The resource is a remnant of a line that connected Oroville to

Marysville. The line was completed in 1864 as part of the California Northern Railroad. By 1867, this company was absorbed by the Marysville Railroad Company and 2 years later by Yuba Railroad. In 1870, the railroad system was acquired by Central Pacific Railroad, which later became Southern Pacific Railroad.

This line has been abandoned for many years and the rails, ties, and other structural equipment have been removed. The only artifacts present are widely scattered railroad spikes. Segment integrity is variable, with some segments obliterated by later activities. The integrity of the recorded segment was described as "fair to poor" (Pacific Legacy 2015). P-58-001284 was determined ineligible for listing in the NRHP by a consensus determination through a previous Section 106 consultation in 2011. The raised railroad grade segment to the north of where the APE crosses the grade alignment was visually identified in 2014. The recorded segment for railroad that ran through the APE is no longer present and appears to have been destroyed (Pacific Legacy 2015).

P-58-001372 (Western Pacific Railroad Segment)

The Western Pacific Railroad is a historic-period railroad that was first recorded by Atchley and Fryman in 2000, and updated by Ashkar and Fish in 2004 and Deis in 2007 (Pacific Legacy 2015). It was constructed from 1903 to 1909 from Oakland, California, to Salt Lake City, Utah. The Union Pacific Railroad Company acquired the Western Pacific Railroad in 1980 and improved the rail track so that larger locomotives and heavier freight cars could travel at higher speeds.

The recorded segment of the Western Pacific Railroad retains its integrity of location, setting, essential design, workmanship, material, and feeling and association. Materials including rails, tie plates, and ties have been replaced in kind since the original construction as standard maintenance operations. The present rails date between 1950 and 1982. The railroad embankment is covered with large quarried crushed slate, over a bed of smaller crushed aggregate. In association is a deteriorated "ice house" or roofed landing/platform that appears to date to the 1950s.

A 1,226-foot segment south of the originally recorded railroad segment was added during a 2014 pedestrian survey. It is in the same alignment, but there is an unrecorded gap of approximately 0.5 miles between the segments of this currently active railroad. The new segment recorded on November 12, 2014, was found to be in good condition. This resource is within the APE along the western portions of existing structures of the Pease–Rio Oso Transmission Line (South of Palermo Line).

Jones & Stokes in 2001 recommended the Western Pacific Railroad to be eligible for listing in the NRHP (Pacific Legacy 2015). The SHPO concurred with the recommendation on June 20, 2001 (Pacific Legacy 2015). As an NRHP-eligible property, P-58-001372 is also considered a historical resource for the purposes of CEQA. The railroad is considered significant under Criterion A/1 because of its association with California's industrial transportation expansion and the central role it played in the economic development of the Central Valley (Pacific Legacy 2015). The SHPO again concurred with this determination (using Criterion D) in a letter dated April 4, 2011, for the Palermo–East Nicolaus 115 kV Transmission Line Project.

P-58-001369/CA-YUB-1443H (Levee)

P-58-001369/CA-YUB-1443H is part of an earthen levee system identified on topographic quadrangle maps only as "private levee." Other segments of this levee system were previously recorded as P-58-001369 (CA-YUB-1443H) (Pacific Legacy 2015). Based on historical U.S. Geological Survey quadrangles, the levee segment was likely constructed between 1910 and 1949 (Pacific Legacy 2015). This levee segment is part of a proposed PG&E access road for a portion of the Palermo–Pease Transmission Line (South Palermo Line).

The levee is situated within the Honcut Creek/Feather River floodplain. The newly recorded segment is located south of Honcut Creek between State Route 70 (SR-70) to the west and the raised Union Pacific Railroad Grade to the east. The levee is constructed of dirt, gravel, sand, and clay. The levee segment measures 4,175 feet long by 58 feet wide (base) by 6–10 feet tall. The crown of the levee is 10 feet wide and supports a graveled two-track road. At the eastern end of the segment is a ramped intersection with two ranch roads to the north and south. A ditch 20 feet to the south may be associated with the levee and/or the orchard. The ditch measures approximately 16 feet wide by 4 feet deep.

The site's historic condition is fair. The levee has been affected by the addition of the ranch roads, construction of SR-70, and levee maintenance. This resource has not been evaluated for inclusion in either the NRHP or the CRHR.

P-58-001618/CA-YUB-1441H (Browns Valley Grade Levee)

Kraft and White in 2002 recorded a 4.2-mile stretch of the Browns Valley Grade Levee, from the intersection with the Marysville City Levee on the west to Hallwood Boulevard on the east (Pacific Legacy 2015). A portion of this resource is within the APE, centering on an existing structure south of Levee Road of the Pease–Rio Oso Transmission Line (South of Palermo Line). The levee is constructed of dirt, gravel, sand, and clay. The crown of the levee is paved for 0.5 miles to the entrance of a dump. The levee crown past the dump is graveled until it reaches

Walnut Avenue. North of Walnut Avenue to Hollywood Boulevard the levee appears unmaintained. The crown is not graveled and there are very tall grasses growing along the crown and side slopes. A variety of trees grow along the side slopes as well. Mike Smith, a Consulting Engineer for the Marysville Levee and Reclamation District 784, has said that the unmaintained section is left in place as an emergency route for the residents of Marysville (Pacific Legacy 2015). Along its length, the levee varies in height from 15 to 20 feet and widths at the toe vary from 43 to 85 feet.

The levee was first constructed in 1868 by landowners around the community of Marysville. It was reconstructed several times after high water breached the levee in 1876, 1878, 1879, 1880, 1884, 1907, and 1940. Early reconstruction included mending breaks, raising the levee height, and constructing sawbuck spurs. More recent reconstruction included raising the levee height (Pacific Legacy 2015).

A segment of the resource was reexamined on November 5, 2014, and the historic condition of the resource was found to be fair, exhibiting the kind of maintenance and changes described by Kraft and White in 2002 (Pacific Legacy 2015). Kraft and White recommended that P-58-001618 be deemed ineligible for listing on the NRHP because it lacked historical significance "outside the context of the pattern of a levees [sic] role in flood control for Yuba County" (Pacific Legacy 2015). In addition, Kraft and White noted that numerous repairs, widening, and levee-raising have compromised the integrity of the levee, particularly with regard to materials and workmanship (Pacific Legacy 2015). P-58-001618 was determined ineligible for listing in the NRHP by a consensus determination through a previous Section 106 consultation (Pacific Legacy 2015). SHPO again concurred with the determination that the site is not eligible for inclusion in the NRHP or CRHR in a letter dated April 4, 2011, for the Palermo–East Nicolaus 115k kV Transmission Line Project. This historical resource will be avoided by the project (Pacific Legacy 2015).

Nicolaus-ICF J&S-01-H (Historic Ranch Complex)

This site consists of the remains of a historic-period ranch that was first recorded by Roark et al. in 2006 (Pacific Legacy 2015). The site measures 840 feet (north to south) by 240 feet (east to west). It consists of five features: concrete pump house remnants (Feature A); a concrete-lined well and concrete box, with the latter not in situ (Feature B); a corral and concrete slab (Feature C); an earthen dam and road over Ping Slough (Feature D); and a dirt road (Feature E). Non-feature constituents consist of discarded tires (some associated with Features A and B), three discarded concrete culvert pipes, and a trailer frame. The complex is located south of Kempton Road along the Pease–Rio Oso Transmission Line (South of Palermo Line), and between the Ping Slough and the Western Pacific Railroad (P-58-001372) and the earthen dam to the south.

The site was reexamined on November 25, 2014, and measurements were taken to complete the record. Overall, much of the site and features are consistent with the original recording, with the exception of condition, as all wooden features and posts are burned or charred from recent fires. This change of condition was recorded in the updated feature descriptions. A concrete water gate box with a monitoring well was also observed approximately 60 feet south of the dam along the eastern edge of the slough and outside of the site and project boundary.

Roark et al. in 2006 located the resource in an area called Nicolaus Township in the middle to late-nineteenth century (Pacific Legacy 2015). The earliest recorded use of the site vicinity dates to between 1850 and 1860. An 1860 survey plat depicts "Smith's House" at an approximate location that could fall within the APE at the location of Nicolaus-ICF J&S-01-H. "Smith" is identifiable as W.H. Smith on later historic maps and in a local Sutter County history (Pacific Legacy 2015).

The Nicolaus-ICF J&S-01-H site is the remnant of a historic-period ranch of indeterminate age. No temporally diagnostic construction methods or materials are evident at the site, and historic maps do not depict structures at the location of the ranch site, thwarting efforts to place the resource in time. SHPO concurred with the determination that the site is not eligible for the NRHP or CRHR in a letter dated April 4, 2011, for the Palermo–East Nicolaus 115 kV Transmission Line Project (Pacific Legacy 2015). This site, although it intersects the project APE, is not eligible for CRHR or NRHP listing.

Palermo-ICF J&S-01-H (Historic Period Irrigation Complex)

Palermo-ICF J&S-01-H was recorded in 2008 as a historic-period minor irrigation or drainage system (Pacific Legacy 2015). The resource was reexamined on November 28, 2014, and the historic condition of the resource was found to be relatively unchanged from that reported by Roark and Fransen in 2008 (Pacific Legacy 2015). The resource is within the APE of the Palermo–Pease Transmission Line (South of Palermo Line). The resource consists of one main concrete-lined, north–south-oriented irrigation/drainage ditch approximately 3,000 feet long, along with two lateral ditches. One lateral extends west from the main ditch (just south of and parallel to East Palermo Street) and the other trends northeast–southwest from the northern terminus of the main ditch.

The main ditch is approximately 3,000 feet long and terminates at South Villa Avenue and follows the transmission line from an area north of an existing structure north of North Villa Road to an area south of an existing structure south of Palermo Road. Beyond an existing structure near South Villa Road (the last 450 feet), the ditch is demolished and concrete ditch lining fragments are scattered throughout the area, mainly along the alignment of the intact ditch

to the north. At least two sections of the main ditch were repaired with modern concrete. Graffiti observed scratched into one section of new concrete was dated 2008, and these repairs may be also be associated with the construction of the newer transmission line, evidenced by one section that juts away from the original alignment to circumvent a new transmission tower near North Villa Avenue. Debris in the area includes a nearly continuous scatter of recent, temporally non-diagnostic glass along portions of the main ditch. Solitary fragments of amethyst, cobalt blue, and milk glass were also observed, along with a bottle base with a Glass Containers Inc. maker's mark that dates to after 1967 (Pacific Legacy 2015).

The two ditches are irrigation features associated with the Palermo Colony, which was incorporated on January 7, 1888 (Pacific Legacy 2015). Roark and Fransen in 2008 evaluated the site under the NRHP and CRHR significance criteria, with a period of significance from January 7, 1888, to 1900 (the effective start and end dates for the Palermo Colony) (Pacific Legacy 2015). The first portion of the Palermo Colony to be subdivided and developed was a 235-acre tract of land east of and partially abutting the Southern Pacific Railroad. A network of ditches had been built to irrigate this land by April 1888. Palermo-ICF J&S-01-H is clearly part of this network of ditches.

The extant ditches that constitute Palermo-ICF J&S-01-H, however, are concrete structures built over the original earthen ditches after 1900, and they do not date to the Palermo Colony's period of significance. Palermo-ICF J&S-01-H lacks integrity of materials, design, and workmanship because the earthen ditches have been replaced with concrete ones. Furthermore, the lack of citrus orchards in the vicinity of the ditches compromises the resource's integrity of setting, association, and feeling. The ditches retain their original location. Retaining only one of seven aspects of integrity, Palermo-ICF J&S-01-H does not convey the significance of the Palermo Colony. Roark and Fransen in 2008 recommended that this resource should not constitute a historic property under Section 106 or a historical resource for the purposes of CEQA (Pacific Legacy 2015). SHPO concurred with the determination that the site is not eligible for inclusion in the NRHP or CRHR in a letter dated April 4, 2011, for the Palermo–East Nicolaus 115 kV Transmission Line Project. This site, although it intersects the project APE, is not eligible for CRHR or NRHP listing.

Palermo Substation

PG&E'S historic-period Palermo Substation, constructed circa 1960, is located in a rural area of the Sierra Nevada foothills northwest of Palermo in Butte County. Transmission towers and lines lead into the substation from multiple directions. Transformers, busing, and other equipment rest on concrete footings in the predominantly gravel-covered yard of the substation grounds. Such equipment is situated mainly to the east and west of the main substation building.

The substation building is a rectangular, dark green, single-story structure of concrete masonry unit construction. Its roof is flat, with an approximately 6-inch eave. The building's west elevation has three windows. The building's south facade has two aluminum slide windows and one metal personnel door. This is the original substation building and is still in use; however, the electrical equipment has likely been subject to continuous maintenance, upgrades, and replacement since the early 1960s.

This resource was reexamined on November 5, 2014, and the historic condition of the resource was found to be unchanged from that reported by Bowen and Yates in 2008 (Pacific Legacy 2015). The substation was also recorded in 2006 by Roark, Fransen, and Syda (Pacific Legacy 2015). This resource is within the APE and marks the northeastern end of the project area and the northeastern end of the Palermo Sub-Line Segment.

Bowen and Yates in 2008 stated that the Palermo Substation, including both its building and continuously modified electrical equipment, does not appear to be a significant historical resource (Pacific Legacy 2015). PG&E's Palermo Substation is not associated with events that have made a significant contribution to the history of the local area, region, state, or nation (Criterion A/1). The property does not appear to be associated with a person who made significant contributions to local, state, or national history (Criterion B/2). The substation buildings and electrical equipment do not embody characteristics of a type, period, region, or method of construction. They are not the works of a master, nor do they possess high engineering value (Criterion C/3). Although buildings can provide information about historical methods of construction (Criterion D/4), Palermo Substation does not stand to yield important historical information and therefore does not stand to serve as a primary source in this regard (Pacific Legacy 2015). SHPO concurred with the determination that the site is not eligible for inclusion in the NRHP or CRHR in a letter dated April 4, 2011, for the Palermo–East Nicolaus 115 kV Transmission Line Project. This site, although it intersects the project APE, is not eligible for CRHR or NRHP listing.

Isolate PL-Palermo-01H

Isolate PL-Palermo-01H is a historic-period debris scatter consisting solely of three cans: a cone-top beer can (1935 to circa 1960), a sanitary can (1904 to modern period), and one coffee can fragment modified with holes to form a sieve. The can cluster is located in an area of very sparse historic-to-modern period debris sheet that is dispersed across a 100-foot radius south of Upper Palermo Road along the Palermo Sub-Line Segment. The three cans are the only cluster of artifacts. The other observed objects lack the density or the integrity to be recorded as a site. They also lack enough proximity to the isolate to be included in PL-Palermo-01H. Artifacts dispersed throughout the area include bottle bases (one stamped with the Glass Containers

Corp. maker's mark dated 1945 to 1967), one piece of solarized amethyst glass shard (late 1870s to circa 1930), a metal barrel hoop, and one piece of non-diagnostic ceramic whiteware (Pacific Legacy 2015). Although it intersects the project APE, this isolate is not considered eligible for CRHR or NRHP listing, and all scientific information has been documented through the process of recordation.

Isolate PL-Palermo-ISO-01

Isolate PL-Palermo-ISO-01 is a single tan/yellow granitic battered cobble. It measures 4.3 by 3.5 by 1.6 inches. It is battered on one side. It does not show signs of reshaping and appears to be a river-worn cobble used opportunistically. It is possible that the battering occurred naturally; however, no other cobbles were noted in the surrounding area. The cobble is situated in the corner of a cleared agricultural field on a slight rise near a drainage within the Wyandotte Creek floodplain. The rise is likely natural but has been shaped and improved during construction of a structure of the Palermo–Pease Transmission Line (South of Palermo Line). Although it intersects the project APE, this isolate is not eligible for CRHR or NRHP listing, and all scientific information has been documented through the process of recordation.

Isolate PL-Rio Oso-01

Isolate PL-Rio Oso-01 is a single tan/yellow granitic groundstone mano, most likely prehistoric, with large (0.4 inches in diameter), well-rounded brown inclusions. It measures 4.5 by 3.1 by 2.2 inches, and has one side that is flat, smooth, and polished, showing evidence of use. The polished side appears pecked and shaped along its margins. One end appears battered and has a small chunk of material missing. It is located in an open agricultural field near an existing structure of the Bogue–Rio Oso/East Nicolaus–Rio Oso Line (Rio Oso Sub-Line Segment loop) and has likely been displaced, as no other materials or darkened soils are present. Although it intersects the project APE, this isolate is not eligible for CRHR or NRHP listing, and all scientific information has been documented through the process of recordation.

5.5.1.2 Results of Historical Resources Inventory and Evaluation

Caribou–Palermo 115 kV Transmission Line

The Caribou–Palermo 115 kV Transmission Line consists of an approximately 56-mile span between the PG&E Caribou Powerhouse in Plumas County, California, and the PG&E Palermo Substation in Butte County, California. The Caribou–Palermo 115 kV Transmission Line follows the same alignment and has subsumed the original single-circuit towers associated with the Caribou–Valona Line built in 1921, with a few modifications.

The Caribou–Palermo 115 kV Transmission Line does not qualify as a historical resource under Criterion A/1 because its only historical associations are with the original Caribou–Valona (later Caribou–Golden Gate) 165 kV Transmission Line, which lacks both significance and integrity as a cohesive representative of early twentieth century transmission development. Although the line, in its original configuration, was the first to run at 165 kV (15 kV higher than previously established lines), it held this record for only 6 months before being surpassed by common application of 220 kV. Increases in voltage were rapid during the period, with tests as early as 1913 indicating that voltages higher than 200 kV were imminently achievable. Consequently, the 165 kV development is largely representative of the continuing and incremental march toward high-voltage transmission rather than a technological or operational superlative in its own right. SHPO concurred with this conclusion during evaluation of other segments of the same historic alignment for the Palermo–East Nicolaus 115 kV Transmission Line Project (see discussion of Palermo–Pease and Pease–Rio Oso Transmission Lines in this section) (PG&E 2016). The Caribou system no longer services the area for which it was designed, nor does it operate at the initially established voltage, thereby severing important historic period associations related to long-distance Bay Area transmission.

The line is also not eligible under Criterion B/2 because it is not associated with the lives of persons significant in our past. Although the theories underlying the development of the 165 kV alignment were influenced and enabled by applied research undertaken and disseminated by noted pioneering electrical engineer Harris J. Ryan of Stanford University, Ryan did not play a direct role in the project, and the line is not representative of the most significant or noted aspects of his career. It is not eligible under Criterion C/3 because it does not have distinct characteristics, was not designed by a master, and does not possess high or artistic value. Although the original towers were designed to accommodate the rugged terrain and variable weather conditions of the Sierra Nevada as well as adapt to the needs of the valley landscape, all towers were largely standardized in design, addressing the environmental constraints using established engineering models and methods. Finally, the line does not provide information important to our understanding of the past under Criterion D/4. No additional information was uncovered that indicates that the conversion of the Caribou–Palermo segment to 115 kV in the 1960s or subsequent modifications are historically significant under any CRHR criteria. This transmission line, although it intersects the project APE, is not considered eligible for CRHR or NRHP listing (Pacific Legacy 2016).

Palermo–Pease 115 kV Transmission Line

The Palermo–Pease 115kV Transmission Line consists of an approximately 26.5-mile span between Palermo Substation in Butte County and Pease Substation in Yuba City. The Palermo–Pease Transmission 115 kV Line is composed of three segments: 145 single-circuit

towers associated with the Caribou–Valona Line built in 1921; the double-circuit spur connecting to Palermo Substation built in 1960; and the double-circuit spur connecting to Pease Substation built in 1960.

As described above, the historic era Caribou–Valona Transmission Line as a whole or in part does not appear to qualify as a historic property or historical resource; therefore, the portion of the Palermo–Pease 115 kV Transmission Line that includes the historic alignment also does not qualify for the reasons listed previously. In addition, the historic portion of the line was found not eligible for inclusion in the NRHP or CRHR under the name Palermo–Rio Oso No. 2 in 2011 as part of a Section 106 concurrence process.

The 1960s segments, while more than 50 years old, do not represent innovation in electrical engineering technology, having been built to carry electricity at 115 kV when utility providers were already building higher-voltage lines and systems achieving upwards of 500 kV. These line segments were not the cause of growth, new development, or industrialization of the communities in the vicinity of the line, nor were they important examples of engineering and design, and therefore are not eligible under Criterion A/1 or C/3. The 1960s segments are also not eligible under Criterion B/2 because they are not associated with important persons in local, regional, state or national history. Further study of the line would also not yield additional information that could be considered important in local, regional, state, or national history, so the line is not eligible under Criterion D/4. This transmission line, although it intersects the project APE, is not considered eligible for CRHR or NRHP listing (Pacific Legacy 2016).

Pease–Rio Oso 115 kV Transmission Line

The Pease–Rio Oso 115 kV Transmission Line consists of an approximately 27.4-mile span between Pease Substation in Yuba City and Rio Oso Substation in Yuba County. The Pease–Rio Oso 115 kV Transmission Line contains 141 structures within the original Caribou–Valona alignment that date to the original construction in 1921, with a few modifications. The segments of the line that extend outside the historic alignment to the Pease and Rio Oso Substations were installed in 1960 and 1957, respectively.

As described previously, the Caribou–Valona Transmission Line does not appear to qualify as a historic property or historical resource; therefore, the portion of the Pease–Rio Oso 115 kV Transmission Line that includes the historic alignment also does not qualify for the reasons listed previously. In addition, the historic portion of the line was found not eligible for inclusion in the NRHP or CRHR under the name Palermo–Rio Oso No. 2 Transmission Line in 2011 as part of a Section 106 concurrence process.

The 1957 and 1960 segments, although more than 50 years old, do not represent innovation in electrical engineering technology, having been built to carry electricity at 115 kV when utility providers were already building higher-voltage lines and systems achieving upwards of 500 kV. These line segments were not the cause of growth, new development, or industrialization of the communities in the vicinity of the line, nor were they important examples of engineering and design, and are therefore not eligible under Criteria A/1 or C/3. The 1960s segments are also not eligible under Criterion B/2 because they are not associated with important persons in local, regional, state or national history. Further study of the line would also not yield additional information that could be considered important in local, regional, state, or national history, and accordingly, the line is not eligible under Criterion D/4. This transmission line, although it intersects the project APE, is not considered eligible for CRHR or NRHP listing (Pacific Legacy 2016).

Palermo–Bogue 115 kV Transmission Line

The Palermo–Bogue 115kV Transmission Line consists of an approximately 35.7-mile span between Palermo Substation in Butte County and Bogue Substation in Yuba City. A portion of the Palermo–Bogue 115 kV Transmission Line follows the alignment of the historic-era Las Plumas Transmission Line (circa 1908). The segments of line extending from the historic alignment to the Palermo and Bogue Substations were installed in 1960 and 1971, respectively.

The Las Plumas line was found not eligible for inclusion in the NRHP or CRHR in 2011 as part of a Section 106 concurrence process, and all the towers of the Las Plumas alignment, including those supporting the Palermo–Bogue circuit, have been replaced with modern facilities.

The 1960 segment, although more than 50 years old, does not represent innovation in electrical engineering technology, having been built to carry electricity at 115 kV when utility providers were already building higher-voltage lines and systems achieving upwards of 500 kV. It was not the cause of growth, new development, or industrialization of the communities in the vicinity of the line, nor was it an important example of engineering and design, and is therefore not eligible under Criteria A/1 or C/3. The 1960 segment is also not eligible under Criterion B/2 as it is not associated with important persons in local, regional, state, or national history. Further study of the line would also not yield additional information that could be considered important in local, regional, state, or national history, so the line is not eligible under Criterion D/4.

The 1971 segment is less than 50 years old and therefore is not eligible for consideration as a historic property or historical resource; however, there is little evidence to suggest that it would be found eligible under any criteria once the segment reaches the 50-year threshold.

This transmission line, although it intersects the project APE, is not considered eligible for CRHR or NRHP listing (Pacific Legacy 2016).

Bogue–Rio Oso 115 kV Transmission Line

The Bogue–Rio Oso 115 kV Transmission Line consists of an approximately 21.2-mile span between Bogue Substation in Yuba City and Rio Oso Substation in Yuba County. A portion of the Bogue–Rio Oso 115 kV Transmission Line follows the alignment of the historic-era Las Plumas Transmission Line (circa 1908). The segments of line extending from the historic alignment to the Bogue and Rio Oso Substations were installed in 1971 and 1957, respectively.

The Las Plumas Transmission Line was found not eligible for inclusion in the NRHP or CRHR in 2011 as part of a Section 106 concurrence process, and all the towers of the Las Plumas alignment, including those supporting the Bogue–Rio Oso circuit, have been replaced with modern facilities.

The 1957 segment, although more than 50 years old, does not represent innovation in electrical engineering technology, having been built to carry electricity at 115 kV when utility providers were already building higher-voltage lines and systems achieving upwards of 500 kV. It was not the cause of growth, new development, or industrialization of the communities in the vicinity of the line, nor was the line an important example of engineering and design, and is therefore not eligible under Criteria A/1 or C/3. The 1957 segment is also not eligible under Criterion B/2 because it is not associated with important persons in local, regional, state, or national history. Further study of the line would not yield additional information that could be considered important in local, regional, state, or national history, so the line is not eligible under Criterion D/4.

The 1971 segment is less than 50 years old and therefore is not eligible for consideration as a historic property or historical resource; however, there is little evidence to suggest that it would be found eligible under any criteria once the segment reaches the 50-year threshold. This transmission line, although it intersects the project APE, is not considered eligible for CRHR or NRHP listing (Pacific Legacy 2016).

Rio Oso–Nicolaus 115 kV Transmission Line

The Rio Oso–Nicolaus 115 kV Transmission Line consists of an approximately 5.37-mile span between the PG&E Rio Oso Substation in Yuba County and the PG&E East Nicolaus Substation in Sutter County. Portions of the Rio Oso–Nicolaus circuit share towers with the Bogue–Rio Oso circuit and date to 1957. These segments do not qualify as historic resources for the reasons listed previously. The remaining portions of the circuit were constructed in 1980

and do not meet the age eligibility threshold for inclusion on the NRHP and CRHR; however, there is little evidence to suggest that it would be found eligible under any criteria once the segment reaches the 50-year threshold. This transmission line, although it intersects the project APE, is not considered eligible for CRHR or NRHP listing (Pacific Legacy 2016).

Rio Oso–West Sacramento 115 kV Transmission Line

The Rio Oso–West Sacramento 115 kV Transmission Line consists of an approximately 38.23-mile span between the PG&E Rio Oso Substation in Yuba County and the PG&E West Sacramento Substation in West Sacramento. The Rio Oso–West Sacramento 115 kV Transmission Line was constructed in 1963. Although it is more than 50 years old, the line does not represent innovation in electrical engineering technology, having been built to carry electricity at 115 kV when utility providers were already building higher-voltage lines and systems achieving upwards of 500 kV. These line segments were not the cause of growth, new development, or industrialization of the communities in the vicinity of the line, nor were they important examples of engineering and design; therefore, they are not eligible under Criterion A/1 or C/3. The line is also not eligible under Criterion B/2 as it is not associated with important persons in local, regional, state, or national history. Further study of the line would also not yield additional information that could be considered important in local, regional, state, or national history, and accordingly, the line is not eligible under Criterion D/4. This transmission line, although it intersects the project APE, is not considered eligible for CRHR or NRHP listing (Pacific Legacy 2016).

5.5.1.3 Cultural Context

Various attempts to parse information provided through recorded archaeological assemblages from throughout California for the past 12,000 years have led to the development of several cultural chronologies. Some of these are based on geologic time, most are interpreted through temporal trends derived from archaeological assemblages, and others are interpretive reconstructions. Each of these chronologies describes essentially similar trends in assemblage composition in more or less detail. California's archaeological assemblage composition is generally accepted as falling within the following overarching patterns: Paleoindian (pre-5500 BC), Archaic (8000 BC–AD 500), Late Prehistoric (AD 500–1750), and Ethnohistoric (post-AD 1769).

Occupation of the area is likely to have occurred 9,000–11,000 years ago; however, only a handful of Paleoindian Period lithic bifacial points have been recorded. Fluted points from this area have generally been recorded as isolated finds, or recovered from contexts of mixed provenience. The primary examples of the Paleoindian pattern, to which such fluted and stemmed points are generally assigned, have been recorded east of the Sierra Nevada. The

typical assemblage includes large stemmed projectile points, high proportions of formal lithic tools, bifacial lithic reduction strategies, and relatively small proportions of groundstone tools. Some of the most pertinent of such sites were studied by Davis (1978) on China Lake Naval Air Weapons Station, near Ridgecrest, California. These sites contained fluted and unfluted stemmed points and large numbers of formal flaked tools (e.g., shaped scrapers, blades). Other typical Paleoindian sites include the Komodo site (MNO-679), a multi-component fluted point site, and MNO-680, a single-component Great Basin stemmed point site (Basgall et al. 2002). At MNO-679 and MNO-680, groundstone tools were rare, whereas finely made projectile points were common.

Although the limited available data relating to the earliest occupation in the region have provided for a relatively broad and consistent interpretation of the Paleoindian Period, subsequent prehistoric temporal sequences are much more geographically defined and variable due to the greater amount of available data. Regional syntheses were developed primarily by Heizer and Elsasser (1953) and Elston et al. (1977). The Martis and the Kings Beach Complexes are most applicable to the current project area; however, this may be further broken down to include the more locally relevant Mesilla, Bidwell, Sweetwater, and Oroville Complexes.

Sierra Nevada Foothills

The Martis complex has been identified to extend from Lassen County to Alpine County (Elsasser 1960). The date range, 4000 BC to approximately AD 500, has been substantiated by obsidian hydration and radiocarbon dates provided by Elsasser and Gortner (1991). Subsistence during the Martis Complex was based on a hunting and seed-collecting economy, with highly mobile populations that exploited both upper and lower regions based on the relative seasonal abundance of resources. Projectile points are variable during this period, and were most commonly heavy with low formality, providing some resemblance to those identified in the Great Basin regions. Temporally representative tools include finger-held drills or punches, retouched volcanic flake scrapers, spokeshave-notched tools, and large biface blades and cores. During this period there is a more intensive exploitation of local materials, rather than non-local cherts and obsidian, for the manufacture of formed flaked tools.

Similar to the Martis Complex, the Kings Beach Complex was characterized by populations that migrated between upper areas in the warmer months and lower elevations during the fall and winter. Subsistence during this period shifted toward a focus on fishing and gathering. A reduction in size and weight of projectile points corresponded with adoption of bow and arrow technology. Typical point forms within this region included desert side-notched, Cottonwood, and Rosegate series (CRM 2011). Obsidian and chert replaced volcanic materials such as basalt as the preferred materials for the manufacture of lithic tools. As both high-quality cherts and

obsidian are not local, the greater presence of such exotic materials suggests that there was an increase in trade with neighboring tribes during this period.

The Kings Beach Complex additionally included a greater reliance on exploitation of acorns. This trend is exemplified by the increased presence of bedrock mortars and pestles formed from local cobbles. It should be noted that although bedrock mortars were predominantly used for crushing and grinding acorns, they were also employed for the processing of a variety of other foods, including deer meat, camas roots, and seeds (CRM 2011). Although the creation of mortars indicated a relatively high investment of time and energy, such bedrock milling features are as frequently found at sites with limited-to-no subsurface cultural deposits as at intensive use occupation areas with well-developed midden soils.

By comparing Lake Oroville area site assemblages to those associated with Martis Valley and Kings Beach sites, a chronology for this area was developed spanning the past 3,000 years. These periods included the Mesilla, Bidwell, Sweetwater, and Oroville Complexes, as well as the ethnographic Maidu era (Moratto 1984; Pacific Legacy 2016).

The Mesilla Complex included limited, periodic occupation of the foothills by people who used spear-throwing technology and processed food using stone mortar bowls and millingstones. Shell beads, charmstones, and bone pins predominantly emerge during the Mesilla Complex within the Sacramento Valley between 1000 BC and AD 1 (Moratto 1984; Pacific Legacy 2016). This period transitioned to the Bidwell Complex (AD 1–800), during which inhabitants favored permanent or semi-permanent villages, hunted deer and smaller game with slate and basalt projectile points, fished, ground acorns on millingstones, and collected freshwater mussels. This period also introduced the use and manufacture of steatite cooking vessels (Moratto 1984).

During the subsequent Sweetwater Complex (AD 800–1500), additional shell ornament types, steatite vessels and pipes, and points characteristic of bow-and-arrow technology became common (Pacific Legacy 2016). The following Oroville Complex (AD 1500–1833) represented a transition to the practices of the inhabitants of this area that were encountered during the Ethnohistoric Period.

Ethnohistoric Period (post-AD 1750)

The region surrounding the project area would have been in Konkow and Nisenan (also known as the southern Maidu) tribal territory during the Ethnohistoric Period (Wilson and Towne 1978). The Konkow occupied the area from south of Oroville to the current Plumas County border, and from Chico to the headwaters of the South Fork of the Feather River. The subgroup of Valley Konkow, living below the foothills, shared a number of sociocultural similarities with the valley

Nisenan and Patwin (to the west). A tribelet known as the *Kulu* was recorded by Merriam in the area near Palermo, with the southern transition to Nisenan territory being indicated by a distribution of villages speaking a Konkow–Nisenan dialect until reaching Yuba City (Golla 2011). The Nisenan inhabited the Yuba, Bear, and American River watersheds, extending from the Sierra Nevada summit to the Sacramento River. The border between these related groups was approximately the current City of Marysville.

Ethnographic work, most prominently conducted by Powers in the 1870s, writes of a relatively high population of indigenous inhabitance in this region (1877). Later ethnographic work conducted by Kroeber, Littlejohn, and Merriam (among others) added to this body of information (Carlson 1986; Golla 2011).

Central California indigenous populations derived their linguistic roots from a common Penutian stock. The degree of internal variation among these three decedent language groups (Yokution, Maiduan, and Wintuan) is similar to Indo-European, suggesting a time depth of approximately 6,500 years (Golla 2007, 2011). The Konkow and Nisenan spoke two of four closely related Maiduan languages, including Konkow, Chico Maidu, Mountain Maidu, and Nisenan. Shared Hokan phonological and morphological substratal components identified within all Maiduan languages indicate past interactions between these two language populations (Hokan time depth is approximately 8,000 years). Maiduan language structure suggests that all four Maiduan languages were descended from the same proto-Maiduan-speaking population to the north. The most likely scenario is that these populations spread southward in the last 1,200 years, with the Nisenan encroaching into area previously occupied by Miwok tribal groups sometime in the past few centuries (Golla 2007). This later population movement is further substantiated by the high frequency of Miwok loan words found within Nisenan vocabulary, a trait that is not shared with the other three Maiduan languages.

Konkow

The following ethnographic section has been borrowed directly from the cultural technical report that was prepared in support of this project (Pacific Legacy 2016).

The Konkow, or Northwestern Maidu, are one of three major divisions of linguistically related groups identified as Maidu; the other two groups are the Mountain Maidu to the northeast and the Nisenan to the south. Konkow territory encompassed much of what is now known as Butte County from Rich Bar at the confluence of the main and East Branch of the North Fork Feather River, downstream to the confluence with Honcut Creek forming the Butte and Sutter County line. To the north, the Konkow inhabited the area around Chico and to the west on both sides of the Sacramento River from Foster Island south to Ordbend (Pacific Legacy 2016). Politically, the

Konkow were organized by tribelet, with each tribelet being composed of one large village surrounded by several adjacent villages. Together the clusters of villages formed an autonomous social unit. Village groups usually included upwards of 200 people, who owned and defended resource areas such as hunting grounds, gathering areas, and fishing spots (Pacific Legacy 2016). A headman served as advisor and spokesperson for the community of villages, but separate villages were self-sufficient and not bound under any strict political control by the community headman (Pacific Legacy 2016).

Like most other California indigenous populations, the Konkow were hunter-gatherers who depended on wild plants, insects, and animals (terrestrial and riverine) for their subsistence needs. The Konkow followed a yearly gathering cycle that drew from various environmental zones or habitats to obtain different plant and animal species throughout the year. They also monitored and influenced plant and animal distribution by regularly burning tracts of land to remove unwanted underbrush and to promote the growth of herbaceous plants in order to attract animals and to support economically important grasses for seed collection and the manufacture of baskets (Pacific Legacy 2016).

Trade relations were made with immediately adjacent groups; more distant relationships do not appear to have been forged. Most individuals restricted their travel to a radius of 20 miles from their homes (Pacific Legacy 2016). The Konkow obtained shell beads, pine nuts, and tobacco from their neighbors. Obsidian was traded for as well, most likely in limited quantities by down-the-line exchange so that abundance/availability would have been progressively reduced with distance from the source.

The earliest documented exploration into Konkow territory occurred in 1808 by a party of Spanish soldiers led by Gabriel Moraga surveying the Sacramento River and the lower portion of the Feather River for a new mission location. This was later followed by another Spanish expedition in 1817 by Captain Luis A. Arguello. Jedediah Smith and his band of trappers had an extended stay in Konkow lands. In the years 1828–1836, trappers from the Hudson Bay Company came to the area, along with the first major epidemics to affect indigenous populations (Riddell 1978, p. 385, as cited in Pacific Legacy 2016). Archaeological evidence of historical encounters includes glass trade beads, worked glass, metal, and ceramic artifacts (Pacific Legacy 2016).

Euro-American settlement of the northern Sacramento Valley began in the early to mid-1840s when several ranches were established on Mexican land grants near Chico. The discovery of gold first in the American River in 1848 and a few months later in the Middle Fork Feather River dramatically changed the settlement in the area. By 1849, the camp established at Oroville had grown to 4,000 people, making it the fifth-largest town in California. Epidemic diseases,

indiscriminate killing by Anglo settlers, displacement, and environmental disturbances from introduced livestock and invasive plant species rapidly transformed the Konkow world. Negotiating these introduced obstacles, some Konkow worked as laborers at ranches, farms, and mines. To this day, Maidu renew and maintain their interest in traditional values and cultural expression (Pacific Legacy 2016).

Nisenan

Nisenan habitation areas were most commonly situated near primary drainages, along ridgelines with mild slopes and south-facing exposures (Wilson and Towne 1978). Traditional village features included bedrock milling stations, granaries, conical house structures, and sweat and ceremonial houses. The dead were typically cremated and buried within the boundaries of the habitation area. Tribal groups included extended and unmarried relatives. Groups of Nisenan did have defined chiefs; however, these individuals were chosen based on wealth and popularity rather than hereditary descent (Kroeber 1925, as cited in Pacific Legacy 2016). Intratribal boundaries overlapped, with natural resources being shared relatively freely between tribelets (Carlson 1986). Intertribal conflict did occur over resources, and the Nisenan would attack small hunting parties that encroached too far into their territory.

The Nisenan subsistence strategy was centered on fishing, hunting, and collecting vegetative resources. This group was mobile, with larger central habitation areas and surrounding satellite sites used during hunting excursions and for pre-processing of collected plant resources such as acorns. Common food items included deer, rabbits, birds, bear, rodents, other mammals of small and moderate size, as well as various insects. Deer were sometimes partially processed using mortar and pestle (Kroeber 1925). A ceremony among the Nisenan involved the hunting of a bear during hibernation season. Common tools included the bow and arrow, traps, harpoons, hooks, nets, portable and stationary grinding implements, and pestles and handstones. A number of goods were made using fibrous plants, including canoes constructed of logs or tule balsa. Imported items included shell ornaments and beads (particularly disk beads as a monetary unit), green pigment, tobacco, steatite items, and obsidian (Wilson and Towne 1978). Exported items included bows and arrows, animal skins, pine nuts, and other local resources (Kroeber 1925).

Historic Period

Spanish Period (1769–1822)

Gaspar de Portolá entered the San Francisco Bay in 1769. Additional explorations of the San Francisco Bay and the plains to the east were conducted by Father Pedro Fages in 1772 and Juan Bautista De Anza in 1776 (Grunsky 1989). In 1808, Lieutenant Gabriel Moragain led the

first Spanish expedition into the Sacramento Valley. This group traveled explored areas along the American, Calaveras, Cosumnes, Feather, Merced, Mokelumne, Sacramento, and Stanislaus River watersheds. The most recent Spanish expedition into this region was conducted by Captain Luis A. Arguello in 1817. This group traveled up the Sacramento River to the mouth of the Feather River (Grunsky 1989).

Spanish missionization of Alta California was initiated in San Diego (1769). A total of 21 missions were constructed by the Dominican and Franciscan orders between 1769 and 1823. Missions in the region included San Francisco de Asís (1776), Santa Clara de Asís (1776), San José de Guadalupe (1797 in Alameda County), San Rafael Arcángel (1817 in Marin County), and San Francisco Solano (1823 in Sonoma County; Grunsky 1989). Although missionization had a detrimental effect on tribes throughout the region, there is no record of the Spanish forcibly transporting Nisenan communities to the missions (Wilson and Towne 1978).

Mexican Period (1822–1848)

Mexico's separation from the Spanish empire in 1821 and the secularization of the California missions in the 1830s caused further disruptions to native populations. Following the establishment of the Mexican republic, the government seized many of the lands belonging to Native Americans, providing them as parts of larger land grants to affluent Mexican citizens and rancheros. Captain John Sutter was granted the two largest areas of land in the Sacramento Valley area. Sutter founded New Helvetia, a trading and agricultural empire, in 1839. The headquarters was located within Valley Nisenan territory at the confluence of the Sacramento and American Rivers. The 1833 Secularization Act passed by the Mexican Congress ordered half of all mission lands to be transferred to the Native Americans, and the other half to remain in trust and be managed by an appointed administrator. These orders were never implemented due to several factors that conspired to prevent the Native Americans from regaining their patrimony.

American fur trappers and traders conducted a number of exploratory intrusions into west Sierra Nevada Mexican territory. Notably, in 1826, Jedediah Smith led a small party of trappers in an expedition along the Sierra Nevada range, eventually entering the Sacramento Valley in 1827. This group covered the area along the American and Cosumnes Rivers. From these travels, maps of this inhospitable terrain were created and disseminated, providing for the waves of European prospectors, ranchers, and settlers that would come in the following decades (Grunsky 1989).

American Period (Post-1848)

The following post-1848 history has been borrowed directly from the cultural technical report that was prepared in support of this project (Pacific Legacy 2016).

The Feather River was a major gold-producing area. The first recorded gold discovery on the Feather River was made by John Bidwell in March 1848. Visiting the site of the gold find at Sutter's Mill, he recognized the similarity of the Feather River to the American River. On his return trip to Arroyo Chico, where he had bought land and made his home, he stopped at what would be known as the Hamilton Bend of the Feather River and panned for gold, finding some flakes (Pacific Legacy 2016).

By the 1850s, the surface placer deposits were largely depleted and the miners were forced to turn to more capital- and labor-intensive methods of gold mining. These included river, quartz, drift, and hydraulic mining, which required outside capital to finance the expensive technology and labor (Pacific Legacy 2016). Ditch construction to provide water to the dry diggings was a major endeavor in the area during the 1850s to 1870. In 1865, Butte and Yuba Counties had developed 64 miles and 149 miles of ditches, respectively (Pacific Legacy 2016). By 1881, Butte County boasted 40 mining-ditch systems and 501 miles of ditches (Pacific Legacy 2016).

Although the hydraulic mining produced great wealth for the region, the resulting silts altered the environment, caused disastrous floods, and made the waterways unnavigable. In 1884, the Sawyer Decision by the U.S. circuit court outlawed mining debris in waterways and gold extraction declined substantially. Gold production in the region was revived with gold dredge mining around Oroville and Honcut after 1900 (Pacific Legacy 2016).

Transportation

Before 1850, mule trains and trails were the primary means of transportation in Butte, Sutter, and Yuba Counties. The Beckwourth Emigrant Trail, a branch of the California Trail, crossed the region through the current Cities of Oroville and Marysville. After 1850, stage lines linked Marysville and Oroville with the larger region. In Butte County, the first stage line was established in 1851 between Marysville and Chico. Formed in 1854, the California Stage Company followed this success by establishing a route between Oroville and Quincy.

The railroads came to the region in 1858, when a line was established between Folsom and Marysville. The California Northern Railroad line between Marysville and Oroville was completed in 1864. In the 1870s, the California Northern Railroad was acquired by Central Pacific Railroad Company, which eventually became Southern Pacific Railroad (Pacific Legacy 2016). The Western Pacific Railroad constructed a line through the Feather River Canyon in 1906. One result of the railroad activity was that Marysville became a railroad hub and expanded the shipping distance for imported and exported goods (Pacific Legacy 2016).

Agriculture

Agriculture began in the 1840s with the Gold Rush population influx. Those who did not succeed in mining soon turned to agriculture. Early crops in the Marysville area included wheat and vegetables. In the 1850s, small-scale hop farming and livestock ranching were introduced to the region (Pacific Legacy 2016).

Local agriculture expanded in the 1880s, when hydraulic mining water conduits were transformed into agricultural irrigation systems. In addition, the completion of the Transcontinental Railroad in 1869, the growing regional railroad system, and the introduction of refrigerated railcars in the 1880s provided an expansion of agricultural produce markets to a statewide and national level (Pacific Legacy 2016). In the 1880s, Butte County diversified from primarily grain production to grains, fruit trees, hay, green vegetables, grapevines, and blackberries, as well as cattle, goats, chickens, hogs, and milk cows (Pacific Legacy 2016). Fruit production became an important segment of agriculture in the region in the late nineteenth century. Citrus colonies were established in Butte County in the 1880s and 1890s, the most prominent of which were Palermo and Thermalito.

Early Settlement

Marysville

Marysville was established as a trading post/ranch settlement on Rancho Cordua land in the 1840s. Rancho Cordua was owned by Theodor Cordua, who leased the land from John Sutter. Cordua built an adobe in 1843, raised livestock, and commanded a trading post. Rancho Cordua became an important waystation for travelers because of its location on the California Oregon Trail. Charles Covillaud, a French immigrant and former employee of Cordua's, became wealthy in the gold fields. He married Mary Murphy, who was related by marriage to Michael C. Nye and William Foster. In 1848, Covillaud, Nye, and Foster bought the rancho and established a settlement called Nye's Ranch. By December 1849, the camp had a population of approximately 500–1,000 residents (Pacific Legacy 2016). In 1850, they established a town plan, sold lots, and became Marysville, the Sutter County seat. It became the head of navigation on the Feather River and later a railroad hub, which established it as a commercial hub for the region (Hoover et al. 1990, p. 539, as cited in Pacific Legacy 2016). In the early twentieth century, the construction of irrigation projects caused an economic boom in agriculture as dry-farmed wheat was superseded by orchards (Pacific Legacy 2016).

The town was located at the confluence of the Yuba and Feather Rivers, which flooded frequently. Early efforts at flood control during the 1860s and 1870s consisted of small levees

and drains, which were not sufficient to protect agricultural lands from flooding (ICF Jones & Stokes 2008, p. 23). As a result, the east side of the Feather River remained swampland. Finally in 1908, Reclamation District 784 built a substantial levee and drainage system to restrain the waters of the Bear and Feather Rivers (Pacific Legacy 2016). In 1910, the Western Pacific Railroad assisted Marysville in completing the levee around the town.

Browns Valley

Browns Valley was a mining camp established in 1850 along the Old Marysville Road to Downieville. One of the first stamp mills in California was installed there when gold was discovered nearby. The settlement had declined before 1900 and only ruins were left by 1924 (Pacific Legacy 2016).

Oroville

Oroville was originally an 1849 gold mining camp on the Feather River called Ophir City. The town was renamed Oroville by 1856 when it became the Butte County seat. During the 1850s, Oroville was the location for substantial river mining operations that included rerouting portions of the river. From the late 1850s to 1880s, it remained an important hydraulic mining locale. Then the community developed the gold-dredging industry, which lasted into the twentieth century. As gold extraction waned, the community established orchard agriculture in the area (Pacific Legacy 2016).

Palermo

The Palermo Colony was established by the Palermo Land and Water Company and was incorporated in 1888 as a citrus tract. The developers laid out a town plan, built initial houses and a railroad depot, and planted the first orchards later the same year. Several current-day streets were part of the initial street grid, including North Villa, Gibraltar, Railroad, Irwin, and Louis Avenues (Pacific Legacy 2016). By 1890, 6,000 acres of land and 149 miles of irrigation ditches had been constructed and by 1892 there was a population of 500 (Pacific Legacy 2016). Palermo Colony continued to operate until 1945.

Nicolaus

Nicolaus was present by 1847 as a ranch, trading post, and ferry crossing on the Feather River. The settlement was established by Nicolaus Allgeier, who sold house lots in 1850 (Pacific Legacy 2016). Nicolaus was the second Sutter County seat, before the seat settled in Yuba City.

Hydroelectricity and Transmission Development

The hydraulic mining infrastructure (ditches, canals, dams, reservoirs, etc.) was repurposed for both irrigation and hydroelectric power generation. Starting in 1879 through the 1890s, mining operations produced small hydroelectric generators for light and to power machinery. Early transmission, however, could not be conducted for long distances to coastal population centers.

In 1891, Almerian Decker brought single-phase alternating current technology to California from the East Coast. Two years later, General Electric started transmitting power from Folsom to Sacramento (Pacific Legacy 2016).

In 1905, PG&E was incorporated, bringing together the San Francisco Gas and Electric Company and the California Central Gas and Electric Corporation, both of which were formed from combinations of earlier power companies. At that time, the company had several hydroelectric systems operating in Butte, Yuba, and Sutter Counties, including the Colgate Powerhouse in Brown's Valley on the Yuba River. By 1903, the Colgate plant was transmitting 60,000-volt capacity to Oakland, California. Over time, PG&E expanded as it merged with and acquired other utility providers. Among the most significant acquisitions was the Great Western Power Company (GWPC) in 1930. The GWPC built much of the infrastructure that forms the basis of the current project.

One of the earliest hydroelectric systems was constructed by GWPC on the Feather River at Big Bend. In 1909, they renovated the Big Bend operation to generate 40,000 kilowatt AC electricity (Pacific Legacy 2016). In 1908, GWPC constructed the Las Plumas Transmission Line, which originated at the Big Bend Plant at the Feather River and brought power to the GWPC's East Bay Power Plant in Oakland. This line was later redesignated the Big Bend–Oakland Transmission Line, and eventually a portion of it became the Palermo–East Nicolaus Transmission Line. The steel lattice towers of the Palermo–East Nicolaus Transmission Line have since been replaced by steel pole towers. In addition to the Palermo–East Nicolaus Transmission Line, the Palermo–Bogue and Bogue–Rio Oso Transmission Lines were also strung on the towers of the Las Plumas Line. Both the Palermo–Bogue and the Bogue–Rio Oso Transmission Lines have in-service dates of 1971. Between 1930 and 1960, PG&E built substations at East Nicolaus (1941/1942), Rio Oso (1954), and Palermo (1959) (Pacific Legacy 2016).

In 1921, the GWPC constructed the Caribou–Golden Gate Transmission Line from the Caribou hydroelectric site on the Feather River to the PG&E Golden Gate Substation in Richmond, California. The Palermo–Rio Oso No. 1 Transmission Line was put in service along the Caribou–Golden Gate Transmission Line in 1960 to bring power to the City of Sacramento. This line, supported on steel lattice towers, paralleled the earlier Palermo–East Nicolaus Transmission

Line through Butte, Sutter, and Yuba Counties. Both the Palermo–Pease and Pease–Rio Oso Transmission Lines are part of the Palermo–Rio Oso Line and were put in service at the same time (Pacific Legacy 2016).

The Rio Oso Sub-Line Segment Loop is a two-line circuit terminating at the Rio Oso Substation. The transmission lines included in this loop are Bogue–Rio Oso, Rio Oso–Nicolaus, Rio Oso–West Sacramento, and Pease–Rio Oso Transmission Lines. The Rio Oso Substation was put in service in 1954 (PG&E 2013). The Bogue–Rio Oso Transmission Line (in service 1971) was strung along the Las Plumas Line. The Pease–Rio Oso Transmission Line (in service 1959) was strung along the Caribou–Golden Gate Transmission Line (in service 1921), later known as Palermo Rio Oso No. 1 Transmission Line (in service 1960) (Pacific Legacy 2016). The Rio Oso–Nicolaus Transmission Line (in service 1980) is composed of two segments: a portion of the Bogue–Rio Oso Transmission Line (built in 1957) along the Las Plumas Transmission Line and a line that spans from the Caribou–Golden Gate Transmission Line corridor to the East Nicolaus Transmission Line, which was built in 1980. The Rio Oso–West Sacramento Transmission Line was originally built as the West Sacramento Loop of the Rio Oso–Brighton Transmission Line, installed in 1963 (Pacific Legacy 2016).

The Bogue Sub-Line Segment includes the Palermo–Bogue spur that extends west from the Palermo–Rio Oso Transmission Line across the south edge of Olivehurst and north to the Bogue Substation. The Bogue–Rio Oso Transmission Line has three segments, including a portion of the Las Plumas Transmission Line (in service 1908), the spur to the Bogue Substation (in service 1971) (within the Bogue Sub-Line Segment), and the spur to the Rio Oso Substation (in service 1957) (within the Rio Oso Sub-Line Loop Segment). The Bogue Substation was in service in 1971/1972 (Pacific Legacy 2016). As previously mentioned, both the Palermo–Bogue and Palermo–Rio Oso Transmission Lines, which were strung along the Las Plumas Transmission Line (1908), were in service in 1971.

The Pease Sub-Line Segment includes portions of the Palermo–Pease and Pease–Rio Oso Transmission Lines, which connect the Pease Substation to the Palermo–Rio Oso No. 1 Transmission Line (South of Palermo Line). The Pease Substation was installed in 1960 (Pacific Legacy 2016). The Pease–Rio Oso Line has three segments: a portion that follows the Caribou–Golden Gate Transmission Line (in service 1921) (part of the South of Palermo Line); the spur to the Pease Substation (part of the Pease Sub-Line Segment) (in service 1960); and the spur to the Rio Oso Substation (in service 1957) (part of the Rio Oso Sub-Line Segment Loop).

5.5.1.4 Paleontological Context

The technical study for this project provided the following paleontological information (Paleo Solutions 2015). The project's paleontological technical study included review of geologic maps, GIS mapping, literature search, updated institutional records search, and a sensitivity evaluation using the Potential Fossil Yield Classification (PFYC) system. The geology underlying the proposed construction sites was reviewed, as well as any geologic units occurring within a 1-mile radius of the project alignment. The literature reviewed included published and unpublished scientific papers. A paleontological records search was conducted at the University of California Museum of Paleontology by Ken Finger, PhD. The search included fossil localities within a half-mile radius of the proposed construction sites.

The project area is primarily underlain by Quaternary (Holocene) alluvium (Qa) and basin (Qb) deposits (21.45% of project area) and Pleistocene Riverbank (Qr) (51.80%) and Modesto (Qm) (20.47%) Formations with lesser amounts of Jurassic volcanics (Jv) (1.29%), Pliocene tuffs of Oroville (QPto) (3.30%), Pliocene Laguna Formation (Pl) (1.24%), and modern dredge or mine tailings (t) (0.45%).

Tuffs of Oroville

Pliocene (5.3–2.6 million years old) volcanoclastic deposits and tuff are 20–40 feet thick (Paleo Solutions 2015). No fossils are recorded from these deposits (Paleo Solutions 2015). However, this material does occasionally preserve fossils and is assigned PFYC 2 (low potential).

Laguna Formation

The Pliocene (5.3–2.6 million years old) Laguna Formation consists of beds of alluvial gravel, sand, and silt. Pebbles and cobbles of quartz and metamorphic rock fragments dominate the gravels, and finer sediments are arkosic. Generally, the sediments coarsen upward and are moderately to well compacted (Paleo Solutions 2015). No fossils are recorded from the Laguna Formation in the project area (Paleo Solutions 2015); however, this may be attributable to lack of paleontological investigation in the area, rather than absence of fossils. The fine-grained beds exhibit conditions in which significant fossils could be preserved. Accordingly, the Laguna Formation is assigned moderate sensitivity for paleontological resources (PFYC 3).

Modesto Formation

The Modesto Formation consists of late Pleistocene (126,000–11,700 years old) fluvial sands and gravels, with silty sand and sandy mud overbank deposits forming a thin veneer over the older Riverbank Formation (Paleo Solutions 2015). This formation includes coeval but

disconnected wind-blown and alluvial fan deposits (Paleo Solutions 2015). The Modesto Formation has been divided into informal upper and lower members. Both members consist of materials typical of river deposits; however, unlike the upper member, the lower member contains soils of the pedogenic Unit B horizon (Paleo Solutions 2015). The University of California Museum of Paleontology records search identified no recorded fossil localities within or adjacent to the project area (Paleo Solutions 2015). However, the literature review revealed that significant vertebrate fossils have been recovered in Butte and Sutter Counties from Pleistocene alluvial deposits similar to the Modesto Formation. Recovered fossils include horse, bison, bird, and mammoth (Paleo Solutions 2015). These formations also produced significant collections of vertebrate and plant fossils elsewhere in the Central Valley of California. The dearth of fossil records from the Modesto Formation in the project area may be due to lack of paleontological investigations, rather than an absence of fossils. Accordingly, the Modesto Formation is assigned moderate sensitivity for paleontological resources (PFYC Class 3).

Riverbank Formation

The Riverbank Formation was formed during the middle Pleistocene (781,000–126,000 years ago). It consists of arkosic alluvial terraces and fans composed of weathered reddish gravel, sand, silt, and clay. The Riverbank Formation is very similar lithologically to the Modesto Formation, but has a greater degree of soil development. In the project vicinity, the Riverbank Formation is broken into informal upper and lower members (Paleo Solutions 2015). The Riverbank Formation is interpreted as glacial outwash from the Sierra Nevada (Paleo Solutions 2015). As noted for the Modesto Formation, the literature review revealed that significant vertebrate fossils have been recovered in Butte and Sutter Counties from Pleistocene alluvial deposits similar to the Riverbank Formation. Furthermore, several locations of the Riverbank Formation in the Sacramento and northern Central Valley area have yielded significant specimens of mammals; several types of plants (Paleo Solutions 2015); and reptiles, amphibians, fish, and birds. The few fossils recorded from the Riverbank Formation in the project area may therefore be due to lack of paleontological investigation rather than absence of fossils.

Accordingly, the Riverbank Formation is assigned moderate sensitivity for paleontological resources (PFYC Class 3).

Holocene Alluvium and Basin Deposits

In the project area, Quaternary (Holocene) (11,700 years old or less) alluvial and basin deposits consist of unconsolidated gravels, sands, silts, and clays deposited in alluvial fan and valley fill or basin environments (Paleo Solutions 2015) by modern streams and rivers. Holocene deposits cover large portions of the Central Valley and foothills area and are typified as coalescing fan-

like deposits of sediments. Holocene deposits grade laterally and incise into older Pleistocene deposits, particularly in the project area, in such a way that the contact can be difficult to draw in certain locations. Holocene deposits consist of dark-brown silty clay and unconsolidated sand.

The Holocene alluvial deposits exposed at the ground surface in the study area generally contain only the remains of extant, modern taxa, which are not considered unique paleontological resources. Accordingly, these deposits have low sensitivity for paleontological resources (PFYC 2). However, such deposits often overlie deeper, previously undisturbed, older Pleistocene alluvium or other potentially fossil-bearing sedimentary deposits or bedrock units where the probability of finding significant vertebrate fossil remains increases.

Dredge or Mine Tailings

Dredge or mine tailings are the waste material from modern mining activities, and consist of a mud-like slurry. Fossils found in disturbed sediments such as dredge or mine tailings, artificial fill used in construction, and agricultural soils have lost their native provenience and therefore have marginal scientific value. Accordingly, dredge and mine tailings are generally considered to have low to no potential (PFYC 2 or 1) to produce significant paleontological resources.

5.5.1.5 Native American Correspondence

A search of the Sacred Lands Inventory maintained by the NAHC was requested on October 3, 2014. A response from the NAHC was received on October 14, 2014. Results of this search failed to indicate the presence of Native American cultural resources within the project area. Subsequent outreach letters were sent to the 21 NAHC-listed tribal representatives on October 30, 2014.

Five representatives from the NAHC Contact List have responded to these initial outreach letters. Mike DeSpain of the Mechoopda Indian Tribe of Chico Rancheria called PG&E's cultural resources consultant on November 7, 2014, noting that the project was not of concern to the Mechoopda Indian Tribe of Chico Rancheria. Mr. DeSpain indicated that the Moretown Rancheria of Maidu Indians, the United Auburn Indian Community of the Auburn Rancheria, and the Cachil Dehe Band of Wintun Indians of the Colusa Indian Community should be contacted. The Moretown and Auburn Rancherias had been included in outreach efforts in 2014; however, Colusa had not been included in the list of Native American contacts provided by the NAHC. Mr. DeSpain stated that the Pease Transmission Line portion of the project would most likely have been in the Colusa Rancheria's traditional territory (Pacific Legacy 2016).

Ren Reynolds of the Butte Tribal Council contacted PG&E's cultural resources consultant on November 12, 2014, by email and requested the presence of a Tribal Site Monitor for the project, but did not identify any specific resources or areas of concern.

PG&E followed up with the tribes identified above via phone on April 12, 2016, except for the Mechoopda Tribe of Chico Rancheria, as they had already expressed no concerns about the project. PG&E reached three individuals, and left voice messages with the remaining contacts where possible. None of these individuals expressed specific concerns regarding the project. James Edwards of Berry Creek Rancheria of Maidu Indians observed that the tribe has no concerns and suggested that PG&E contact Moretown Rancheria. PG&E spoke with the Tribal Administrator for the Enterprise Rancheria, who requested that PG&E resend the project information. The information was sent via email on April 12, 2016. Franklin Reno, Tribal Historic Preservation Officer for the Enterprise Rancheria requested additional information via email on April 12, 2016. PG&E provided the requested information the same day.

Grayson Coney of the T'si-Akim Maidu stated that the tribe had no specific concerns about the project, and requested that they be contacted should any resources be encountered during construction. He also indicated that follow-up calls to the other T'si-Akim Maidu tribal members on the NAHC list were not necessary. PG&E left a message with the Tribal Administrator of the Cahil Dehe Band of Wintun Indians of the Colusa Indian Community Council on April 12, 2016. PG&E will continue to follow up on these communications in coordination with the California Public Utilities Commission (CPUC).

5.5.2 Regulatory Setting

The following section provides federal and state cultural resources regulatory information. Although only CEQA and local regulatory conditions apply to the project, federal laws have been included for reference should federal consultation with the SHPO be required.

Federal

National Register of Historic Places

The NRHP is the United States' official list of districts, sites, buildings, structures, and objects worthy of preservation. Overseen by the National Park Service under the U.S. Department of the Interior, the NRHP was authorized under the National Historic Preservation Act, as amended. Its listings encompass all National Historic Landmarks and historic areas administered by the National Park Service.

NRHP guidelines for the evaluation of historic significance were developed to be flexible and to recognize the accomplishments of all who have made significant contributions to the nation's history and heritage. Its criteria are designed to guide state and local governments, federal agencies, and others in evaluating potential entries in the NRHP. For a property to be listed in or determined eligible for listing, it must be demonstrated to possess integrity and to meet at least one of the following criteria:

> The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:
>
> A. That are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> B. That are associated with the lives of persons significant in our past; or
>
> C. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> D. That have yielded, or may be likely to yield, information important in prehistory or history.

Integrity is defined in the National Park Service's NRHP guidance, How to Apply the National Register Criteria, as "the ability of a property to convey its significance. To be listed in the NRHP, a property must not only be shown to be significant under the NRHP criteria, but it also must have integrity" (NPS 1995). The NRHP guidance further states that properties must have been completed at least 50 years ago to be considered for eligibility. Properties completed fewer than 50 years before evaluation must be proven to be "exceptionally important" (criteria consideration G) to be considered for listing.

A historic property is defined as "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the NRHP maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the NRHP criteria" (36 CFR, Part 800.16(i)(1)).

Effects on historic properties under Section 106 of the National Historic Preservation Act are defined in the assessment of adverse effects in 36 CFR, Part 800.5(a)(1):

> An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative.

Adverse effects on historic properties are clearly defined and include the following:

(i) Physical destruction of or damage to all or part of the property;

(ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation and provision of handicapped access, that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR Part 68) and applicable guidelines;

(iii) Removal of the property from its historic location;

(iv) Change of the character of the property's use or of physical features within the property's setting that contributes to its historic significance;

(v) Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features;

(vi) Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and

(vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance (36 CFR, Part 800.5(2)).

To comply with Section 106, the criteria of adverse effects are applied to historic properties if any exist in a project's APE, pursuant to 36 CFR, Part 800.5(a)(1). If no historic properties are

identified in the APE, a finding of "no historic properties affected" will be made for the proposed project. If there are historic properties in the APE, application of the criteria of adverse effect would result in project-related findings of either "no adverse effect" or "adverse effect." A finding of no adverse effect may be appropriate when the undertaking's effects do not meet the thresholds for the criteria of adverse effect (36 CFR, Part 800.5(a)(1)), in certain cases when the undertaking is modified to avoid or lessen effects, or if conditions were imposed to ensure review of rehabilitation plans for conformance with the Secretary of the Interior's Standards for the Treatment of Historic Properties (codified in 36 CFR, Part 68).

If adverse effects findings are expected to result from the proposed project, mitigation would be required, as feasible, and resolution of those adverse effects by consultation may occur to avoid, minimize, or mitigate adverse effects on historic properties pursuant to 36 CFR, Part 800.6(a).

California

California Register of Historical Resources

In California, the term "historical resource" includes "any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California" (California Public Resources Code, Section 5020.1(j)). In 1992, the California legislature established the CRHR "to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change" (California Public Resources Code, Section 5024.1(a)). The criteria for listing resources in the CRHR were expressly developed to be in accordance with previously established criteria developed for listing in the NRHP. According to California Public Resources Code Section 5024.1(c)(1–4), a resource is considered historically significant if it (i) retains "substantial integrity," and (ii) meets at least one of the following criteria:

1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
2) Is associated with the lives of persons important in our past.
3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
4) Has yielded, or may be likely to yield, information important in prehistory or history.

To understand the historic importance of a resource, sufficient time must have passed to obtain a scholarly perspective on the events or individuals associated with the resource. A resource less than 50 years old may be considered for listing in the CRHR if it can be demonstrated that sufficient time has passed to understand its historical importance (14 CCR 4852(d)(2)).

The CRHR protects cultural resources by requiring evaluation of the significance of prehistoric and historic resources. The criteria for the CRHR are nearly identical to those for the NRHP, and properties listed or formally designated as eligible for listing in the NRHP are automatically listed in the CRHR, as are state landmarks and points of interest. The CRHR also includes properties designated under local ordinances or identified through local historical resource surveys.

California Environmental Quality Act

As described further below, the following CEQA statutes (California Public Resources Code, Section 21000 et seq.) and CEQA Guidelines (14 CCR 15000 et seq.) are of relevance to the analysis of archaeological, historic, and tribal cultural resources:

- California Public Resources Code Section 21083.2(g) defines "unique archaeological resource."
- California Public Resources Code Section 21084.1 and CEQA Guidelines Section 15064.5(a) defines "historical resources." In addition, CEQA Guidelines Section 15064.5(b) defines the phrase "substantial adverse change in the significance of an historical resource"; it also defines the circumstances when a project would materially impair the significance of a historical resource.
- California Public Resources Code Section 21074(a) defines "tribal cultural resources."
- California Public Resources Code Section 5097.98 and CEQA Guidelines Section 15064.5(e) sets forth standards and steps to be employed following the accidental discovery of human remains in any location other than a dedicated ceremony.
- California Public Resources Code Sections 21083.2(b) and 21083.2(c) and CEQA Guidelines Section 15126.4 provide information regarding the mitigation framework for archaeological and historic resources, including examples of preservation-in-place mitigation measures. Preservation-in-place is the preferred manner of mitigating impacts to significant archaeological sites because it maintains the relationship between artifacts and the archaeological context, and may also help avoid conflict with religious or cultural values of groups associated with the archaeological site.

Under CEQA, a project may have a significant impact on the environment if it may cause "a substantial adverse change in the significance of an historical resource" (California Public

Resources Code, Section 21084.1; 14 CCR 15064.5(b)). If a site is either listed or eligible for listing in the CRHR, or if it is included in a local register of historic resources, or identified as significant in a historical resources survey (meeting the requirements of California Public Resources Code Section 5024.1(q)), it is a "historical resource" and is presumed to be historically or culturally significant for purposes of CEQA (California Public Resources Code, Section 21084.1; 14 CCR 15064.5(a)). The lead agency is not precluded from determining that a resource is a historical resource even if it does not fall within this presumption (California Public Resources Code, Section 21084.1; 14 CCR 15064.5(a)).

A "substantial adverse change in the significance of an historical resource" reflecting a significant impact under CEQA means "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired" (14 CCR 15064.5(b)(1); California Public Resources Code, Section 5020.1(q)). In turn, the significance of a historical resource is materially impaired when a project would do any of the following:

1) Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register; or
2) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the PRC or its identification in an historical resources survey meeting the requirements of section 5024.1(g) of the PRC, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
3) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register as determined by a lead agency for purposes of CEQA (14 CCR 15064.5(b)(2)).

Pursuant to these sections, the CEQA inquiry begins with evaluating whether a project site contains any "historical resources," then evaluates whether that project would cause a substantial adverse change in the significance of a historical resource such that the resource's historical significance would be materially impaired.

If it can be demonstrated that a project would cause damage to a unique archaeological resource, the lead agency may require that reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that they cannot

be left undisturbed, mitigation measures are required (California Public Resources Code, Sections 21083.2(a)–21083.2(c)).

California Public Resources Code Section 21083.2(g) defines a unique archaeological resource as an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.
3) Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Impacts to non-unique archaeological resources are generally not considered a significant environmental impact (California Public Resources Code, Section 21083.2(a); 14 CCR 15064.5(c)(4)). However, if a non-unique archaeological resource qualifies as a tribal cultural resource (California Public Resources Code, Sections 21074(c), 21083.2(h)), further consideration of significance is required.

CEQA Guidelines Section 15064.5 assigns special importance to human remains, and specifies procedures to be used when Native American remains are discovered. As described below, these procedures are detailed in California Public Resources Code Section 5097.98.

California Health and Safety Code

California law protects Native American burials, skeletal remains, and associated grave goods, regardless of their antiquity, and provides for the sensitive treatment and disposition of those remains. California Health and Safety Code Section 7050.5 requires that if human remains are discovered in any place other than a dedicated cemetery, no further disturbance or excavation of the site or nearby area reasonably suspected to contain human remains can occur until the county coroner has examined the remains (California Health and Safety Code, Section 7050.5b). California Public Resources Code Section 5097.98 also outlines the process to be followed in the event that remains are discovered. If the coroner determines or has reason to believe that the remains are those of a Native American, the coroner must contact the California NAHC within 24 hours (California Health and Safety Code, Section 7050.5c). The NAHC will notify the Most Likely Descendant. With the permission of the landowner, the Most Likely Descendant may inspect the site of discovery. The inspection must be completed within 48 hours of notification of

the Most Likely Descendant by the NAHC. The Most Likely Descendant may recommend the means of treating or disposing of, with appropriate dignity, the human remains and items associated with Native Americans.

5.5.3 Applicant Proposed Measures

The following applicant proposed measures (APMs) will be incorporated into the proposed project design to reduce impacts relating to cultural and paleontological resources:

APM CR-1 **Workers' Environmental Awareness Training.** Pacific Gas and Electric Company (PG&E) will provide environmental awareness training on archaeological and paleontological resources protection. This training may be administered by the principal cultural resources specialist as a stand-alone training or included as part of the overall environmental awareness training as required by the project and will at minimum include: types of cultural resources or fossils that could occur at the project site; types of soils or lithologies in which the cultural resources or fossils could be preserved; procedures that should be followed in the event of a cultural resource, human remain, or fossil discovery; and penalties for disturbing cultural or paleontological resources.

APM CR-2 **Flag and Avoid Resources P-51-000150, P-58-001372, P-58-001369, PL-Palermo-011H, Old Marysville Road.** A qualified archaeologist will flag sites P-51-000150, P-58-001372, PL-Palermo-011H, P-58-001369, and the Old Marysville Road for avoidance as needed. Sites will be marked with flagging tape, safety fencing, and/or sign designating it as an "environmentally sensitive area" to ensure that Pacific Gas and Electric Company (PG&E) construction crews and heavy equipment will not intrude on these sites during construction. For those sites that contain an existing access road within their site boundary or are an existing road (e.g., Old Marysville Road), the road will be used as is (i.e., no grading, widening, or other substantial improvements), and signs or safety fencing will be established on either side of the road within the site's boundary to avoid impacts caused by construction vehicles.

If it is determined that the project cannot avoid impacts on one or more of the sites, then, for those sites that have not been previously evaluated, evaluation for inclusion in the National Register of Historic Places (NRHP)/California Register of Historical Resources (CRHR) will be conducted. Should the site be found eligible, appropriate measures to reduce the impact to a less than significant level will be implemented, including but not limited to data recovery,

photographic and archival documentation, or other measures as deemed appropriate in consultation with the California Public Utilities Commission (CPUC) and interested parties. If it is determined that sites that have been previously determined to be eligible for inclusion in either the NRHP or CRHR cannot be avoided, measures will be implemented to reduce the impact to a less than significant level, including but not limited to data recovery, photographic and archival documentation, or other measures as deemed appropriate in consultation with the CPUC and interested parties.

APM CR-3 Manage Unanticipated Cultural Resources Discoveries Properly.

a) **Buried Cultural Resources.** If buried cultural resources are inadvertently discovered during site preparation or construction activities, work will stop in that area and within 100 feet of the find until a qualified cultural resources specialist/archaeologist can assess the significance of the find and, if necessary, develop appropriate treatment measures in consultation with PG&E and other appropriate agencies. Work may continue on other portions of the site with the cultural resources specialist/archaeologist's approval. PG&E will implement the cultural resources specialist/archaeologist's recommendations for treatment of discovered cultural resources.

b) **Human Remains.** In the unlikely event that human remains or suspected human remains are uncovered during pre-construction testing or during construction, all work within 100 feet of the discovery will be halted and redirected to another location. The find will be secured, and PG&E's cultural resources specialist or designated representative will be contacted immediately to inspect the find and determine whether the remains are human. If the remains are not human, the cultural resources specialist will determine whether the find is an archaeological deposit and whether paragraph (a) of this APM should apply. If the remains are human, the cultural resources specialist will immediately implement the applicable provisions in California Public Resources Code (PRC) Sections 5097.9 through 5097.996, beginning with the immediate notification to the affected county coroner. The coroner has two working days to examine human remains after being notified. If the coroner determines that the remains are Native American, California Health and Safety Code 7050.5 and PRC Section 5097.98 require that the cultural resources specialist contact the Native American Heritage Commission (NAHC) within 24 hours. The NAHC, as required by PRC Section 5097.98, will determine and notify the Most Likely Descendant.

c) **Paleontological Resources.** If significant paleontological resources are discovered during construction activities, work will stop within 100 feet and the project cultural resource specialist will be contacted immediately. The project cultural resources specialist will work with the qualified paleontologist to evaluate the discovery. If the discovery is determined to be significant, PG&E will implement measures to protect and document the paleontological resource. Work may not resume within 100 feet of the find until approval by the cultural resources specialist in coordination with the paleontologist.

In the event that significant paleontological resources are encountered during the project, protection and recovery of those resources may be required. Treatment and curation of fossils will be conducted in consultation with the landowner, PG&E, and CPUC. The paleontologist will be responsible for developing the recovery strategy and will lead the recovery effort, which will include establishing recovery standards, preparing specimens for identification and preservation, documentation and reporting, and securing a curation agreement from the approved agency.

APM CR-4 **Paleontological Resource Monitoring.** Interval (spot check) monitoring for paleontological resources will be required for excavation activities larger than 3 feet in diameter and grading to depths greater than 2 feet that intersect undisturbed sediments in the Riverbank, Modesto, and Laguna Formations. Monitoring is not required for shallow excavations into sediments previously disturbed by agricultural activities, development, or construction related to the existing Palermo–East Nicolaus 115 kV Transmission Line regardless of the mapped geologic unit sensitivity ranking because fossils found within such sediments would lack provenience data critical to scientific significance. In the unlikely event that a highly fossiliferous facies is encountered, monitoring will be conducted full time until excavations within that facies are complete.

Conversely, monitoring may be reduced or suspended in the absence of encountering paleontologically sensitive sediments. Monitoring will be done by a qualified paleontological monitor. The paleontological monitor will document monitoring activities in monitoring logs. Monitoring logs and reports will include the activities observed, geology encountered, description of any resources encountered, and measures taken to protect or salvage fossils discovered. Photographs and other supplemental information will be included as necessary.

5.5.4 Environmental Impacts and Mitigation

a) Would the project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?

Less-than-Significant Impact. Fieldwork and Inventory efforts have resulted in the identification of 10 historic-age built-environment resources within the APE. Of these, six resources (P-51-000222, P-51-000223, P-51-000224, P-58-001618, Palermo-ICF J&S-01-H, Palermo Substation) have been determined ineligible for CRHR listing (under Criteria 1–4) or NRHP listing (under Criteria A–D). Two resources (P-58-001372 and P-51-000150) have been determined eligible for listing in the CRHR/NRHP. Lastly, two resources (P-58-001369, PL-Palermo-011H, and Old Marysville Road) have not been evaluated, and will be assumed to be eligible for CRHR/NRHP listing for the purposes of avoidance. Documentation met the standards for non-significant built-environment resources through preparation of a technical report and Department of Parks and Recreation series forms. Seven transmission line segments intersect the APE (five of which retain segments more than 50 years old); all were found to be ineligible for inclusion in the CRHR/NRHP.

Implementation of **APM CR-1** (requiring preconstruction worker awareness training), **APM CR-2** (requiring temporary flagging and avoidance for the unevaluated or eligible resources (P-58-001372 and P-51-000150, P-58-001369, PL-Palermo-011H, and Old Marysville Road) in the vicinity of work areas during construction), and **APM CR-3** (providing protocols for response, avoidance, and evaluation of inadvertent archaeological discoveries) would substantially reduce adverse effects (see Section 5.5.3, Applicant Proposed Measures). Consequently, the proposed project would not cause a substantial adverse change in the significance of a historical resource; therefore, impacts would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant.**

b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

Less-than-Significant Impact. Four historic-age archaeological sites were identified within the project APE through Phase I cultural resources inventory efforts. Three of the sites (Nicolaus-ICF J&S-01-H, PL-Palermo-02H, and PL-Palermo-03H) were determined not eligible for listing in either the CRHR or NRHP. The remaining site (PL-Palermo-011H) has been assumed eligible for CRHR/NRHP listing for the purpose of avoidance.

Three isolates (Isolate PL-Palermo-01H, Isolate PL-Palermo-ISO-01, and Isolate PL-Rio-Oso-01) were also identified within the APE; these resources meet the definition of an archaeological isolate, are not CRHR/NRHP eligible, and require no additional consideration beyond the recordation completed as part of the prepared technical study.

Temporary flagging for avoidance of PL-Palermo-011H during construction would be implemented in compliance with **APM CR-2**. Additional applicant proposed measures would include **APM CR-1,** preconstruction worker awareness training for project personnel; and **APM CR-3**, defined identification and evaluation protocols to be implemented in the event of inadvertent discovery of cultural resources. With these measures, the project will not cause a substantial adverse change in the significance of an archaeological resource. Impacts would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

c) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less-than-Significant Impact. Portions of the project are underlain by Laguna, Modesto, and Riverbank Formations, which are assigned PFYC Class 3 and considered to have a moderate potential to contain paleontological resources. The remaining younger Quaternary alluvium or basin deposits, Tuffs of Oroville, or Jurassic volcanic deposits have a low potential to contain paleontological resources. Areas disturbed by previous construction related to the existing Palermo–East Nicolaus 115 kV Transmission Line also have a low potential to contain intact paleontological resources.

Initial disturbances of soils mapped within Laguna, Modesto, and Riverbank Formations would be subject to periodic spot-checks by a qualified paleontological monitor (**APM CR-4**). The monitoring strategy will be adjusted at the recommendation of the qualified paleontologist based on the observed subsurface potential to contain intact unanticipated paleontological resources. Protocols defined by **APM CR-3** would be implemented in the event of an unanticipated paleontological discovery, including the temporary halt of ground-disturbing work within 100 feet and the evaluation of the find by a qualified paleontologist. With these measures, the project would not cause a substantial adverse change in the significance of paleontological resources; impacts would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

d) Would the project disturb any human remains, including those interred outside of formal cemeteries?

No Impact. Cultural resources archival research, intensive-level pedestrian survey, and correspondence with the NAHC and NAHC-listed Native American tribal representatives did not identify the presence, or receive information related to, human remains within the project area. **APM CR-3** would be implemented should human remains be discovered, which requires following protocols defined in California Health and Safety Code Section 7050.5 and California Public Resources Code Section 5097.98. **No impact** to human remains would occur.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

5.5.5 References Cited

14 CCR 15000–15387 and Appendices A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

36 CFR, Parts 800.1–800.16 and Appendix A. Protection of Historic Properties.

Basgall, M.E., L. Johnson, and M. Hale . 2002. "An Evaluation of Four Archaeological Sites in the Lead Mountain Training Area, Marine Corps Air Ground Combat Center, Twentynine Palms, California." Submitted to U.S. Army Corps of Engineers, Fort Worth, Texas.

California Health and Safety Code, Division 7: Dead Bodies; Part 1: General Provisions; Chapter 2; General Provisions; Sections 7050.5–7055.

California Public Resources Code, Division 5: Parks and Monuments; Chapter 1: State Parks and Monuments; Article 2: Historical Resources, Sections 5020–5029.6

California Public Resources Code, Sections 5097–5097.993. Native American Historic Resource Protection Act: Archaeological, Paleontological, and Historical Sites; Native American Historical, Cultural, and Sacred Sites.

California Public Resources Code, Section 21000–21177. California Environmental Quality Act (CEQA), as amended.

Carlson, A. 1986. *Tahoe National Forest Cultural Resources Overview, Part II: Ethnography*. Report Number 19. Report on file at Tahoe National Forest, Nevada City.

CRM (Cogstone Resource Management Inc.). 2011. *Cultural Resources Assessment Update Report for the Rincon Del Rio Project, Nevada County, California*.

Davis, E.L. 1978. *The Ancient Californians: Rancholabrean Hunters of the Mojave Lakes Country*. Los Angeles, California: Natural History Museum of Los Angeles County.

Elsasser, A.B. 1960. *The Archaeology of the Sierra Nevada in California and Nevada*. University of California Archaeological Survey Reports 51. Berkeley, California.

Elsasser, A.B., and W.A. Gortner. 1991. "The Martis Complex Revisited." *North American Archaeologist* 12(4): 361–376.

Elston, R.G., J.O. Davis, and G. Townsend. 1977. *The Archaeology of the Tahoe Reach of the Truckee River*. Submitted to the Tahoe–Truckee Sanitation Agency, Nevada.

Golla, V. 2007. "Linguistic Prehistory." In *California Prehistory: Colonization, Culture, and Complexity*, edited by T.L. Jones and K.A. Klar, 71–82. Lanham, Maryland: AltaMira Press.

Golla, V. 2011. *California Indian Languages*. Los Angeles, California: University of California Press.

Grunsky, F.R. 1989. *Pathfinders of the Sacramento Region: They Were There Before Sutter*. Sacramento County Historical Society.

Heizer, R.F., and A.B. Elsasser. 1953. *Some Archaeological Sites and Cultures of the Central Sierra Nevada*. University of California Archaeological Survey Reports 12. Berkeley, California.

Hoover, M., H. Rensch, E. Rensch, W. Abeloe, and D. Kyle. *1990 Historic Spots in California*. 4th ed., revised by D.E. Kyle. Palo Alto, California: Stanford University Press.

ICF Jones & Stokes. 2008. *Cultural Resources Inventory and Evaluation Report for the Proposed Palermo-East Nicolaus 115-kV Transmission Line Reconductoring Project, Butte, Sutter and Yuba Counties, California*. Prepared by ICF Jones & Stokes for Pacific Gas & Electric, Sacramento, California. November 2008.

Kroeber, A.L. 1925. *Handbook of the Indians of California*. New York, New York: Dover Publications.

Moratto,M.J. 1984. *California Archaeology*. Academic Press.

NPS (National Park Service). 1995. "How to Apply the National Register Criteria."

Pacific Legacy. 2015. *Final Report Cultural Resources Inventory for the South of Palermo 115 kV Power Line Reinforcement Project, Butte, Sutter, and Yuba Counties*. Prepared for Pacific Gas and Electric Company, Environmental Management, San Ramon, California.

Pacific Legacy. 2016. *Re: Cultural Resources Evaluation Report for the South of Palermo 115 kV Power Line Reinforcement Project, Butte, Sutter, and Yuba Counties*. Prepared for Pacific Gas and Electric Company, Environmental Management, San Ramon, California.

Paleo Solutions. 2015. "Paleontological Technical Study, South of Palermo 115 kV Power Line Reinforcement Project; Butte, Yuba, and Sutter Counties, California." Letter report from C. Richards and G.L. Aron (Paleo Solutions) to J. Holson (Pacific Legacy Inc.). November 16, 2015.

Riddell, F.A. 1978. "Maidu and Konkow." In *California*, edited by R.F. Heizer, 370–386. *Handbook of North American Indians*, vol. 8. Washington, DC: Smithsonian Institution.

Wilson, N., and A. Towne. 1978. "*The Nisenan*." In *Handbook of North American Indians*, Volume 8, edited by R.F. Heizer. Washington, DC: Smithsonian Institution.

5.6 Geology and Soils

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
GEOLOGY AND SOILS – Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist–Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

5.6.1 Environmental Setting

The project area lies within Butte, Yuba, and Sutter Counties. Land use near the project area is primarily agricultural land and open rangeland, with intermittent rural and urban residential development and some commercial and industrial development. Agricultural uses include rice fields, orchards, field crops, and pastures.

Topography

Topographically, the project area lies near the eastern margin of the Sacramento Valley, which represents the northern third of California's Great Valley Geomorphic Province (Norris and Webb 1990, as cited in PG&E 2016a). The Sacramento Valley is bounded on the northeast by a volcanic plateau of the Cascade Range, on the east by the Sierra Nevada, and on the west by the northern Coast Ranges. The topography along the project area is mainly flat, with some gently rolling terrain near the base of the Sierra Nevada foothills in Butte and Yuba Counties.

Slope gradients are generally less than 2% along most of the project area, but a few areas with steeper slope gradients exist in rolling topography along the Palermo Sub-Line Segment near Palermo Substation (approximately 5% to 15%), and at embankments near the Yuba and Bear Rivers (Google Earth 2016). The project area ranges in elevation from a high of approximately 400 feet above mean sea level (amsl) at the northern end near Oroville, to a low of approximately 18 feet amsl on one of the western spurs, near Olivehurst (Google Earth 2016).

Geology and Soils

The surficial deposits underlying the entire project alignment consist of Quaternary- and Tertiary-age non-marine alluvial deposits characterized by complexly interbedded sands, silts, and clays (CGS 2010a). Geologists have mapped the geologic units underlying the proposed alignment at various degrees of detail and have divided the valley-fill deposits into various geologic formations representing different ages and environments of deposition. At greater depths beneath the ground surface are older fine-grained layers of clay (formed in marine and lacustrine environments) and occasional volcanic rocks that form the upper and lower boundaries (i.e., aquitards) of the major groundwater-bearing zones.

The geologic units most important to the project are shallow Quaternary[1] and Tertiary[2] deposits consisting of typically unconsolidated to semi-consolidated non-marine sedimentary formations from Pliocene[3] through Holocene[4] age (CGS 2010a). A preliminary geologic evaluation of the project area by Kleinfelder (2008) listed the geologic units underlying the alignment as follows, from youngest to oldest:

- **Quaternary Alluvium**. Quaternary alluvium is Holocene age, and comprises stream channel deposits and tailings. The tailings deposits were derived from dredge gold and gravel mining operations, and consist of well-sorted, unconsolidated silt, sand, gravel,

[1] The Quaternary Period extends from 2.6 million years ago to the present.
[2] The Tertiary Period extends from 66 million to 2.6 million years ago.
[3] The Pliocene epoch extends from 6.9 million to 2.6 million years ago.
[4] The Holocene epoch extends from 10,000 years ago to the present.

and cobble, with lesser amounts of clay. The thickness of this unit varies up to several tens of feet in the project area.

- **Basin Deposits**. Basin deposits are Holocene age and are composed of fine-grained silt and clay derived from the same sources as the younger alluvium. These deposits vary in thickness from approximately 3 to 6 feet along the perimeter of the valley to almost 200 feet in its center.
- **Modesto Formation**. The Modesto Formation consists of Upper Pleistocene-age alluvium deposited by existing drainages in the region, including alluvial terraces, alluvial fans, and abandoned channel ridges. In the project area, it consists of gravelly sand, silt, and clay. The maximum thickness of this formation is approximately 200 feet, with a prominent clay layer occurring near the top (Helley and Harwood 1985, as cited in PG&E 2016a).
- **Riverbank Formation**. The Riverbank Formation underlies the Modesto Formation and is Pleistocene age. It consists of weathered, reddish gravel, sand, and silt that were deposited as alluvial terraces and fans. The maximum thickness of this formation is approximately 200 feet.
- **Laguna Formation**. The Laguna Formation is Pliocene age and stratigraphically underlies the Quaternary deposits described above. The Laguna Formation consists of interbedded alluvial gravel, sand, and silt deposited by the ancestral Feather, Yuba, and Bear Rivers. This formation ranges in thickness from approximately 200 feet near Oroville to 60 feet near Sacramento.

Of the geologic units above, a significant majority of the proposed alignment is underlain by either the Modesto Formation or the Riverbank Formation. The northern end of the South of Palermo Line and the Palermo Sub-Line Segment is underlain by the Laguna Formation. Areas on either side of Honcut Creek, Yuba River, and Bear River are mapped as Quaternary alluvium, and certain short segments of the South of Palermo Line are crossed by basin deposits.

The surface soils in the project area are primarily loams,[5] well drained to moderately well drained, with varied infiltration rates. Loams are a generally fertile soil of clay and sand that contains humus (i.e., organic material). Table 5.6-1 identifies the soil types and characteristics encountered along the project area.

[5] Loam is soil composed of sand, silt, and clay in relatively even concentration (about 40-40-20 percent concentration, respectively). The term is often qualified to indicate a relative abundance of one constituent over others (e.g., a "sandy loam" is a loam, but where sand is more abundant than silt and clay).

Table 5.6-1
Soil Units and Characteristics

Soil Name[1]	Soil Surface Texture[1]	Infiltration Rate[1]	Soil Drainage Class[1]	WEG/WEI[2]
Columbia	Fine sandy loam	Slow	Somewhat poorly drained	3/86
Cometa	Loam	Very slow	Well drained	6/48
Conejo	Loam	Moderate	Well drained	6/48
Holillipah	Loamy sand	High	Somewhat excessively drained	2/134
Hollenbeck	Silty clay loam	Very slow	Moderately well drained	4/86
Kimball	Loam	Very slow	Well drained	6/48
Marcum	Clay loam	Slow	Moderately well drained	6/48
Marysville	Loam	Moderate	Well drained	6/48
Nueva	Loam	Moderate	Somewhat poorly drained	6/48
Oakdale	Sandy loam	Moderate	Well drained	3/86
Redding	Gravelly loam	Very slow	Moderately well drained conductivity, wet state high in the profile	6/48
Shanghai	Silt loam	Slow	Somewhat poorly drained	6/48
San Joaquin	Loam	Slow and very slow	Well and moderately well drained	6/48
Tujunga	Sand	High	Somewhat excessively drained	1/220

Source: PG&E 2016a.

1 Soil name, soil surface texture, infiltration rate, and soil drainage class from taken from EDR 2015, as cited in PG&E 2016a.

2 Wind erodibility group (WEG) and wind erodibility index (WEI) data taken from the U.S. Department of Agriculture Web Soil Survey database (NRCS 2015, as cited in PG&E 2016a), accessed using the University of California Davis California Soil Resource Lab web page (UC Davis 2015, as cited in PG&E 2016a).

The infiltration rates of the soils in the project area are predominantly very slow to moderate. Soils with a high infiltration rate are deep, well drained to excessively well drained sands and gravels. Soils with a moderate infiltration rate are deep to moderately deep, moderately well drained and well drained, with moderately coarse textures. Soils with slow infiltration rates may have layers impeding downward movement of water or soil horizons with fine textures. Soils with very slow infiltration rates may be clayey, have a high water table, or include a relatively impervious layer (EDR 2015, as cited in PG&E 2016a).

The soil drainage class of soils in the project area ranges from somewhat poorly drained to somewhat excessively drained, but is primarily moderately well drained. Soil drainage class indicates soil wetness or degree of saturation in the presence of applied surface water. Poorly drained soil conditions can occur when the amount of water added to the soils exceeds that removed by drainage, due to an impervious material in the subsurface or a high groundwater table. Soil drainage directly affects soil saturation, which can affect runoff and soil erosion. Soils near the Bear and Yuba Rivers generally tend to be better drained (UC Davis 2015, as cited in PG&E 2016a).

The wind erodibility group (WEG) value of a soil may be considered a general indicator of a soil's tendency toward erodibility when disturbed and unvegetated. WEG values range from 1 to 8; in general, soils with a lower WEG may be considered more erodible. The WEG of the soils in the project area ranges from 1 to 6, but most of the soils have a WEG of 6, and only two soils have a WEG of 1 or 2. The wind erodibility index (WEI) is related to the WEG and may also be considered a general indicator of a soil's tendency toward erodibility when disturbed and unvegetated. The units for WEI are in tons per acre per year (NRCS 2015, as cited in PG&E 2016a), and a higher WEI indicates a greater tendency toward erodibility. The WEI of the soils in the project area ranges from 48 to 220, but most of the soils have a WEG of 48 to 86, and only two of the soils fall above this range.

Erosion

Erosion is the process by which rocks, soil, and other land materials are abraded or worn away from Earth's surface over time. A soil's susceptibility to erosion varies, and is a function of its texture, structure, topography, amount of vegetative cover, climate, drainage, and human activity. Erosion from water mainly occurs in loose soils on moderate-to-steep slopes, particularly during high-intensity storm events and in areas that are sparsely vegetated or where the soil structure has been disturbed. In general, the Sacramento Valley is relatively level and is considered to have a low erosion potential relative to areas with steeper slopes, such as the foothills to the east (Yuba County 1994, as cited in PG&E 2016a). The locations most susceptible to erosion are near streambanks, where sandy soils and steeper slopes can contribute to increased erosion potential (UC Davis 2015, as cited in PG&E 2016a). The soils near the Yuba and Bear Rivers have the lowest WEG and the highest WEI, as indicated in Table 5.6-1, and thus are of the most concern from an erosion perspective.

Faults and Seismicity

There are no Alquist–Priolo Earthquake Fault Zones or other known faults within or adjacent to the proposed project site (CGS 2010b, 2016a). The nearest Alquist–Priolo Earthquake Fault Zone is the Cleveland Hill Fault, located 2.5 miles east of the Palermo Sub-Line Segment (CGS 2016a). See Figure 5.6-1 for regional fault activity. The Cleveland Hill Fault is a splay of the Foothills Fault System that has displayed historic activity, including surface displacement along approximately 2.2 miles of the fault during an earthquake with a Richter magnitude of 5.7, with the epicenter just south of Oroville, in 1975. The maximum credible earthquake on this fault is estimated to be Richter magnitude 6.5 (Yuba County 1994, as cited in PG&E 2016a).

According to the 2010 Fault Activity Map of California, there are no potentially active or pre-Quaternary faults that cross the proposed alignment (CGS 2010b). However, there is a pre-

Quaternary fault (older than 1.6 million years old) and an early-Quaternary fault approximately 5–10 miles east of the South of Palermo Line: the Prairie Creek Fault and the Swan Ravine Fault, respectively (CGS 2010b). These faults are part of the northern Foothills Fault System, which is considered a system of low-level seismicity and has very little history of seismic activity. In addition, the Willows Fault Zone, which passes along the west side of Sutter Buttes (approximately 35 miles west of the northern part of the project alignment), is a concealed, pre-Quaternary fault zone (CGS 2010b). Due to their considerable age and lack of evidence of activity in the Holocene period (i.e., last 10,000 years), the aforementioned faults are not considered to be probable sources of future large-magnitude earthquakes.

Ground Shaking

Ground shaking, a general term referring to all aspects of motion of the Earth's surface resulting from an earthquake, is normally the major cause of damage in seismic events. With the exception of the Cleveland Hills Fault (which has a maximum credible earthquake of Richter magnitude 6.5), there are no probable sources of large earthquakes in proximity to the project area, so the seismicity potential of the area is attributable to distant rather than nearby sources. The project area is in a region of California associated with generally low seismic shaking potential, as indicated on the CGS map Earthquake Shaking Potential for California (CGS 2008). The shaking potential map indicates that the entire proposed project alignment is in a region that is distant from known, active faults and will experience lower levels of shaking and less frequent shaking.

The primary tool that seismologists use to evaluate ground-shaking hazard and characterize statewide earthquake risks is a probabilistic seismic hazard assessment (PSHA). The PSHA for the State of California takes into consideration the range of possible earthquake sources and estimates their characteristic magnitudes to generate a probability map for ground shaking. A commonly used PSHA metric consists of the peak ground acceleration (PGA)[6] that has a 10% probability of being exceeded in 50 years (i.e., a 1 in 475 chance). Use of this probability level allows engineers to design structures to withstand ground motions that have a 90% chance of not occurring in the next 50 years, making buildings and structures safer than if they were merely designed for the most probable events.

The PGA for the project area with a 10% chance of being exceeded in a 50-year period ranges between 0.16 and 0.17 g (CGS 2016b). The PGA for the project area with a 2% chance of being exceeded in a 50-year period ranges between 0.26 and 0.31 g (CGS 2016b). For context, these values are relatively low compared to more seismically active regions of California, but in a very

[6] The PGA for a given component of motion is the largest value of horizontal acceleration obtained from a seismograph. PGA is expressed as the percentage of the acceleration due to gravity (g), which is approximately 980 centimeters per second squared.

unlikely scenario (i.e., 2% chance in 50 years), would produce a level of shaking sufficient to be widely felt (even noticed by those driving in vehicles), to move or topple unanchored objects, to cause considerable damage in poorly built or badly designed structures, and to cause slight to moderate damage in ordinary structures (e.g., broken chimneys). A PGA of 0.31 g would be expected to result in negligible structural damage in buildings of good construction that are designed to modern standards.

Liquefaction

Liquefaction, which can occur in earthquakes with strong ground shaking, is mostly found in areas with sandy soil or fill and a high water table located 50 feet or less below ground surface (bgs). Liquefaction can cause damage to property, with the ground below structures liquefying and making the structure unstable, causing sinking or other major structural damage. Evidence of liquefaction may be observed in "sand boils," which are expulsions of sand and water from below the surface due to increased pressure below the surface. Liquefaction during an earthquake requires strong shaking and is not likely to occur in the project area due to the relatively low occurrence of seismic activity; however, the clean sandy layers paralleling the Feather, Yuba, and Bear Rivers have lower soil densities and high overall water table and are potentially a higher-risk area if major seismic activity were to occur. In addition, areas of potentially liquefiable soil can be found beneath the valley floor, especially near streams, including tributaries that are no longer active (Butte County 2010b, as cited in PG&E 2016a). Limited areas of liquefiable soil can also be found in the foothill and mountain regions, but are generally limited to drainages where unconsolidated sandy and silty sediments have accumulated.

Most of the power-line alignment traverses areas of low-to-moderate liquefaction potential (CPUC 2010, as cited in PG&E 2016a). As noted previously, much of the project area is underlain by somewhat consolidated Quaternary and Tertiary terrace deposits belonging to the Modesto, Riverbank, and Laguna Formations, which would generally be expected to have a low liquefaction potential. Quaternary and Holocene age alluvium and basin deposits underlying the remainder of the project area include unconsolidated sand and silt that may be liquefiable, especially near modern streams. Data from the California Department of Water Resources Groundwater Information Center web page indicate that as of fall 2015, the depth to groundwater in the project area generally ranged from approximately 20 to 50 feet bgs, with some areas as shallow as 10 feet bgs, and some as deep as 90 feet bgs (DWR 2016).

Landslides

Slope failures include many phenomena that involve the downslope displacement and movement of material, triggered either by gravity or seismic (earthquake) forces. Exposed rock slopes may

experience rockfalls, rockslides, or rock avalanches, and soil slopes may experience soil slumps, rapid debris flows, and deep-seated rotational slides. Slope stability can depend on a number of complex variables, including the geology, structure, and amount of groundwater, as well as external processes such as climate, topography, slope geometry, and human activity. The factors that contribute to slope movements include those that decrease the resistance in the slope materials and those that increase the stresses on the slope. Slope failure can occur on slopes of 15% or less, but the probability is greater on steeper slopes that exhibit old landslide features such as scarps, slanted vegetation, and transverse ridges.

There is a low probability for landslides in the project area because of the relatively flat topography and the lack of geomorphic features indicative of past landsliding, such as scarps or hummocky topography (Kleinfelder 2008). The project site is not located within a state-designated landslide hazard area, as indicated by the CGS Landslide Map Index web page (CGS 2016a). Furthermore, according to the map Susceptibility to Deep-Seated Landslides in California, the proposed alignment is located in an area of no or very low deep-seated landslide susceptibility (CGS 2011).

The power-line alignment crosses several major rivers and drainages with embankments. Although the above-referenced sources do not report existing landslide hazards associated with these embankments, the embankments could become unstable if they are undercut by erosion.

Subsidence

Land subsidence is the downward settlement of a large area of land, and it has the potential to result in surface infrastructure damage. Historical subsidence in California has resulted from several processes, including oil and gas production, groundwater withdrawal, hydro-compaction, and peat oxidation. Subsidence associated with water or gas withdrawal occurs when compressible subsurface deposits are depressurized as a result of removing water or gas and can no longer support the weight of the overlying material. In the case of groundwater withdrawal, subsidence occurs primarily when groundwater withdrawal from confined aquifers results in the depressurization and dewatering of compressible clay layers. Subsidence generally occurs slowly, and can continue for a period of several years after pumping has stopped, as water continues to move out of compressible clay layers.

The project area is not located near any gas fields (DOGGR 2008); therefore, subsidence due to gas withdrawal is not a hazard in this area. Furthermore, review of groundwater and subsidence information from the Department of Water Resources indicates that the project area is not currently experiencing a problem with subsidence (DWR 2016). With regard to potential future subsidence, the project area between Wheatland and Yuba City has a low potential, and the project area north of Yuba City has a moderate potential, for future subsidence (DWR 2016).

5.6.2 Regulatory Setting

Federal

Occupational Safety and Health Administration Regulations

Excavation and trenching are among the most hazardous construction operations. The Occupational Safety and Health Administration (OSHA) Excavation and Trenching standard, Title 29 of the Code of Federal Regulations, Part 1926.650, covers requirements for excavation and trenching operations. OSHA requires that all excavations in which employees could potentially be exposed to cave-ins be protected by sloping or benching the sides of the excavation, supporting the sides of the excavation, or placing a shield between the side of the excavation and the work area.

State

Alquist–Priolo Earthquake Fault Zoning Act

The Alquist–Priolo Earthquake Fault Zoning Act was passed in 1972 to mitigate the hazard of surface faulting to structures for human occupancy. In accordance with this act, the state geologist established regulatory zones, called "earthquake fault zones," around the surface traces of active faults and has published maps showing these zones. Earthquake fault zones are designated by the California Geological Survey and are delineated along traces of faults where mapping demonstrates that surface fault rupture has occurred within the past 11,000 years. Construction within these zones cannot be permitted until a geologic investigation has been conducted to prove that a building planned for human occupancy will not be constructed across an active fault. These types of site evaluations address the precise location and recency of rupture along traces of the faults and are typically based on observations made in trenches excavated across fault traces.

The proposed project is not within an Alquist–Priolo Earthquake Fault Zone and does not involve a structure for human occupancy; therefore, it is not subject to the requirements of this act.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act of 1990 addresses earthquake hazards other than fault rupture, including liquefaction and seismically induced landslides. Seismic hazard zones are to be mapped by the state geologist to assist local governments in land use planning. The act states that "it is necessary to identify and map seismic hazard zones in order for cities and counties to adequately prepare the safety element of their general plans and to encourage land use

management policies and regulations to reduce and mitigate those hazards to protect public health and safety."

Industry Building Code and Standards

In addition to the requirements of California Public Utilities (CPUC) General Order 95, foundations and structures for electrical substation and transmission facilities are constructed in accordance with applicable industry building codes and standards. For example, Pacific Gas and Electric Company (PG&E; the applicant) standards require substations to be designed and equipped according to qualification requirements described in the Institute of Electrical and Electronics Engineers (IEEE) Standard 693-2005, Recommended Practice for Seismic Design of Substations (2016a). IEEE Standard 693-2005 exists to ensure that substations do not experience damage or loss of function during and after seismic events. Other applicable IEEE standards include (but are not limited to) IEEE 691-2001 (transmission structure foundation design and testing) and IEEE 977-2010 (guide to installation of foundations for transmission line structures).

California Public Utilities Commission General Order 95

The applicant is required to comply with CPUC General Order 95, which institutes requirements for overhead line design, construction, and maintenance (CPUC 2012). Section IV of the order covers mechanical strength requirements for each class of line, either alone or involved in crossings, conflicts, or joint use of poles. The order specifies safety factors for communication and supply line construction that are the minimum allowable ratios of ultimate strengths of materials to the maximum working stresses. The proposed project would add communication lines to existing pole structures; CPUC General Order 95 specifies that any entity planning the addition of facilities that materially increase vertical, transverse, or longitudinal loading on a structure shall perform a loading calculation to ensure that the addition of the facilities will not reduce the safety factors below the values specified. The order also specifies strength requirements for construction materials, and minimum wood pole setting depths for various site conditions. Section VIII of the order includes detailed construction requirements specific to communication lines.

Local

Because the CPUC has exclusive jurisdiction over the siting, design, and construction of the project, the project is not subject to local discretionary regulations. Current project plans do not require installation of any facilities that would require a building permit; however, if plans were to change during final design of the project, PG&E would obtain a building permit or other required ministerial permits.

5.6.3 Applicant Proposed Measures

The applicant will integrate the following applicant proposed measure (APM) into the design and implementation of the proposed project:

APM GEO-1 Where soft or loose soils are encountered during project construction, several measures are available and feasible and can be implemented to avoid, accommodate, replace, or improve such soils. Depending on site-specific conditions and permit requirements, one or more of these measures may be implemented to eliminate impacts from soft or loose soils:

- Locating construction facilities and operations away from areas of soft and loose soil
- Over-excavating soft or loose soils and replacing them with engineered backfill materials
- Increasing the density and strength of soft or loose soils through mechanical vibration and/or compaction
- Installing material, such as aggregate rock, steel plates, or timber mats, over access roads
- Treating soft or loose soils in place with binding or cementing

APMs related to erosion control are described in Section 5.9, Hydrology and Water Quality. APM HYD-1 uses best management practices (BMPs) to prevent erosion from construction-related activities by implementing a stormwater pollution prevention plan (SWPPP).

5.6.4 Environmental Impacts and Mitigation

a) Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

Less-than-Significant Impact. As discussed in Section 5.6.1 (Environmental Setting), the proposed project is not located within an Alquist–Priolo Earthquake Fault Zone or by any other known earthquake fault (CGS 2010b, 2016a). Therefore, the risk of earthquake fault rupture at the proposed substations or

anywhere along the alignment is negligible. Impacts with respect to this criterion would be **less than significant**.

ii) Strong seismic ground shaking?

Less-than-Significant Impact. As discussed in Section 5.6.1, the proposed project would be located in an area of generally low seismic shaking potential. The probabilistic PGA values in the project area (with a 10% chance of occurring in 50 years) range from 0.16 to 0.17 g. This level of ground shaking is sufficient to be widely felt and cause some damage, particularly to older unreinforced masonry structures, but is unlikely to cause damage to structures built to modern seismic standards. Historically, the largest earthquake known to have occurred in the area since the year 1800 was a Moment Magnitude 6.1 earthquake in 1975, which occurred on the Cleveland Hill Fault, located 2.5 miles east of the northern end of the proposed alignment, near Palermo.

Because the proposed project does not include structures for human occupancy, because the structures to be replaced would have the same or greater load-bearing characteristics, and because the proposed work would be collocated with existing infrastructure, although the project site is located in an area that may be subject to seismic ground shaking the proposed project would not increase existing levels of public exposure to fault rupture, seismic ground shaking, or seismic-related ground failure such as liquefaction, The proposed project must comply with strength requirements and safety factors for overhead line design, construction, and maintenance found in CPUC General Order 95, and would be designed and constructed in accordance with appropriate IEEE, American Society for Civil Engineers, and American Concrete Institute standards. Among other requirements, CPUC General Order 95 requires that lines or parts thereof be replaced or reinforced when safety factors have been reduced below certain specified minimums. It should be noted that wind-loading design requirements for overhead lines are generally more stringent than those developed to address strong seismic ground shaking. Therefore, the proposed project would either maintain or (more likely) increase the stability of the overhead electric system as compared to existing conditions.

Certain soil characteristics, especially loose and/or saturated soils, can make poles susceptible to earthquake damage if the methods of installation do not properly account for such conditions. Auger hole and foundation depths for new tubular steel pole (TSP) and lattice steel pole (LSP) structures would be approximately

16–24 feet belowground and hybrid poles are expected to require a hole with maximum diameter of about 8 feet and be placed 14–35 feet belowground. Approximately 192 cubic yards of soil would be excavated during construction activities for each TSP and LSP foundation construction and 105 cubic yards would be excavated for each hybrid pole. In accordance with APM GEO-1, where soft soil conditions are encountered, PG&E would employ one or more measures to avoid, accommodate, replace, or improve such soils. Such methods include moving the installation site to where soils are more suitable, over-excavating and replacing unsuitable soils with engineered fill, or mechanically strengthening the soft soils through vibration, compaction, binding, and/or cementing.

Although the proposed project could be subject to seismic ground shaking, it would not appreciably increase public exposure to such risks, and would be designed and constructed in accordance with applicable industry standards and APM GEO-1. In the unlikely event an earthquake produces significant ground motions in the project area, PG&E would send crews to inspect the lines and repair any damage detected, in accordance with existing practice and procedures. For these reasons, impacts would be **less than significant**.

iii) Seismic-related ground failure, including liquefaction?

Less-than-Significant Impact. As discussed in Section 5.6.1, soils within the proposed project area that are sandy and well sorted and where groundwater is shallow could be susceptible to liquefaction, should ground shaking be sufficient in magnitude to trigger the effect. Data from the Department of Water Resources Groundwater Information Center web page indicates that the depth to groundwater in the project area generally ranges from approximately 20 to 50 feet bgs, with some areas as shallow as 10 feet bgs, and some as deep as 90 feet bgs (DWR 2016). Hazards associated with soil liquefaction and seismic-related ground failure include temporary loss of soil bearing capacity, lateral spreading, differential compaction, and slope instability. Given the low probability and magnitude of ground shaking that can be reasonably expected, liquefaction and lateral spreading impacts in the project area are unlikely to be triggered even if the character of underlying soils and the high groundwater make them susceptible to such effects. Nevertheless, the project design would include excavation of soft, loose, wet soils and replacement with imported structural fill materials, as required by APM GEO-1. Replacement of native soils with properly compacted fill materials would avoid and/or substantially reduce the liquefaction potential of the project site. Furthermore, to comply with CPUC General Order 95, PG&E

would perform any necessary design studies and develop design criteria and measures to address any geologic hazards associated with liquefaction and seismic-related ground failure.

The analysis in Section 5.6.4(a)(ii) is equally applicable to earthquake-induced liquefaction. Because the project would be designed and constructed in accordance with applicable industry standards and APM GEO-1 would be integrated into the project design, impacts would be **less than significant**. As indicated in Section 5.6.4(a)(ii), the project would not affect public exposure to liquefaction hazards.

iv) Landslides?

Less-than-Significant Impact. As discussed in Section 5.6.1, there is a low probability for landslides in the project area because of the relatively flat topography and the lack of geomorphic features indicative of landsliding, such as scarps or hummocky topography. The proposed project site is located on slopes of generally less than 2%, with localized areas along the alignment having slopes between 5% and 10%. These areas include the rolling terrain near Palermo, and riverbanks on either side of the Yuba and Bear Rivers. However, Butte, Yuba, and Sutter Counties have not associated these areas with elevated landslide hazard (PG&E 2016a).

Project-induced effects on landslide potential are limited to actions that increase the extent, likelihood, or severity of landslide hazards for the public or off-site properties. Because the project involves replacement of existing poles in the same or similar location (i.e., within 20 feet of the existing structure), with construction access occurring primarily within existing PG&E right-of-way easements and along existing roads, there are no locations where significant cuts into hillsides would be required. Therefore, project-related effects on the already low landslide hazards along the alignment would be negligible. With incorporation of APM GEO-1 into the project design, PG&E would develop and implement appropriate design criteria and measures to address potentially unstable soil conditions as needed. Accordingly, impacts associated with landslides would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

b) Would the project result in substantial soil erosion or the loss of topsoil?

Less-than-Significant Impact. Some soil erosion occurs naturally in the environment; however, the preliminary stage of construction, especially initial site grubbing, grading, and soil stockpiling, leaves loose soil exposed to the erosive forces of rainfall and high winds. Generally, excessive soil erosion can cause sedimentation problems in storm drain systems: rapid stormwater runoff can initiate or increase the size of shallow channels and/or gullies and potentially undermine engineered soils beneath foundations and paved surfaces. As discussed in Section 5.6.1, surface soils in most of the project area have WEG and WEI ratings that reflect moderate-to-low erosion potential. However, sandy, more erodible soils are located near the intersection of the project area with the Yuba and Bear Rivers. These locations are potentially more susceptible to erosion due to the presence of sandy soils and steeper slopes.

Soil disturbance during construction would include drilling of structure foundations, management of soil spoils piles, establishment of work areas for removal and construction of structures, and construction of temporary pull sites, laydown areas, helicopter landing pads, and temporary overland access routes. Work areas would also be accessed using existing roads, some of which are unpaved. These activities have the potential to increase erosion, especially near stream crossings. During clearing activities, vegetation would be mowed or grubbed, if feasible, to leave root systems intact to encourage resprouting and minimize erosion.

The project is not expected to cause significant issues related to soil erosion for the reasons described in Section 5.9. In addition to the project site being generally located on level ground, the project would result in minimal changes with respect to stormwater flows, runoff, and erosion because a SWPPP would be implemented during project construction to control potential erosion of temporarily disturbed areas (per APM HYD-1). Incorporation of APM HYD-1 into the project design would avoid excessive land disturbance, ensure that temporarily disturbed areas are restored to pre-construction conditions and stabilized, and minimize erosion and loss of topsoil through implementation of erosion control BMPs including perimeter controls (e.g., straw wattles, hay bales, or silt fences), containment measures (i.e., covering stockpiles), and other BMPs. Where applicable, APM HYD-1 also requires the SWPPP to be consistent with the requirements of any Section 401 Water Quality Certification issued for the project under the Clean Water Act and/or Streambed Alteration Agreement issued under California Fish and Game Code Section 1602.

Due to the limited and temporary nature of ground disturbances in any one place, and the implementation of standard erosion control BMPs, the proposed project would not result in

substantial soil erosion or loss of topsoil. Therefore, impacts would be **less than significant**. No additional impacts would occur during operations and maintenance.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

c) Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

Less-than-Significant Impact. As discussed in Section 5.6.4(a), the proposed project does not change the likelihood, magnitude, or extent of existing seismic hazards to people or structures; project components would be constructed in accordance with CPUC General Order 95; and PG&E would continue to respond to earthquakes and other emergencies using established standard operating procedures. Furthermore, subsidence in the Sacramento Valley has been generally limited to areas near the valley center, where gas fields and confined aquifers are located, and not near the edges of the basin, where the project area is located. Even if subsidence were to occur in the future along the project alignment, overhead power lines can accommodate regional subsidence without substantial damage; if problems were to occur, yearly inspections would detect the issue and repairs would be made, as necessary. Limited portions of the project area near stream embankments have steeper slopes that could become unstable if they are undercut by erosion, and lateral spreading could occur near open embankments in areas of shallow groundwater and liquefiable soil. However, the project would not exacerbate these effects. With the implementation of APM GEO-1, PG&E would develop and implement appropriate design criteria and measures to address potentially unstable soil conditions as needed. Accordingly, impacts associated with landslides or lateral spreading would be less than significant.

For these reasons, the impact of the proposed project on the exposure of people or structures to unstable soil units would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

d) Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

Less-than-Significant Impact. Expansive soils contain significant amounts of clay particles that have the ability to give up water (shrink) or take on water (swell). They are generally found in areas that were historically floodplains or lake areas, but they can also

occur in hillside areas. When these soils swell, the change in volume can exert significant pressures on loads that are placed on them, such as buildings or underground utilities, and can result in structural distress and/or damage. If dried out, the soil will contract, often leaving fissures or cracks. Excessive drying and wetting of the soil can progressively deteriorate structures over the years by leading to differential settlement beneath or within buildings and other improvements. Review of county planning documents indicates that the project area is underlain by surface soils with an expansion potential ranging from low to high, with soils of moderate-to-high expansion potential dominating (PG&E 2016a). Expansive soils, if present along transmission and distribution line routes, are unlikely to pose a substantial geotechnical problem because poles would be direct buried using augered holes. Poles and towers would be installed to depths of 7 to 35 feet, which would generally prevent shifting as a result of soil shrink/swell cycles. Expansive soils are more typically a problem for underground linear appurtenances or flat, rigid foundations where greater surface areas are in contact with expansive soils.

Therefore, expansive soils concerns are limited due to the nature of project construction activities, and such concerns are geotechnical concerns only and would not create substantial risks to life and property (no habitable structures are proposed). In accordance with APM GEO-1, where adverse soil conditions are encountered, PG&E would employ one or more measures to avoid, accommodate, replace, or improve such soils. Such methods include moving the installation site to where soils are more suitable, over-excavating and replacing unsuitable soils with engineered fill, or mechanically strengthening the soft soils through vibration, compaction, binding, and/or cementing. In the long run, any of the replacement poles or underground project components that show signs of being affected by expansive soils (e.g., leaning poles, cracked concrete) would be identified and repaired as needed during periodic inspection and maintenance of the proposed project. In no case would the effects of expansive soil create a substantial risk to life and property. Therefore, impacts would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

e) Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

No Impact. The project does not include a wastewater disposal system; therefore, no impact would occur.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

5.6.5 References Cited

CGS (California Geological Survey). 2008. "Earthquake Shaking Potential for California." Prepared by D. Branum, S. Harmsen, E. Kalkan, M. Petersen, and C. Wills. CGS Map Sheet 48.

CGS. 2010a. *Geologic Map of California.* Compilation and interpretation by C.W. Jennings; updated version by C. Gutierrez, W. Bryant, G. Saucedo, and C. Wills. CGS Geologic Data Map No. 2. Accessed September 11, 2016. http://maps.conservation.ca.gov/cgs/gmc/.

CGS. 2010b. *Fault Activity Map of California.* Compilation and Interpretation by C.W. Jennings and W.A. Bryant. CGS Geologic Data Map No. 2. http://maps.conservation.ca.gov/cgs/fam/ on 9/11/2016.

CGS. 2011. *Susceptibility to Deep-Seated Landslides in California*. Prepared by C.J. Wills, F.G. Perez, and C.I. Gutierrez. CGS Map Sheet 58. http://www.conservation.ca.gov/cgs/information/publications/ms/documents/ms58.pdf.

CGS. 2016a. "CGS Information Warehouse: Regulatory Maps." Accessed August 8, 2016. http://maps.conservation.ca.gov/cgs/informationwarehouse/index.html.

CGS. 2016b. "Ground Motion Interpolator (2008)." Probabilistic Seismic Hazard Assessment for Longitude = −122.3219 and Latitude = 41.3047. Accessed September 11, 2016. http://www.quake.ca.gov/gmaps/PSHA/psha_interpolator.html.

CPUC (California Public Utilities Commission). 2012. General Order 95: Overhead Electric Line Construction.

DOGGR (Division of Oil, Gas, and Geothermal Resources). 2008. District 6 Oil and Gas Fields. Map W6-2. May 23, 2008.

DWR (Department of Water Resources). 2016. Groundwater Information Center Interactive Map Application. Depth to Groundwater for Fall 2015. Accessed https://gis.water.ca.gov/app/gicima/ 9/11/2016.

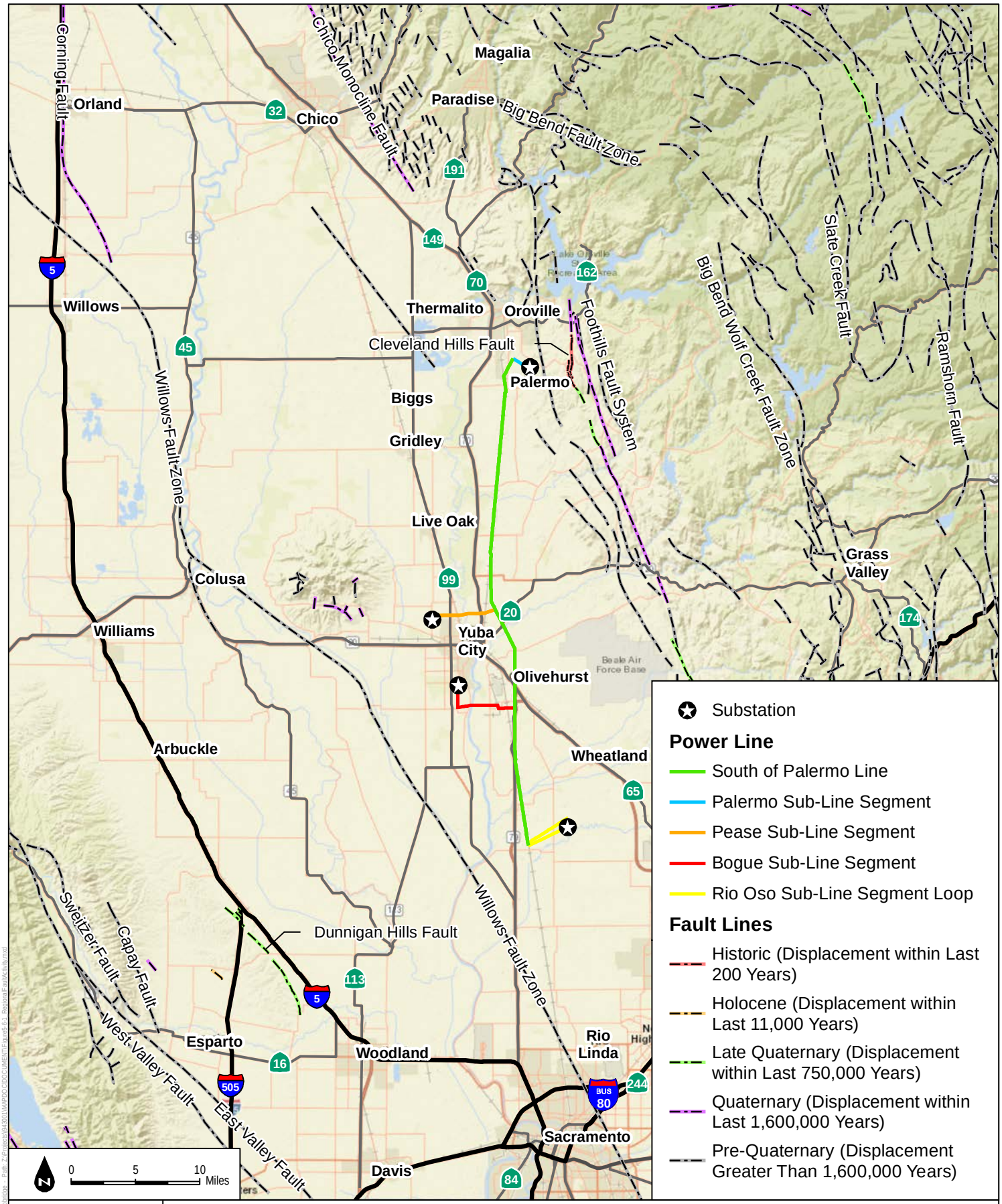
Google Earth. 2016. Elevation Profile and Slope Information Tool, Wheatland to Palermo, California. Accessed September 11, 2016.

Kleinfelder. 2008. "Preliminary Geologic and Geotechnical Information for Proposed Palermo Nicolaus Transmission Line, Butte Yuba and Sutter Counties, California." September 2008.

PG&E (Pacific Gas and Electric Company). 2016a. *Proponent's Environmental Assessment for the South of Palermo 115 kV Power Line Reinforcement Project*. Prepared for Pacific Gas & Electric by ICF International. April 2016.

PG&E. 2016b. "South of Palermo 115 kV Power Line Reinforcement Project, Response to Data Request No.1." June 17, 2016.

INTENTIONALLY LEFT BLANK



SOURCE: PG&E (2016); CGS (2010)

FIGURE 5.6-1

Regional Fault Activity

DUDEK

South of Palermo 115 kV Power Line Reinforcement Project

INTENTIONALLY LEFT BLANK

5.7 Greenhouse Gas Emissions

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
GREENHOUSE GAS EMISSIONS – Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

5.7.1 Environmental Setting

The Greenhouse Effect

Climate change refers to any significant change in measures of climate, such as temperature, precipitation, or wind patterns, lasting for an extended period of time (decades or longer). A greenhouse gas (GHG) is any gas that absorbs infrared radiation in the atmosphere; in other words, GHGs trap heat in the atmosphere. The greenhouse effect is the trapping and build-up of heat in the atmosphere (troposphere) near the Earth's surface. The greenhouse effect traps heat in the troposphere through a threefold process: short-wave radiation emitted by the Sun is absorbed by the Earth, the Earth emits a portion of this energy in the form of long-wave radiation, and GHGs in the upper atmosphere absorb this long-wave radiation and emit it into space and toward the Earth. The greenhouse effect is a natural process that contributes to regulating the Earth's temperature. Without it, the temperature of the Earth would be about 0°F (−18°C) instead of its present 57°F (14°C). If the atmospheric concentrations of GHGs rise, the average temperature of the lower atmosphere will gradually increase. Global climate change concerns are focused on whether human activities are leading to an enhancement of the greenhouse effect.

Greenhouse Gases and Global Warming Potential

GHGs include, but are not limited to, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), ozone (O_3), water vapor (H_2O), hydrofluorocarbons (HFCs), hydrochlorofluorocarbons (HCFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Some GHGs, such as CO_2, CH_4, and N_2O, occur naturally and are emitted to the atmosphere through natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Manufactured GHGs, which have a much greater heat-absorption potential than CO_2, include fluorinated gases, such as HFCs, HCFCs, PFCs, and SF_6, which are associated with

certain industrial products and processes. A summary of the most common GHGs and their sources is included in the following text.[1]

Carbon Dioxide. CO_2, a naturally occurring gas, can be a byproduct of human activities and is the principal anthropogenic (human-caused) GHG that affects the Earth's radiative balance. Natural sources of CO_2 include respiration of bacteria, plants, animals, and fungus; evaporation from oceans; volcanic out-gassing; and decomposition of dead organic matter. Human activities that generate CO_2 are from the combustion of coal, oil, natural gas, and wood.

Methane. CH_4 is a flammable gas and is the main component of natural gas. CH_4 is produced through anaerobic (without oxygen) decomposition of waste in landfills, flooded rice fields, animal digestion, decomposition of animal wastes, production and distribution of natural gas and petroleum, coal production, and incomplete fossil fuel combustion.

Nitrous Oxide. Sources of N_2O include soil cultivation practices (microbial processes in soil and water), especially the use of commercial and organic fertilizers, manure management, industrial processes (such as in nitric acid production, nylon production, and fossil-fuel-fired power plants), vehicle emissions, and the use of N_2O as a propellant (such as in rockets, racecars, aerosol sprays).

Fluorinated Gases. Fluorinated gases are synthetic, powerful GHGs that are emitted from a variety of industrial processes. Several prevalent fluorinated gases include the following:

- **Hydrofluorocarbons:** HFCs are compounds containing only hydrogen, fluorine, and carbon atoms. HFCs are synthetic chemicals that are used as alternatives to O_3-depleting substances in serving many industrial, commercial, and personal needs. HFCs are emitted as byproducts of industrial processes and are used in manufacturing.
- **Hydrochlorofluorocarbons:** HCFCs are compounds containing hydrogen, fluorine, chlorine, and carbon atoms. HFCs are synthetic chemicals that are used as alternatives to O_3-depleting substances (chlorofluorocarbons).
- **Perfluorocarbons:** PFCs are a group of human-made chemicals composed of carbon and fluorine only. These chemicals were introduced as alternatives, along with HFCs, to O_3-depleting substances. The two main sources of PFCs are primarily aluminum production and semiconductor manufacturing. Because PFCs have stable molecular structures and do

[1] The descriptions of GHGs are summarized from the Intergovernmental Panel on Climate Change (IPCC) Second Assessment Report (1995), IPCC Fourth Assessment Report (2007), the California Air Resources Board's Glossary of Terms Used in GHG Inventories (CARB 2015), and U.S. Environmental Protection Agency's Glossary of Climate Change Terms (EPA 2016a).

not break down through the chemical processes in the lower atmosphere, these chemicals have long lifetimes, ranging between 10,000 and 50,000 years.

- **Sulfur Hexafluoride:** SF_6 is a colorless gas that is soluble in alcohol and ether and slightly soluble in water. SF_6 is used for insulation in electric power transmission and distribution equipment, semiconductor manufacturing, and the magnesium industry, and is used as a tracer gas for leak detection.

Gases in the atmosphere can contribute to climate change both directly and indirectly. Direct effects occur when the gas itself absorbs radiation. Indirect radiative forcing occurs when chemical transformations of the substance produce other GHGs, when a gas influences the atmospheric lifetimes of other gases, and/or when a gas affects atmospheric processes that alter the radiative balance of the Earth (e.g., affect cloud formation or albedo) (EPA 2016b). The Intergovernmental Panel on Climate Change (IPCC) developed the global warming potential (GWP) concept to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The GWP of a GHG is defined as the ratio of the time-integrated radiative forcing from the instantaneous release of 1 kilogram of a trace substance relative to that of 1 kilogram of a reference gas (IPCC 2014). The reference gas used is CO_2; therefore, GWP-weighted emissions are measured in metric tons of CO_2 equivalent (MT CO_2E).

CalEEMod assumes that the GWP for CH_4 is 21 (which means that emissions of 1 MT of CH_4 are equivalent to emissions of 21 MT of CO_2), and the GWP for N_2O is 310, based on the IPCC Second Assessment Report (1995). The IPCC has released subsequent assessment reports with updated GWPs, and statewide documents are beginning to transition to the use of the GWPs in the IPCC Fourth Assessment Report. GWPs used in the U.S. Environmental Protection Agency's (EPA's) 2016 Inventory of U.S. Greenhouse Gas Emissions and Sinks and the California Air Resources Board's (CARB's) California 2016 GHG emissions inventory are based on the IPCC Fourth Assessment Report (IPCC 2007), which includes 1 for CO_2, 25 for CH_4, and 298 for N_2O. Nonetheless, the use of the different GWPs would not substantially change the overall project-generated GHG emissions, which are primarily CO_2. As such, for the purposes of this analysis, it is appropriate to use the hardwired GWP values in CalEEMod from the IPCC Second Assessment Report.

Greenhouse Gas Emissions Inventories

Per the EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2014 (2016), total U.S. GHG emissions were approximately 6,870.5 million metric tons (MMT) CO_2E in 2014. The primary GHG emitted by human activities in the United States was CO_2, which represented approximately 80.9% of total GHG emissions (5,556.0 MMT CO_2E). The largest source of CO_2,

and of overall GHG emissions, was fossil-fuel combustion, which accounted for approximately 93.7% of CO_2 emissions in 2014 (5,208.2 MMT CO_2E). Total U.S. GHG emissions have increased by 7.4% from 1990 to 2014, and emissions increased from 2013 to 2014 by 1.0% (70.5 MMT CO_2E). Since 1990, U.S. GHG emissions have increased at an average annual rate of 0.3%; however, overall, net emissions in 2014 were 8.6% below 2005 levels (EPA 2016b).

According to California's 2000–2014 GHG emissions inventory (2016 edition), California emitted 441.5 MMT CO_2E in 2014, including emissions resulting from out-of-state electrical generation (CARB 2016). The sources of GHG emissions in California include transportation, industry, electric power production from both in-state and out-of-state sources, residential and commercial activities, agriculture, high GWP substances, and recycling and waste. The California GHG emission source categories and their relative contributions in 2014 are presented in Table 5.7-1.

Table 5.7-1
GHG Emissions Sources in California

Source Category	Annual GHG Emissions (MMT CO_2E)	Percent of Total[a]
Transportation	159.53	36%
Industrial uses	93.32	21%
Electricity generation[b]	88.24	20%
Residential and commercial uses	38.34	9%
Agriculture	36.11	8%
High GWP substances	17.15	4%
Recycling and waste	8.85	2%
Totals	**441.54**	**100%**

Source: CARB 2016.
Note: Emissions reflect the 2014 California GHG inventory.
GHG = greenhouse gas; MMT CO_2E = million metric tons of carbon dioxide equivalent per year; GWP = global warming potential.
[a] Percentage of total has been rounded, and total may not sum due to rounding.
[b] Includes emissions associated with imported electricity, which account for 36.51 MMT CO_2E annually.

During the 2000 to 2014 period, per capita GHG emissions in California have continued to drop from a peak in 2001 of 13.9 MT per person to 11.4 MT per person in 2014, representing an 18% decrease. In addition, total GHG emissions in 2014 were 2.8 MMT CO_2E less than 2013 emissions. The declining trend in GHG emissions, coupled with programs that will continue to provide additional GHG reductions going forward, demonstrates that California is on track to meet the 2020 target of 431 MMT CO_2E (CARB 2016).

Potential Effects of Human Activity on Climate Change

Globally, climate change has the potential to affect numerous environmental resources through uncertain impacts related to future air temperatures and precipitation patterns. The IPCC's

Climate Change 2014 Synthesis Report (IPCC 2014) indicated that warming of the climate system is unequivocal, and many of the changes observed since the 1950s are unprecedented. Signs that global climate change has occurred include warming of the atmosphere and ocean, diminished amounts of snow and ice, and rising sea levels (IPCC 2014).

In California, climate change impacts have the potential to affect sea-level rise, agriculture, snowpack and water supply, forestry, wildfire risk, public health, and electricity demand and supply (CCCC 2006). The primary effect of global climate change has been a 0.2°C rise in average global tropospheric temperature per decade, determined from meteorological measurements worldwide between 1990 and 2005. Scientific modeling predicts that continued emissions of GHGs at or above current rates would induce more extreme climate changes during the 21st century than were observed during the 20th century. A warming of about 0.2°C (0.36°F) per decade is projected, and there are identifiable signs that global warming could be taking place.

Although climate change is driven by global atmospheric conditions, climate change impacts are felt locally. A scientific consensus confirms that climate change is already affecting California. The average temperatures in California have increased, leading to more extreme hot days and fewer cold nights. Shifts in the water cycle have been observed, with less winter precipitation falling as snow, and both snowmelt and rainwater running off earlier in the year. Sea levels have risen, and wildland fires are becoming more frequent and intense due to dry seasons that start earlier and end later (CAT 2010a).

An increase in annual average temperature is a reasonably foreseeable effect of climate change. Observed changes over the last several decades across the western United States reveal clear signals of climate change. Statewide average temperatures increased by about 1.7°F from 1895 to 2011, and warming has been greatest in the Sierra Nevada (CCCC 2012). By 2050, California is projected to warm by approximately 2.7°F above 2000 averages, a threefold increase in the rate of warming over the last century. By 2100, average temperatures could increase by 4.1°F to 8.6°F, depending on emissions levels. Springtime warming—a critical influence on snowmelt—will be particularly pronounced. Summer temperatures will rise more than winter temperatures, and the increases will be greater in inland California, compared to the coast. Heatwaves will be more frequent, hotter, and longer. There will be fewer extremely cold nights (CCCC 2012). A decline of Sierra Nevada snowpack, which accounts for approximately half of the surface water storage in California, by 30% to as much as 90% is predicted over the next 100 years (CAT 2006).

Model projections for precipitation over California continue to show the Mediterranean pattern of wet winters and dry summers with seasonal, year-to-year, and decade-to-decade variability. For the first time, however, several of the improved climate models shift toward drier conditions by the mid-to-late 21st century in Central, and most notably, Southern California. By the late

century, all projections show drying, and half of them suggest 30-year average precipitation will decline by more than 10% below the historical average (CCCC 2012).

Wildfire risk in California will increase as a result of climate change. Earlier snowmelt, higher temperatures, and longer dry periods over a longer fire season will directly increase wildfire risk. Indirectly, wildfire risk will also be influenced by potential climate-related changes in vegetation and ignition potential from lightning. However, human activities will continue to be the biggest factor in ignition risk. It is estimated that the long-term increase in fire occurrence associated with a higher emissions scenario is substantial, with increases in the number of large fires statewide ranging from 58% to 128% above historical levels by 2085. Under the same emissions scenario, estimated burned area will increase by 57% to 169%, depending on the location (CCCC 2012).

Reduction in the suitability of agricultural lands for traditional crop types may occur. While effects may occur, adaptation could allow farmers and ranchers to minimize potential negative effects on agricultural outcomes by adjusting timing of plantings or harvesting and by changing crop types.

Public-health-related effects of increased temperatures and prolonged temperature extremes, including heat stroke, heat exhaustion, and exacerbation of existing medical conditions, could be particular problems for the elderly, infants, and those who lack access to air conditioning or cooled spaces (CNRA 2009a).

5.7.2 Regulatory Setting

Federal

Massachusetts vs. EPA

On April 2, 2007, in *Massachusetts v. EPA*, the Supreme Court directed the EPA Administrator to determine whether GHG emissions from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In making these decisions, the EPA Administrator is required to follow the language of Section 202(a) of the Clean Air Act. On December 7, 2009, the EPA Administrator signed a final rule with the following two distinct findings regarding GHGs under Section 202(a) of the Clean Air Act:

- The Administrator found that elevated concentrations of GHGs—CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6—in the atmosphere threaten the public health and welfare of current and future generations. This is referred to as the "endangerment finding."

- The Administrator further found the combined emissions of GHGs—CO_2, CH_4, N_2O, and HFCs—from new motor vehicles and new motor vehicle engines contribute to the GHG air pollution that endangers public health and welfare. This is referred to as the "cause or contribute finding."

These two findings were necessary to establish the foundation for regulation of GHGs from new motor vehicles as air pollutants under the Clean Air Act.

Energy Independence and Security Act of 2007

On December 19, 2007, President George W. Bush signed the Energy Independence and Security Act of 2007. Among other key measures, the act would do the following, which would aid in the reduction of national GHG emissions:

1. Increase the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel in 2022.
2. Set a target of 35 miles per gallon for the combined fleet of cars and light trucks by Model Year 2020 and direct National Highway Traffic Safety Administration (NHTSA) to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for work trucks.
3. Prescribe or revise standards affecting regional efficiency for heating and cooling products and procedures for new or amended standards, energy conservation, energy-efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances.

EPA and NHTSA Joint Final Rules for Vehicle Standards

On April 1, 2010, the EPA and NHTSA announced a joint final rule to establish a national program consisting of new standards for light-duty vehicles Model Years 2012 through 2016 that is intended to reduce GHG emissions and improve fuel economy. The EPA approved the first-ever national GHG emissions standards under the Clean Air Act, and the NHTSA approved Corporate Average Fuel Economy (CAFE) standards under the Energy Policy and Conservation Act (75 FR 25324–25728), which became effective on July 6, 2010. The EPA's GHG standards require new passenger cars, light-duty trucks, and medium-duty passenger vehicles to meet an estimated combined average emissions level of 250 grams of CO_2 per mile in Model Year 2016. The CAFE standards for passenger cars and light trucks will be phased in between 2012 and 2016. The rules will simultaneously reduce GHG emissions, improve energy security, increase fuel savings, and provide clarity and predictability for manufacturers. In August 2012, the EPA and NHTSA approved a second round of GHG and CAFE standards for Model Year 2017 and

beyond (77 FR 62624–63200). These standards will reduce motor vehicle GHG emissions for cars and light-duty trucks by Model Year 2025.

Clean Power Plan and New Source Performance Standards for Electric Generating Units

On October 23, 2015, the EPA published a final rule (effective December 22, 2015) establishing the Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units (80 FR 64510–64660), also known as the Clean Power Plan. These guidelines prescribe how states must develop plans to reduce GHG emissions from existing fossil-fuel-fired electric generating units. The guidelines establish CO_2 emission performance rates representing the best system of emission reduction for two subcategories of existing fossil-fuel-fired electric generating units: (1) fossil-fuel-fired electric utility steam-generating units and (2) stationary combustion turbines. Concurrently, the EPA published a final rule (effective October 23, 2015) establishing Standards of Performance for Greenhouse Gas Emissions from New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units (80 FR 64661–65120). The rule prescribes CO_2 emission standards for newly constructed, modified, and reconstructed affected fossil-fuel-fired electric utility generating units. Implementation of the Clean Power Plan has been stayed by the U.S. Supreme Court pending resolution of several lawsuits.

State

Assembly Bill 1493

In a response to the transportation sector accounting for more than half of California's CO_2 emissions, Assembly Bill (AB) 1493 (Pavley) was enacted in July 2002. AB 1493 required CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles determined by the state board to be vehicles that are primarily used for noncommercial personal transportation in the state. The bill required that CARB set GHG emission standards for motor vehicles manufactured in 2009 and all subsequent model years. CARB adopted the standards in September 2004. When fully phased in, the near-term (2009–2012) standards will result in a reduction of about 22% in GHG emissions compared to the emissions from the 2002 fleet, while the mid-term (2013–2016) standards will result in a reduction of about 30%.

Senate Bill 1078

Senate Bill (SB) 1078 (Sher) (September 2002) established the Renewables Portfolio Standard (RPS) program, which requires an annual increase in renewable generation by the utilities equivalent to at least 1% of sales, with an aggregate goal of 20% by 2017. This goal was subsequently accelerated, requiring utilities to obtain 20% of their power from renewable sources by 2010 (see SB 107, Executive Orders S-14-08 and S-21-09.)

Executive Order S-3-05

Executive Order S-3-05 (June 2005) established the following goals: GHG emissions should be reduced to 2000 levels by 2010, GHG emissions should be reduced to 1990 levels by 2020, and GHG emissions should be reduced to 80% below 1990 levels by 2050. Under Executive Order S-3-05, the California Environmental Protection Agency is directed to report every 2 years on progress made toward meeting the GHG targets and the impacts to California due to global warming, including impacts to water supply, public health, agriculture, the coastline, and forestry. The Climate Action Team was formed, which subsequently issued the 2006 Climate Action Team Report to Governor Schwarzenegger and the Legislature (CAT 2006).

The 2009 Climate Action Team Biennial Report (CAT 2010a) expands on the policy outlined in the 2006 assessment. The 2009 report identifies the need for additional research in several different aspects that affect climate change in order to support effective climate change strategies. Subsequently, the 2010 Climate Action Team Report to Governor Schwarzenegger and the California Legislature (CAT 2010b) reviews past climate action milestones, including voluntary reporting programs, GHG standards for passenger vehicles, the Low Carbon Fuel Standard (LCFS), a statewide renewable energy standard, and the cap-and-trade program.

Assembly Bill 32

In furtherance of the goals established in Executive Order S-3-05, the legislature enacted AB 32 (Núñez and Pavley), the California Global Warming Solutions Act of 2006 (September 27, 2006). AB 32 requires California to reduce its GHG emissions to 1990 levels by 2020, representing a reduction of approximately 15% below emissions expected under a "business-as-usual" scenario.

AB 32 directs CARB to develop programs and requirements necessary to achieve the AB 32 goals; to adopt regulations requiring the reporting and verification of statewide GHG emissions; and to monitor compliance and enforcing any rule, regulation, order, emission limitation, emission reduction measure, or market-based compliance mechanism adopted. AB 32 also directs Climate Action Team to coordinate the efforts set forth under Executive Order S-3-05 to continue its role in coordinating overall climate policy. Pursuant to AB 32, CARB must adopt regulations to achieve the maximum technologically feasible and cost-effective GHG emission reductions. Reductions in GHG emissions will come from virtually all sectors of the economy and will be accomplished from a combination of policies, planning, direct regulations, market approaches, incentives, and voluntary efforts. These efforts target GHG emission reductions from cars and trucks, electricity production, fuels, and other sources. The full implementation of AB 32 will help mitigate risks associated with climate change while improving energy efficiency, expanding the use of renewable energy resources and cleaner transportation, and reducing waste.

As required under AB 32, on December 6, 2007, CARB approved the 1990 GHG emissions inventory, establishing the emissions limit for 2020. The 2020 emissions limit was set at 427 MMT CO_2E. In addition to the 1990 emissions inventory, CARB also adopted regulations requiring mandatory reporting of GHGs for the large facilities that account for 94% of GHG emissions from industrial and commercial stationary sources in California. AB 32 requires CARB to develop a scoping plan that lays out California's strategy for meeting the goals and that must be updated every 5 years. On December 11, 2008, CARB approved the initial Climate Change Scoping Plan: A Framework for Change (Scoping Plan) (CARB 2008) to achieve the goals of AB 32. The Scoping Plan establishes an overall framework for a suite of measures that will be adopted to sharply reduce California's GHG emissions. The Scoping Plan evaluates opportunities for sector-specific reductions, integrates all CARB and Climate Action Team early actions and additional GHG reduction measures by both entities, identifies additional measures to be pursued as regulations, and outlines the role of a cap-and-trade program. The key elements of the Scoping Plan include the following (CARB 2008):

1. Expanding and strengthening existing energy efficiency programs as well as building and appliance standards
2. Achieving a statewide renewable energy mix of 33%
3. Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system and caps sources contributing 85% of California's GHG emissions
4. Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets
5. Adopting and implementing measures pursuant to existing state laws and policies, including California's clean car standards, goods movement measures, and the LCFS
6. Creating targeted fees, including a public goods charge on water use, fees on high GWP gases, and a fee to fund the administrative costs of the State of California's long-term commitment to AB 32 implementation

In May 2014, CARB approved the First Update to the Climate Change Scoping Plan: Building on the Framework (Scoping Plan Update; CARB 2014), which builds on the initial Scoping Plan with new strategies and recommendations and identifies opportunities to leverage existing and new funds to further drive GHG emission reductions through strategic planning and targeted low carbon investments. Based on updated information, the Scoping Plan Update revises the 2020 emissions target to 431 MMT CO_2E (based on updated GWPs for GHGs) (CARB 2014).

The Scoping Plan Update highlights California's progress toward meeting the near-term 2020 GHG emission reduction goals defined in the initial Scoping Plan, summarizes the latest climate change science, defines CARB's climate change priorities for the next 5 years, and provides direction on how to achieve the long-term emission reduction goal described in Executive Orders S-3-05 and B-16-12 (see Executive Order B-16-12). The Scoping Plan Update identified nine key focus areas: energy, transportation, agriculture, water, waste management, natural and working lands, short-lived climate pollutants, green buildings, and the cap-and-trade program. The update also recommends that a statewide mid-term target and mid-term and long-term sector targets be established toward meeting the 2050 goal established by Executive Order S-3-05 (i.e., reduce California's GHG emissions to 80% below 1990 levels), although no specific recommendations are made.

Senate Bill 107

SB 107 (Simitian) (September 2006) requires investor-owned utilities, such as Pacific Gas and Electric Company (PG&E), Southern California Edison, and San Diego Gas & Electric, to generate 20% of their electricity from renewable sources by 2010. Previously, state law required that this target be achieved by 2017 (see SB 1078).

Senate Bill 1368

SB 1368 (September 2006) requires the California Energy Commission (CEC) to develop and adopt regulations for GHG emissions performance standards for the long-term procurement of electricity by local, publicly owned utilities. These standards must be consistent with the standards adopted by the California Public Utilities Commission (CPUC). This effort will help protect energy customers from financial risks associated with investments in carbon-intensive generation by allowing new capital investments in power plants that have GHG emissions that are as low as or lower than new combined-cycle natural gas plants. This will be done by requiring imported electricity to meet GHG performance standards in California and by requiring that the standards be developed and adopted in a public process.

Executive Order S-1-07

Executive Order S-1-07 (January 2007) sets a declining LCFS for GHG emissions measured in CO_2E grams per unit of fuel energy sold in California. The target of the LCFS is to reduce the carbon intensity of California passenger vehicle fuels by at least 10% by 2020. The carbon intensity measures the amount of GHG emissions in the lifecycle of a fuel, including extraction/feedstock production, processing, transportation, and final consumption, per unit of energy delivered. CARB adopted the implementing regulation in April 2009. The regulation is

expected to increase the production of biofuels, including those from alternative sources such as algae, wood, and agricultural waste. In addition, the LCFS would drive the availability of plug-in hybrid, battery electric, and fuel-cell power motor vehicles. The LCFS is anticipated to replace 20% of the fuel used in motor vehicles with alternative fuels by 2020.

Senate Bill 97

SB 97 (Dutton) (August 2007) directs the Governor's Office of Planning and Research (OPR) to develop guidelines under the California Environmental Quality Act (CEQA) for the mitigation of GHG emissions. The OPR was tasked to develop proposed guidelines by July 1, 2009, and the California Natural Resources Agency (CNRA) was directed to adopt guidelines by January 1, 2010. On June 19, 2008, the OPR issued a technical advisory as interim guidance regarding the analysis of GHG emissions in CEQA documents (OPR 2008). The advisory indicated that a project's GHG emissions, including those associated with vehicular traffic, energy consumption, water usage, and construction activities, should be identified and estimated. The advisory further recommended that the lead agency determine significance of the impacts and impose all mitigation measures that are necessary to reduce GHG emissions to a less than significant level.

On April 13, 2009, the OPR submitted to the CNRA its proposed amendments to the CEQA Guidelines relating to GHG emissions. On July 3, 2009, the CNRA commenced the Administrative Procedure Act rulemaking process for certifying and adopting the proposed amendments, starting the public comment period. The CNRA adopted CEQA Guidelines amendments on December 30, 2009, and transmitted them to the Office of Administrative Law on December 31, 2009. On February 16, 2010, the Office of Administrative Law completed its review and filed the amendments with the secretary of state. The amendments became effective on March 18, 2010. The amended guidelines establish several new CEQA requirements concerning the analysis of GHGs, including the following:

- Requiring a lead agency to "make a good faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of GHG emissions resulting from a project" (14 CCR 15064.4(a))
- Providing a lead agency with the discretion to determine whether to use quantitative or qualitative analysis or performance standards to determine the significance of GHG emissions resulting from a particular project (14 CCR 15064.4(a))
- Requiring a lead agency to consider the following factors when assessing the significant impacts from GHG emissions on the environment
    - The extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting

  - Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project
  - The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4(b))
- Allowing lead agencies to consider feasible means of mitigating the significant effects of GHG emissions, including reductions in emissions through the implementation of project features or off-site measures, including offsets that are not otherwise required (14 CCR 15126.4(c))

The amended guidelines also establish two new guidance questions regarding GHG emissions in the Environmental Checklist set forth in CEQA Guidelines Appendix G (14 CCR 15000 et seq.):

- Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
- Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

The adopted amendments do not establish a GHG emission threshold and instead allow a lead agency to develop, adopt, and apply its own thresholds of significance or those developed by other agencies or experts.[2] The CNRA also acknowledges that a lead agency may consider compliance with regulations or requirements implementing AB 32 in determining the significance of a project's GHG emissions.[3]

Senate Bill 375

SB 375 (Steinberg) (September 2008) addresses GHG emissions associated with the transportation sector through regional transportation and sustainability plans. Regional GHG reduction targets for the automobile and light-truck sector for 2020 and 2035, as determined by CARB, are required to consider the emission reductions associated with vehicle emission standards (see SB 1493), the composition of fuels (see Executive Order S-1-07), and other CARB-approved measures to reduce GHG emissions. Regional metropolitan planning

[2] "The CEQA Guidelines do not establish thresholds of significance for other potential environmental impacts, and SB 97 did not authorize the development of a statement threshold as part of this CEQA Guidelines update. Rather, the proposed amendments recognize a lead agency's existing authority to develop, adopt and apply their own thresholds of significance or those developed by other agencies or experts" (CNRA 2009b, p. 84).

[3] "A project's compliance with regulations or requirements implementing AB 32 or other laws and policies is not irrelevant. Section 15064.4(b)(3) would allow a lead agency to consider compliance with requirements and regulations in the determination of significance of a project's greenhouse gas emissions" (CNRA 2009b, p. 100).

organizations will be responsible for preparing a Sustainable Communities Strategy within their Regional Transportation Plan. The goal of the Sustainable Communities Strategy is to establish a development plan for the region, which, after considering transportation measures and policies, will achieve the GHG reduction targets, if feasible. If a Sustainable Communities Strategy is unable to achieve the GHG reduction target, a metropolitan planning organization must prepare an Alternative Planning Strategy demonstrating how the GHG reduction target would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies. SB 375 provides incentives for streamlining CEQA requirements by substantially reducing the requirements for "transit priority projects," as specified in SB 375, and eliminating the analysis of the impacts of certain residential projects on global warming and the growth-inducing impacts of those projects when the projects are consistent with the Sustainable Communities Strategy or Alternative Planning Strategy.

Executive Order S-13-08

Executive Order S-13-08 (November 2008) is intended to hasten California's response to the impacts of global climate change, particularly sea-level rise. It directs state agencies to take specified actions to assess and plan for such impacts. It directs the CNRA, in cooperation with the California Department of Water Resources, the CEC, California's coastal management agencies, and the Ocean Protection Council, to request that the National Academy of Sciences prepare a Sea Level Rise Assessment Report by December 1, 2010. The Ocean Protection Council, California Department of Water Resources, and the CEC, in cooperation with other state agencies, are required to conduct a public workshop to gather information relevant to the Sea Level Rise Assessment Report. The Business, Transportation, and Housing Agency was ordered to assess, within 90 days of issuance of the executive order, the vulnerability of the state's transportation systems to sea-level rise. The OPR and the CNRA are required to provide land use planning guidance related to sea-level rise and other climate change impacts. The executive order also required the other state agencies to develop adaptation strategies by June 9, 2009, to respond to the impacts of global climate change that are predicted to occur over the next 50 to 100 years. A discussion draft adaptation strategies report was released in August 2009, and the final 2009 California Climate Adaptation Strategy report was issued in December 2009 (CNRA 2009a). To assess the state's vulnerability, the report summarizes key climate change impacts to the state for the following areas: public health, ocean and coastal resources, water supply and flood protection, agriculture, forestry, biodiversity and habitat, and transportation and energy infrastructure. The report then recommends strategies and specific responsibilities related to water supply, planning and land use, public health, fire protection, and energy conservation.

Executive Order S-14-08

Executive Order S-14-08 (November 2008) focuses on the contribution of renewable energy sources to meet the electrical needs of California while reducing the GHG emissions from the electrical sector. This executive order requires that all retail suppliers of electricity in California serve 33% of their load with renewable energy by 2020. Furthermore, the executive order directs state agencies to take appropriate actions to facilitate reaching this target. The CNRA, through collaboration with the CEC and California Department of Fish and Wildlife (formerly the California Department of Fish and Game), is directed to lead this effort. Pursuant to a Memorandum of Understanding between the CEC and California Department of Fish and Wildlife regarding creating the Renewable Energy Action Team, these agencies will create a "one-stop" process for permitting renewable energy power plants.

Executive Order S-21-09

Executive Order S-21-09 (September 2009) directed CARB to adopt a regulation consistent with the goal of Executive Order S-14-08 by July 31, 2010. CARB is further directed to work with the CPUC and CEC to ensure that the regulation builds upon the RPS program and is applicable to investor-owned utilities, publicly owned utilities, direct access providers, and community choice providers. Under this order, CARB is to give the highest priority to those renewable resources that provide the greatest environmental benefits with the least environmental costs and impacts on public health and that can be developed the most quickly in support of reliable, efficient, cost-effective electricity system operations. On September 23, 2010, CARB adopted regulations to implement a Renewable Electricity Standard, which would achieve the goal of the executive order with the following intermediate and final goals: 20% for 2012–2014, 24% for 2015–2017, 28% for 2018–2019, and 33% for 2020 and beyond. Under the regulation, wind; solar; geothermal; small hydroelectric; biomass; ocean wave, thermal, and tidal; landfill and digester gas; and biodiesel would be considered sources of renewable energy. The regulation would apply to investor-owned utilities and public (municipal) utilities.

Senate Bill X1 2

SB X1 2 (April 2011) expanded the RPS by establishing a goal of 20% of the total electricity sold to retail customers in California per year by December 31, 2013, and 33% by December 31, 2020, and in subsequent years. Under the bill, a renewable electrical generation facility is one that uses biomass, solar thermal, photovoltaic, wind, geothermal, fuel cells using renewable fuels, small hydroelectric generation of 30 megawatts or less, digester gas, municipal solid waste conversion, landfill gas, ocean wave, ocean thermal, or tidal current, and that meets other specified requirements with respect to its location. In addition to the retail sellers covered by SB

107, SB X1 2 adds local, publicly owned electric utilities to the RPS. By January 1, 2012, the CPUC is required to establish the quantity of electricity products from eligible renewable energy resources to be procured by retail sellers in order to achieve targets of 20% by December 31, 2013; 25% by December 31, 2016; and 33% by December 31, 2020. The statute also requires that the governing boards for local, publicly owned electric utilities establish the same targets, and assigns responsibility for ensuring compliance with these targets to the governing boards. The CPUC will be responsible for enforcement of the RPS for retail sellers, while the CEC and CARB will enforce the requirements for local, publicly owned electric utilities.

Executive Order B-16-12

Executive Order B-16-12 (March 2012) directs state entities under the Governor's direction and control to support and facilitate development and distribution of zero-emission vehicles. This executive order also sets a long-term target of reaching 1.5 million zero-emission vehicles on California's roadways by 2025. On a statewide basis, Executive Order B-16-12 also establishes a GHG emissions reduction target from the transportation sector equaling 80% less than 1990 levels by 2050.

Senate Bill 605

SB 605 (September 2014) requires CARB to complete a comprehensive strategy to reduce emissions of short-lived climate pollutants in the state no later than January 1, 2016. As defined in the statute, short-lived climate pollutant means "an agent that has a relatively short lifetime in the atmosphere, from a few days to a few decades, and a warming influence on the climate that is more potent than that of carbon dioxide" (SB 605). SB 605, however, does not prescribe specific compounds as short-lived climate pollutants or add to the list of GHGs regulated under AB 32. In developing the strategy, the CARB must complete an inventory of sources and emissions of short-lived climate pollutants in the state based on available data, identify research needs to address any data gaps, identify existing and potential new control measures to reduce emissions, and prioritize the development of new measures for short-lived climate pollutants that offer co-benefits by improving water quality or reducing other air pollutants that impact community health and benefit disadvantaged communities. The draft strategy released by CARB in September 2015 focuses on CH_4, black carbon, and fluorinated gases, particularly HFCs, as important short-lived climate pollutants. The draft strategy recognizes emission reduction efforts implemented under AB 32 (e.g., refrigerant management programs) and other regulatory programs (e.g., in-use diesel engines, solid waste diversion) along with additional measures to be developed.

Executive Order B-30-15

Executive Order B-30-15 (April 2015) identified an interim GHG reduction target in support of targets previously identified under Executive Order S-3-05 and AB 32. Executive Order B-30-15 set an interim target goal of reducing GHG emissions to 40% below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing GHG emissions to 80% below 1990 levels by 2050, as set forth in Executive Order S-3-05. To facilitate achievement of this goal, Executive Order B-30-15 calls for an update to CARB's Scoping Plan to express the 2030 target in terms of MMT CO_2E. The executive order also calls for state agencies to continue to develop and implement GHG emission reduction programs in support of the reduction targets. Sector-specific agencies in transportation, energy, water, and forestry were required to prepare GHG reduction plans by September 2015, followed by a report on action taken in relation to these plans in June 2016. Executive Order B-30-15 does not require local agencies to take any action to meet the new interim GHG reduction threshold. It is important to note that Executive Order B-30-15 was not adopted by a public agency through a public review process that requires analysis pursuant to CEQA Guidelines Section 15064.4, and that it has not been subsequently validated by a statute as an official GHG reduction target of the State of California. Executive Order B-30-15 itself states it is "not intended to create, and does not, create any rights of benefits, whether substantive or procedural, enforceable at law or in equity, against the State of California, its agencies, departments, entities, officers, employees, or any other person."

Senate Bill 350

SB 350 (October 2015) expands the RPS by establishing a goal of 50% of the total electricity sold to retail customers in California per year by December 31, 2030. In addition, SB 350 includes the goal to double the energy efficiency savings in electricity and natural gas final end uses (such as heating, cooling, lighting, or class of energy uses on which an energy-efficiency program is focused) of retail customers through energy conservation and efficiency. The bill also requires the CPUC, in consultation with the CEC, to establish efficiency targets for electrical and gas corporations consistent with this goal. SB 350 also provides for the transformation of the California Independent System Operator into a regional organization to promote the development of regional electricity transmission markets in the western states and to improve the access of consumers served by the California Independent System Operator to those markets, pursuant to a specified process.

Senate Bill 32 and Assembly Bill 197

SB 32 and AB 197 (signed by Governor Brown in September 2016) are companion bills that will extend GHG reduction targets and make changes to CARB membership, increase legislative oversight of CARB climate change activities, and expand dissemination of GHG, criteria air pollutant, and toxic air contaminant emissions data to enhance transparency and accountability. SB 32 requires CARB to ensure that statewide GHG emissions are reduced to 40% below 1990 levels by 2030. AB 197 established the Joint Legislative Committee on Climate Change Policies consisting of at least three members of the Senate and three members of the Assembly in order to provide ongoing oversight over implementation of the state's climate policies. AB 197 also added two members of the Legislature to CARB as nonvoting members, requires CARB to make available and update at least annually via its website emissions of GHGs, criteria air pollutants, and toxic air contaminants from reporting facilities, and requires CARB to identify specific information for GHG emissions reduction measures when updating the scoping plan.

California Air Pollution Control Officers Association

The California Air Pollution Control Officers Association (CAPCOA) is the association of air pollution control officers representing all 35 air quality agencies throughout California. CAPCOA is not a regulatory body but has been an active organization in providing guidance in addressing the CEQA significance of GHG emissions and climate change, as well as other air quality issues. CAPCOA also established the Greenhouse Gas Reduction Exchange (GHG Rx) for GHG emission credits in California, which can be purchased to offset GHG emissions.

Local

Butte County Air Quality Management District

The Butte County Air Quality Management District (BCAQMD) has not adopted thresholds of significance for GHGs. In their CEQA Air Quality Handbook (BCAQMD 2014), the BCAQMD recommends that projects evaluate GHG impacts based on compliance with a Climate Action Plan (CAP) or the goals and policies regarding GHGs of the applicable General Plan, or if these are not available, to evaluate the project's total GHG emissions according to the goals of AB 32 and the Scoping Plan or to thresholds of other jurisdictions.

Feather River Air Quality Management District

The Feather River Air Quality Management District (FRAQMD) has jurisdiction over Yuba and Sutter Counties and has not adopted thresholds of significance for GHGs. However, as noted in their Indirect Source Review Guidelines (FRAQMD 2010), the FRAQMD

recommends that lead agencies use the white paper CEQA and Climate Change (CAPCOA 2008) in GHG impact assessments.

Butte County Climate Action Plan

The Butte County CAP is an implementation mechanism of the County of Butte's General Plan, adopted in 2010 and amended in 2012, providing goals, policies, and programs to reduce GHG emissions, address climate change adaptation, and improve quality of life in the county (County of Butte 2014). The CAP also supports statewide GHG emissions reduction goals identified in AB 32 and SB 375 and establishes a qualified reduction plan for which future development within Butte County can tier and streamline environmental analyses under CEQA.

Sutter County Climate Action Plan

The Sutter County CAP was developed to create an emissions baseline from which to benchmark GHG reductions; to provide a plan that is consistent with and complementary to state GHG reduction efforts; to guide the development, enhancement, and implementation of actions that aggressively reduce GHG emissions; to provide a policy document with specific measures to be incorporated into the planning process for future development projects; and to establish a qualified reduction plan for which future development within the County can tier and thereby streamline environmental analyses under CEQA (County of Sutter 2010).

5.7.3 Applicant Proposed Measures

In addition to applicant proposed measure (APM) AQ-1 and APM AQ-2, described in Section 5.3 (Air Quality), during construction PG&E will implement the following APM that will reduce GHG emissions:

APM GHG-1 Minimize GHG Emissions. Pacific Gas and Electric Company (PG&E) shall:

1. Encourage construction workers to carpool to the job site to the extent feasible. The ability to develop an effective carpool program for the project will depend upon the proximity of carpool facilities to the area, the geographical commute departure points of construction workers, and the extent to which carpooling will not adversely affect worker arrival time and the project's construction schedule.
2. Minimize unnecessary construction vehicle idling time for on-road and off-road vehicles. The ability to limit construction vehicle idling time will depend on the sequence of construction activities and when and where vehicles are needed or staged. Certain vehicles, such as large diesel-powered vehicles,

have extended warm-up times following start-up that limit their availability for use following start-up. Where such diesel-powered vehicles are required for repetitive construction tasks, these vehicles may require more idling time. The project will apply a "common sense" approach to vehicle use, so that idling is reduced as far as possible below the maximum of 5 consecutive minutes allowed by California law; if a vehicle is not required for use immediately or continuously for construction activities, its engine will be shut off. Construction foremen will include briefings to crews on vehicle use as part of pre-construction conferences. Those briefings will include discussion of a "common sense" approach to vehicle use.

3. Maintain construction equipment in proper working conditions in accordance with PG&E standards.
4. Minimize construction equipment exhaust by using low-emission or electric construction equipment where feasible. Portable diesel fueled construction equipment with engines 50 horsepower or larger and manufactured in 2000 or later will be registered under the CARB Statewide Portable Equipment Registration Program.
5. Minimize welding and cutting by using compression of mechanical applications where practical and within standards.
6. Encourage use of natural gas-powered vehicles for passenger cars and light-duty trucks where feasible and available.
7. Encourage recycling construction waste where feasible.

5.7.4 Environmental Impacts and Mitigation

a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less-than-Significant Impact. GHG impacts are recognized as exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective (CAPCOA 2008). Similarly, the Final Statement of Reasons for Regulatory Action: Amendments to the CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB 97 confirms that an environmental impact report or other environmental document must analyze the incremental contribution of a project to GHG levels and determine whether those emissions are cumulatively considerable (CNRA 2009b).

Neither the BCAQMD nor the FRAQMD has established GHG emissions thresholds. In recent CEQA documents, the CPUC has elected to use an approach to determining significance of GHG construction emissions based on guidance developed by the South Coast Air Quality Management District (SCAQMD). For construction-related GHGs, SCAQMD recommends that total emissions from construction be amortized over 30 years and added to operational emissions in order account for the short-term construction emissions in the operational impact analysis (SCAQMD 2008). The CPUC has also used a GHG significance threshold of 10,000 MT CO_2E per year, which has been adopted or recommended for adoption to assess GHG emissions impacts for long-term operations of stationary sources by a number of California air districts, including the SCAQMD. This threshold is based on complying with Executive Order S-3-05 GHG emissions reductions goal of 80% below 1990 levels by 2050 and represents a capture rate of 90% of all new and modified projects. A 90% emissions capture rate means 90% of total emissions from all new or modified stationary source projects would be subject to a CEQA analysis, including analysis of feasible alternatives and imposition of feasible mitigation measures (SCAQMD 2008).

The proposed project would replace the existing conductor and modify/replace existing steel lattice towers along approximately 59.5 miles of PG&E's existing Palermo–Rio Oso 115-kilovolt (kV) transmission system, within PG&E's existing utility corridor. The GHG impacts of the project would be primarily construction-related emissions that are temporary and short term in nature and are described in detail below. Maintenance activities for the modified/replaced power lines would be similar to those currently required for the existing facilities and no new long-term operational GHG emissions would occur. In addition, the project will not include any new equipment using SF_6.

Construction of the project would occur in three phases over 36 to 48 months (2018 through 2021) and would generate GHG emissions from on-road vehicle, off-road equipment, and helicopter fuel combustion. PG&E provided project-specific information regarding construction schedule, off-road equipment, haul truck trips, and helicopter use. For short-term construction emissions quantification, the California Emissions Estimator Model (CalEEMod) software (version 2013.2.2) was used to estimate off-road construction equipment GHG emissions. In addition, CARB's EMFAC2014 emission factors were used to estimate on-road GHG emissions from worker vehicles and trucks. Finally, fuel use factors developed by Switzerland's Federal Office of Civil Aviation were used to estimate helicopter GHG emissions (FOCA 2015). Detailed construction emission assumptions and model outputs are included in Appendix C, Air Quality Analysis, to this Initial Study and Mitigated Negative Declaration.

Table 5.7-2 summarizes estimated amortized construction GHG emissions with and without APMs.

Table 5.7-2
Total GHG Construction Emissions (MT CO_2E)

Construction Activity	CO_2E (MT) without APMs	CO_2E (MT) with APMs[1]
Establish temporary overland routes	95.84	91.05
Establish work areas, staging areas, pull sites, and landing zones	560.16	532.15
Stage material and equipment	207.85	197.46
Tubular steel pole foundation/pad concrete work	191.72	182.14
Install new poles/towers	6,205.70	5,895.41
Demolish and remove old towers	6,205.70	5,895.41
Install temporary guard structures	191.33	181.76
Install cage top extensions	152.90	145.26
Install new switches	7.05	6.69
Install new conductor	5,691.91	5,407.32
Install temporary shoefly poles	171.63	163.05
Install tubular steel poles	80.14	76.13
Demolish and remove steel towers	63.41	60.24
Site clean up	476.36	452.55
Helicopter activities	3,455.32	3,282.55
Total GHG emissions from all construction activities over 36 months	**23,757.02**	**22,569.17**
Total GHG emissions amortized over 30 years	**791.90**	**752.31**

Source: PG&E 2016.
MT = metric tons; CO_2E = carbon dioxide equivalent.
[1] Reduction in GHG emissions assumes that implementation of APM GHG-1 will achieve a 5% reduction in emissions. Implementation of APM AQ-1 and AQ-2 may further reduce GHG emissions, but this potential reduction is not quantifiable and is not included here.

As depicted in Table 5.7-2, amortized construction GHG emissions would be approximately 792 MT CO_2E per year without implementation of APMs, which would not exceed the applied significance threshold of 10,000 MT CO_2E per year. This impact would be **less than significant** and would not be cumulatively considerable.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

b) Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less-than-Significant Impact. The Climate Change Scoping Plan approved by CARB on December 12, 2008, provides a framework for actions to reduce California's GHG emissions and requires CARB and other state agencies to adopt regulations and other initiatives to reduce GHGs. As such, the Scoping Plan is not directly applicable to specific projects. Moreover, the Final Statement of Reasons for Regulatory Action: Amendments to the CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB 97 reiterates the statement in the Initial Statement of Reasons that "[t]he Scoping Plan may not be appropriate for use in determining the significance of individual projects because it is conceptual at this stage and relies on the future development of regulations to implement the strategies identified in the Scoping Plan" (CNRA 2009b). Under the Scoping Plan, however, there are several state regulatory measures aimed at the identification and reduction of GHG emissions. CARB and other state agencies have adopted many of the measures identified in the Scoping Plan. Most of these measures focus on area source emissions (e.g., energy usage, high-GWP GHGs in consumer products) and changes to the vehicle fleet (hybrid, electric, and more fuel-efficient vehicles) and associated fuels, among others.

The Scoping Plan recommends strategies for implementation at the statewide level to meet the goals of AB 32 and establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions. Although project implementation would result in temporary construction-related GHG emissions, the project would improve the reliability of the electric transmission system and replace aging facilities in the region. In addition, the lines in the Palermo–Rio Oso transmission system serve as a transmission path for a significant amount of hydroelectric energy flow into PG&E's network and thus the project will reinforce the infrastructure needed to support renewable energy distribution and the associated reductions in GHG emissions. Therefore, the project will be consistent with the goals of the AB 32 Scoping Plan. In regards to consistency with SB 32 (goal of reducing GHG emissions to 40% below 1990 levels by 2030) and Executive Order S-3-05 (goal of reducing GHG emissions to 80% below 1990 levels by 2050), there are no established protocols or thresholds of significance for that future year analysis. However, CARB forecasts that compliance with the current Scoping Plan puts the state on a trajectory toward meeting these long-term GHG goals, although the specific path to compliance is unknown (CARB 2014). As discussed previously, the project supports the GHG reduction goals of the Scoping Plan and would not conflict with the state's trajectory toward future GHG reductions. In addition, because the specific

path to compliance for the state in regard to the long-term goals will likely require development of technology or other changes that are not currently known or available, specific additional mitigation measures for the project would be speculative and cannot be identified at this time. With respect to future GHG targets under SB 32 and Executive Order S-3-05, CARB has also made clear its legal interpretation that it has the requisite authority to adopt whatever regulations are necessary, beyond the AB 32 horizon year of 2020, to meet the reduction targets in 2030 and in 2050; this legal interpretation by an expert agency provides evidence that future regulations will be adopted to continue the state on its trajectory toward meeting these future GHG targets.

Based on the preceding considerations, the project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs, and no mitigation is required. This impact would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

5.7.5 References Cited

BCAQMD (Butte County Air Quality Management District). 2014. *CEQA Air Quality Handbook.* Adopted October 23, 2014.

CAPCOA (California Air Pollution Control Officers Association). 2008. *CEQA & Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*. January 2008.

CARB (California Air Resources Board). 2008. *Climate Change Scoping Plan: A Framework for Change*. December 12, 2008. Accessed August 2016. http://www.arb.ca.gov/cc/scopingplan/document/psp.pdf.

CARB. 2014. *First Update to the Climate Change Scoping Plan: Building on the Framework.* May 2014. Accessed August 2016. http://www.arb.ca.gov/cc/scopingplan/2013_update/first_update_climate_change_scoping_plan.pdf.

CARB. 2015. "Glossary of Terms Used in Greenhouse Gas Inventories." May 6, 2015. Accessed August 2016. http://www.arb.ca.gov/cc/inventory/faq/ghg_inventory_glossary.htm.

CARB. 2016. "California Greenhouse Gas Inventory – 2016 Edition." June 17, 2016. Accessed August 2016. http://www.arb.ca.gov/cc/inventory/data/data.htm.

CAT (California Climate Action Team). 2006. *Climate Action Team Report to the Governor Schwarzenegger and the Legislature*. Sacramento, California. March 2006. Accessed August 2016. http://www.climatechange.ca.gov/climate_action_team/reports/2006report/2006-04-03_FINAL_CAT_REPORT.PDF.

CAT. 2010a. *Climate Action Team Biennial Report*. Sacramento, California. April 2010. Accessed August 2016. http://www.energy.ca.gov/2010publications/CAT-1000-2010-004/CAT-1000-2010-004.PDF.

CAT. 2010b. *Climate Action Team Report to Governor Schwarzenegger and the California Legislature*. Sacramento, California. December 2010. Accessed August 2016. http://www.energy.ca.gov/2010publications/CAT-1000-2010-005/CAT-1000-2010-005.PDF.

CCCC (California Climate Change Center). 2006. "Our Changing Climate: Assessing the Risks to California." CEC-500-2006-077. California Energy Commission, CCCC. July 2006. Accessed August 2016. http://www.energy.ca.gov/2006publications/CEC-500-2006-077/CEC-500-2006-077.PDF.

CCCC. 2012. "Our Changing Climate 2012: Vulnerability & Adaptation to the Increasing Risks from Climate Change in California." A Summary Report on the Third Assessment from the California Climate Change Center. July 2012. Accessed August 2016. http://www.energy.ca.gov/2012publications/CEC-500-2012-007/CEC-500-2012-007.pdf.

CNRA (California Natural Resources Agency). 2009a. *2009 California Climate Adaptation Strategy: A Report to the Governor of the State of California in Response to Executive Order S-13-2008*. Accessed August 2016. http://resources.ca.gov/docs/climate/Statewide_Adaptation_Strategy.pdf.

CNRA. 2009b. *Final Statement of Reasons for Regulatory Action: Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB 97*. December 2009.

County of Butte. 2014. "Butte County Climate Action Plan." Prepared by PMC. February 25, 2014. http://www.buttecap.net/.

County of Sutter. 2010. *Sutter County Climate Action Plan*. Prepared by PBSJ. July 2010. https://www.co.sutter.ca.us/pdf/cs/ps/Climate_Action_plan_.pdf.

EPA (U.S. Environmental Protection Agency). 2016a. "Glossary of Climate Change Terms." August 9, 2016. Accessed August 2016. https://www3.epa.gov/climatechange/glossary.html.

EPA. 2016b. *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2014 EPA 430-R-16-002*. Washington, D.C.: EPA. April 15, 2016. Accessed August 2016. https://www3.epa.gov/climatechange/Downloads/ghgemissions/US-GHG-Inventory-2016-Main-Text.pdf.

FOCA (Switzerland Federal Office of Civil Aviation). 2015. *Guidance on the Determination of Helicopter Emissions*. Last updated: December 2015. Accessed on August 31, 2016. https://www.bazl.admin.ch/bazl/en/home/specialists/regulations-and-guidelines/environment/pollutant-emissions/triebwerkemissionen/guidance-on-the-determination-of-helicopter-emissions.html.

FRAQMD (Feather River Air Quality Management District). 2010. *Indirect Source Review Guidelines*. Adopted June 7, 2010.

PG&E (Pacific Gas and Electric Company). 2016. *Proponent's Environmental Assessment – South of Palermo 115 kV Power Line Reinforcement Project.* Prepared by ICF International. April 2016.

IPCC (Intergovernmental Panel on Climate Change). 1995. *IPCC Second Assessment Synthesis of Scientific-Technical Information Relevant to Interpreting Article 2 of the U.N. Framework Convention on Climate Change*.

IPCC. 2007. *IPCC Fourth Assessment Synthesis of Scientific-Technical Information Relevant to Interpreting Article 2 of the U.N. Framework Convention on Climate Change*.

IPCC. 2014. *Climate Change 2014 Synthesis Report: A Report of the Intergovernmental Panel on Climate Change. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. Accessed August 2016. http://www.ipcc.ch/report/ar5/syr/.

OPR (Governor's Office of Planning and Research). 2008. *CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review*. Sacramento, California: OPR. June 19, 2008. https://www.opr.ca.gov/docs/june08-ceqa.pdf.

SCAQMD (South Coast Air Quality Management District). 2008. "Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans." SCAQMD Climate Change Committee Meetings, September 19, 2008, and October 29, 2008. December 5, 2008.

5.8 Hazards and Hazardous Materials

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
HAZARDS AND HAZARDOUS MATERIALS – Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d) Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☒	☐
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☒	☐
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☒	☐	☐

5.8.1 Environmental Setting

This section provides environmental setting information specific to hazards and hazardous materials in the project vicinity. It describes the environmental conditions within the proposed project area as they relate to the potential presence of hazardous materials (storage, use, transport, and/or release), aviation safety, emergency response, and fire hazards.

Hazardous Materials Definition

The term "hazardous materials" refers to both hazardous substances and wastes. Under federal and state laws, any material, including wastes, may be considered hazardous if it is specifically listed by statute as such or if it is toxic (known to cause adverse human health effects), ignitable (has the ability to burn), corrosive (causes severe burns or damage to materials), or reactive (causes explosions or generates toxic gases). The term "hazardous material" is defined as any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released.[1]

In some cases, past industrial or commercial activities on a site may have resulted in spills or leaks of hazardous materials to the ground, resulting in soil and/or groundwater contamination. Hazardous materials may also be present in building materials and released during building demolition activities. If improperly handled, hazardous materials and wastes can cause public health hazards when released to the soil, groundwater, or air. The four basic exposure pathways through which an individual can be exposed to a chemical agent include inhalation, ingestion, bodily contact, and injection. Exposure can result from an accidental release during transportation, storage, or handling of hazardous materials. Disturbance of subsurface soil during construction can also lead to exposure of workers or the public from stockpiling, handling, or transportation of soils contaminated by hazardous materials from previous spills or leaks.

Review of Existing/Known Hazardous Material Releases

The proposed project would be located within existing Pacific Gas and Electric Company (PG&E) utility easements, located partially within a dedicated PG&E right-of-way (ROW) within rural and agricultural lands or public road ROWs in urban/suburban areas. Land uses surrounding the proposed project consist primarily of transportation infrastructure (i.e., roads and/or railroads), agricultural land, rural residential areas, and urban/developed areas in Yuba City, Olivehurst, Linda, and near Marysville. The project alignment does not cross any areas engaged in heavy industrial uses, manufacturing, or permitted disposal of solid wastes or hazardous materials.

The California Environmental Quality Act (CEQA) requires review of Section 65962.5 of the California Government Code, also known as the "Cortese List," to identify whether the project crosses or is in close proximity to a site known to have had a hazardous materials release or to represent a threat to human health and the environment. Because this statute was enacted over 20 years ago, some of the provisions refer to agency activities that were conducted many years ago

[1] California Health and Safety Code, Chapter 6.95, Section 25501(o).

and are no longer being implemented and, in some cases, the information to be included in the Cortese List does not exist. While Government Code Section 65962.5 makes reference to the preparation of a "list," many changes have occurred related to web-based information access since 1992 and this information is now largely available on the Internet sites of the responsible organizations. The following sources, databases, and lists comprise the Cortese List:

- **Hazardous waste and substance sites from the Department of Toxic Substances Control's (DTSC's) "EnviroStor" database.** The EnviroStor database is an online search and geographic information system (GIS) tool for identifying sites that have known contamination or sites for which there may be reasons to investigate further. The EnviroStor database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. As discussed below, this list was reviewed by Jacobson, James & Associates (2016).
- **List of leaking underground storage tank (UST) sites from the State Water Resources Control Board (SWRCB) "GeoTracker" database.** GeoTracker is the SWRCB's online search and GIS tool for sites that impact groundwater or have the potential to impact groundwater. GeoTracker contains sites that require groundwater cleanup (Leaking USTs, Department of Defense, and Site Cleanup Program), as well as permitted facilities that could impact groundwater (Irrigated Lands, Oil and Gas Production, Operating USTs, and Land Disposal sites.) As discussed below, this database was reviewed by Jacobson, James & Associates (2016).
- **List of solid waste disposal sites identified by SWRCB with waste constituents higher than hazardous waste levels outside the waste management unit.** Review of this list revealed no sites within 1 mile of the proposed project (DTSC 2016a).
- **List of active cease-and-desist orders and cleanup and abatement orders from SWRCB.** Review of this list revealed no sites within 1 mile of the proposed project (DTSC 2016b).
- **List of hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the California Health and Safety Code, as identified by DTSC.** This list only includes two sites in California, neither of which is near the proposed project site (DTSC 2016c).

Jacobson, James & Associates (2016) conducted a review of information on sites within 1 mile on either side of the project area that were identified in federal, state, and local databases related to hazardous materials and wastes. The database review conducted by Jacobson, James &

Associates (2016) is more expansive than the Cortese List and includes numerous local, state, and federal databases, in addition to the Envirostor and Geotracker databases.

The review concluded that the project area is not located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5, and no hazardous materials release incidents or contamination have been reported within the project ROW (Jacobson, James & Associates 2016). One Superfund site and a number of hazardous materials release incidents, leaking UST sites, and toxic cleanup sites were identified within 1 mile of the project ROW centerline. However, these sites were further evaluated and it was concluded that based on their distance from the project area, the nature of the incident or contamination, depth and flow direction of groundwater, and extent of cleanup efforts—it is very unlikely that contamination or hazardous substances associated with these sites would be encountered during construction or operation of the project (Jacobson, James & Associates 2016). Two of the sites (Bonanza Seed Co. and DBA Matsumura Corporation) are located upgradient of the project ROW in areas where groundwater is reported to be 20 to 30 feet deep; however, based on the reported information, it is considered unlikely that contamination associated with these sites has migrated beneath the project area and would be encountered during construction (Jacobson, James & Associates 2016).

Airports

Table 5.8-1 lists the airports located within 2 miles of the project's ROW. Airport land use compatibility plans were reviewed for any airport whose land use compatibility zones (sometimes referred to with other names such as Overflight Safety Zones or Airport Influence Areas) overlaps with the proposed project alignment. The primary issue for airports as it relates to the proposed project is airspace protection, which is accomplished by limits on the height of structures and other objects in the airport vicinity and restrictions on other uses that potentially pose hazards to flight. According to the review of all three County airport land use plans (Sutter, Butte, and Yuba Counties), the only airport whose land use compatibility zones overlaps with the proposed project is the Yuba County Airport (Shutt Moen Associates 2000; Mead & Hunt Inc. 2011; County of Sutter ALUC 1994).

The Airport Influence Area (AIA) for the Yuba County Airport extends approximately 2.5 miles to the south, east, and west, and 4 miles to the north of the ends of the Yuba County Airport runways. Within the AIA are Review Areas 1 and 2. Review Area 1 encompasses locations where noise (from aircraft operations), overflight impacts (from routine flight over a community), safety (from the perspective of minimizing the risks of aircraft accidents beyond the runway environment), and airspace protection (accomplished by limits on the height of structures and other objects in the airport vicinity and restrictions on other uses that potentially pose

hazards to flight) represent potential compatibility concerns. Review Area 2 consists of locations where airspace protection and overflights are both compatibility concerns, but noise and safety are not of concern (Mead & Hunt Inc. 2011).

In addition to the facilities in Table 5.8-1, the Oroville Airport is located 4 miles northwest of the northern portion of the project alignment, the Sacramento International Airport is approximately 14.5 miles south of the southern portion of the alignment, and the privately owned Rio Linda Airport is approximately 16.5 miles south of the southern portion of the alignment. Aside from review of land use compatibility plans, GoogleEarth (2016) imagery was also examined for evidence of private airstrips, though none were located within 2 miles of the proposed project.

Table 5.8-1
Airports in the Project Vicinity

Airport	Address	Distance from Project Alignment (miles)
Butte County		
Siller Bros Inc. Airport – Private Airstrip	Power House Hill Road, Oroville, California 95965	1.6
Sutter County		
Sutter County Airport	146 Garden Highway., Yuba City, California 95991	1.9
Yuba County		
Yuba County Airport	1364 Sky Harbor Drive, Olivehurst, California 95961	1.2

Source: EDR 2015, as cited in PG&E 2016a.

Schools

The California Department of Education's (CDE's) California School Directory (CDE 2014) was reviewed along with the Butte, Yuba, and Sutter County General Plans and aerial maps to determine the proximity of schools to the project area. There are no schools within 0.25 mile of the Butte County portion of the project area. The schools within 0.25 mile of the project area in Yuba County are Linda Elementary (within approximately 0.1 mile), Lindhurst High School (within approximately 0.1 mile), Yuba Gardens Intermediate School (within approximately 0.01 mile), and Yuba College (within approximately 0.15 mile). The only school within 0.25 mile of the Sutter County portion of the project area is East Nicolaus High School, located within approximately 0.10 mile.

Emergency Response

The Butte County Local Hazard Mitigation Plan, the Yuba County Multi-Jurisdictional Multi-Hazard Mitigation Plan, and the Sutter County Local Hazard Mitigation Plan provide hazard mitigation and emergency response protocols in the project area.

These plans are further described as follows:

- **Butte County Local Hazard Mitigation Plan.** The Butte County Local Hazard Mitigation Plan was updated in 2014 and was prepared pursuant to the requirements of the Disaster Mitigation Act of 2000 so that Butte County would be eligible for the Federal Emergency Management Agency's (FEMA's) Pre-Disaster Mitigation and Hazard Mitigation Grant programs. The plan identifies and analyzes existing hazards (such as earthquakes, fire, floods, and drought), assesses community vulnerability and mitigation capabilities, and provides mitigation strategies, a mitigation action plan, and an implementation program (County of Butte 2014).
- **Yuba County Multi-Jurisdictional Multi-Hazard Mitigation Plan.** The Yuba County Multi-Jurisdictional Multi-Hazard Mitigation Plan was developed in 2007 with the input of the Yuba County Board of Supervisors and county stakeholders in collaboration with federal, state, and local governmental agencies and special districts. The plan identifies, profiles, and analyzes existing hazards (such as floods, levee failures, severe weather, dam failure, crime terrorism, and fire), assesses community vulnerability and mitigation capabilities, and provides mitigation strategies, a mitigation action plan, and an implementation program (County of Yuba 1994).
- **Sutter County Local Hazard Mitigation Plan.** The Sutter County Local Hazard Mitigation Plan was developed in 2013 and was prepared pursuant to the requirements of the Disaster Mitigation Act of 2000 to make Sutter County eligible for FEMA's Pre-Disaster Mitigation and Hazard Mitigation Grant programs. The plan identifies, profiles, and analyzes existing hazards (such as floods, levee failures, fires, and severe weather), assesses community vulnerability and mitigation capabilities, and provides mitigation strategies, a mitigation action plan, and an implementation program (County of Sutter 2013).

Collectively, these plans outline strategies, procedures, policies, and organizational structures that are put in place during regional emergencies; describe multi-jurisdictional coordination procedures, levels of alertness/response, shelter/convergence points; and how emergency services would be maintained. Review of these plans revealed no specific mapping or delineation of emergency evacuation or access routes, only that interstates, highways, and prime arterials could all be used in an emergency to access emergency services and facilitate evacuation of affected areas (whether it be a natural disaster or man-made emergency) (County of Yuba 1994; County of Sutter 2013; County of Butte 2014).

Fire Hazard

The California Department of Forestry and Fire Protection (CAL FIRE) uses Fire Hazard Severity Zones (FHSZs) to classify anticipated fire-related hazards for the entire state and includes classifications for State Responsibility Areas (SRAs), Local Responsibility Areas (LRAs), and Federal Responsibility Areas (FRAs). Fire hazard measures physical fire behavior based on vegetation type (fuel), topography, and weather conditions and considers fire spread rate, fire heat production, and production of embers that facilitate fire growth. Fire hazard severity represents the potential of an area to burn and the severity with which it may burn.

Based on CAL FIRE's FHSZ mapping data, the proposed project is situated in areas classified as Moderate, High, and Non-Very High FHSZs, as described below and presented in Figures 5.8-1a, 5.8-1b, 5.8-2a, and 5.8-2b:

- **Butte County:** The eastern portion of the Palermo Sub-Line Segment passes through a High FHSZ in an SRA. In an LRA, the project is located in Non-Very High FHSZs (CAL FIRE 2007a, 2008b).
- **Yuba County:** The South of Palermo Line passes through Moderate FHSZs in the vicinity of Marysville, Linda, Olivehurst, Plumas Lake, and the Bear River. The Bogue Sub Line Segment passes through Moderate FHSZs near Olivehurst and the Feather River (CAL FIRE 2007b, 2007c).
- **Sutter County:** The South of Palermo Line passes through Moderate FHSZs in the vicinity of East Nicolaus (CAL FIRE 2008c).

More recent efforts undertaken by the California Public Utilities Commission (CPUC), in coordination with CAL FIRE, attempt to map environmental conditions associated with an elevated potential for utility-associated fires. On May 26, 2016, the CPUC adopted Fire Map 1 (Rulemaking 15-05-006), which identifies areas of the state where an elevated hazard for the ignition and rapid spread of power line fires exists due to strong winds, abundant dry vegetation, and other environmental conditions (CPUC 2016). Fire Map 1 will be the foundation for development of Fire Map 2, which will delineate the boundaries of a new High Fire-Threat District, where utility infrastructure and operations will be subject to stricter fire-safety regulations (CPUC 2016). Fire Map 2 has not yet been completed.

5.8.2 Regulatory Setting

Federal

The U.S. Environmental Protection Agency (EPA) is the principal federal regulatory agency responsible for the safe use and handling of hazardous materials. The key federal regulations pertaining to hazardous wastes are described below. Other applicable federal regulations are contained primarily in Titles 29, 40, and 49 of the Code of Federal Regulations (CFR).

Toxic Substances Control Act

The Toxic Substances Control Act of 1976 (15 U.S.C. 2601 et seq.) authorizes the EPA to track industrial chemicals produced within or imported into the United States. Under this act, the EPA screens and tests industrial chemicals that pose a potential health hazard to humans or the environment. This act grants the EPA the authority to control and ban newly developed industrial chemicals and other chemicals that pose a risk in order to protect public and environmental health.

Resource Conservation and Recovery Act/Comprehensive Environmental Response, Compensation, and Liability Act of 1980

The Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 address handling, disposal, and spill contingency measures for hazardous substances. The National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR Part 300) specify the requirements for spill response activities. These laws and regulations apply to the proposed project installation activities conducted within the subject area.

Federal Energy Regulatory Commission

The Federal Energy Regulatory Commission (FERC) requires utilities to adopt and maintain minimum clearance standards between vegetation and transmission voltage power lines. These clearances vary depending on voltage. In most cases, the minimum clearances required in state regulations are greater than the federal requirement. In California, for example, the state has adopted General Order 95 rather than the North American Electric Reliability Corporation (NERC) standards as the electric safety standard for the state. Consequently, FERC and NERC are not discussed further.

National Fire Protection Association Codes, Standards, Practices, and Guides

National Fire Protection Association (NFPA) codes, standards, recommended practices, and guides (NFPA Documents) are developed through a consensus standards development process approved by the American National Standards Institute (ANSI). This process brings together professionals representing varied viewpoints and interests to achieve consensus on fire and other safety issues. NFPA standards are recommended guidelines and nationally accepted good practices in fire protection but are not law or "codes" unless adopted as such or referenced as such by the California Fire Code or the Local Fire Agency.

International Fire Code

Created by the International Code Council, the International Fire Code addresses a wide array of conditions hazardous to life and property, including fire, explosions, and hazardous materials handling or usage (although not a federal regulation, but rather the product of the International Code Council). The International Fire Code places an emphasis on prescriptive and performance-based approaches to fire prevention and fire protection systems. Updated every 3 years, the International Fire Code uses a hazards classification system to determine the appropriate measures to be incorporated in order to protect life and property (often times these measures include construction standards and specialized equipment). The International Fire Code uses a permit system (based on hazard classification) to ensure that required measures are instituted.

Institute of Electrical and Electronics Engineers Standard 516-2003

The Institute of Electrical and Electronics Engineers is a leading authority in setting standards for the electric power industry. Standard 516-2003, Guide for Maintenance Methods on Energized Power Lines, establishes minimum vegetation-to-conductor clearances in order to maintain electrical integrity of the electrical system.

State

California hazardous materials and wastes regulations are equal to or more stringent than federal regulations. The EPA has granted the state primary oversight responsibility to administer and enforce hazardous waste management programs. State regulations require planning and management to ensure that hazardous materials are handled, stored, and disposed of properly to reduce risks to human health and the environment. Several key state laws pertaining to hazardous materials and wastes are discussed herein.

Hazardous Materials Release Response Plans and Inventory Act of 1985

The Hazardous Materials Release Response Plans and Inventory Act, also known as the Business Plan Act, requires businesses using hazardous materials to prepare a plan that describes business facilities, inventories, emergency response plans, and training programs. Hazardous materials are defined as raw or unused materials that are part of a process or manufacturing step. They are not considered to be hazardous waste. Health concerns pertaining to the release of hazardous materials, however, are similar to those relating to hazardous waste.

Hazardous Waste Control Act

The Hazardous Waste Control Act created the State Hazardous Waste Management Program, which is similar to, but more stringent than, the federal RCRA program. The act defines "hazardous wastes" as waste products with properties that make them dangerous or potentially harmful to human health or the environment. Hazardous wastes can be the by-products of manufacturing processes or simply discarded commercial products, such as cleaning fluids or pesticides. The act is implemented by regulations set forth in California Code of Regulations (CCR) Title 26, which describes the following required parameters for the proper management of hazardous waste:

- Identification and classification
- Generation and transport
- Design and permitting of recycling, treatment, storage, and disposal facilities
- Treatment standards
- Operation of facilities and staff training
- Closure of facilities and liability requirements.

These regulations list more than 800 materials that may be hazardous and establish criteria for identifying, packaging, and disposing of them. Under this act and CCR Title 26, a generator of hazardous waste must complete a manifest that accompanies the waste from the generator to the transporter to the ultimate disposal location. Copies of the manifest must be filed with the California DTSC.

California Occupational Safety and Health Administration Standards

Worker exposure to contaminated soils, vapors that could be inhaled, or groundwater containing hazardous constituents is subject to the monitoring and personal safety equipment requirements established in Title 8 of the California Occupational Safety and Health Administration regulations.

The primary intent of the Title 8 requirements is to protect workers, but compliance with some of these regulations also reduces potential hazards to non-construction workers and project vicinity occupants through required controls related to site monitoring, reporting, and other activities.

California Environmental Protection Agency

The California Environmental Protection Agency ***(***CalEPA) implements and enforces a statewide hazardous materials program established by Senate Bill 1082 (1993) to consolidate, coordinate, and make consistent the administrative requirements, permits, inspections, and enforcement activities for the following environmental and emergency management programs for hazardous materials:

- Hazardous Materials Release Response Plans and Inventories (Business Plans)
- California Accidental Release Prevention Program
- UST Program
- Aboveground Petroleum Storage Act Requirements for Spill Prevention, Control, and Countermeasure Plans
- Hazardous Waste Generator and On-Site Hazardous Waste Treatment Programs
- California Uniform Fire Code: Hazardous Materials Management Plans and Hazardous Material Inventory Statements.

California Fire Code

The California Fire Code is contained within Title 24, Part 9 of the CCR. Based on the International Fire Code, the California Fire Code is created by the California Buildings Standards Commission and regulates the use, handling, and storage requirements for hazardous materials at fixed facilities. Similar to the International Fire Code, the California Fire Code and the California Building Code use a hazards classification system to determine the appropriate measures to incorporate to protect life and property.

California Code of Regulations

Title 8 CCR, Sections 2700–2989, High-Voltage Electrical Safety Orders, establish essential requirements and minimum standards for the installation, operation, and maintenance of electrical installations and equipment to provide practical safety.

Title 14 CCR, Sections 1250–1258, Fire Prevention Standards for Electric Utilities, provides specific exemptions from electric pole and tower firebreak and electric conductor clearance

standards, and it specifies when and where standards apply. Section 1254 of Title 14 presents guidelines for minimum clearance requirements around utility poles.

Article 8 of Title 14 CCR, Chapter 4 (California Forest Practice Rules), Fire Protection, provides guidelines for fire prevention on forested landscapes, including requirements for fire suppression resources, smoking and matches, lunch/warming fires, blasting and welding, posting, and inspections.

California Health and Safety Code

State fire regulations are established in Section 13000 of the California Health and Safety Code. The section establishes building standards, fire protection device equipment standards, high-rise building and childcare facility standards, interagency support protocols, and emergency procedures. Also, Section 13027 states that the state fire marshal shall notify industrial establishments and property owners having equipment for fire protective purposes of the changes necessary to bring their equipment into conformity with, and shall render them such assistance as may be available in converting their equipment to, standard requirements.

2010 Strategic Fire Plan for California

The 2010 Strategic Fire Plan for California is the statewide plan for adaptive management of wildfire as a cooperative effort between the State Board of Forestry and Fire Protection and CAL FIRE. The central goals that are critical to reducing and preventing the impacts of fire revolve around both suppression and fire prevention efforts. The key goals include the following (CAL FIRE 2010):

1. Improved availability and use of information on hazard and risk assessment;
2. Land use planning, including general plans, new development, and existing developments;
3. Shared vision among communities and the multiple fire protection jurisdictions, including county-based plans and community-based plans such as Community Wildfire Protection Plans;
4. Establishing fire resistance in assets at risk, such as homes and neighborhoods;
5. Shared vision among multiple fire protection jurisdictions and agencies;
6. Levels of fire suppression and related services; and
7. Post-fire recovery.

While the plan puts emphasis on pre-fire adaptive management of risk, including measures such as fuel breaks, defensible space, and other fuel reduction strategies, it does not contain any specific requirements or regulations but rather acts as an assessment of current fire management practices and standards and makes recommendations on how best to improve the practices and standards in place (CAL FIRE 2010).

California Department of Forestry and Fire Protection

CAL FIRE is tasked with reducing wildfire-related impacts and enhancing California's resources. CAL FIRE responds to all types of emergencies including wildland fires and residential/commercial structure fires. In addition, CAL FIRE is responsible for the protection of approximately 31 million acres of private land within the state and, at the local level, is responsible for inspecting defensible space around private residences. CAL FIRE is responsible for enforcing State of California fire safety codes included in the CCR and California Public Resources Codes. CCR Title 14 Section 1254 identifies minimum clearance requirements required around utility poles.

CAL FIRE also inspects utility facilities and makes recommendations regarding improvements in facility design and infrastructure. Joint inspections of facilities by CAL FIRE and the utility owner are recommended by CAL FIRE so that each entity may assess the current state of the facility and successfully implement fire prevention techniques and policies. Violations of state fire codes discovered during inspections are required to be brought into compliance with the established codes. If a CAL FIRE investigation reveals that a wildfire occurred as a result of a violation of a law or negligence, the responsible party could face criminal and/or misdemeanor charges (CAL FIRE 2016). In cases where a violation of a law or negligence has occurred, CAL FIRE has established the Civil Cost Recovery Program, which requires parties liable for wildfires to pay for wildfire-related damages.

More detailed descriptions of the applicable codes and regulations and images of exempt and non-exempt power line structures may be found in the *CAL FIRE Power Line Fire Prevention Field Guide* (CAL FIRE 2008a).

These regulations are discussed in further detail as follows:

- **Public Resources Code 4292** states that a minimum firebreak of 10 feet in all directions from the outer circumference of such pole or tower be established around any pole that supports a switch, transformer, lightning arrester, line junction, or end or corner pole. All vegetation shall be cleared within the firebreak.

- **Public Resources Code 4293** establishes the minimum vegetation clearance distances (between vegetation and energized conductors) required for overhead transmission line construction. Minimum clearances are discussed as follows:
    - A minimum radial clearance of 4 feet shall be established for any conductor of a line operating at 2,400 or more volts but less than 72,000 volts.
    - A minimum radial clearance of 6 feet shall be established for any conductor of a line operating at 72,000 or more volts but less than 110,000 volts.
    - A minimum radial clearance of 10 feet shall be established for any conductor of a line operating at 110,000 or more volts but less than 300,000 volts.
    - A minimum radial clearance of 15 feet shall be established for any conductor of a line operating at 300,000 or more volts.

Specific requirements applicable to the construction and operation of the proposed project include those from Public Resources Code, Division 4, Chapter 6:

- **Section 4427 –** Operation of fire-causing equipment
- **Section 4428** – Use of hydrocarbon-powered engines near forest, brush, or grass-covered lands without maintaining firefighting tools
- **Section 4431** – Gasoline-powered saws, etc.; firefighting tools
- **Section 4442** – Spark arrestors of fire prevention measures, requirements, exemptions.

Fire Hazard Severity Zones

CAL FIRE mapped Fire Hazard Severity Zones in California based on fuel loading, slope, fire weather, and other relevant factors as directed by PRC, Sections 4201–4204, and Government Code Sections 51175–51189. Fire Hazard Severity Zones are ranked from moderate to very high and are categorized for fire protection within an FRA, SRA, or LRA under the jurisdiction of a federal agency, CAL FIRE, or local agency, respectively.

California Public Utilities Commission General Orders

The CPUC General Orders cover all aspects of design, construction, operation, and maintenance of electrical facilities in California.

General Order 95 was adopted in 1941 and was most recently revised in 2014 by CPUC Decision No. 14-02-015. General Order 95 governs the design, construction, and maintenance of overhead electrical lines. Rule 31.1 generally states that design, construction, and maintenance of overhead

electrical lines should be done in accordance with accepted good practices for the given location conditions known at the time by the persons responsible for the design, construction, and maintenance of the overhead electrical lines and equipment. Rule 31 outlines requirements for design, construction, maintenance, and inspection of electrical supply systems.

General Order 128, Rules for Underground Electric Line Construction, includes required clearances, grounding techniques, maintenance, and inspection for underground electric lines.

General Order 131-D, Rules for Planning and Construction of Electric Generation, Line, and Substation Facilities in California, provides CPUC construction application and noticing requirements.

California Code of Regulations – Electrical Utilities

The CCR is a catalog of state laws and regulations adopted by state agencies, including:

- CCR Title 8, Section 2700 et seq., High Voltage Electrical Safety Orders, establishes essential requirements and minimum standards for installation, operation, and maintenance of electrical equipment to provide practical safety and freedom from danger.
- CCR Title 14, Sections 1250–1258, Fire Prevention Standards for Electric Utilities, provides specific exemptions from electric pole and tower firebreak and electric conductor clearance standards, and specifies when and where standards apply.

Local

CPUC General Order 131-D explains that local land use regulations would not apply to the proposed project. However, for information purposes, the following goals and policies included in the general plans for Butte, Yuba, and Sutter Counties would otherwise be relevant to the proposed project.

Butte County

Butte County General Plan

Goal HS-11 of the Health and Safety Element of the Butte County General Plan (County of Butte 2012) is to reduce risks from wildland and urban fire. Policies HS-P11.1, HS-P11.3, and HS-P11-4 may be applicable to utility infrastructure projects (County of Butte 2012):

> **HS-P11.1.** Fire hazards shall be considered in all land use and zoning decisions, environmental review, subdivisions review and the provision of public services.

HS-P11.3. The County supports the Wildfire Mitigation Action Plan, the Butte County Multi-Jurisdictional All-Hazard Pre-Disaster Mitigation Plan (MHMP), and the Butte Unit Community Wildfire Protection Plan prepared by California Department of Forestry and Fire Protection (CAL FIRE) and will cooperate with the Butte County Fire Department and the Butte County Fire Safe Council in implementing these plans.

HS-P11.4. New development projects shall meet current fire safe ordinance standards for adequate emergency water flow, emergency vehicle access, signage, evacuation routes, fuel management, defensible space, fire safe building construction and wildfire preparedness.

Goal HS-12 of the Health and Safety Element of the Butte County General Plan (County of Butte 2012) is to protect people and property from wildland or urban fires. Policies HS-P12.1 and HS-P12-2 may be applicable to utility infrastructure projects:

HS-P12.1. Regulations regarding vegetation clearance around structures, including the removal of ladder fuels, shall be maintained and enforced.

HS-P12.2. Fuelbreaks shall be required along the edge of developing areas in High and Very High Fire Hazard Severity Zones, as shown in Figure HS-7 or the most current data available from CAL FIRE.

Yuba County

Yuba County General Plan

The Health and Safety Element of the Yuba County General Plan (County of Yuba 1996) addresses fire hazards and summarizes fire protection capabilities, staffing and fire insurance concerns, interagency coordination, water supply, land use planning, and fire risk in rural and urban areas. The Health and Safety Element provides recommendations for fire safety, including adoption of the Uniform Fire Code, provisions for emergency access and water supply, and encouraging public involvement in fire risk reduction.

Sutter County

Sutter County General Plan

Goal PS-3 of the Public Services Element of the Sutter County General Plan (County of Sutter 2011) is to minimize risk to life and property resulting from wildland fire hazards. Policies PS 3.1, PS 3.3, and PS 3.4 may be applicable to utility infrastructure projects (County of Sutter 2011):

> **PS 3.1 Development Limitation.** Limit development in areas of extreme, very high, and high wildfire risk.
>
> **PS 3.3 Private Properties.** Require private property owners to remove excessive/ overgrown vegetation and rubbish to prevent and minimize fire risks. (PS 3-B)
>
> **PS 3.4 Wildfire Management Plan.** Require new large-scale development projects (i.e., Specific Plans, Rural Planned Communities) to prepare and implement a County-approved wildfire management plan incorporating fire protection measures for developing properties adjacent to undeveloped lands. The wildfire management plan shall be consistent with any adopted Countywide plan and/or regulations in effect at the time of the project's approval.

5.8.3 Applicant Proposed Measures

The proposed project will integrate the following applicant proposed measure (APM) into the design and implementation of the proposed project.

APM HAZ-1 Hazardous-Substance Control and Emergency Response. PG&E will implement its hazardous substance control and emergency response procedures to ensure the safety of the public and site workers during construction. The procedures identify methods and techniques to minimize the exposure of the public and site workers to potentially hazardous materials during all phases of project construction through operation. They address worker training appropriate to the site worker's role in hazardous substance control and emergency response. The procedures also require implementing appropriate control methods and approved containment and spill-control practices for construction and materials stored on-site. If it is necessary to store chemicals on-site, they will be managed in accordance with all applicable regulations. Material safety data sheets will be maintained and kept available on-site, as applicable.

Project construction will involve soil surface blading/leveling, excavation of up to several feet, and augering to a maximum depth of 35 feet in some areas. In the event that soils suspected of being contaminated (on the basis of visual, olfactory, or other evidence) are removed during site grading activities or excavation activities, the excavated soil will be tested, and if contaminated above hazardous waste levels, will be contained and disposed of at a licensed waste facility. The presence of known or suspected contaminated soil will require testing and investigation procedures to be supervised by a qualified person, as appropriate, to meet state and federal regulations.

All hazardous materials and hazardous wastes will be handled, stored, and disposed of in accordance with all applicable regulations, by personnel qualified to handle hazardous materials. The hazardous substance control and emergency response procedures include, but are not limited to, the following:

- Proper disposal of potentially contaminated soils.
- Establishing site-specific buffers for construction vehicles and equipment located near sensitive resources.
- Emergency response and reporting procedures to address hazardous material spills.
- Stopping work at that location and contacting the County Fire Department Hazardous Materials Unit immediately if visual contamination or chemical odors are detected. Work will be resumed at this location after any necessary consultation and approval by the Hazardous Materials Unit.

PG&E will complete a standard Emergency Action Plan Form as part of project tailboard meetings. The purpose of the form is to gather emergency contact numbers, first aid location, work site location, and tailboard information.

APM HAZ-2 **Worker Environmental Awareness Program for Health, Safety, and Environment (WEAP-HSE)**. The program will include the following components related to hazards and hazardous materials:

- PG&E Health, Safety, and Environmental expectations and management structure.
- Applicable regulations.

- Summary of the hazardous substances and materials that may be handled and/or to which workers may be exposed.
- Summary of the primary workplace hazards to which workers may be exposed.
- Overview of the measures identified in APM HAZ-1.
- Overview of the controls identified in the Storm Water Pollution Prevention Plan (SWPPP under APM HYDRO-1).

APM HAZ-3 Fire Risk Management. PG&E will follow its standard fire risk management procedures, including safe work practices, work permit programs, training, and fire response. Project personnel will be directed to park away from dry vegetation. During fire season in designated State Responsibility Areas, all motorized equipment driving off paved or maintained gravel/dirt roads will have federally approved or State-approved spark arrestors. All off-road vehicles will be equipped with a backpack pump (filled with water) and a shovel. Fire-resistant mats and/or windscreens will be used when welding. In addition, during fire "red flag" conditions (as determined by CAL FIRE), welding will be curtailed. Every fuel truck will carry a large fire extinguisher with a minimum rating of 40 B:C, and all flammable materials will be removed from equipment parking and storage areas.

5.8.4 Environmental Impacts and Mitigation

a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Construction

Less-than-Significant Impact. Construction of the proposed project would involve the use of hazardous materials, such as liquid concrete, vehicle fuels, lubricants and other vehicle-maintenance fluids, hydraulic fluid, and cleaning solvents. When not in use, any hazardous material will be stored in designated construction staging areas in compliance with local, state, and federal requirements. The volume of stored materials in any one place would be small (i.e., generally less than 25 gallons) and the minimum necessary to carry out construction activities along the project alignment. Maintenance and servicing of construction vehicles will occur off site.

Any hazardous materials needed for construction would be stored and used in accordance with the product specifications and applicable regulations. Product specifications are described in detail on Material Safety Data Sheets (MSDS) that accompany every batch

of materials considered hazardous. Information in the MSDS includes instructions on proper use and application of the material, accidental release measures and handling and storage requirements. Applicable regulations specify storage and handling requirements, such as proper container types and usage methods. Transportation of hazardous materials to be used during construction will be conducted in compliance with Department of Transportation requirements. After construction, all hazardous materials and waste will be removed from the site for reuse, recycling, or disposal at a properly licensed facility in accordance with state and federal regulations and requirements.

As part of APM BIO-12, PG&E will conduct all fueling of vehicles at least 100 feet from wetlands and other water bodies and set staging areas at least 50 feet from streams, creeks, or other water bodies to avoid potential impacts on the riparian habitats from construction and staging areas from hazardous materials leaks and spills, as specified in the SWPPP for the project. In addition, controls will be put in place by the SWPPP under APM HYD-1, Hazardous Substance Control and Emergency Response procedures under APM HAZ-1, and the Worker Environmental Awareness Program under APM HAZ-2. Examples of hazardous materials best management practices (BMPs) to protect surface and groundwater from possible sources of contamination include placing drip pans underneath parked vehicles, implementing tracking controls for vehicles entering and exiting the construction site, and protecting the ground surface with tarps or other secondary containment in equipment and material storage areas. These APMs will minimize the likelihood of spills and assure a prompt, safe, and effective response if a spill were to occur. With implementation of these actions, impacts associated with transport, use, and disposal of hazardous materials during construction of the project would be **less than significant**.

Operation and Maintenance

No Impact. The operation and maintenance activities required for the upgraded power line will not change from those currently required for the existing system; thus, no operation-related impacts related to hazards and hazardous materials would occur.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

b) Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Less-than-Significant Impact. As discussed in Section 5.8.4(a), project construction would require the limited use of hazardous materials, such as fuels, lubricants, and solvents. Storage and use of hazardous materials during construction could result in the accidental release of small quantities of hazardous materials typically associated with minor spills or leaks. Spills and leaks could degrade soil and groundwater quality, and/or surface water quality in nearby creeks or downstream water bodies.

Although spills and leaks during construction could occur, implementation of construction water quality BMPs required by the Regional Water Quality Control Board through its review and approval of the SWPPP would reduce the potential for accidental releases and ensure quick response to any spills to minimize impacts to the environment. As discussed in Section 5.8.4(a), hazardous materials would be stored, handled, and used in accordance with applicable regulations. All equipment and materials storage would need to be routinely inspected for leaks, and records would need to be maintained for documenting compliance with the storage and handling of hazardous materials. Construction worker training under APM HAZ-1, APM HAZ-2, and APM HYD-1 would provide site personnel with instruction on the SWPPP, health and safety precautions, site-specific BMPs, and notification/response procedures in the event of a release of hazardous materials or upon the discovery of suspected soil contamination.

During construction activities for the proposed project, the potential for encountering and damaging subsurface utilities (e.g., a natural gas line) or structures (e.g., UST) exists, which could result in release of a hazardous material. Such incidents are unlikely, and would be avoided by thoroughly screening for subsurface utility lines and structures prior to starting subsurface work. Screening activities would include use of Dig Alert, visual observations, and the use of buried-line locating equipment. Such measures are required under Title 8, Section 1541 of the CCR and are standard practice in the construction industry.

For these reasons, project impacts would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. Therefore, impacts would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Less-than-Significant Impact. Schools within 0.25 mile of the proposed project alignment are as follows: Linda Elementary, Lindhurst High School, Yuba Gardens Intermediate School, Yuba College, and East Nicolaus High School.

Construction would involve limited quantities of liquid concrete, vehicle fuels, lubricants and other vehicle maintenance fluids, hydraulic fluid, and cleaning solvents. However, no acutely hazardous materials, substances, or waste listed in Section 25532 of the Health and Safety Code or 40 CFR Part 355 will be used or generated by the project. Given the temporary and short-term nature of construction in any one area, the relatively small quantity of hazardous materials to be used, and the distance between the schools and the project area, impacts on schools from potential hazardous substance emissions will be less than significant. Implementing APM HAZ-1 and APM HAZ-2 will further reduce the less-than-significant impacts.

With regard to hazardous emissions, the greatest potential for substantial localized pollutant concentrations are associated with fugitive dust and toxic air contaminant (TAC) emissions during construction. Fugitive dust would be generated by grading activities and TACs (primarily diesel particulate matter) would be emitted in fuel combustion exhaust. Notably, the project alignment is linear and spans approximately 59.5 miles, whereby the duration of construction activities (and exposure of an individual receptor to pollutants) would be minimal and temporary at any one location. Also, heavy-duty construction equipment and diesel trucks are subject to California Air Resources Board Airborne Toxics Control Measures to reduce diesel particulate emissions. In regards to helicopter activities, operations would be infrequent and landing zones would be sited to avoid sensitive receptor locations. Finally, implementation of APM AQ-1 through APM AQ-3 and APM GHG-1 (described in Section 5.7) would further reduce exposure of sensitive receptors to air pollutants by requiring fugitive dust control and reducing idling times. Based on these considerations, sensitive receptors would not be exposed to substantial pollutant concentrations and this impact would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

d) Would the project be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

No Impact. As indicated in Section 5.8.1, the project area is not located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. Although there are a number of hazardous materials sites within a mile of the proposed alignment, none occur on site, and none are considered to have an appreciable risk of impacts to soil or groundwater underlying PG&E's ROW (Jacobsen, James & Associates 2016). PG&E will implement APM HAZ-1 and APM HAZ-2, which will include information and procedures to identify and respond to any unexpected encounter of hazardous materials or contamination during construction activities. Implementation of these APMs will further reduce the less-than-significant impacts so there is **no impact**.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

e) For a project located within an airport land use plan, or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

Less-than-Significant Impact. As indicated in the setting, the proposed alignment crosses the AIA for the Yuba County Airport. The proposed structures would have varying heights based on the construction type: hybrid poles would be approximately 75–100 feet tall, tubular steel poles would be approximately 90–140 feet, and lattice steel poles would be approximately 85 feet tall. Since this is a replacement project, installation of the new poles are unlikely to present a significant aviation safety hazard because the new poles are similar or the same heights as those that they would replace. In certain circumstances, angle, dead-end, conductor transposition, and equipment (switch) poles may be taller than existing poles, depending on site conditions and strength requirements. The project does not exceed Federal Aviation Administration (FAA) noticing requirements for structures outside an airport land use compatibility zone (i.e., 200 feet). However, for all structures within such zones for the Yuba County Airport, PG&E has submitted the required "Notice of Proposed Construction and Alteration Application" to the FAA for any poles that exceed the Notice Criteria. The FAA confirmed the project would not cause any air navigation hazards (PG&E 2016a). In addition, the project would not cause visual effects such as distracting glimmer or glare due to distance and the small scale of the facilities (relative to the position of aircraft), and because they would replace existing towers.

Helicopter flight paths generally will be limited to the existing power line ROW and project-specific landing zones. PG&E will prepare a Helicopter Use Plan pursuant to APM TRA-2, which will be submitted separately to CPUC staff. Helicopter use will be in accordance with all applicable federal, state, and local aviation rules and regulations, and will not create any new hazards. In addition, PG&E will coordinate with local airports regarding helicopter operations and flight plans during project construction. Accordingly, the project will not result in a safety hazard for people residing or working in the area.

For the reasons above, the project would have a **less-than-significant** impact with respect to aviation safety hazards.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

Less-than-Significant Impact. The proposed project would have a less-than-significant impact for the reasons described in Section 5.8.4(e). The Siller Bros Inc. Airport, a private airstrip, is located approximately 1.6 miles from the South of Palermo Line near Oroville. The airstrip runs northeast to southwest, parallel to the section of the South of Palermo Line it is located near. Because of the distance from the project to the airstrip, infrequent flights, and lighter aircraft, the project will not expose people residing or working along the project route to a safety hazard. Further, while the FAA does not identify obstructions to air navigation for a private airstrip, standard FAA calculations were applied and it was determined that the proposed new poles or pole extensions will not penetrate any of the imaginary surfaces that extend from the private airstrip. In addition, PG&E will coordinate with local airports regarding helicopter operations and flight plans during project construction. Therefore, the project would not result in a safety hazard for people residing or working in the project area and this would be considered a **less-than-significant impact**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

g) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less-than-Significant Impact. As indicated in Section 5.8.1, review of countywide hazard mitigation plans revealed no specific mapping or delineation of emergency

evacuation or access routes, only that interstates, highways, and prime arterials could all be used in an emergency to access emergency services and facilitate evacuation of affected areas. Area police, fire, and other emergency services conduct emergency operations according to their communications protocols and hazard mitigation programs.

In places where project construction may require a temporary road closure, construction activities would be coordinated with the local jurisdiction so as not to cause closure of any emergency access route. Should work areas or construction require encroachment onto public roadways, an encroachment permit would be required, triggering this kind of consultation. Flaggers may briefly hold traffic back for construction equipment, but emergency vehicles would be provided access even in the event of temporary road closures. Because streets would remain open to emergency vehicles at all times, construction of the project would not impact emergency access and would minimally and temporarily impact emergency evacuation. Operation and maintenance of the transmission and distribution lines would occur in the same manner and locations as under current conditions and impacts would be considered **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

h) Would the project expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

Less than significant with mitigation. Operations and maintenance activities for the proposed project would resemble those currently administered by PG&E and activities are not expected to increase in duration, intensity, or frequency. The project would continue to be maintained in accordance with CPUC General Order 95, which outlines maintenance and clearance requirements for safe operation or use of overhead lines and General Order 165, which requires inspections of transmission facilities to ensure safe and high-quality electrical service. Implementation of the proposed project is expected to result in fewer conductor breaks, resulting in fewer emergency response and inspection needs. Therefore, impacts related to wildland fire hazards due to operations and maintenance activities would be less than significant.

The proposed project area is located partially within Moderate and High Fire Hazard Severity Zones and heat or sparks from construction equipment, vehicles, as well as the use of flammable hazardous materials, have the potential to ignite adjacent vegetation and start a fire, especially during weather events that include low humidity and high wind

speeds. Project construction would result in up to 45 workers on site at any one time (maximum total) occurring in the project area for the estimated 36-month construction period. The following construction-related equipment has the potential to generate heat or sparks that could result in wildfire ignition (PG&E 2016a):

- **Earth-moving and excavating equipment –** Heated exhausts or sparks may result in ignition.
- **Helicopters –** Heated exhausts in contact with vegetation may result in ignition, potential for helicopters to clip existing power or transmission lines resulting in sparks and ignition potential.
- **Chainsaws and other small gas-powered equipment/tools** – may result in vegetation ignition from overheating, spark, fuel leak, etc.
- **Tractors, graders, mowers, bulldozers, backhoes, cranes, excavators, trucks, and vehicles –** Heated exhaust in contact with vegetation may result in ignition.
- **Welders –** Open heat source may result in metallic sparks coming into contact with vegetation.
- **Wood chippers –** Include flammable fuels and hydraulic fluid that may overheat and spray onto vegetation with a hose failure.
- **Grinders –** Sparks from grinding metal components may land on a receptive fuel bed.
- **Torches –** Heat source, open flame, and resulting heated metal shards may come in contact with vegetation.
- **Compost piles –** Large piles that are allowed to dry and are left on site for extended periods may result in combustion and potential for embers landing in adjacent vegetation.
- **Dynamite/blasting –** If blasting is necessary, it may cause vegetation ignition from open flame, excessive heat, or contact of heated material on dry vegetation.

The potential risk of wildfire ignition and spread associated with construction of the proposed project can be managed and pre-planned so that the potential for vegetation ignition is reduced. In addition, pre-planning and personnel fire awareness and suppression training not only results in lower probability of ignition, but also in higher probability of fire control and extinguishment in its incipient stages. Data indicate that 95% of all wildfire ignitions are controlled during initial attack (Smalley 2008).

PG&E has proposed implementation of APM HAZ-3 (Fire Risk Management), which identifies that construction personnel will follow PG&E's standard fire safe work practices (PG&E 2016a). PG&E has also identified precautions and procedures that PG&E personnel must follow when working, traveling, or operating in hazardous fire areas and SRAs during the designated fire season (PG&E 2016b). The precautions and procedures include equipping personnel with firefighting equipment and restrictions on open burning, welding, blasting, smoking, and off-road vehicle travel (PG&E 2016b). However, the measures identified by PG&E may not be sufficient to adequately mitigate wildfire risk, and, without implementation of fire prevention actions, construction-related impacts associated with wildland fires would be considered significant. Therefore, Mitigation Measure (MM) HAZ-1 has been provided to require development and implementation of a Construction Fire Prevention Plan, to be developed in consultation with and approved by local fire agencies. With implementation of MM HAZ-1 and APM HAZ-3, impacts related to wildland fire hazards due to construction activities would be **less than significant with mitigation**.

MM HAZ-1 Develop and Implement Construction Fire Risk Management Plan.

The applicant shall develop a Fire Risk Management Plan that addresses training of construction and maintenance crews, and provides details of fire-suppression procedures and equipment to be used during construction.

At minimum, the plan will include the following:

- Procedures for minimizing potential ignition, including, but not limited to, helicopter operations, vegetation clearing, parking requirements/restrictions, idling restrictions, smoking restrictions, proper use of gas-powered equipment, use of spark arrestors, and hot work restrictions;
- Work restrictions during Red Flag Warnings and High to Extreme Fire Danger days;
- Fire coordinator and fire patrol roles and responsibilities;
- Detailed information for responding to fires;
- Worker training for fire prevention, initial attack firefighting, and fire reporting;
- Emergency communication, response, and reporting procedures;

- Coordination with local fire agencies to facilitate agency access through the project site;
- Emergency contact information;
- Demonstrate compliance with applicable wildland fire management plans and policies established by state and local agencies.

Information contained in the Plan and location of fire-suppression materials and equipment shall be included as part of the employee environmental training discussed in APM HAZ-2. At a minimum, fire-suppression equipment and materials shall be kept adjacent to all areas of work and in staging areas, and shall be clearly marked. Water tanks shall be sited in the project area to protect against fire, and all vehicles shall carry fire-suppression equipment. The applicant shall contact and coordinate with local and county fire departments to determine the minimum amounts of fire equipment to be carried on the vehicles and appropriate locations for the water tanks.

Significance After Mitigation: This impact would be **less than significant with mitigation incorporated.**

5.8.5 References Cited

CDE (California Department of Education). 2014. Earth Layer – California Schools. Accessed September 19, 2016. http://services.gis.ca.gov/arcgis/rest/services/Society.

CAL FIRE (California Department of Forestry and Fire Protection). 2007a. Fire Hazard Severity Zones in SRA. Butte County. http://frap.fire.ca.gov/webdata/maps/butte/fhszs_map.4.pdf.

CAL FIRE. 2007b. Fire Hazard Severity Zones in SRA. Yuba County. http://frap.fire.ca.gov/webdata/maps/yuba/fhszs_map.58.pdf.

CAL FIRE. 2007c. Very High Fire Hazard Severity Zones in LRA. Yuba County. http://frap.fire.ca.gov/webdata/maps/yuba/fhszl06_1_map.58.pdf.

CAL FIRE. 2008a. *CAL FIRE Power Line Fire Prevention Field Guide*. November 2008.

CAL FIRE. 2008b. Very High Fire Hazard Severity Zones in LRA. Butte County. http://frap.fire.ca.gov/webdata/maps/butte/fhszl_map.4.pdf.

CAL FIRE. 2008c. Very High Fire Hazard Severity Zones in LRA. Sutter County. http://frap.fire.ca.gov/webdata/maps/sutter/fhszl06_1_map.51.pdf.

CAL FIRE. 2010. *2010 Strategic Fire Plan for California.* http://cdfdata.fire.ca.gov/fire_er/fpp_planning_cafireplan.

CAL FIRE. 2016. "CAL FIRE Civil Cost Recovery Program." Fact Sheet. Accessed August 24, 2016. http://www.fire.ca.gov/communications/downloads/fact_sheets/CostRecovery.pdf .

CPUC (California Public Utilities Commission). 2012. General Order 95: Overhead Electric Line Construction.

CPUC. 2016. *Decision 16-05-036. Order Instituting Rulemaking (15-05-006) to Develop and Adopt Fire-Threat Maps and Fire-Safety Regulations.* May 26, 2016.

County of Butte. 2012. *Butte County General Plan 2030*.

County of Butte 2014. *Butte County Local Hazard Mitigation Plan Update.* Prepared by AMEC. Online: https://www.buttecounty.net/oem/MitigationPlans.aspx. June 2015.

County of Sutter ALUC (Airport Land Use Commission). 1994. *Sutter County Airport Land Use Compatibility Plan*. April 1994.

County of Sutter. 2013. *Sutter County Local Hazard Mitigation Plan.* Prepared by AMEC. August 2013.

County of Sutter. 2011. *Sutter County 2030 General Plan*. Adopted March 29, 2011.

County of Yuba. 1994. *Yuba County Multi-Jurisdictional Multi-Hazard Mitigation Plan*. July 1994. Accessed November 20, 2015. http://www.co.yuba.ca.us/departments/oes/PDM/MHM%20Plan.aspx.

County of Yuba. 1996. "Health and Safety Element." In *Yuba County General Plan*.

DTSC (Department of Toxics Substances Control). 2016a. "Sites Identified with Waste Constituents above Hazardous Waste Levels Outside the Waste Management Unit." Accessed September 19, 2016: http://www.calepa.ca.gov/sitecleanup/corteselist/CurrentList.pdf .

DTSC. 2016b. "List of 'active' CDO and CAO from Water Board." XLS file accessed September 19, 2016. http://www.calepa.ca.gov/sitecleanup/corteselist/default.htm.

DTSC. 2016c. "List of hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code, identified by DTSC." Accessed September 19, 2016. http://www.calepa.ca.gov/sitecleanup/corteselist/SectionA.htm#Facilities .

Google Earth. 2016. Satellite view of project area [online map].

Jacobsen, James & Associates 2016. *Environmental Database Review Report, Pacific Gas and Electric Company South of Palermo 115 kV Power Line Reinforcement Project.* April 2016.

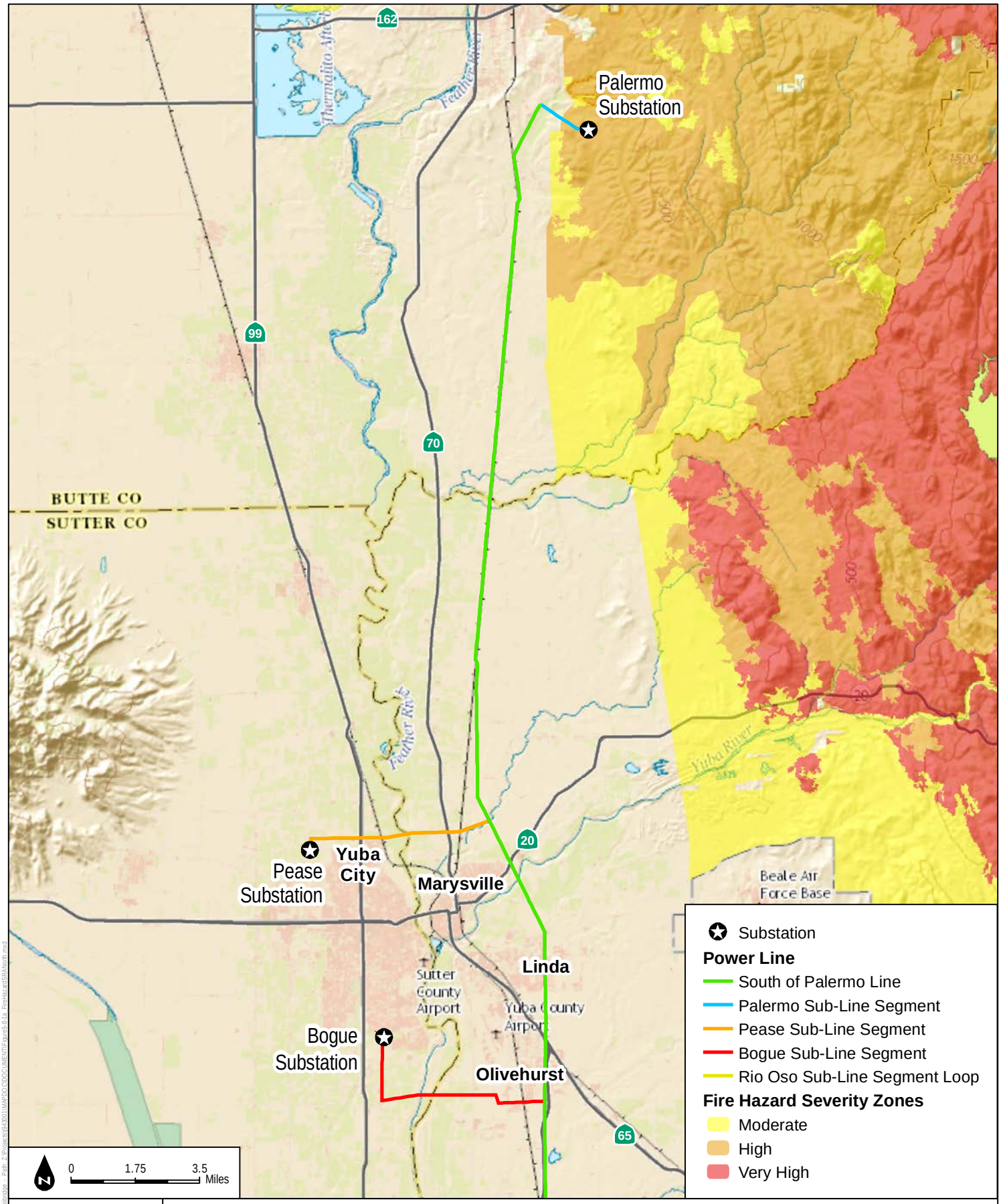
Mead & Hunt Inc. 2011. *Yuba County Airport Land Use Compatibility Plan*. Prepared for Sacramento Area Council of Governments (acting as ALUC for Yuba and Sutter Counties).

PG&E (Pacific Gas & Electric) 2016a. *Proponent's Environmental Assessment for the South of Palermo 115 kV Power Line Reinforcement Project*. Prepared for Pacific Gas & Electric by ICF International. April 2016.

PG&E. 2016b. "South of Palermo 115 kV Power Line Reinforcement Project, Response to Data Request No.1." June 17, 2016.

Shutt Moen Associates. 2000. *Butte County Airport Land Use Compatibility Plan*. Adopted by Butted County ALUC on December 20, 2000.

Smalley, J. 2008. "Wildfires and Climate Change: An American Perspective on a Global Issue." Fire Interdisciplinary Research on Ecosystem Services (Seminar). June 24, 2008. http://www.fires-seminars.org.uk/downloads/seminar2/smalley_public_keynote.pdf.



SOURCE: CAL FIRE (2007)

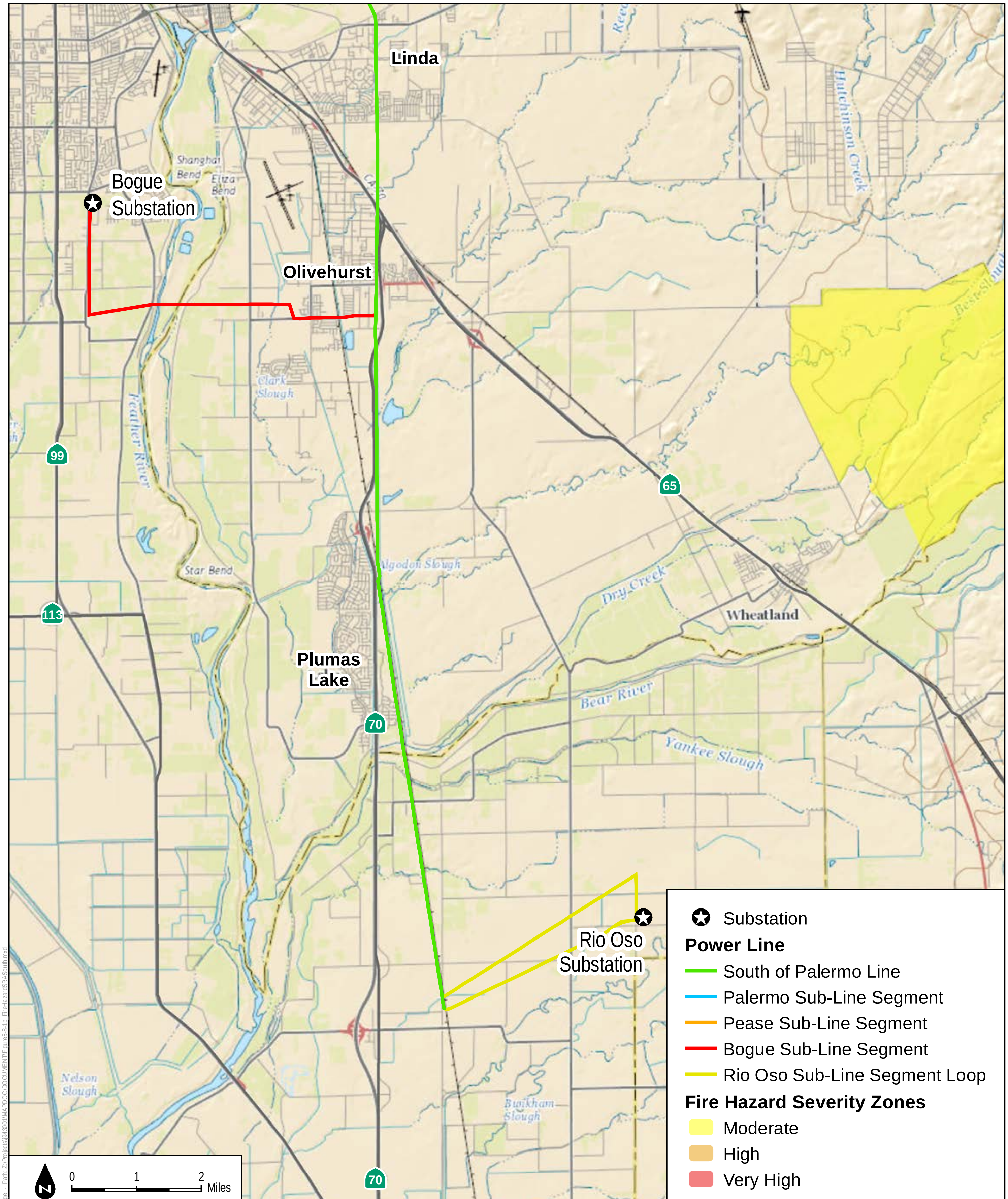
FIGURE 5.8-1a

State Responsibility Area Fire Hazard Severity Zones (North)

South of Palermo 115 kV Power Line Reinforcement Project

DUDEK

INTENTIONALLY LEFT BLANK



DUDEK

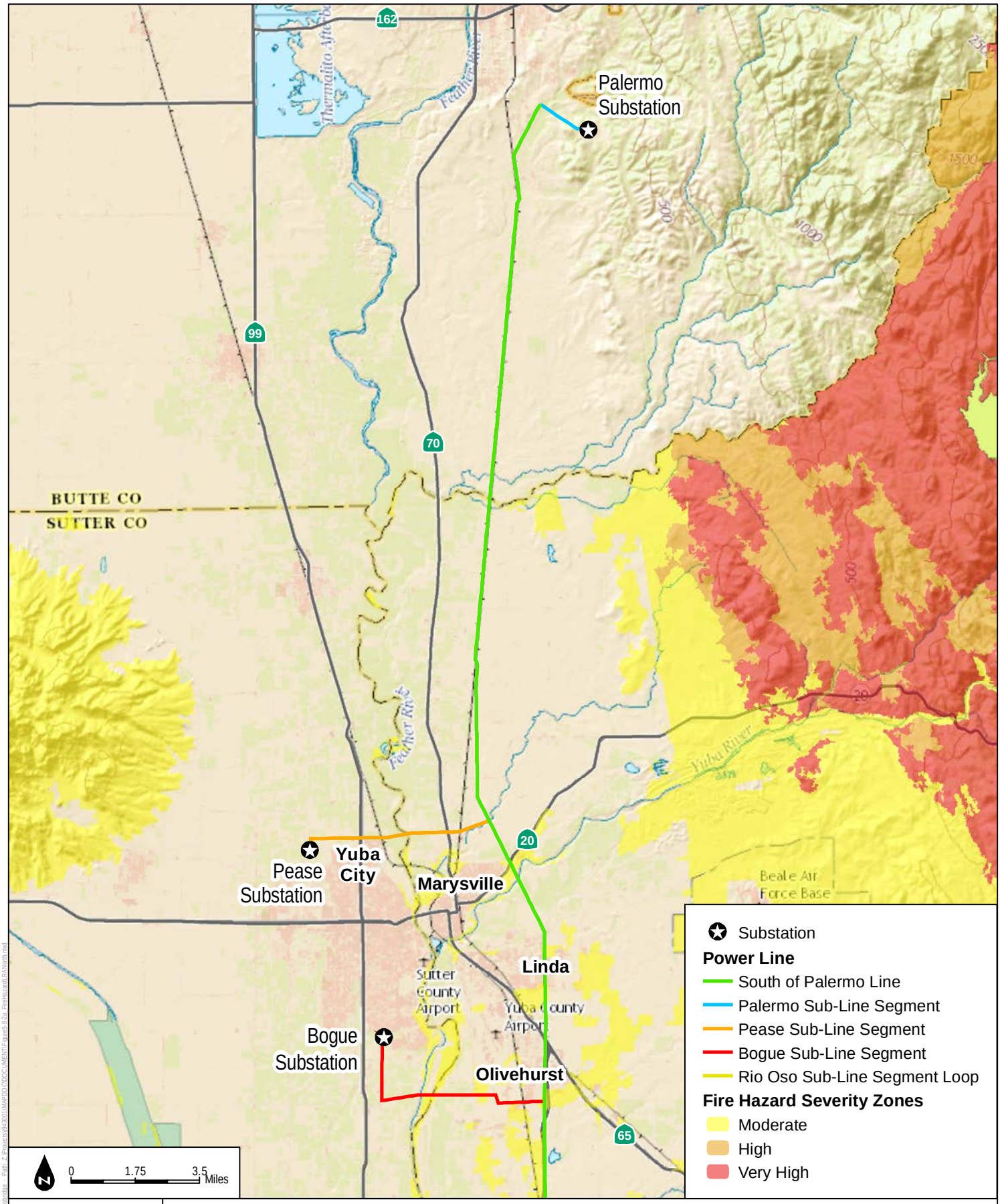
SOURCE: CAL FIRE (2007)

FIGURE 5.8-1b

State Responsibility Area Fire Hazard Severity Zones (South)

South of Palermo 115 kV Power Line Reinforcement Project

INTENTIONALLY LEFT BLANK



SOURCE: CAL FIRE (2008)

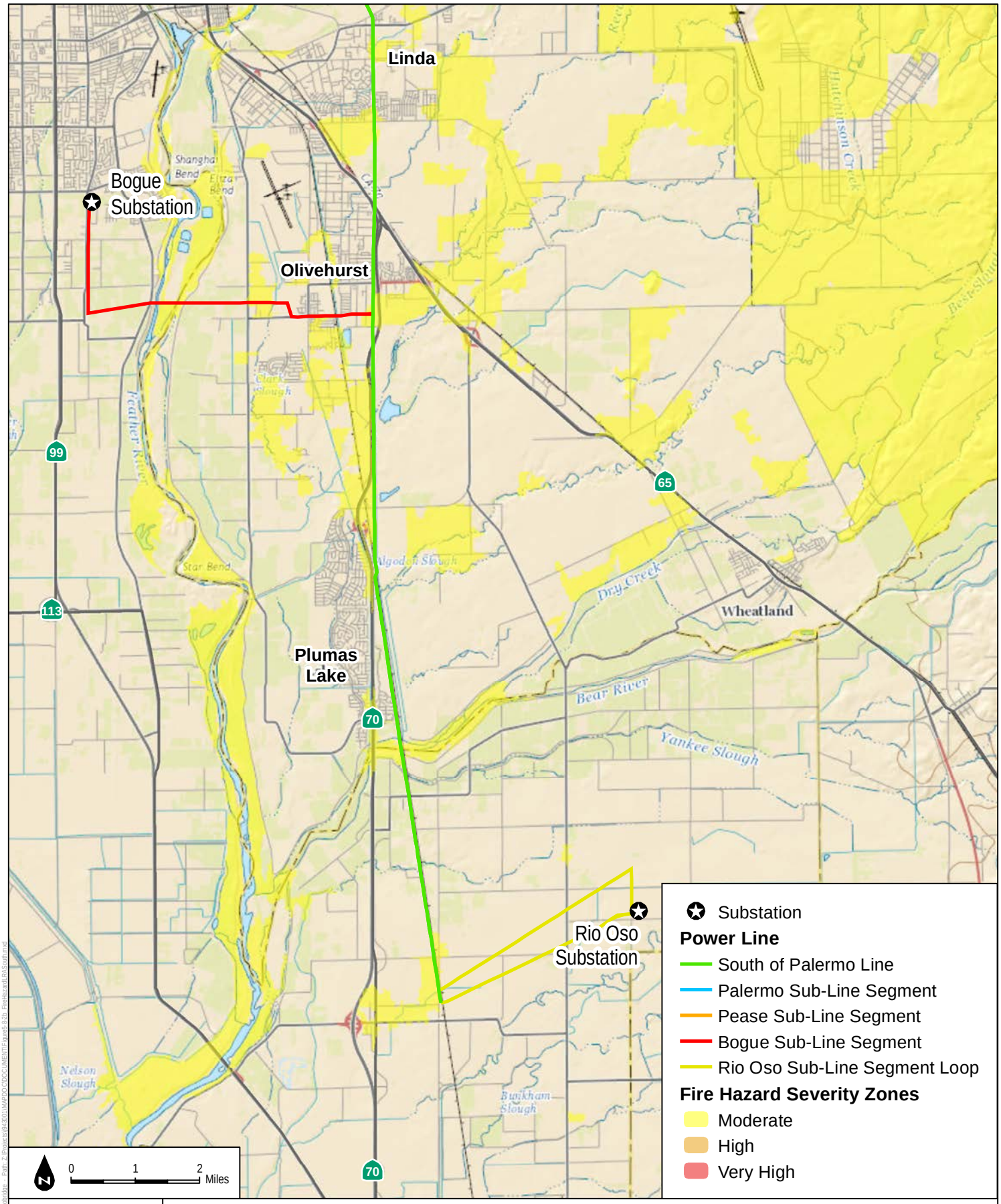
FIGURE 5.8-2a

Local Responsibility Area Fire Hazard Severity Zones (North)

DUDEK

South of Palermo 115 kV Power Line Reinforcement Project

INTENTIONALLY LEFT BLANK



SOURCE: CAL FIRE (2008)

FIGURE 5.8-2b

Local Responsibility Area Fire Hazard Severity Zones (South)

South of Palermo 115 kV Power Line Reinforcement Project

DUDEK

INTENTIONALLY LEFT BLANK

5.9 Hydrology and Water Quality

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
HYDROLOGY AND WATER QUALITY – Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☒	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
f) Otherwise substantially degrade water quality?	☐	☐	☐	☒
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☒	☐
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☒	☐
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

5.9.1 Environmental Setting

Regional Hydrology/Watershed

The proposed South of Palermo 115 kV Power Line Reinforcement Project (project) is located within the jurisdiction of the Central Valley Regional Water Quality Control Board (CV RWQCB), which administers a water quality control plan (Basin Plan) and other water quality programs for the Sacramento and San Joaquin River Basins. The CV RWQCB is bounded by the crests of the Sierra Nevada on the east, the Coast Range and Klamath Mountains on the west, and the Cascade Range on the north. The Sacramento River Basin covers 27,210 square miles and includes the entire area drained by the Sacramento River and all its tributaries (CV RWQCB 2015). The project area lies within Butte, Yuba, and Sutter Counties near the eastern margin of the Sacramento Valley, which represents the northern third of California's Central Valley.

The Feather River represents the most significant hydrologic feature of the project study area, as it collects flow from all major rivers and streams emanating from the Sierra Nevada and foothills to the east. Creeks and rivers that discharge into the Feather River and cross the project alignment include Wyman Ravine Creek, Wyandotte Creek, North Honcut Creek, South Honcut Creek, Feather River, Yuba River, Reeds Creek, and Bear River (USGS 2016). Stormwater runoff along the project alignment either ponds locally and infiltrates into the ground, or in significant storms, may be directed to the aforementioned creeks or rivers by overland flow, tributary swales, and/or rural and agricultural drainage ditches. The Feather River flows in a southerly direction between the Sutter Buttes (located about 4 miles west of the project area) and the Sierra Nevada Foothills (USGS 2016). Eventually, the Feather River merges with the Sacramento River approximately 10 miles south of the project area (USGS 2016). The Feather River marks the boundary between Yuba County and Sutter County.

Figure 5.9-1, Regional Hydrology, and Table 5.9-1 show the watersheds that encompass the project area as designated by the United States Geological Survey (USGS) Watershed Boundary Dataset, as well as the water bodies that are spanned by the project alignment. The USGS Watershed Boundary Dataset delineates watersheds according to hydrologic units, which are nested within one another according to the scale of interest. USGS identifies hydrologic units by name and by hydrologic unit code (HUC), which gets longer as the watershed boundaries get more detailed. The USGS Watershed Boundary Dataset indicates that the South of Palermo Line crosses six major watersheds, which are (from north to south) Honcut Creek, Lower Feather River, Yuba River, Reeds Creek, Lower Bear River, and Coon Creek (USGS 2016). A seventh watershed, the Gilsizer Slough–Snake River watershed, occurs west of Feather River, and is crossed by the Pease and Bogue Sub-Line Segments only (USGS 2016). Table 5.9-1 provides additional detail on the

sub-watersheds within each of the seven main watersheds. See Section 5.4, Biological Resources, for a description of wetland features traversed by the project alignment.

Table 5.9-1
Watersheds and Hydrologic Features

Watershed Name	Sub-Watershed Name (HUC 12 Code)	Approx. Sub-Watershed Size (square miles)	Project Components within Watershed (Length within Watershed)	Hydrologic Features Spanned[a]
Honcut Creek	Wyman Ravine 180201590105	38	South of Palermo Line (3.1 Miles)	Agricultural/rural drainage ditches No named streams
			Palermo Sub-Line Segment (1.5 Miles)	**North Ditch** (Irrigation) Agricultural/rural drainage ditches
	Wyandotte Creek 180201590104	32	South of Palermo Line (7.6 Miles)	**Wyandotte Creek** Agricultural/rural drainage ditches
	Wilson Creek-North Honcut Creek 180201590502	36	South of Palermo Line (0.5 Miles)	**North Honcut Creek** Agricultural/rural drainage ditches
	Prairie Creek-South Honcut Creek 180201590107	25	South of Palermo Line (0.6 Miles)	**South Honcut Creek** Agricultural/rural drainage ditches
Lower Feather River	Ellis Lake-Feather River 180201590502	35	South of Palermo Line (3.7 Miles)	Agricultural/rural drainage ditches No named streams
			Pease Sub-Line Segment (2.0 Miles)	**Feather River** Agricultural/rural drainage ditches
	Jack Slough 180201590501	52	South of Palermo Line (5.8 Miles)	**Jack Slough** Agricultural/rural drainage ditches
			Pease Sub-Line Segment (0.9 Miles)	Agricultural/rural drainage ditches No named streams
	Clark Slough-Feather River 180201590503	55	South of Palermo Line (5.8 Miles)	Agricultural/rural drainage ditches No named streams
			Bogue Sub-Line Segment (3.6 Miles)	**Feather River** Agricultural/rural drainage ditches
Yuba River	Brooks Creek-Yuba River 180201251003	29	South of Palermo Line (1.8 Miles)	**Yuba River** Agricultural/rural drainage ditches
Reeds Creek	Hutchinson Creek-Reeds Creek 180201590503	44	South of Palermo Line (1.7 Miles)	**Reeds Creek** Agricultural/rural drainage ditches
Lower Bear River	Best Slough-Bear River 180201260502	40	South of Palermo Line (5.8 Miles)	**Bear River** **Best Slough** Agricultural/rural drainage ditches
	Yankee Slough 180201260502	38	South of Palermo Line (5.8 Miles)	**Yankee Slough**

Table 5.9-1
Watersheds and Hydrologic Features

Watershed Name	Sub-Watershed Name (HUC 12 Code)	Approx. Sub-Watershed Size (square miles)	Project Components within Watershed (Length within Watershed)	Hydrologic Features Spanned[a]
Coon Creek	Ping Slough–Coon Creek 180201610303	55	South of Palermo Line (5.8 Miles)	**Ping Slough** Agricultural/rural drainage ditches
			Rio Oso Sub-Line Segment Loop (7.6 Miles)	Agricultural/rural drainage ditches. No named streams.
Gilsizer Slough–Snake River	Gilsizer Slough–Snake River 180201590400	270	Pease Sub-Line Segment (2.5 Miles)	**Wyman Ravine Creek** Agricultural/rural drainage ditches
			Bogue Sub-Line Segment (2.8 Miles)	Agricultural/rural drainage ditches No named stream.

Source: USGS 2016.
[a] USGS Blue-Line streams in bold.

Site Topography and Drainage

Agricultural lands, urban areas, and rural residences are well represented within and immediately adjacent to the project area; however, the project area also contains relatively undeveloped areas that support natural vegetation and wetlands. The project area ranges in elevation from a high of approximately 400 feet above mean sea level (amsl) at the northern end near Oroville, to a low of approximately 18 feet amsl on one of the western spurs, near Olivehurst (Google Earth 2016). Slope gradients are generally less than 2% along most of the project area, but a few areas with steeper slope gradients exist in rolling topography along the Palermo Sub-Line Segment near Palermo Substation (approximately 5% to 15%) and at embankments near the Yuba and Bear Rivers (Google Earth 2016).

Stormwater runoff along the majority of the project alignment is either ponded in the immediate vicinity or carried by agricultural and roadside ditches for discharge to the nearest creek or river. Along the east side of the South of Palermo Line in Butte and Yuba Counties, railroad embankments exert significant control on the behavior of stormwater runoff by acting as a barrier to much of the stormwater runoff that would otherwise flow from the east and northeast across the project alignment to the west and southwest. A significant portion of the South of Palermo Line north of the Yuba River is bounded on the east by rice fields, which are intentionally flooded for irrigation.

Flood Hazards

Due the relatively flat nature of the project area combined with the presence of several stream corridors that converge on the Feather River, significant portions of the proposed alignment are

within the boundaries of a 100-year floodplain (DWR 2016a). A "100-year flood" refers to the maximum level of water that is expected to inundate a floodplain on average once every 100 years (i.e., a 1% chance of being inundated per year). The Federal Emergency Management Agency (FEMA) estimates the boundaries for 100-year floodplains, referred to as "flood hazard areas," and produces Flood Insurance Rate Maps that define the 100-year floodplain boundaries. Typically, where detailed floodplain studies have not been conducted, FEMA designates 100-year floodplains as "Zone A" on the Flood Insurance Rate Maps. Similar to the FEMA-designated flood hazard areas, the California State Office of Emergency Services and California Department of Water Resources require that dam owners identify the potential magnitude of flooding, or the dam inundation area, that would occur in the case of a dam failure. Mapped flood hazard and dam inundation areas along the project area are discussed below by county, from north to south.

Butte County

A small portion of the Palermo Sub-Line Segment lies within a 100-year floodplain associated with Wyman Ravine north of Palermo. In addition, a small portion of the northern end of the South of Palermo Line and the southern portion of the South of Palermo Line in Butte County lie within 100-year floodplains (DWR 2016a).

The project route in Butte County lies within dam inundation areas for the following dams along the Feather River and Honcut Creek: Lake Oroville Dam, Lake Almanor Dam, and Bidwell Bar Dam (Butte County 2010, as cited in PG&E 2016a). Many of these inundation areas overlap.

Yuba County

The South of Palermo Line between the northern Yuba County boundary and the City of Linda lies within a 100-year floodplain (DWR 2016a). Between Linda and the southern Yuba County boundary at the Bear River, the South of Palermo Line lies within a Reduced Flood Risk area, which means it is protected by levees (DWR 2016a). The Pease Sub-Line Segment lies within a 100-year floodplain from the South of Palermo Line westward to the Yuba County boundary at the Feather River (DWR 2016a). The Bogue Sub-Line Segment lies within a Reduced Flood Risk area from the South of Palermo Line westward to the levee on the east side of the Feather River, and from there westward lies in a 100-year floodplain to the Yuba County boundary at the Feather River (DWR 2016a).

The project route in Yuba County lies within the dam inundation areas for the following dams along the Yuba, Bear, and Feather Rivers: Oroville Dam, Almanor Dam, Bidwell Bar, Scott's Flat, Virginia Ranch Dam, Englebright Dam, Camp Far West Dam, Merle-Collins Reservoir

Dam, and New Bullards Bar Dam (Yuba County 2011, as cited in PG&E 2016a). Many of these inundation areas overlap with each other, as well as with the 100-year floodplain.

Sutter County

The Pease Sub-Line Segment west of the Feather River does not lie in a floodplain hazard area. The Bogue Sub-Line Segment lies within a 100-year floodplain zone (Zone A) until it turns north near Railroad Avenue in Sutter County (DWR 2016a). From this point to the Bogue Substation, the Bogue Sub-Line Segment lies in a 500-year flood hazard zone (Zone X), except for a short crossing of a 100-year flood hazard zone (Zone A) just south of the intersection of Stewart Road and Railroad Avenue (DWR 2016a).

The project route in Yuba County lies within dam inundation areas for the following dams along the Bear and Feather Rivers: Oroville Dam, Almanor Dam, Camp Far West Reservoir Dam, and Thermalito Afterbay Dam. Many of these inundation areas overlap with each other, as well as with the 100-year floodplain.

Surface Water Quality

Several water bodies within the watershed are designated as "water quality-limited" for water quality impairments under the federal Clean Water Act's (CWA's) Section 303(d). Being "water quality-limited" means that a water body is "not reasonably expected to attain or maintain water quality standards" without additional regulation. The law requires that the U.S. Environmental Protection Agency (EPA) develop total maximum daily loads (TMDLs) for each impaired water body in the nation (described further in Section 5.9.2, Regulatory Setting). The TMDLs specify the maximum amount of a pollutant a water body can receive and still meet water quality standards. A TMDL may also include a plan for bringing an impaired water body back within standards. The most recently approved Section 303(d) List of Water Quality Limited Segments, as listed in the 2012 Integrated Report (SWRCB 2016), lists the Feather River, Honcut Creek, Simmerly Creek, Jack Slough, Yuba RiverBear River, and Yankee Slough as impaired water bodies under Section 303(d) of the CWA. Specific listings are as follows (SWRCB 2012):

- Feather River is listed as impaired for mercury, chlorpyrifos (pesticide), PCBs, and unknown toxicity
- Honcut Creek is listed as impaired for dissolved oxygen
- Simmerly Creek is listed for unknown toxicity
- Jack Slough is listed for diazinon (pesticide) and unknown toxicity
- Yuba River is listed for mercury

- Bear River is listed for chlorpyrifos, copper, diazinon, and mercury below Camp Far West Reservoir (approximately 14 miles east of the South of Palermo Line)
- Yankee Slough is listed for chlorpyrifos and unknown toxicity

Pursuant to listing, the CV RWQCB is tasked with developing TMDLs for the listed impairments. There are no TMDLs currently approved by the EPA that apply to the receiving waters for the project.

Groundwater Resources

Groundwater in Butte, Yuba, and Sutter Counties occurs in recent to later Pliocene age continental sedimentary deposits of the Sacramento Valley Groundwater Basin. The natural groundwater flow is generally westward from the Sierra Nevada and eastward from the Coast Ranges toward the valley axis, and southward toward the Sacramento–San Joaquin Delta; however, groundwater extraction has altered the natural groundwater flow patterns in some locations. In general, groundwater occurs under unconfined to semi-confined conditions near the valley margins and transitions to a system of shallow unconfined aquifers underlain by deeper confined aquifers in the central portion of the valley (BCDWR 2004, as cited in PG&E 2016a). The Pliocene Laguna Formation and the Pliocene Mehrten Formation are thought to be the most extensive water-bearing units in the project area (DWR 2016b, 2003). Along the Yuba and Bear Rivers are extensive dredge tailings, which include highly permeable coarse gravel deposits up to 125 feet thick. These and other Holocene age stream channel and floodplain deposits can be very productive, with yields in the range of 2,000 to 4,000 gallons per minute (DWR 2016b, 2003).

The proposed project is underlain by four major groundwater producing areas, as designated by the Department of Water Resources, which are (from north to south): the Sacramento Valley–North Yuba Subbasin (Subbasin ID 5-21.60), the Sacramento Valley–South Yuba Subbasin (Subbasin ID 5-21.61), the Sacramento Valley–Sutter Subbasin (Subbasin ID 5-21.62), and the Sacramento Valley–North American Subbasin (Subbasin ID 5-21.64) (DWR 2016b). Data from the California Department of Water Resources Groundwater Information Center webpage indicate that as of fall 2015, the depth to groundwater near the project alignment generally ranged from approximately 20 to 50 feet below ground surface (bgs), with some areas as shallow as 10 feet bgs, and some as deep as 90 feet bgs (DWR 2016b).

Groundwater quality is variable across the project area, generally decreasing toward the west as municipal and agricultural influences increase. The North Yuba Subbasin has generally good groundwater quality; however, long-term trends indicate increasing total dissolved solids (TDS) concentrations (YCWA 2010). TDS concentrations are generally below 500 milligrams per liter (mg/L). Water quality in the South Yuba Subbasins is generally good; TDS concentrations are

generally below 500 mg/L (DWR 2016b, 2003). However, long-term trends indicate increasing TDS concentrations (YCWA 2010). Groundwater quality in the North American Subbasin varies from good to marginal. Groundwater quality in the Sutter Subbasin varies from good to poor, with identified impairments for TDS and chemical elements that exceed drinking water quality and aesthetic standards (DWR 2016b, 2003).

5.9.2 Regulatory Setting

Federal

Clean Water Act

The CWA (33 U.S.C. 1251 et seq.), as amended by the Water Quality Act of 1987, is the major federal legislation governing water quality. The objective of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Important sections of the act are summarized as follows:

- CWA Sections 303 and 304 provide for water quality standards, criteria, and guidelines. Under Section 303(d) of the CWA, the State of California is required to develop a list of impaired water bodies that do not meet water quality standards and objectives. California is required to establish TMDLs for each pollutant/stressor. A TMDL defines how much of a specific pollutant/stressor a given water body can tolerate and still meet relevant water quality standards. The impairments applicable to the project's receiving waters are described in Section 5.9.1, Environmental Setting.
- CWA Section 401 (Water Quality Certification) requires an applicant for any federal permit that proposes an activity that may result in a discharge to waters of the United States, to obtain certification from the state that the discharge will comply with other provisions of the act. The CV RWQCB would provide review and water quality certification services for the project.
- CWA Section 402 establishes the National Pollutant Discharge Elimination System (NPDES), a permitting system for the discharge of any pollutant (except for dredged or fill material) into waters of the United States. This permit program is administered by the State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (RWQCBs), who have several programs that implement individual and general permits related to construction activities, stormwater runoff quality, and various kinds of non-stormwater discharges.
- CWA Section 404 establishes a permit program for the discharge of dredged or fill material into waters of the United States. This permit program is jointly administered by the U.S.

Army Corps of Engineers (ACOE) and the EPA. A Section 404 permit is required for the discharge of dredged or fill material into waters of the United States. The Sacramento District of the ACOE would provide review and permitting services for this project.

Numerous agencies have responsibilities for administration and enforcement of the CWA. At the federal level, this includes the EPA, the ACOE, the Bureau of Reclamation, and the major federal land management agencies such as the U.S. Forest Service and the Bureau of Land Management. At the state level, with the exception of tribal lands, the California EPA and its sub-agencies, including the SWRCB, have been delegated primary responsibility for administering and enforcing the CWA in California.

Federal Antidegradation Policy

The federal antidegradation policy is designed to protect water quality and water resources. The policy directs states to adopt a statewide policy that includes the following primary provisions: (1) existing instream uses and the water quality necessary to protect those uses shall be maintained and protected; (2) where existing water quality is better than necessary to support fishing and swimming conditions, that quality shall be maintained and protected unless the state finds that allowing lower water quality is necessary for important local economic or social development; and (3) where high-quality waters constitute an outstanding national resource, such as waters of national and state parks, wildlife refuges, and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.

State

Porter–Cologne Water Quality Control Act

The Porter–Cologne Water Quality Control Act (Porter–Cologne Act; codified in the California Water Code, Section 13000 et seq.) is the primary water quality control law for California. Whereas the CWA applies to all waters of the United States, the Porter–Cologne Act applies to waters of the state, which includes isolated wetlands and groundwater in addition to federal waters. It is implemented by the SWRCB and the nine RWQCBs. In addition to other regulatory responsibilities, the RWQCBs have the authority to conduct, order, and oversee investigation and cleanup where discharges or threatened discharges of waste to waters of the state[1] could cause pollution or nuisance, including impacts to public health and the environment.

[1] "Waters of the state" are defined in the Porter–Cologne Act as "any surface water or groundwater, including saline waters, within the boundaries of the state" (California Water Code, Section 13050(e)).

The act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or otherwise) to land or surface waters that may impair a beneficial use of surface or groundwater of the state. California Water Code Section 13260(a) requires that any person discharging waste or proposing to discharge waste, other than to a community sewer system, that could affect the quality of the waters of the state, file a Report of Waste Discharge with the applicable RWQCB. For discharges directly to surface water (waters of the United States), an NPDES permit is required, which is issued under both federal and state law; for other types of discharges, such as waste discharges to land (e.g., spoils disposal and storage), erosion from soil disturbance, or discharges to waters of the state (such as groundwater and isolated wetlands), Waste Discharge Requirements (WDRs) are required and are issued exclusively under state law. WDRs typically require many of the same best management practices (BMPs) and pollution control technologies as required by NPDES-derived permits.

Basin Planning

The California legislature has assigned the primary responsibility to administer and enforce statutes for the protection and enhancement of water quality, including the Porter–Cologne Act and portions of the CWA, to the SWRCB and its nine RWQCBs. The SWRCB provides state-level coordination of the water quality control program by establishing statewide policies and plans for implementation of state and federal regulations. The nine RWQCBs throughout California adopt and implement Basin Plans that recognize the unique characteristics of each region with regard to natural water quality, actual and potential beneficial uses, and water quality problems. The CV RWQCB is responsible for the protection of the beneficial uses of waters draining to the Sacramento–San Joaquin Delta, including the project area.

The Basin Plan for the CV RWQCB designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan (California Water Code, Sections 13240–13247) (CV RWQCB 2015). The most water-quality-sensitive beneficial uses applicable to the Sacramento–San Joaquin Delta include REC-1 (Water Contact Recreation), WARM (Warm Freshwater Habitat), COLD (Cold Freshwater Habitat), WILD (Wildlife Habitat), and migration and spawning (MIGR and SPWN). The Basin Plan also includes water quality objectives that are protective of the identified beneficial uses; the beneficial uses and water quality objectives collectively make up the water quality standards for the region. Selected water quality objectives from the Basin Plan are summarized as follows:

- **Turbidity:** This objective depends on the natural turbidity of the receiving water body but generally does not allow increases of more than 2 nephelometric turbidity units

(NTUs) in clear waters (under 5 NTU), of more than 20% in typical waters (between 5 and 50 NTUs), or of more than 10% in turbid waters (greater than 50 NTUs).

- **pH:** Discharges should not result in pH level of creeks and lakes going under 6.5 or above 8.5.
- **Dissolved Oxygen:** Water designated as "COLD" shall not have dissolved oxygen reduced to below 7 mg/L; those designated as "WARM" shall not have dissolved oxygen reduced to below 5 mg/L.
- **Temperature:** The temperature of receiving waters with a COLD or WARM beneficial use shall not be increased more than 5°F above the natural receiving water temperature.
- **Oil/Grease, Suspended Material and Trash:** Water shall not contain these materials in concentrations that cause nuisance, result in visible sheen, or adversely affect beneficial uses.

These objectives are applicable to the receiving water bodies in the project area.

The NPDES and WDR programs regulate construction, municipal, and industrial stormwater and non-stormwater discharges under the requirements of the CWA and the Porter–Cologne Act. The construction stormwater program, the Phase II small municipal stormwater permit, and the statewide general permit for low-threat discharges are administered by the SWRCB, while the individual (point-source) discharger permits are administered by the CV RWQCB. The water-quality-related permits that would apply to the project are further described in the following paragraphs. General WDRs and/or NPDES permits contain effluent limitations that may be stricter than basin-wide water quality objectives, because they regulate specific categories of discharge and are designed to limit the cumulative effects of development over broad areas.

Construction General Permit (SWRCB Order 2009-0009-DWQ, as amended). For stormwater discharges associated with construction activity in the State of California, the SWRCB has adopted the General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit) to avoid and minimize water quality impacts attributable to such activities. The Construction General Permit applies to all projects in which construction activity disturbs 1 acre or more of soil. Construction activity subject to this permit includes clearing, grading, and disturbances to the ground, such as stockpiling and excavation. The Construction General Permit requires the development and implementation of a stormwater pollution prevention plan (SWPPP), which would include and specify water quality BMPs designed to prevent pollutants from contacting stormwater and keep all products of erosion from moving off site into receiving waters. Routine inspection of all BMPs is required under the provisions of the Construction General Permit, and the SWPPP must be prepared and implemented by qualified individuals as defined

by the SWRCB (i.e., registered as a qualified SWPPP developer/qualified SWPPP practitioner (QSD/QSP)). The project applicant must submit a Notice of Intent to the SWRCB to be covered by a NPDES permit and prepare the SWPPP prior to the beginning of construction.

General Order for Dewatering and Other Low-Threat Discharges to Surface Waters (CV RWQCB Order R5-2013-0074, as amended). The CV RWQCB has adopted a general NPDES permit for short-term discharges of small volumes of wastewater from certain construction-related activities. Discharges may be covered by the permit provided either (1) they are 4 months or less in duration or (2) the average dry weather discharge does not exceed 0.25 million gallons per day. Construction dewatering and miscellaneous dewatering/low-threat discharges are among the types of discharges that may be covered by the permit. To receive coverage under this general permit, the discharger must submit a Notice of Intent to the RWQCB and describe the activity with sufficient detail to demonstrate that discharge would comply with the discharge prohibitions, effluent limitations, and receiving water limitations outlined in the order. In no case shall the discharge impair beneficial uses, violate water quality standards, or cause a possible nuisance condition.

Although this not anticipated due to the nature of pole installations, this permit would be required in the event dewatering discharges to adjacent drainage swales or ditches would be necessary during foundation excavations, utility trenching, or other site construction activities. If the discharge is made to land (e.g., piped to a temporary infiltration/percolation basin on site) the applicant would need to apply for coverage under the Statewide General WDRs for Discharges to Land with a Low Threat to Water Quality (SWRCB Order No. 2003-0003-DWQ). The intent and procedures for coverage under this permit are similar to those described previously.

State Nondegradation Policy

In 1968, as required under the federal antidegradation policy described previously, the SWRCB adopted a nondegradation policy aimed at maintaining high quality for waters in California. The nondegradation policy states that the disposal of wastes into state waters shall be regulated to achieve the highest water quality consistent with maximum benefit to the people of the state and to promote the peace, health, safety, and welfare of the people of the state. The policy provides as follows:

> Where the existing quality of water is better than required under existing water quality control plans, such quality would be maintained until it has been demonstrated that any change would be consistent with maximum benefit to the people of the state and would not unreasonably affect present and anticipated beneficial uses of such water.

Any activity that produces waste or increases the volume or concentration of waste and that discharges to existing high-quality waters would be required to meet WDRs that would ensure that (1) pollution or nuisance would not occur and (2) the highest water quality consistent with the maximum benefit to the people of the state would be maintained.

Local

California Public Utilities Commission General Order No. 131-D explains that local land use regulations would not apply to the project.

5.9.3 Applicant Proposed Measures

The proposed project will integrate the following applicant proposed measure (APM) into the design and implementation of the proposed project.

APM HYD-1 Prepare and Implement a Storm Water Pollution Prevention Plan (SWPPP). Pacific Gas and Electric Company (PG&E) will prepare and implement a SWPPP to prevent construction-related erosion and sediments from entering nearby waterways. The SWPPP will include a list of BMPs to be implemented in areas with potential to drain to any water body in Butte, Yuba, or Sutter County. BMPs to be part of the project-specific SWPPP may include, but are not limited to, the following control measures.

- Implementing temporary erosion control measures (such as silt fences, staked straw bales/wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, grass buffer strips, high infiltration substrates, grassy swales, and temporary revegetation or other ground cover) to control erosion from disturbed areas.
- Protecting drainage facilities in downstream off-site areas from sediment using best management practices (BMPs) accepted by Butte, Sutter, and Yuba Counties, and the Central Valley Regional Water Quality Control Board (RWQCB).
- Protecting the quality of surface water from non-stormwater discharges such as equipment leaks, hazardous materials spills, and discharge of groundwater from dewatering operations.
- Restoring disturbed areas, after project construction is completed, unless otherwise requested by the landowner in agricultural land use areas.

Requirements of the SWPPP would be coordinated with the requirements of any Section 401 Water Quality Certification issued for the project under the Clean Water Act and/or Streambed Alteration Agreement issued under Fish and Game Code Section 1602, as applicable.

5.9.4 Environmental Impacts and Mitigation

a) Would the project violate any water quality standards or waste discharge requirements?

Stormwater Runoff during Construction

Less-than-Significant Impact. This discussion focuses on the potential for stormwater runoff from construction areas to contain elevated levels of pollutants and thus potentially violate water quality standards related to the CV RWQCB Basin Plan. If these construction areas are not properly managed to contain loose soils and liquid and solid contaminants, short-term water quality impacts could occur due to sediment and contaminant runoff from the construction zone. There are two potential ways that construction activities could adversely affect water quality:

- **Land disturbances:** Land disturbances such as vegetation removal, compaction, limited grading, and temporary soil stockpiling can potentially increase sediment levels in stormwater runoff by eroding soils that have been loosened or newly exposed by construction activity. Land disturbances can also decrease the infiltration capacity of soils in the work area through compaction of native soils from foot traffic, heavy machinery, and equipment laydown. Depending on the pattern, magnitude, and extent of construction activities, stormwater flows that would otherwise not be erosive can become both channelized and accelerated, leading to soil loss, rilling, and/or gullying on site or downgradient.
- **Spill and/or leaks:** Materials that could contaminate the construction area or spill or leak include diesel fuel, gasoline, lubrication oil, cement slurry, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and construction-related trash and debris. Due to the nature of the proposed construction activities, only minor quantities of these materials would be required in any one work area along the line. The amount used would be the minimum necessary to fuel vehicles, power equipment, and complete installation activities (see Table 4-2, Anticipated Construction Equipment, in Chapter 4, Project Description). Improper management of hazardous materials could result in accidental spills or leaks, which could locally contaminate either shallow groundwater or the closest surface water body.

The nature of potential water quality impacts associated with construction is both temporary and highly localized because all work areas would be restored to pre-construction conditions to the extent practicable and according to the project-specific SWPPP, further described in the following paragraphs.

In some cases, wetlands and small streams may need to be crossed to access work areas, and this work would be performed in accordance with the requirements of federal and state permits under CWA Sections 404 and 401, the Porter–Cologne Act, and California Fish and Game Code Section 1602, as applicable. In addition, small quantities of fuels, lubricants, and solid and liquid wastes could be temporarily stored within work areas, pull sites, and landing zones. It should be noted that hazardous materials impacts are addressed in Section 5.8, Hazards and Hazardous Materials, and direct impacts on jurisdictional waters and wetlands are addressed in Section 5.4, Biological Resources.

Cumulatively, temporary work areas associated with tubular steel pole (TSP), lattice steel pole (LSP), modified TSP, and hybrid pole sites would total approximately 46.72 acres; helicopter landing zones and staging areas would total approximately 36.16 acres; pull sites would total approximately 32.76 acres; tower modification and temporary guard structure sites would total 11.51 acres; and access routes would total 22.16 acres. Nearly all temporary work areas required would overlap with PG&E's existing right-of-way, existing roads, or locations that have been previously disturbed due to routine operation and maintenance activities along the alignment. However, in certain locations, new land disturbances would be required to prepare access road where necessary (i.e., blading and/or smoothing), establish helicopter landing zones/staging areas, prepare temporary work areas, establish stringing sites, and install TSPs, LSPs, and hybrid poles.

The required land disturbances would be highly dispersed both geographically and over time, and would be timed to avoid the wet season. This means that at any one time, a much smaller area would be disturbed, and as construction proceeds over the 36-month period, construction activities would proceed incrementally along each of the project alignments. Typical pole replacement activities would range in duration from a couple of days to a week at any one pole work area, depending on installation methods and local conditions. Furthermore, the ground-disturbing phases of project construction would be planned for the dry season (spring and summer months), with aboveground activities (structure replacement and reconductoring) occurring in the fall and winter. Based on the location, extent, timing, and nature of proposed activities and land disturbances, the helicopter landing zones/staging areas are of most concern from a water quality perspective, due to the amount of time they would operate and the use of these areas to store construction vehicles and/or equipment.

Furthermore, work areas and access roads in close proximity to or crossing Wyman Ravine Creek, Wyandotte Creek, North Honcut Creek, South Honcut Creek, Feather River, Yuba River, Reeds Creek, or Bear River have an elevated potential to cause water quality issues. For the most part, water features within the project footprint will be crossed using existing access roads with serviceable culvert and bridge crossings. However, existing access roads that may require some level of improvement cross Wyandotte Creek, North Honcut Creek, Wilson Creek, and a tributary to South Honcut Creek, and a new temporary access road would need to be established across Conn Creek (PG&E 2016b). For the aforementioned crossings, the project would use the following approaches to avoid or minimize the impact of the crossings (PG&E 2016b):

- If new crossings must be established or existing crossings must be modified, when possible, this will be accomplished by temporarily bridging the water feature.
- If fords must be crossed, driving mats may be placed to minimize disturbance by vehicle travel across the stream.
- With the exception of matting and driving across the area, PG&E does not anticipate that construction will be required to cross water features. To the extent that construction is required, PG&E will obtain any necessary permits and approvals from the California Department of Fish and Wildlife, RWQCB, and ACOE (i.e., CWA Section 401/404 and California Fish and Game Code Section 1602) for any work within a water feature and will perform the work in accordance with all applicable conditions of these permits.

Because land disturbances associated with the project would cumulatively be greater than 1 acre in size (and in accordance with APM HYD-1), the project applicant and/or its qualified contractor would be required to submit a Notice of Intent to the SWRCB in order to obtain approval to carry out construction activities under the Construction General Permit. This permit includes a number of design, management, and monitoring requirements for the protection of water quality and the reduction of construction-phase impacts related to stormwater (and some non-stormwater) discharges. Compliance with the Construction General Permit requires that a SWPPP be developed and implemented by qualified individuals with appropriate credentials and training (i.e., QSD/QSP), as defined by the SWRCB. The SWPPP includes BMPs for preventing water quality degradation, identification of stormwater collection and discharge points, general topography both before and after construction, and drainage patterns across the project site.

The exact type and location of construction site BMPs in the final SWPPP would be based on site-specific conditions and receiving water risk, and thus would focus on the areas of

greatest concern identified previously (e.g., helicopter landing zones/staging areas and locations in proximity to receiving waters). Minimum BMPs would include erosion controls (e.g., mulches, soil binders, erosion control blankets/mats, outlet projection/energy dissipation devices), sediment controls (e.g., silt fences, fiber rolls, gravel bags), tracking controls (e.g., stabilized construction entrance/exit, entrance/outlet tire wash), wind erosion controls, non-stormwater management, and materials and water management (cleanup and containment of trash and debris, stockpile management, spill prevention and control, hazardous waste management). Implementation of these BMPs included in the SWPPP would protect water quality due to construction-induced erosion and sedimentation on the project site, and would include hazardous materials BMPs necessary to prevent or contain spills or leaks associated with construction equipment and materials.

Although construction activities have the potential to adversely affect water quality, required coverage under the statewide Construction General Permit per APM HYD-1 would be adequate to ensure that potential construction-related impacts on water quality are avoided or substantially minimized. It would also ensure that the project would not violate any SWRCB/RWQCB water quality standards or WDRs. Following construction, all work areas would be restored to pre-construction conditions to the extent practicable, per APM HYD-1 and other project APMs. For these reasons, the project's construction-phase impacts on stormwater quality would be **less than significant**.

Non-Stormwater Impacts during Construction

Less-than-Significant Impact. As indicated in Section 5.9.4(b), construction activities may involve dewatering discharges of groundwater to allow for dry working conditions and concrete pouring. As indicated in Section 5.8, Hazards and Hazardous Materials, there is no evidence of a cleanup site or reported release within or immediately adjacent to the project site. While unlikely, there could be unreported or undetected pollutants present in the groundwater (e.g., malfunctioning off-site septic tank, unreported leaking underground storage tank). If this contaminated water is discharged to a drainage ditch or creek, it could adversely affect the quality of the receiving water. However, such discharges are governed under the General Order for Dewatering and Other Low-Threat Discharges to Surface Waters (General Order for Dewatering; CV RWQCB Order R5-2013-0074, as amended). Prior to augering holes in areas of shallow groundwater, or other activity requiring groundwater dewatering, PG&E must submit a Notice of Intent to the CV RWQCB for the General Order for Dewatering. To receive coverage under the general order, PG&E must describe the activity with sufficient detail to demonstrate the nature, location, and duration of the discharge. Compliance with the order requires PG&E to send groundwater samples to a certified laboratory for analysis of priority pollutants

found in Attachment B of the General Order for Dewatering. If screening levels are exceeded, PG&E must implement suitable and appropriate treatment of the groundwater prior to discharge off site. Dewatering discharges must comply with the discharge prohibitions, effluent limitations, and receiving water limitations outlined in the General Order for Dewatering. Coverage under the permit prohibits the discharger (i.e., PG&E) from impairing beneficial uses, violating water quality standards, or causing a possible nuisance condition. Therefore, considering the regulatory requirement to obtain a general WDR for groundwater dewatering, the impact on non-stormwater discharges on water quality would be **less than significant**.

Operation and Maintenance

Less-than-Significant Impact. Stormwater runoff during operation and maintenance activities would be similar to the existing conditions, because the electrical lines are aboveground and located along the same alignments. Although the location of replaced poles would slightly change (i.e., they would generally be spaced within 20 feet from existing towers they would replace), the maximum pole diameter of 60 inches is insufficient to cause any appreciable or measurable change in stormwater drainage or flow patterns. Operation and maintenance activities would not involve any permanent non-stormwater discharges. For these reasons, the operation and maintenance impacts of the project on water quality would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

b) Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?

Construction

Less-than-Significant Impact. The project does not require construction or destruction of a groundwater well. Thus, direct impacts with respect to groundwater would be limited to locations that require groundwater dewatering. Based on the depth to groundwater across the project area (i.e., approximately 20 to 50 feet bgs), the timing of subsurface work (during the dry season), and the methods of construction (augering), construction activities are generally not anticipated to require groundwater dewatering. Should

groundwater dewatering be required to provide a dry workspace in excavations, any impacts would be highly localized, temporary, and limited to the bottom depth of the excavation or auger hole. Any groundwater removed for construction would be minimal in volume, would likely recharge the shallow groundwater at the location where it is discharged, and would be of the same or similar quality. Furthermore, domestic or agricultural wells in the immediate area, if any, are screened at much deeper intervals (generally no shallower than 50 feet), which means water levels in those wells would not be affected by shallow dewatering activities. For these reasons, groundwater dewatering would have a less than significant impact with respect to groundwater depletion or the groundwater levels in nearby wells. Furthermore, the project does not involve paving or appreciable increases in impervious surfaces, which means it would have no impact with regard to groundwater recharge.

To the extent that project-related water demands come from groundwater sources, there could be an indirect impact on groundwater resources. However, it would be temporary and limited. Water needs for construction are conservatively estimated to be 9.16 acre-feet (2,985,000 gallons) over a 36-month period and over a distance of 40 miles. Water trucks, typically with a capacity of 4,000 gallons, will support project construction activities and dust suppression. Construction water may be obtained from local municipal sources, trucked in by a water supply vendor, or derived from local wells. Municipal water sources in the project area are supplied from a combination of surface and groundwater sources. Water will be needed for construction and dust suppression only temporarily and in relatively small amounts, based on the limited and widely dispersed scale of earth-disturbing activities. As such, project water demand would be small compared to the amount of groundwater in storage, and would not change the currently forecasted municipal groundwater demand in urban water management plans for the municipalities from which water would be obtained for the project. For these reasons, the project impact on groundwater supplies would be **less than significant**.

Operation and Maintenance

No Impact. Operation and maintenance activities would occur consistent with current PG&E operation and maintenance activities along its existing lines and within the existing right-of-way (the project involves no net increase in PG&E's right-of-way). Any amount of water used for workers or for cleaning activities would be minor, would be commercially sourced, and would be the same as existing conditions. Therefore, there would be **no impact** to groundwater associated with operation and maintenance activities.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

c) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?

Less-than-Significant Impact. The project has been designed to minimize impacts on waterways, as well as to avoid substantially altering the drainage patterns in the project work areas or altering the course of a stream or river. Crossing wetlands or small streams may be necessary to access some work locations, and this work would be performed in accordance with the requirements of federal and state permits under CWA Sections 404 and 401, the Porter–Cologne Act, and California Fish and Game Code Section 1602, as applicable. Minor temporary grading would be performed in select locations to improve project access or establish work areas to accommodate equipment; however, this grading would be limited in scope and would not substantially alter site drainage or result in substantially increased erosion or siltation. Work areas would be restored after completion of work. Accordingly, project impacts on existing drainage patterns, stream or river courses, erosion, or sedimentation would be **less than significant**.

To further reduce this impact during construction, appropriate BMPs would be implemented in accordance with the SWPPP, as described in APM HYD-1. In addition, after project construction is completed, disturbed areas would be restored unless otherwise requested by the landowner in agricultural land use areas.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

d) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

Less-than-Significant Impact. For the same reasons discussed in Sections 5.9.4(a) and 5.9.4(c), the project's impacts on flooding from altered drainage patterns would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

e) Would the project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Less-than-Significant Impact. Much of the project alignment is located within rural or undeveloped parcels where municipal or otherwise developed stormwater collection systems are not established. The stormwater conveyance systems that are present generally consist of open stormwater ditches and waterways along the route. As indicated in Section 5.9.4(a), the removal and replacement of poles and towers is not anticipated to substantially alter existing drainage patterns of the site or area. Construction impacts include temporary ground disturbance and potential small-scale, highly localized, and temporary changes in the existing drainage patterns. Temporary impacts would be spread out along the linear footprint of the project work areas; therefore, no one area would have drainage patterns significantly altered. For these reasons, the impact of the project with regard to exceeding stormwater drainage capacity would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

f) Would the project otherwise substantially degrade water quality?

No Impact. There are no reasons, other than those already discussed in the preceding sections, that the project would degrade water quality.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

g) Would the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

No Impact. The project does not involve housing. Therefore, this criterion is not applicable to the project.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

h) Would the project place within a 100-year flood hazard area structures which would impede or redirect flood flows?

Less-than-Significant Impact. See Section 5.9.4(j) for further discussion. As indicated in the Environmental Setting section, much of the project area lies within a 100-year flood

hazard area as mapped by FEMA. The aboveground components of the project would not affect or be affected by flooding. The new TSP, LSP, modified TSP, and hybrid poles would involve replacement of existing poles that are already within potentially flood-prone areas; therefore, they would not change the existing conditions in this regard. Although the location of the new structures may differ by up to 20 feet from the existing structures, the diameters would range between 24 and 60 inches depending on pole type. In the context of regional flooding, this is insufficient to result in measurable changes in the volume, velocity, or extent of flood hazards, due to the small cross-sectional area that the poles would occupy. The load requirements in California Public Utilities Commission General Order 95 (CPUC 2012), including wind, snow, and earthquakes, far exceeds the load that a flood flow would impose on transmission line poles. Therefore, these new poles would neither affect nor be damaged by a 100-year flood flow. Temporary construction support facilities will be built to support this work, and will include laydown and support areas, helicopter landing pads, and additional access roads. After completion of the project, the temporary facilities will be removed and their locations restored, except for areas that are stabilized and retained at the request of the landowner.

Given these factors, the project would have a **less than significant** impact with regard to impeding or redirecting flood flows. It should be noted that damage or destruction of PG&E facilities from pre-existing environmental hazards is not grounds for a significant impact determination under the California Environmental Quality Act (CEQA), because the project does not include structures for human occupancy or any public-use facilities.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

i) Would the project expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

Less-than-Significant Impact. See Section 5.9.4(j) for further discussion. Much of the project area lies within the dam failure inundation hazard areas of dams on the Feather, Yuba, and Bear Rivers. In addition, the project area passes through Levee Flood Protection Zones in portions of Yuba and Sutter Counties. These areas include existing towers and poles that will be replaced or modified prior to reconductoring. The project will have no direct effect on existing levees, dams, or other flood control mechanisms, nor will it affect the potential for significant risk of loss, injury, or death resulting from flooding from dam or levee failure. The analysis in Section 5.9.4(h) is equally applicable to dam or levee failure, and the project would have a **less than significant** impact regarding this issue.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

j) Inundation by seiche, tsunami, or mudflow?

No Impact. The project is not located near a large body of water that could be subject to seiche or tsunami waves. The project is not located adjacent to steep slopes of hillsides and thus is not in an area that is at risk of a mudflow caused by heavy rains or an earthquake. In a highly unlikely scenario, the project alignment could be affected or damaged by a catastrophic mudflow originating from a distant source. However, it should be noted that damage or destruction of PG&E facilities from pre-existing environmental hazards is not grounds for a significant impact determination under CEQA, because the project does not include structures for human occupancy or any public-use facilities. Should such an event occur, PG&E would send out crews to inspect and repair the lines as needed, in accordance with its current emergency protocols. The project would have **no impact** with respect to seiche, tsunami, or mudflow.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

5.9.5 References Cited

33 U.S.C. 1251–1387. Clean Water Act, as amended.

California Water Code, Sections 13000–16104. Porter–Cologne Water Quality Control Act.

CPUC (California Public Utilities Commission). 2012. General Order 95: Overhead Electric Line Construction.

CV RWQCB (Central Valley Regional Water Quality Control Board). 2015. *Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board, Central Valley.* Fourth edition. Revised June 2015, with approved amendments.

DWR (California Department of Water Resources). 2003. *California's Groundwater: Update 2003*. Bulletin 118.

DWR. 2016a. "Floodplain Information." Best Available Maps Viewer. Accessed September 11, 2016. http://gis.bam.water.ca.gov/bam/.

DWR. 2016b. Groundwater Information Center Interactive Map Application. Accessed September 12, 2016. https://gis.water.ca.gov/app/gicima/.

Google Earth. 2016. Elevation Profile and Slope Information Tool, Wheatland to Palermo, CA. Accessed September 11, 2016.

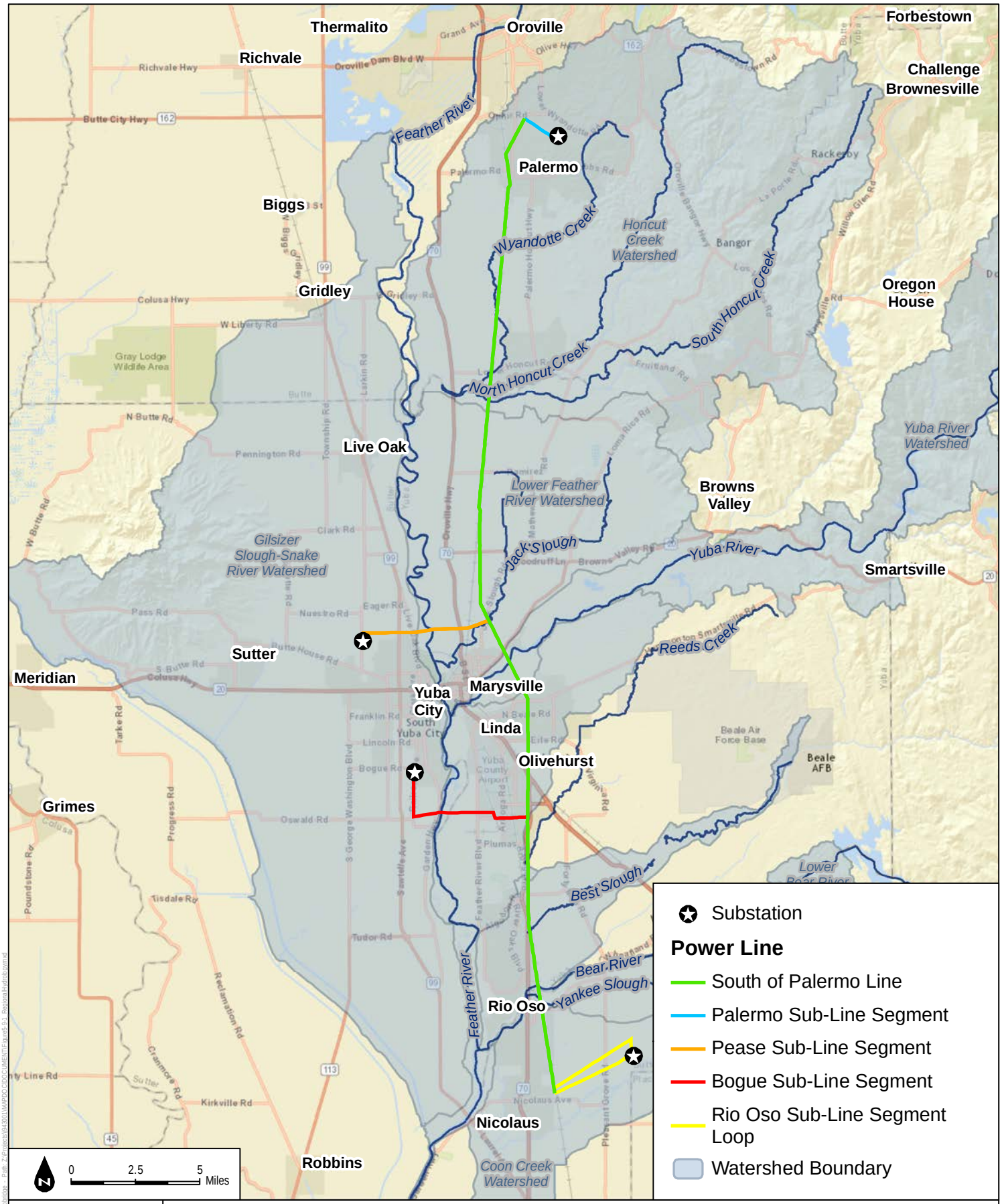
PG&E (Pacific Gas and Electric Company) 2016a. *Proponent's Environmental Assessment for the South of Palermo 115 kV Power Line Reinforcement Project*. Prepared for Pacific Gas & Electric by ICF International. April 2016.

PG&E. 2016b. "South of Palermo 115 kV Power Line Reinforcement Project, Response to Data Request No.1." June 17, 2016.

SWRCB (State Water Resources Control Board). 2012. "Final 2012 California Integrated Report (Clean Water Act Section 303(d) List/305(b) Report)." Accessed September 12, 2016. http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml.

USGS (U.S. Geological Survey). 2016. *The National Map*. National Hydrography Dataset Viewer. Accessed September 12, 2016. http://viewer.nationalmap.gov/viewer/nhd.html?p=nhd.

YCWA (Yuba County Water Agency). 2010. *Yuba County Water Agency Groundwater Management Plan*. December 2010. http://www.ycwa.com/projects/detail/12.



SOURCE: PG&E (2016); USGS (2016)

FIGURE 5.9-1

Regional Hydrology

South of Palermo 115 kV Power Line Reinforcement Project

DUDEK

INTENTIONALLY LEFT BLANK

5.10 Land Use and Planning

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
LAND USE AND PLANNING – Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

5.10.1 Environmental Setting

As stated in the Proponent's Environmental Assessment (PEA; PG&E 2016):

> The project is located between the communities of Oroville to the north and East Nicolaus to the south, spanning portions of Butte, Sutter, and Yuba Counties. Modifications will be made to power lines in the Cities of Yuba City, Marysville, and Oroville and near the communities of Palermo, Honcut, Tierra Buena, Linda, Olivehurst, Plumas Lake, Rio Oso, and East Nicolaus. Prominent geographic features that intersect the project alignment include the Feather River, Yuba River, and numerous highways, including State Route (SR) 99, SR 70, SR 65, and SR 20.

Existing land uses in the project area are shown on Figures 5.10-1, 5.10-2, and 5.10-3. Agriculture, primarily rice fields and orchards, is the predominant land use throughout much of the project area, with low-density rural residential uses and small agricultural operations dispersed across the project area. In the parts of the project area near developed communities, the land use is primarily residential development, interspersed with commercial and light industrial development.

5.10.2 Regulatory Setting

Federal

No federal land use plans, policies, or regulations apply to the proposed project.

State

California Public Utilities Commission

Pursuant to Public Utilities Code 1001, as implemented in General Order 131-D, the California Public Utilities Commission (CPUC) has sole and exclusive jurisdiction over the siting and design of the proposed project and alternatives because it authorizes the construction, operation, and maintenance of investor-owned public utility facilities. Although such projects are typically exempt from local land use, zoning regulations, and discretionary permitting, Public Utilities Code 1002(a) requires the CPUC to consider the following community factors: community values, recreational and park areas, historical and aesthetic values, and influence on the environment, which are reflected in local land use plans.

Local

The following plans, policies, and zoning ordinances and codes were reviewed and analyzed:

- Butte County General Plan
- Butte County Zoning Ordinance
- City of Oroville General Plan
- City of Marysville General Plan
- Yuba City General Plan
- Yuba County General Plan
- Yuba County Zoning Code
- Plumas Lake Specific Plan
- Sutter County General Plan
- Sutter County Development Code.

Zoning and General Plan Land Use Designations

The project spans portions of Butte, Sutter, and Yuba Counties, and passes through a small portion of the Cities of Oroville, Marysville, and Yuba City. Land use designations include general agricultural, exclusive agricultural, agricultural/residential, residential, light industrial, and general commercial uses.

General Plan Policies

The following are applicable County and City General Plan goals and policies that govern transmission and utility facilities in the project area:

Butte County General Plan

The *Butte County General Plan 2030* does not contain any policies pertaining to utilities.

Yuba County General Plan

CD 14.1 – The County will support regional electricity, water, wastewater, water conservation, and other agreements, where cost-effective and environmentally sustainable.

Sutter County General Plan

LU 9.3 - Non-County Public Facilities. Encourage school, utility, and other non-County public agencies to plan and design their structures and improvements at a high level of visual, architectural, and landscape quality that compliments adjacent neighborhoods and uses

AG 4.2 - Utility Infrastructure. Implement mechanisms to provide the utility infrastructure, flood protection, and services necessary to lands designated for industrial use in order to support the growth and expansion of Sutter County's agriculture industries.

I 5.3 -Adequate Energy Supplies. Work with local utility providers to ensure adequate and affordable supplies of energy are available for existing and future development.

I 5.4 - New Utility Lines. Construct new utility lines along existing utility corridors, when feasible.

I 5.5 - Proximity to Transmission Lines. Prohibit 115 kV or greater transmission lines from being located within 100 feet of any residential use.

PS 7.4 - Trail Opportunities. Encourage the development of abandoned rights-of-way, levee

City of Oroville 2030 General Plan

Goal Pub 10 - Provide telecommunications and energy utilities in ways that are safe, environmentally acceptable and financially sound.

P10.1 - Ensure that utilities, including electricity, natural gas, telecommunications and cable television, are available or can be provided to serve the projected population within the City in a manner, which is fiscally and environmentally responsible, aesthetically acceptable and safe.

P10.2 - Review proposed utility projects, including power line, substations and other facilities, to ensure their compatibility with surrounding land uses.

P10.3 - Encourage utility agencies to use existing transmission corridors for future power transmission line development.

P10.4 - Encourage future construction of power transmission lines underground, where technologically feasible.

City of Marysville General Plan

The *City of Marysville General Plan* does not contain any policies pertaining to utilities.

Yuba City General Plan

The *Yuba City General Plan* does not contain any policies pertaining to utilities.

Airport Land Use Plans

As stated in the PEA (PG&E 2016, p. 3.8-5):

> Airport Land Use Compatibility Plans (ALUCPs) were adopted for Butte, Yuba, and Sutter Counties in 2000, 2011, and 1994, respectively. The ALUCPs set forth policies to promote compatibility between airports and future land uses in the area surrounding the airports by establishing compatibility criteria that pertain to new development. The ALUCPs outline airport-area height restrictions necessary to ensure that objects will not impair flight safety or decrease the operational capability of the airport.

The project area is not within a designated airport land use planning area for airports and private airstrips in Butte and Sutter Counties. Section 5.8, Hazards and Hazardous Material, discusses Airport Land Use Compatibility Plans in more detail. However, in Yuba County, a portion of the project area lies within the designated Airport Influence Area of Yuba County Airport. A more detailed discussion of airport hazards is provided in Section 5.8, Hazards and Hazardous Materials.

5.10.3 Applicant Proposed Measures

No applicant proposed measures are proposed for land use for the proposed project.

5.10.4 Environmental Impacts and Mitigation

a) Would the project physically divide an established community?

No Impact. The proposed project would be located in a predominantly rural area and would be consistent with land uses in the existing community. The proposed project would upgrade and replace existing facilities in existing easements and would not introduce substantial barriers that would alter or shift the existing community. Therefore, **no impact** would occur.

Significance After Mitigation : No mitigation is required because there would be **no impact.**

b) Would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

No Impact. Pursuant to Public Utilities Code 1001, as implemented in General Order 1031-D, no local agencies have jurisdiction over the proposed project. Further, there are no federal or state plans regulations or land use policies with which the proposed project could conflict. Even if local county and city plans and policies did apply, the proposed project –proposes to rebuild of an existing transmission line in an existing utility corridor and would therefore result in no change of use that could conflict with existing land use and zoning. Therefore, **no impact** would occur.

Significance After Mitigation: No mitigation is required because there would be **no impact.**

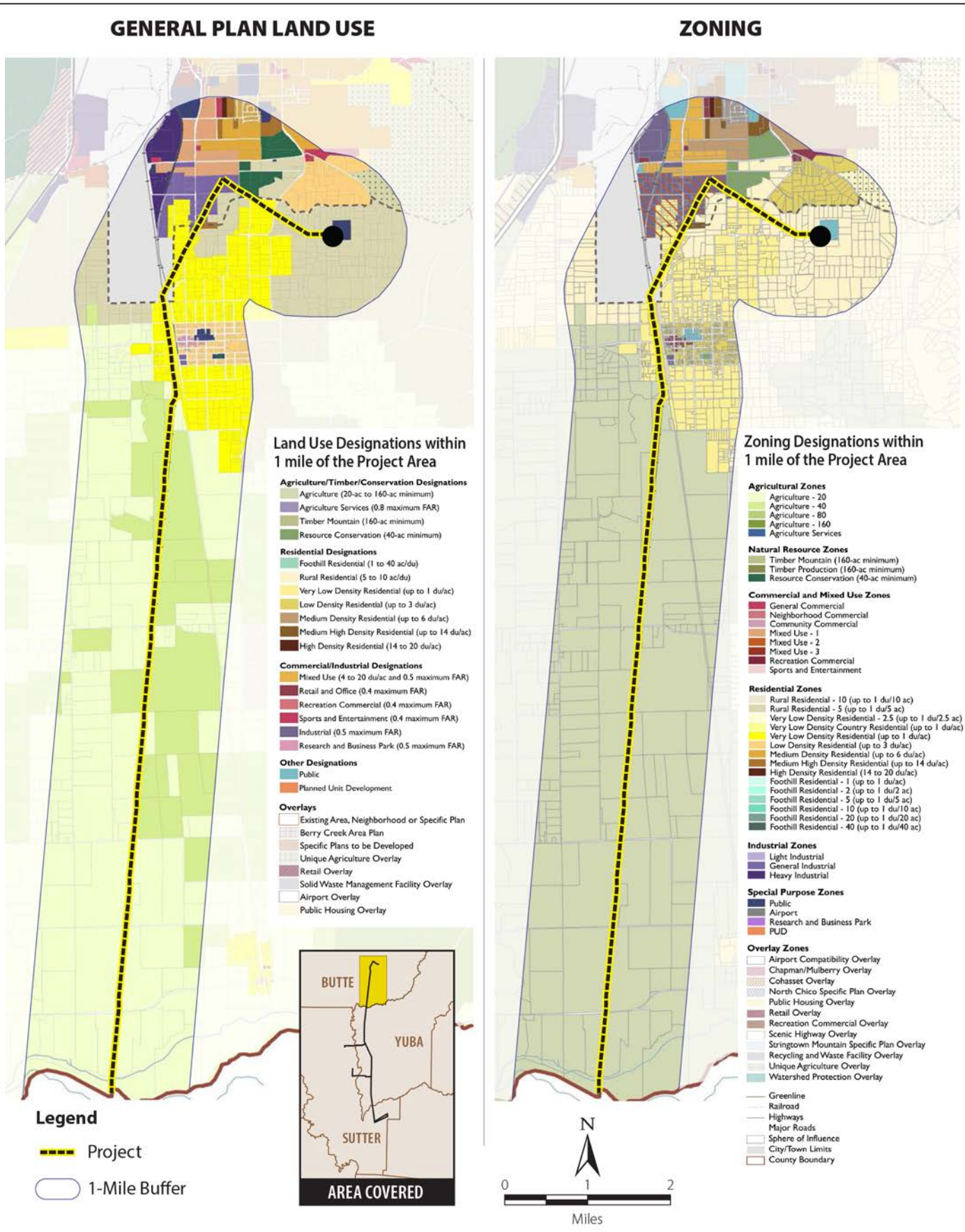
c) Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?

No Impact. The proposed project would not be located on lands within the geographic boundaries of any habitat conservation plan or natural community conservation plan; therefore, **no impact** would occur.

Significance After Mitigation: No mitigation is required because there would be **no impact.**

5.10.5 References Cited

PG&E (Pacific Gas & Electric) 2016. *Proponent's Environmental Assessment for the South of Palermo 115 kV Power Line Reinforcement Project*. Prepared for Pacific Gas & Electric by ICF International. April 2016.



SOURCE: ICF (2016); Butte County (2012)

FIGURE 5.10-1

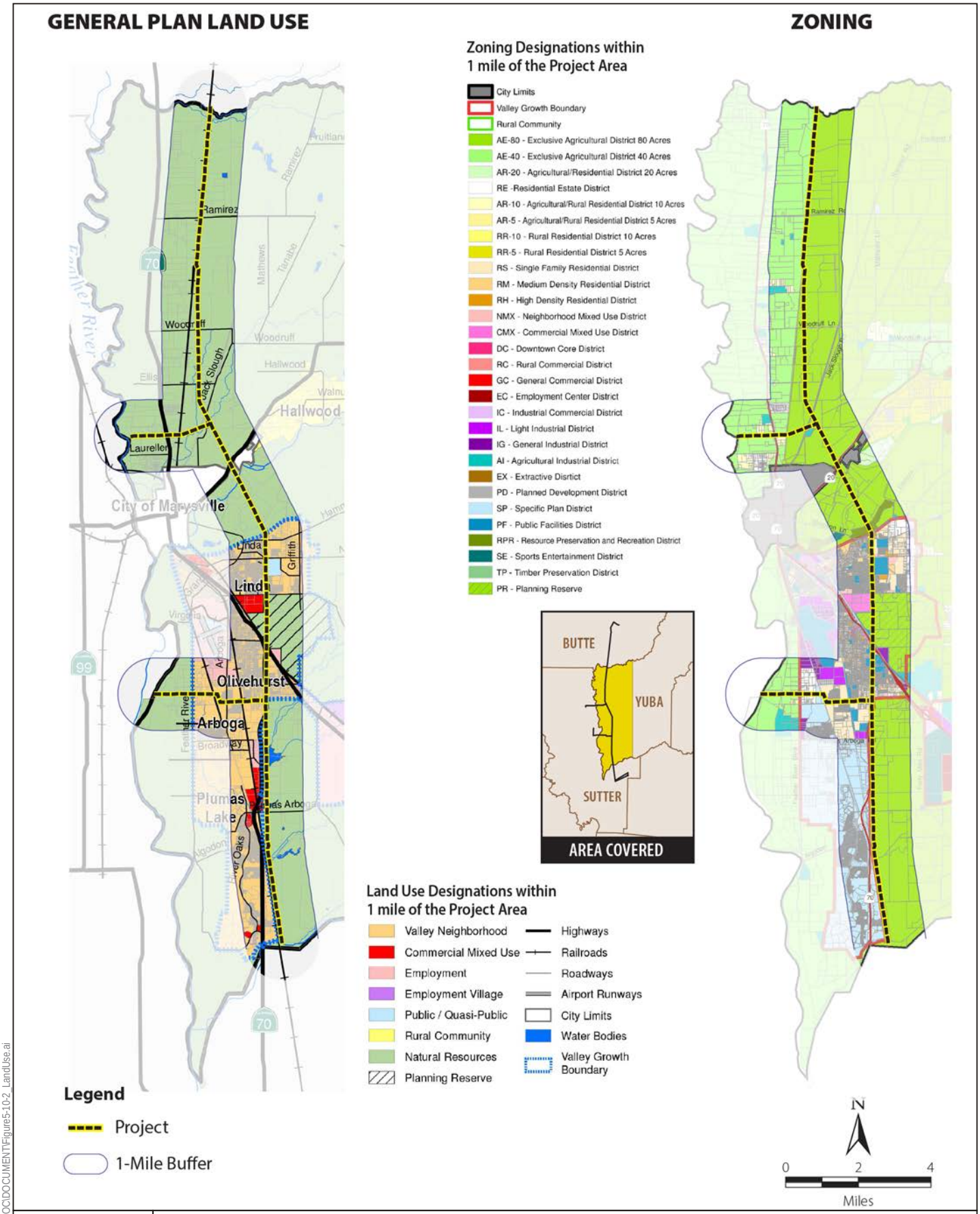
Butte County General Plan Land Use and Zoning Designations

South of Palermo 115 kV Power Line Reinforcement Project

DUDEK

Z:\Projects\943001\MAPDOC\DOCUMENT\Figure5-10-1_LandUse.ai

INTENTIONALLY LEFT BLANK



SOURCE: ICF (2016); Yuba County (2015)

DUDEK

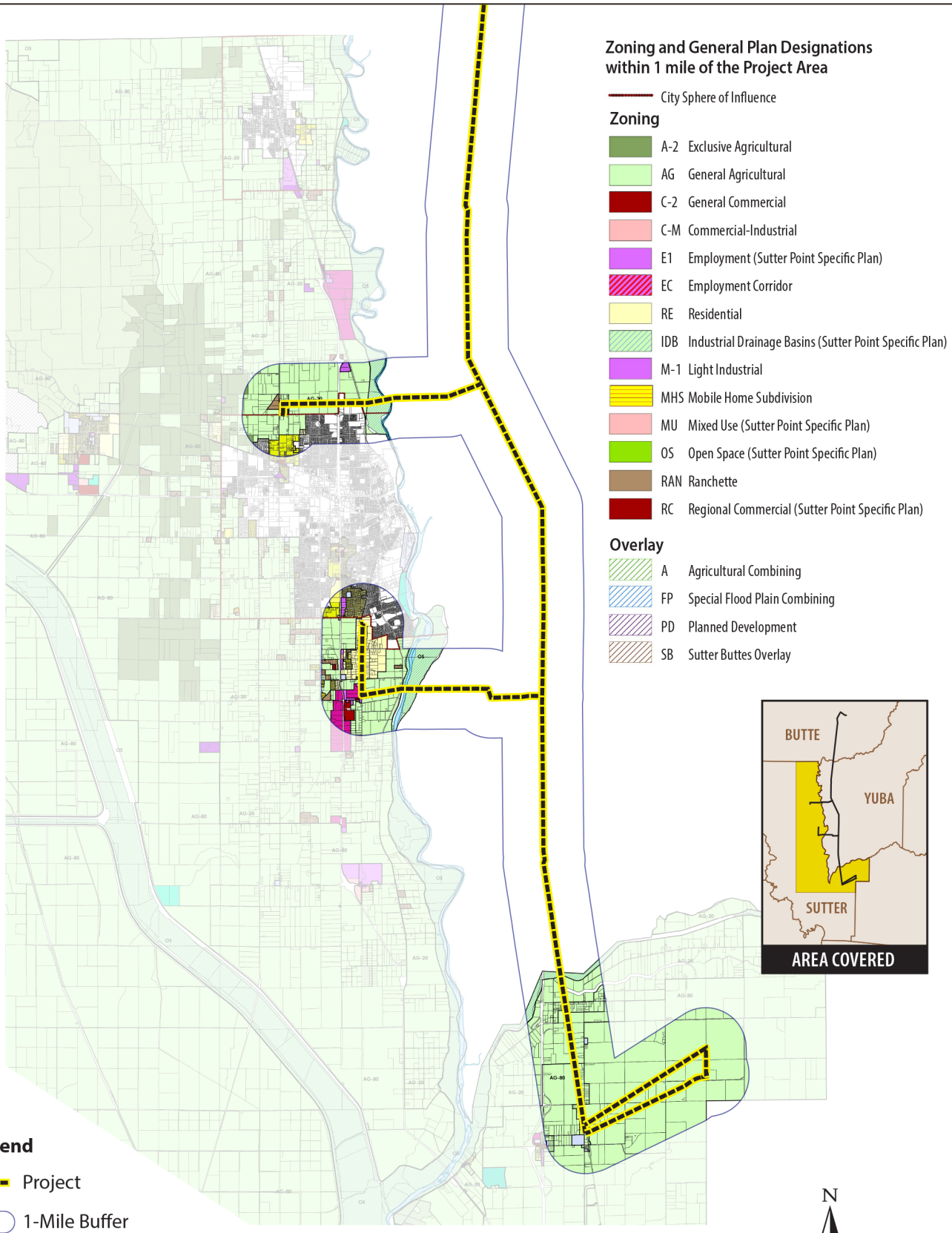
FIGURE 5.10-2

Yuba County General Plan Land Use and Zoning Designations

South of Palermo 115 kV Power Line Reinforcement Project

Z:\Projects\943001\MAPDOC\DOCUMENT\Figure5-10-2_LandUse.ai

INTENTIONALLY LEFT BLANK



SOURCE: ICF (2016); Sutter County (2015)

FIGURE 5.10-3

Sutter County General Plan Land Use and Zoning Designations

South of Palermo 115 kV Power Line Reinforcement Project

DUDEK

Z:\Projects\943001\MAPDOC\DOCUMENT\Figure5-10-3_LandUse.ai

INTENTIONALLY LEFT BLANK

5.11 Mineral Resources

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
MINERAL RESOURCES – Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☒	☐
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☒	☐

5.11.1 Environmental Setting

A mineral resource area refers to land on which known deposits of commercially viable mineral or aggregate deposits exist. Mineral resources include oil, natural gas, and metallic and non-metallic deposits.

The geology of the project area is described in Section 5.6, Geology and Soils, which indicates the project is underlain by shallow Quaternary- and Tertiary-age deposits consisting of non-marine sedimentary formations (i.e., alluvial, lacustrine, and terrace deposits). Mineral resources associated with such deposits are limited to sand and gravel used for construction purposes, i.e., aggregate (PG&E 2016; CGS 2016). Oil and gas deposits can also sometimes underlie large sedimentary basins like those that underlie the project. Since bedrock formations do not underlie the proposed project, there are no metallic minerals or other resources that are derived from hard-rock mines (e.g., gold, silver, copper).

Aggregate Resources

The California Geological Survey (CGS) (formerly the California Division of Mines and Geology) has classified mineral resources into mineral resource zones (MRZs), in accordance with the California Surface Mining and Reclamation Act (SMARA) of 1975. Specific to aggregate resources, the CGS has divided California into Production-Consumption (P-C) regions for the purpose of studying aggregate resource production and demand, classifying areas into MRZs, and identifying aggregate resource sectors. These four MRZ classifications have been established for classifying sand, gravel, and crushed rock resources:

- **MRZ-1**: Adequate information indicates that no significant mineral deposits are present or are likely to be present.

- **MRZ-2**: Adequate information indicates that significant mineral deposits are present or there is a high likelihood for their presence, and development should be controlled.
- **MRZ-3**: The significance of mineral deposits cannot be determined from the available data.
- **MRZ-4**: There is insufficient data to assign any other MRZ designation.

Under SMARA, aggregate materials are classified as reserves or resources. Reserves are defined as aggregate materials believed to be acceptable for commercial use that exist within property boundaries owned or leased by an aggregate-producing company, and for which permission allowing extraction and processing has been granted by the proper authorities. Aggregate resources include reserves and similar potentially usable aggregate materials that may be economically mined in the future, but for which no use permit allowing extraction has been granted.

The South of Palermo Line crosses the Yuba City–Marysville P-C region as defined by CDMG (1988), with an approximately 1.5-mile section crossing areas zoned as MRZ-2 in the vicinity of Yuba River (CGS 2016). As indicated, MRZ-2 means that adequate information indicates that significant mineral deposits are present or there is a high likelihood for their presence, and development should be controlled. While there are aggregate resources underlying the portion of the South of Palermo Line that crosses the Yuba River, there are no aggregate reserves held or mined by an active producer. There are numerous producers of aggregate resources along the Yuba River corridor, starting about 5 miles east of Marysville, bound to the north by State Route 20 (Brown's Valley Road) and to the south by Hammonton–Smartville Road (CGS 2016). The closest aggregate mining pit to the proposed project is located approximately 3 miles east-northeast of the South of Palermo Line. These areas produce construction-grade aggregate to supply the surrounding region, especially the Sacramento metropolitan area, with fill materials, sand, and gravel (CDMG 1988).

Other than the 1.5-mile section of the South of Palermo Line discussed above, there are no existing aggregate or other mineral resource mining operations crossed by the proposed project.

Oil, Gas, and Geothermal Resources

According to maps prepared by the California Division of Oil, Gas, and Geothermal Resources (DOGGR), no oil, natural gas, or geothermal resource areas are located in or adjacent to the project area (DOGGR 2008).

5.11.2 Regulatory Setting

Federal

There are no relevant federal mineral resource regulations applicable to the project.

State

Surface Mining and Reclamation Act of 1975

SMARA, as codified in the California Public Resources Code (Section 2710 et seq.), provides a comprehensive surface mining and reclamation policy for the regulation of surface mining operations to ensure that adverse environmental impacts are minimized and mined lands are restored to a usable condition. SMARA also encourages the production, conservation, and protection of the state's mineral resources. Section 2207 of the California Public Resources Code provides annual reporting requirements for all mines in the state, and the State Mining and Geology Board (SMGB) is granted authority and obligations under this section.

SMARA also mandates the classification of lands with valuable mineral resources so that land use decisions that may affect mineral-bearing lands can be made with the knowledge of these resources. As indicated in Section 5.11.1, CGS has classified land in California based on the availability of mineral resources. Four MRZ classifications have been established for classifying sand, gravel, and crushed rock resources. The project area has not been classified with MRZs under SMARA, but any mines in the larger region are all subject to SMARA.

Local

California Public Utilities Commission (CPUC) General Order No. 131-D explains that local land use regulations would not apply to the project and alternatives. However, CPUC staff considered local plans and policies to identify locally important mineral resources in the study area, and none were identified within the project site.

Butte County and City of Oroville General Plans

According to the Butte County General Plan and City of Oroville General Plan, the mineral resources of the county have yet to be mapped by the state geologist. Public or private entities, however, can petition the SMGB to classify specific lands containing mineral deposits threatened by land use incompatibilities. Such a petition was filed for the Martin Marietta Materials Table Mountain Quarry near Oroville. The SMGB concluded that part of the mine is classified as a mineral resource of regional or statewide significance, and accordingly designated the site as MRZ-2. A petition was also filed for the M&T Chico Ranch site, and the SMGB classified part

of the mine as a mineral resource of regional and statewide significance and designated the site as MRZ-2. Neither of these locations are crossed by the proposed project.

Yuba County General Plan

According to the Yuba County General Plan, the mineral resources of Yuba County include, but are not limited to, sand and gravel, clay, stone products, silica, silver, and gold. Known MRZs in Yuba County consist primarily of an area along the Yuba River described in Section 5.11.1, from Marysville on the west to approximately Smartville on the east (Habel and Campion 1988, as cited in PG&E 2016).

Sutter County General Plan

According to the Sutter County General Plan, Sutter County contains areas classified by the state geologist as MRZ-1 and MRZ-3, but no areas within Sutter County are designated by the SMGB to have regional or statewide significance.

City of Marysville and Yuba City General Plans

The City of Marysville General Plan and Yuba City General Plan do not contain any policies pertaining to mineral resources.

5.11.3 Applicant Proposed Measures

There are no applicant proposed measures applicable to mineral resources.

5.11.4 Environmental Impacts and Mitigation

a) Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

Less-than-Significant Impact. As indicated in Section 5.11.1, an approximately 1.5-mile section of the South of Palermo Line crossing the Yuba River is within an area where adequate information indicates that significant mineral deposits are present or there is a high likelihood for their presence. However, the Pacific Gas and Electric Company (PG&E) electric line corridors are located within already dedicated easements and the proposed project does not involve acquisition of additional right-of-way (ROW) that could restrict access or constrain future land uses within areas of known mineral resources. The portions of the project crossing the Yuba River corridor involves replacement of existing poles in the same or similar location (i.e., no more than 80 feet from the existing structures) in areas currently used for agriculture rather than mining.

Given that the existing location of the poles would not substantially change, the project would not preclude future uses of the underlying land for mineral resource purposes. Construction activities would be temporary, with any construction-related disturbances being restored to their original conditions after construction is complete.

There are no other areas of the proposed project that cross known mineral resources, including oil, gas, and/or geothermal fields.

For these reasons, the project would have a **less-than-significant impact** with respect to mineral resources.

Significance After Mitigation: No mitigation is required because the impact would be **less than significant.**

b) Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

Less-than-Significant Impact. The local jurisdictions in the project area do not identify any additional mineral resource areas or locally important mineral resource recovery sites beyond those already identified in the setting. Gold, silver, and other metallic mineral resources identified by the local land use plans are located further to the east in the Sierra Nevada and foothills, and do not underlie the proposed project alignment. The impact from the project to mineral resources would be **less than significant** for the same reasons discussed in Section 5.11.4(a).

Significance After Mitigation: No mitigation is required because the impact would be **less than significant.**

5.11.5 References Cited

CDMG (California Division of Mines and Geology) 1988. *Mineral Land Classification: Portland Cement Concrete-Grade Aggregate in the Yuba City-Marysville Production-Consumption Region*. Prepared by Robert S. Habel and Linda F. Campion. CDMG Special Publication 132.

CGS (California Geological Survey). 2016. "CGS Information Warehouse: Mineral Resources." Sacramento, California: Department of Conservation, CGS. Accessed September 7, 2016. http://maps.conservation.ca.gov/cgs/informationwarehouse/index.html.

DOGGR (Division of Oil, Gas, and Geothermal Resources). 2008. "District 6 Oil and Gas Fields Map W6-2." May 23, 2008.

PG&E (Pacific Gas & Electric) 2016. *Proponent's Environmental Assessment for the South of Palermo 115 kV Power Line Reinforcement Project*. Prepared for Pacific Gas & Electric by ICF International. April 2016.

5.12 Noise

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
NOISE – Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☒	☐
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☒	☐

5.12.1 Noise Background and Terminology

Fundamentals of Environmental Noise

Vibrations, traveling as waves through air from a source, exert a force perceived by the human ear as sound. Sound-pressure level (referred to as sound level) is measured on a logarithmic scale in decibels (dB) that represent the fluctuation of air pressure above and below atmospheric pressure. Frequency, or pitch, is a physical characteristic of sound and is expressed in units of cycles per second or hertz (Hz). The normal frequency range of hearing for most people extends from about 20 to 20,000 Hz. The human ear is more sensitive to middle and high frequencies, especially when the noise levels are quieter. As noise levels get louder, the human ear starts to hear the frequency spectrum more evenly. To accommodate for this phenomenon, a weighting system to evaluate how loud a noise level is to a human was developed. The frequency weighting called "A" weighting is typically used for quieter noise levels, which de-emphasizes the low-

frequency components of the sound in a manner similar to the response of a human ear. This A-weighted sound level is called the "noise level" and is referenced in units of dBA.

Because sound is measured on a logarithmic scale, a doubling of sound energy results in a 3 dBA increase in the noise level. Changes in a community noise level of less than 3 dBA are not typically noticed by the human ear (Caltrans 2011). Changes from 3 to 5 dBA may be noticed by some individuals who are extremely sensitive to changes in noise. A 5 dBA increase is readily noticeable (EPA 1973). The human ear perceives a 10 dBA increase as a doubling of the sound level (i.e., 65 dBA sounds twice as loud as 55 dBA to a human ear; Caltrans 2011).

An individual's noise exposure occurs over a period of time; however, noise level is a measure of noise at a given instant in time. Community noise sources vary continuously, being the product of many noise sources at various distances, all of which constitute a relatively stable background or ambient noise environment. The background, or ambient noise level, gradually changes throughout a typical day, corresponding to distant noise sources, such as traffic volume, as well as changes in atmospheric conditions.

Noise levels are generally higher during the daytime and early evening when traffic (including airplanes), commercial, and industrial activity is the greatest. However, noise sources experienced during nighttime hours when background levels are generally lower can be potentially more conspicuous and irritating to the receiver. In order to evaluate noise in a way that considers periodic fluctuations experienced throughout the day and night, a concept termed "community noise equivalent level" (CNEL) was developed, wherein noise measurements are weighted, added, and averaged over a 24-hour period to reflect magnitude, duration, frequency, and time of occurrence. A complete definition of CNEL is provided below.

Different types of measurements are used to characterize the time-varying nature of sound. These measurements include the equivalent sound level (L_{eq}), the minimum and maximum sound levels (L_{min} and L_{max}), the day–night sound level (L_{dn}), and the CNEL. Below are brief definitions of these measurements and other terminology used in this section.

- **Decibel** (dB) is a unitless measure of sound on a logarithmic scale that indicates the squared ratio of sound pressure amplitude to a reference sound pressure amplitude. The reference pressure is 20 micropascals.
- **A-weighted decibel** (dBA) is an overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.

- **Equivalent sound level** (L_{eq}) is the constant level that, over a given time period, transmits the same amount of acoustic energy as the actual time-varying sound. Equivalent sound levels are the basis for both the L_{dn} and CNEL scales.
- **Maximum sound level** (L_{max}) is the maximum sound level measured during the measurement period.
- **Minimum sound level** (L_{min}) is the minimum sound level measured during the measurement period.
- **Day–night average sound level** (L_{dn}) is a 24-hour average A-weighted sound level with a 10 dB penalty added to the nighttime hours from 10:00 p.m. to 7:00 a.m. The 10 dB penalty is applied to account for increased noise sensitivity during the nighttime hours; resulting values from application of L_{dn} versus CNEL) rarely differ by more than 1 dB, and therefore these two methods of describing average noise levels are often considered interchangeable.
- **Community noise equivalent level** (CNEL) is the average equivalent A-weighted sound level during a 24-hour day. CNEL accounts for the increased noise sensitivity during the evening hours (7 p.m. to 10 p.m.) and nighttime hours (10 p.m. to 7 a.m.) by adding 5 dB to the sound levels in the evening and 10 dB to the sound levels at night. CNEL and L_{dn} are often considered equivalent descriptors.

Exterior Noise Distance Attenuation

Noise sources are classified in two forms: (1) point sources, such as stationary equipment or a group of construction vehicles and equipment working within a spatially limited area at a given time, and (2) line sources, such as a roadway with a large number of pass-by sources (motor vehicles). Sound generated by a point source typically diminishes (attenuates) at a rate of 6.0 dBA for each doubling of distance from the source to the receptor at acoustically "hard" sites and at a rate of 7.5 dBA for each doubling of distance from source to receptor at acoustically "soft" sites. Sound generated by a line source (i.e., a roadway) typically attenuates at a rate of 3 dBA and 4.5 dBA per doubling distance, for hard and soft sites, respectively. Sound levels can also be attenuated by man-made or natural barriers. For the purpose of sound attenuation discussion, a "hard" or reflective site does not provide any excess ground-effect attenuation and is characteristic of asphalt or concrete ground surfaces, as well as very hard-packed soils. An acoustically "soft" or absorptive site is characteristic of unpaved loose soil or vegetated ground.

Fundamentals of Vibration

Vibration is an oscillatory motion that can be described in terms of displacement, velocity, or acceleration. The response of humans to vibration is very complex. However, it is generally

accepted that human response is best approximated by the vibration velocity level associated with the vibration occurrence.

Heavy equipment operation, including stationary equipment that produces substantial oscillation or construction equipment that causes percussive action against the ground surface, may be perceived by building occupants as perceptible vibration. It is also common for ground-borne vibration to cause windows, pictures on walls, or items on shelves to rattle. Although the perceived vibration from such equipment operation can be intrusive to building occupants, the vibration is seldom of sufficient magnitude to cause even minor cosmetic damage to buildings.

To avoid confusion with sound decibels, the abbreviation VdB is used for vibration decibels. The vibration threshold of perception for most people is around 65 VdB. Vibration levels in the 70 to 75 VdB range are often noticeable but generally deemed acceptable, and levels in excess of 80 VdB are often considered unacceptable (FTA 2006).

Characteristics of Corona Discharge Noise

Corona discharge results from the partial breakdown of the electrical insulating properties of the air surrounding electricity conductors. When the intensity of the electric field at the surface of the conductor exceeds the insulating strength of the surrounding air, a corona discharge occurs at the conductor surface, representing a small dissipation of heat and energy. Some of the energy may dissipate in the form of small local pressure changes that result in audible noise, or in radio or television interference. Audible noise generated by corona discharge is characterized as a hissing or crackling sound that may be accompanied by a hum.

Slight irregularities or water droplets on the conductor and/or insulator surface accentuate the electric field strength near the conductor surface, making corona discharge and the associated audible noise more likely. Therefore, audible noise from transmission lines is generally a foul weather (wet conductor) phenomenon and would not likely result in the potential for nuisance noise levels outside the transmission line right-of-way.

Nonetheless, in order to dismiss the potential significance of corona noise, research was conducted to determine the sound level associated with this phenomenon. Veneklasen Associates conducted noise measurements of a 500-kilovolt (kV) double-circuit transmission line. Since corona noise is relative to the capacity of the transmission line, the noise level from a 500 kV line would be greater than for the project's 115 kV transmission line. Veneklasen conducted noise measurements on a 15-minute average for a 500 kV double-circuit transmission line near Serrano Substation in Anaheim Hills, when humidity was greater than 80% and temperatures were in the range of 60 degrees Fahrenheit (conditions contributing to high corona noise). Directly under the transmission

line tower, the measured level of corona noise, when ideal conditions existed for this phenomenon to occur, were 46 dBA L_{eq} (Veneklasen Associates Inc. 2004).

5.12.2 Environmental Setting

The project alignment generally begins just south of Oroville at the north end, and extends to near East Nicolaus on the south, traversing portions of Butte, Sutter, and Yuba Counties. Construction to alter existing power lines would occur within limited areas of the Cities of Oroville, Marysville, and Yuba City; work would also be performed within or near the communities of Palermo, Honcut, Tierra Buena, Linda, Olivehurst, Plumas Lake, Rio Oso, and East Nicolaus.

The majority of the project alignment is represented by agricultural land, primarily rice fields and orchards. Both the Feather River and Yuba River also intersect with the alignment. Within the portions of the project area proximate to developed communities, residential is the most common land use, with a lower incidence of industrial development.

The principal contributor to the noise environment encompassing the project alignment is roadway traffic noise along highways and major roads; the primary highways in the project area are State Route (SR) 99, SR 70, SR 65, and SR 20. Secondary contributors to the ambient noise environment within the project alignment include trains on nearby railroad tracks, agricultural equipment operations, and crop duster maneuvers. Several airports and airstrips are also located relatively close to the project alignment, and therefore aircraft overflights are a secondary contributor to the ambient noise environment.

Within 2 miles of the project area, there are three airports or airstrips. Public airports include Yuba County Airport (1 mile west of the project alignment, in the community of Olivehurst), and Sutter County Airport (approximately 1.9 miles northeast of the westernmost segment of the alignment). The Siller Brothers Incorporated Airport, a small private airstrip in Oroville, is approximately 1.6 miles west of the northern portion of the alignment.

5.12.2.1 Sensitive Receptors

Noise-sensitive land uses are typically defined to include residences, hospitals, lodging facilities, places of worship, and schools; the first three categories involve inhabitants that would typically be attempting to sleep in the overnight period, when noise could be particularly disturbing. Noise-sensitive exterior use areas can include wildlife preserves, recreational areas, and parks. Sensitive receptors within 0.5 mile of the project alignment are included in the evaluation of potential impacts as a result of project construction and operation.

Agricultural lands and undeveloped open space comprise the majority of the area within the project alignment, neither of which is considered particularly noise-sensitive. However, residential neighborhoods and schools also exist in close proximity to the alignment, including Yuba Community College, East Nicolaus High School, Yuba Gardens Intermediate School, and Linda Elementary School. The Yuba Gardens Intermediate School, in particular, is within 100 feet of the alignment. With respect to residential land uses, the least amount of separation present within the project alignment at certain points is a distance of approximately 10 feet between residential property lines and the project work areas and access roads, with 25 feet separation from the power line or associated facilities and these property lines. Most of the residences located near the project alignment are in the communities of Linda, Olivehurst, Palermo, and Southern Plumas Lake. No hospitals are located within 1 mile of the project alignment.

Several parks are located within 0.5 mile of the project alignment, including Olivehurst Community Park, which is approximately 65 feet from the project alignment in the community of Olivehurst, and Palermo Park, which is 0.4 mile away from the alignment in the community of Palermo. POW/MIA Park is located 0.3 mile away from the project alignment in the community of Linda, and Regency Park is located 0.4 mile away from the alignment in Yuba City.

5.12.3 Regulatory Setting

Federal

Federal Transit Administration and Federal Railroad Administration Standards

Although the Federal Transit Administration (FTA) standards are intended for federally funded mass-transit projects, the impact assessment procedures and criteria included in the FTA's *Transit Noise and Vibration Impact Assessment* (FTA 2006) are routinely used for projects proposed by local jurisdictions. The FTA and Federal Railroad Administration have published guidelines for assessing the impacts of groundborne vibration associated with rail projects, which have been applied by other jurisdictions to other types of projects. The FTA measure of the threshold of architectural damage for conventional sensitive structures is 0.2 inch/second peak-particle velocity (PPV).

State

California Noise Control Act of 1973

Sections 46000 through 46080 of the California Health and Safety Code, known as the California Noise Control Act of 1973, declares that excessive noise is a serious hazard to the public health and welfare and that exposure to certain levels of noise can result in physiological,

psychological, and economic damage. It also identifies a continuous and increasing bombardment of noise in the urban, suburban, and rural areas. The California Noise Control Act declares that the State of California has a responsibility to protect the health and welfare of its citizens by the control, prevention, and abatement of noise. It is the policy of the state to provide an environment for all Californians free from noise that jeopardizes their health or welfare.

Local

The California Public Utilities Commission (CPUC) maintains exclusive jurisdiction over the siting, design, and construction of the project, and therefore local discretionary noise requirements are not directly applicable to the proposed project. However, this section includes a summary of local noise standards or ordinances in the project area for informational purposes and to assist with CEQA review.

The project area traverses portions of Butte, Sutter, and Yuba Counties, and is also aligned through small portions of Oroville, Marysville, and Yuba City. Adopted noise element policies and noise ordinances from these local jurisdictions within which the project is located are summarized herein.

Butte County

Butte County General Plan

Policy HS-P1.1 of the Health and Safety Element of the Butte County General Plan (County of Butte 2012) contains a separate exterior noise exposure limit for transportation noise sources and for non-transportation noise sources. For transportation noise sources, Policy HS-P1.1 establishes a maximum exterior noise exposure level of 60 dBA Ldn (or CNEL) for noise-sensitive uses, including residences, lodging, hospitals, and churches. For non-transportation noise sources, exterior noise exposure levels for these noise-sensitive uses in non-urban areas are limited to 50 dB $L_{eq\ hour}$ during the day (7 a.m. to 7 p.m.), 45 dB $L_{eq\ hour}$ during the evening (7 p.m. to 10 p.m.), and 40 dB $L_{eq\ hour}$ at night (10 p.m. to 7 a.m.). The maximum noise level L_{max} for each of these periods is 10 dB greater than the permissible hourly average noise level.

Policy HS-P1.6 requires applicants proposing a new noise-producing development project near existing or planned noise-sensitive uses to provide a noise analysis prepared by an acoustical specialist with recommendations for design mitigation. Based on Policy HS-P1.6 of the Health and Safety Element of the Butte County General Plan, new development of industrial, commercial, or other noise-generating land uses will not be permitted if resulting noise levels would exceed 50 dB $L_{eq\ hour}$ during the day (7 a.m. to 7 p.m.), 45 dB $L_{eq\ hour}$ during the evening (7

p.m. to 10 p.m.), and 40 dB $L_{eq\ hour}$ at night (10 p.m. to 7 a.m.) at the exterior living area for any existing residence or other noise-sensitive land uses.

Policy HS-P1.7 requires applicants for discretionary permits to limit noise-generating construction activities located within 1,000 feet of residential uses to daytime hours between 7:00 a.m. and 6:00 p.m. on weekdays and non-holidays. Policy HS-P1.9 imposes standard construction site noise controls, including the use of proper mufflers on all equipment, the placement of on-site stationary equipment at the furthest point from neighboring receptors, and the use of models with lower noise generation for compressors and stationary equipment.

Butte County Noise Ordinance

Chapter 41A of the Butte County Code of Ordinances (Noise Ordinance) codifies the non-transportation source exterior noise levels presented in the Health and Safety Element as discussed above (41A-7 - Exterior noise standards). Any proposed development with stationary equipment or on-site commercial activity must not generate noise levels at proximate noise-sensitive land uses that exceed the allowable standard.

Section 41A-9 specifies exemptions from the exterior noise standards for certain activities. Construction is one such activity that is exempt from the exterior noise standards, provided that stipulated construction schedule restrictions are met (County of Butte 2016):

> *(f) Noise sources associated with construction, repair, remodeling, demolition, paving or grading of any real property or public works project located within one thousand (1,000) feet of residential uses, provided said activities do not take place between the following hours:*
>
> - *Sunset to sunrise on weekdays and non-holidays;*
> - *Friday commencing at 6:00 p.m. through and including 8:00 a.m. on Saturday, as well as not before 8:00 a.m. on holidays;*
> - *Saturday commencing at 6:00 p.m. through and including 10:00 a.m. on Sunday; and,*
> - *Sunday after the hour of 6:00 p.m.*
>
> Provided, however, when an unforeseen or unavoidable condition occurs during a construction project and the nature of the project necessitates that work in process be continued until a specific phase is completed, the contractor or owner shall be allowed to continue work into the hours delineated above and to operate

machinery and equipment necessary to complete the specific work in progress until that specific work can be brought to conclusion under conditions which will not jeopardize inspection acceptance or create undue financial hardships for the contractor or owner.

Yuba County

Yuba County General Plan

The Yuba County 2030 General Plan Public Health and Safety Element was adopted in 2011. To assess noise levels due to transportation sources, the L_{dn} or the CNEL descriptors are the most commonly used. According to the Noise and Vibration section of the Public Health and Safety Element, for transportation-related noise, an exterior noise exposure up to 60 dBA is considered to be within the "Normally Acceptable" range for residences, schools, hospitals, and churches (County of Yuba 2011).

A separate set of standards was also created to be applied to noise from non-transportation noise sources (i.e., stationary equipment and activities). Table 5.12-1 summarizes the allowable noise exposure levels for non-transportation sources, at noise-sensitive land uses (i.e., residences, schools, hospitals, and churches).

Table 5.12-1
Maximum Allowable Noise Exposure from Non-Transportation Noise Sources at Noise-Sensitive Land Uses

Noise Level Descriptor	Daytime (7 a.m. – 10 p.m.)	Nighttime (10 p.m. – 7 a.m.)
Hourly L_{eq}	60 dBA	45 dBA
L_{max}	75 dBA	65 dBA

Source: County of Yuba 2011

Yuba County Noise Ordinance

Title VIII, Chapter 8.20 of the Yuba County Code of Ordinances contains the Noise Ordinance. Section 8.20.140 establishes the exterior noise exposure (ambient noise level) objectives for various land uses. The most stringent criteria apply to single-family residences. For non-transportation noise sources, exterior noise exposure levels for single-family residential land uses are limited to 55 dB $L_{eq\ hour}$ during the day (7 a.m. to 7 p.m.), 50 dB $L_{eq\ hour}$ during the evening (7 p.m. to 10 p.m.), and 45 dB $L_{eq\ hour}$ at night (10 p.m. to 7 a.m.). The maximum noise level (L_{max}) for each of these periods is 10 dB greater than the permissible hourly average noise level (County of Yuba 2014).

Section 8.20.260 (Machinery, Equipment, Fans and Air Conditioning) limits the noise associated with the operation of stationary equipment to no greater than 5 dB greater than the allowable ambient noise level for the receiving property, as determined at the property plane of the receiving property. Thus, for project components adjacent to properties containing a single-family residence, noise levels at the property boundary could not exceed 60 dB $L_{eq\ hour}$ during the day (7 a.m. to 7 p.m.), 55 dB $L_{eq\ hour}$ during the evening (7 p.m. to 10 p.m.), and 50 dB $L_{eq\ hour}$ at night (10 p.m. to 7 a.m.) (County of Yuba 2014).

Section 8.20.310 (Construction of Buildings and Property) establishes construction schedule limitations for any construction activity occurring within 500 feet of a residential property. Noise-generating construction activities that could cause discomfort or annoyance to a reasonable person of normal sensitiveness are prohibited in the period from 10:00 p.m. one day to 7:00 a.m. the following day. Section 8.20.710 (Exemptions Authorized by Permit) allows a conditional and/or limited noise permit to be granted to an applicant, exempting a particular activity from the provisions of this chapter for a limited period. Consequently, a permit may be obtained for certain construction activity deemed necessary to occur during the overnight period, as dictated by technical requirements or health and safety considerations (County of Yuba 2014).

Sutter County

Sutter County General Plan

The current Sutter County General Plan, including the Noise Element, was adopted in 2011. Policy N1.1 of the Noise Element of the Sutter County General Plan (County of Sutter 2011) establishes a maximum exterior noise exposure level of 60 dBA Ldn (or CNEL) for single-family residential land uses, and 65 dBA Ldn (or CNEL) for multifamily residential land uses and lodging facilities. Policy N1.2 prescribes the allowable incremental noise increase from a proposed development, upon proximate noise-sensitive land uses. The allowable increase is based upon the existing ambient noise level, and ranges from 8 dBA Ldn (where the existing ambient noise level is 45 dB Ldn), down to 0 dBA Ldn (where the existing ambient noise level is 75 dBA Ldn or greater). Table 5.12-2 summarizes the allowable incremental noise increase from a proposed new development (County of Sutter 2011).

Table 5.12-2
Exterior Incremental Environmental Noise Impact Standards for Noise-Sensitive Uses (dBA)
(For Residences and Buildings Where People Normally Sleep)

Existing L_{dn}	Allowable Noise Increment (L_{dn})
45	8
50	5

Table 5.12-2
Exterior Incremental Environmental Noise Impact Standards for Noise-Sensitive Uses (dBA)
(For Residences and Buildings Where People Normally Sleep)

Existing L_{dn}	Allowable Noise Increment (L_{dn})
55	3
60	2
65	1
70	1
75	0
80	0

Source: County of Sutter 2011

Policy N1.4 establishes maximum allowable noise levels for proposed new stationary noise sources at proximate noise-sensitive land uses. Exterior noise exposure levels from stationary equipment noise at noise-sensitive uses (measured at the property line of the noise-sensitive use) are limited to 55 dB $L_{eq\ hour}$ during the day (7 a.m. to 10 p.m.) and 45 dB $L_{eq\ hour}$ at night (10 p.m. to 7 a.m.). The maximum noise level (L_{max}) for daytime is 70 dBA and for nighttime is 65 dBA (County of Sutter 2011).

Policy N1.6 requires applicants for discretionary permits to limit noise-generating construction activities located within 1,000 feet of residential uses to daytime hours between 7:00 a.m. and 6:00 p.m. on weekdays, between 8:00 a.m. and 5:00 p.m. on Saturdays, and prohibiting construction on Sundays and holidays. Application for short-term waivers from these schedule restrictions may be granted by the County. Policy N1.7 imposes restrictions on construction activity with the potential for substantial vibration in order to protect noise-sensitive land uses based upon the FTA vibration significance criterion (no greater than 72 VdB for frequent events at residences) (County of Sutter 2011).

City of Yuba

City of Yuba General Plan

The City of Yuba General Plan (2030) was adopted in April 2004. Policy 9.1-I-1 of the Noise Element of the Yuba City General Plan (City of Yuba 2004) establishes a maximum exterior noise-exposure level of 60 dBA Ldn (or CNEL) for single-family residential land uses, and 65 dBA Ldn (or CNEL) for multifamily residential land uses and lodging facilities. Policy 9.1-I-2 requires a noise study and mitigation for all proposed development proposals that would generate noise exposure level greater than the "normally acceptable" levels specified above.

City of Yuba Municipal Code

Title 4, Public Safety, of the Yuba City Municipal Code includes noise-related ordinances. Applicable portions of the Yuba City Municipal Code sections are excerpted below (City of Yuba 2016):

> **Sec. 4-17.02. Prohibited Generally:** It shall be unlawful for any person to willfully or knowingly make, continue, or cause to be made, or continued any loud and raucous noise. The term "loud and raucous noise" shall mean any sound which because of its volume level, duration or character annoys, disturbs, injures or endangers the comfort, health, peace or safety of a reasonable person of ordinary sensibility within the limits of the City of Yuba City.
>
> Following are examples of applicable "loud and raucous noise" according to the Yuba City Municipal Code Sec. 4-17.10(e):
>
> - The loud and raucous operation or use of any of the following before 6:00 a.m. or after 9:00 p.m. daily except Sunday and State or Federal holidays when the prohibited time shall be before 8:00 a.m. and after 9:00 p.m.:
>
> 1. *A hammer or any other device or implement used to produce or strike an object.*
> 2. *An impact wrench or other tool or equipment powered by compressed air.*
> 3. *A hand powered saw.*
> 4. *Any tool or piece of equipment powered by an internal combustion engine such as, but not limited to, chain saw, backpack blower and lawn mower. Except as included in paragraph (6) below, motor vehicles powered by an internal combustion engine and subject to the California Vehicle Code are excluded from this prohibition.*
> 5. *Any electrically powered (whether by alternating current electricity or by direct current electricity) tool or piece of equipment used for cutting, drilling or shaping wood, plastic, metal or other materials or objects such as, but not limited to, a saw, drill, lathe or router.*
> 6. *Any of the following: Heavy equipment (such as, but not limited to, bulldozer, road grader, back hoe), ground drilling and boring equipment (such as, but not limited to, derrick or dredge), crane and boom equipment, portable power generator or pump, pavement equipment (such as, but not limited to, pneumatic hammer, pavement*

breaker, tamper, compacting equipment), pile driving equipment, vibrating roller, sand blaster, gunite machine, trencher, concrete truck and hot kettle pump.

7. *Any construction, demolition, excavation, erection, alteration or repair activity.*

City of Marysville

Marysville General Plan

The Marysville General Plan, including the Noise Element, was adopted in 1985. Policy 1 of the Noise Element requires the analysis of noise from new development that may impact noise-sensitive receptors, with specification of mitigation measures to reduce noise impacts to acceptable levels. Policy 6 requires examination of new noise sources that could produce noise levels above 70 dBA at 50 feet. The Noise Element does not identify allowable noise exposure levels for various land uses (City of Marysville 1985).

Marysville Municipal Code

The City of Marysville has not adopted a Noise Ordinance. However, the Noise Element Policy, which directs evaluation of potential new noise sources, has been codified for telecommunications facilities in the Municipal Code (City of Marysville 2015).

18.95.080 Noise

Wireless telecommunication facilities, power sources, ventilation, and cooling facility shall not generate noise projected at or above seventy dB at fifty feet for compatibility. (Ord. 1261 § 1 (part), 2000).

City of Oroville

Oroville General Plan

The Oroville 2030 General Plan, including the Noise Element, was adopted in 2015 (City of Oroville 2015). Policy 1.3 of the Noise Element requires the analysis of noise from new development that may impact noise-sensitive receptors, while Policy 1.5 requires mitigation of proposed non-transportation noise sources to reduce noise impacts to acceptable levels. . According to the Noise Element, exterior noise levels up to 60 dBA CNEL are considered the maximum allowable exposure limit for residences, schools, churches, and hospitals, when the noise source is transportation related (City of Oroville 2015).

For non-transportation noise sources (i.e., stationary equipment and activities), a different set of criteria is applicable. Table 5.12-3 summarizes the allowable noise exposure levels for non-transportation sources, at noise-sensitive land uses (i.e., residences, schools, hospitals, and churches).

Table 5.12-3
Maximum Allowable Noise Exposure from Non-Transportation Noise Sources at Noise-Sensitive Land Uses

Noise Level Descriptor	Daytime (7 a.m. – 10 p.m.)	Nighttime (10 p.m. – 7 a.m.)
Hourly L_{eq}	50 dBA	45 dBA
L_{max}	70 dBA	65 dBA

Source: City of Oroville 2015

Oroville Municipal Code

The City of Oroville Noise Ordinance (Municipal Code Chapter 9.20) describes noise regulations applicable to various noise sources and receiving land uses. Those relevant to the proposed project are detailed here (City of Oroville 2016).

> Section 9.20.030, which pertains to residential property noise limits, states that no person shall produce, suffer or allow to be produced by any machine, animal or device, or any combination of same, on residential property, a noise level more than 5 dB above the local ambient at any point outside of the property plane.
>
> Section 9.20.050, which pertains to the noise limits on public property, states that no person shall produce, suffer or allow to be produced by any machine or device, or any combination of same, on public property, a noise level more than 15 dB above the local ambient at a distance of 25 feet or more from the source unless otherwise provided in this chapter.
>
> Note that, according to Section 9.20.060 (Exceptions), construction is exempted from these requirements between the hours of 7:00 a.m. and 9:00 p.m. on weekdays and 10:00 a.m. and 6:00 p.m. on Saturdays, Sundays and holidays, as long as it complies with at least one of the following limitations:
>
> 1. No individual piece of equipment shall produce a noise level exceeding 83 dBA at a distance of 25 feet from the source.
> 2. The noise level at any point outside of the property plane of the project shall not exceed 86 dBA.

5.12.4 Applicant Proposed Measures

The proposed project will integrate the following applicant proposed measure (APM) into the design and implementation of the proposed project.

APM NOI-1 Employ Noise-Reducing Construction Practices during Temporary Construction Activities.

PG&E will employ standard noise-reducing construction practices such as the following:

- Ensure that all equipment is equipped with mufflers that meet or exceed factory new-equipment standards.
- Locate stationary equipment as far as practical from noise-sensitive receptors.
- Limit unnecessary engine idling**.**
- Limit all construction activity near sensitive receptors to daytime hours unless required for safety or to comply with line clearance requirements. Minimize noise-related disruption by notifying residents. Should nighttime project construction be necessary because of planned clearance restrictions, affected residents will be notified at least 7 days in advance by mail, personal visit, or door hanger, and informed of the expected work schedule.

5.12.5 Environmental Impacts and Mitigation

a) Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Operation and Maintenance

Less than Significant. The project includes replacing existing conductor, modifying certain existing lattice steel towers, and replacing certain existing lattice steel towers and poles along approximately 60 miles of PG&E's Palermo-Rio Oso 115 kV transmission system. Once the system enhancements have been constructed, operations and maintenance (O&M) activities for the re-conducted power lines and existing substations will not depart from currently established practices. The length of the transmission line, the number and location of sub-stations, and the number of support structures (i.e., lattices and poles) will remain the same, and consequently neither the intensity nor frequency of noise associated with maintenance

activities from the project would be altered. As such, there will be no noise impacts associated with O&M of the project.

Because the replacement power line will be 115 kV and the same voltage as the existing line, no additional corona noise would be generated as a result of the project, and there would be no additional noise impacts from operation of the power line.

Construction – Ground-Based Equipment and Activity

Less than Significant. Section 5.12.2 describes land uses along the project alignment; these consist primarily of agricultural lands and undeveloped open space, with some residential neighborhoods and schools. Consequently, for the majority of the project alignment, construction zones for the project are located near open space or agricultural lands. The closest school is within 100 feet of the project alignment. The majority of the residences located near the project alignment are in the communities of Linda, Olivehurst, Palermo, and Southern Plumas Lake. Residences are typically located at least 50 feet from the alignment; however, in a few instances, residential buildings are located within 10 feet of the project work areas and access roads, and within 25 feet of the alignment. For the closest residences, outdoor use areas are located immediately adjacent to project work areas. To ensure a conservative analysis, the construction noise impact analysis focuses on potential noise impacts on the residences located as close as 10 feet from the construction areas.

The Federal Highway Administration (FHWA) has developed a computer model to assess noise generation from major highway construction projects, which is also applicable to infrastructure construction projects of all types that employ the same equipment. The expected equipment noise levels listed in the *FHWA Roadway Construction Noise Model User's Guide* (FHWA 2006) were used for this construction noise assessment. The User's Guide provides the most recent comprehensive inventory of noise levels measured from construction equipment and activities. Table 5.12-4 shows noise levels and usage factors for typical construction equipment, and the calculated average sound level (L_{eq}) for individual pieces of equipment at various distances from the construction zone (refer to table notes for the equations used to determine the average sound level of the various construction equipment at the identified distances).

Table 5.12-4
Typical Construction Equipment Noise Levels

Equipment Description	Acoustical Usage Factor (%)	Specified L_{max} at 50 feet (dBA)	Calculated L_{eq} at 100 feet (dBA)	Calculated L_{eq} at 1,000 feet (dBA)	Calculated L_{eq} at 2,000 feet (dBA)	Calculated L_{eq} at 4,000 feet (dBA)
All Other Equipment > 5 horsepower	50	85	76	56	50	44
Auger Drill Rig	20	85	72	52	46	40
Backhoe	40	80	70	50	44	38
Crane	16	85	71	51	45	39
Dump Truck	40	84	74	54	48	42
Grader	40	85	75	55	49	43
Pickup Truck	40	55	45	25	19	13
Tractor	40	84	74	54	48	42

Source: FHWA 2006)
dBA = A-weighted decibels; L_{eq} = equivalent sound-pressure level.
Equation to calculate L_{eq} at 100, 1,000, 2,000 and 4,000 feet is as follows:
$L_{eq}(h) = L_{max} + 10*\log(A.U.F.) – 20*\log(D/Do)$
where:
L_{max}=Maximum noise emission level of equipment based on work cycle at D/Do (decibel)
A.U.F. =Acoustical usage factor, which accounts for the percent time that equipment is in use over the time period of interest (1 hour)
D=Distance from the equipment to the receptor (feet)
Do=Reference distance (generally 50 feet) at which the L_{max} was measured for the equipment of interest (feet)

As Table 5.12-4 illustrates, the loudest typical construction equipment generally emits noise in the range of 80 to 85 dBA (L_{max}) at 50 feet, with usage factors of 40% to 50% . Construction-related noise at any specific receptor would be dominated by the closest and loudest equipment. The types and numbers of construction equipment near any specific receptor location would vary over time, depending upon the construction activity being performed. The following reasonably conservative assumptions (pertaining to the number of construction equipment operating simultaneously in a given area, and affecting a selected receptor) were used for modeling construction noise:

- One piece of equipment 50 feet from the receptor (on the power line route) generating a reference noise level of 85 dBA at 50 feet distance (and employing a 40%- usage factor).
- Two pieces of equipment 100 feet from the receptor (not adjacent to the receptor, but 50 feet farther along on the power line route) each generating a reference noise level of 85 dBA at 50 feet distance (and employing a 40% usage factor).
- Two additional pieces of equipment 200 feet from the receptor (100 feet farther along on the power line route from the above equipment) each generating a reference noise level of 85 dBA at 50 feet distance (and employing a 40% usage factor).

Table 5.12-5 presents ground-based construction equipment noise levels at various distances based on this scenario (construction-related helicopter noise is discussed separately later in the section).

Table 5.12-5
Land-Based Construction Equipment Noise Levels at Various Distances

Distance from Construction Activity (feet)	Leq Noise Level (dBA)
10	85
50	83
100	79
200	74
400	69
800	63
1,600	58
3,200	52
6,400	46

dBA = A-weighted decibels; L_{eq} = equivalent sound pressure level
See discussion preceding this table for the assumptions used for this noise modeling scenario.

As illustrated in Table 5.12-4, average construction noise from ground-based equipment could reach levels of 83 dBA L_{eq} at a distance of 50 feet from the nearest construction activity. In a few instances, construction activity areas could be located as close as 10 feet from residential structures. Employing assumptions similar to those used to calculate noise levels at 50 feet (one piece of equipment at 10 feet, 2 pieces of equipment 50 feet farther away, and 2 additional pieces of equipment 100 feet farther away), average noise levels at a distance of 10 feet from the closest operating equipment would be approximately 85 dBA L_{eq}. Ground-based construction activities located as close as approximately 10 feet from noise-sensitive receptors could result in noise levels up to 95 dBA (L_{max}) at these locations. According to Caltrans (2009), residential structures in California typically deliver approximately 25 dBA of attenuation from exterior to interior noise levels, with windows closed. Thus, average construction noise levels in the interiors of the closest residences would be 60 dBA L_{eq} with windows closed, with peak noise levels reaching 70 dBA L_{max}. These levels could be mildly annoying at times, but would not be anticipated to reach significant levels given relatively short duration in any particular portion of the alignment and daytime-only construction.

Construction of the project is expected to last a total of approximately 3 years. However, construction activities will be relatively short-term in duration at any given location (1 or 2 weeks) and generally limited to daytime hours. Also, note the construction noise levels

referenced above are for the worst-case affecting a limited number of residences with a separation distance of only 10 feet from construction areas; the majority of the project alignment is located near open space or agricultural areas. Nighttime construction is not anticipated, but if deemed necessary for safety or clearance reasons (planned electrical outages), such nighttime construction activities would be very short-term. The implementation of APM NOI-1 would minimize exposure of sensitive receptors to temporary noise during project construction, avoiding a significant constriction-related noise impact.

Construction – Helicopter Operations

Less than Significant. To minimize ground disturbance, helicopters may be used near sensitive receptors to replace towers and reconductor, as well as to deliver work crews for ground support. It is anticipated that a passenger-type helicopter would be used for delivery of crew. The most common helicopter of this type is the Bell 407. At a hovering height of 100 feet above the ground, the Bell 407 produces a noise level of 82 dB (Leq) at 400 feet horizontal feet from the ground location below the hover point (NPS 2007). This corresponds to a sound level of about 94 dBA at 100 horizontal feet. The type of helicopter used for delivery of materials or replacement of the support structures (i.e., poles and lattice towers) would be a utility or "lift" helicopter such as the Kman Kmax. While suspending a load and hovering 200 feet above the ground, this helicopter produces a noise level of 92 dBA at 100 feet horizontal from the ground location below the hover point (USFS 2008). Helicopters operating above pole installation locations could be as close as approximately 250 feet to residences during construction at certain locations. At this distance, helicopter noise levels could be in the range of approximately 82 to 88 dBA. With structural attenuation associated with residential construction, these levels would be reduced to approximately 57 to 63 dBA.

Up to 20 helicopter landing zones (HLZs) would be used during project construction. These sites would be used for periodic daytime fueling of the aircraft, and also for staging of the construction materials to be delivered by the helicopters. The HLZ sites have been selected to be away from residential neighborhoods, with a separation distance of not less than approximately 1,000 feet to the closest residences. The identified locations of the HLZs at least 1,000 feet from the closest residence would result in average noise levels in the range of 70–76 dBA L_{eq} at the closest residences, when using the sites for staging helicopter-lift materials. Given 20 HLZs, the average duration of use for any one of the HLZs would be about 4–6 weeks.

For helicopter operations, PG&E would observe the hourly restrictions for construction noise in local ordinances in all instances except where prevented by safety or line-clearance issues. If nighttime construction is required in a limited number of instances, impacts will be less than significant given the very short duration of construction activity at any one location along the project alignment. Implementation of APM NOI-1 will further reduce potential construction-related noise effects, including nighttime noise effects. Accordingly, construction of the project would result in **less-than-significant impacts**.

Significance After Mitigation: No mitigation is required because the impact would be considered **less than significant**.

b) Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Less than Significant. The O&M activities required for the rehabilitated power lines will not be different than those currently required for the existing system; thus, no operation-related impacts related to vibration or groundborne noise would occur.

Construction activities, including the use of heavy construction equipment and trucks, may generate localized groundborne vibration and noise. Project construction, however, would not involve the use of pile drivers or blasting, which are the two most significant sources for groundborne vibration. Operation of heavy equipment for project construction would not be anticipated to result in excessive groundborne vibration. Also, groundborne vibration and groundborne noise would occur almost exclusively during daytime hours and be of short duration at any one point along the project alignment. Therefore, construction of the project would result in a **less-than-significant** vibration impact.

Significance After Mitigation: No mitigation is required because the impact would be considered **less than significant**.

c) Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

No Impact. O&M activities for the rehabilitated power lines would be similar in magnitude and frequency to the existing O&M activities. Proposed minor modifications at existing substations would not result in the substitution or addition of equipment with potential for substantial increases in operational noise levels. The new conductor will not change the amount of corona noise (the crackling, hissing, or humming that can be heard during foggy or wet conditions) generated by operation of the power line, as compared to

the existing conditions. Consequently, no permanent increase in ambient noise levels would occur in the project vicinity as a result of the proposed project.

Project construction would not have the potential to result in a permanent increase in ambient noise levels. Therefore, the project would have **no impact** with regard to increases in permanent ambient noise levels.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

d) Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Less than Significant. Proposed construction equipment, their typical noise levels at a referenced distance (L_{max}), use factors, and average noise levels at various distances are illustrated in Table 5.12-4. The average noise levels at various distances from multiple construction equipment operating simultaneously are provided in Table 5-12-4. Average construction noise levels at the closest residences to the project alignment (within 10 feet) could reach approximately 85 dBA L_{eq} in exterior areas, which would be attenuated to approximately 60 dBA indoors. These increases in ambient noise levels in the project vicinity during construction would be intermittent and temporary, occurring generally during the day and for not more than a week or two in any location along the alignment.

Nighttime construction is not anticipated, and PG&E would observe the daily schedule restrictions for construction noise in local ordinances in all instances, except where safety or line-clearance issues necessitate otherwise. If nighttime construction is required, it would occur for a very short period at any one location. Implementation of APM NOI-1 would minimize potential construction-related noise effects, including nighttime noise effects.

Given the short duration of construction activity at any one location and the noise reduction methods prescribed under APM NOI-1, increased noise levels from construction activity in any single location would be **less than significant.**

Significance After Mitigation: No mitigation is required because the impact would be considered **less than significant**.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

Less than Significant. The project involves the replacement of conductor and modification or replacement of existing tower and pole structures along the South of

Palermo 115 kV Power Line. The proposal includes neither new residences or businesses that could introduce additional sensitive receptors to aircraft operations at nearby public airports. The Yuba County Airport is 1 mile west of the project alignment. No other airports are located within 2 miles of the project area. Although the project area is within 1 mile of the Yuba County Airport, the project area is entirely outside of the 55–60 dB CNEL contour. Construction-related helicopters may be based at the Yuba County Airport overnight, but helicopter operations would not be anticipated to materially affect the mapped noise contours for the traffic pattern of all aircraft using the Yuba County Airport. Therefore, the project would result in a **less-than-significant impact** related to public airport noise exposure.

Significance After Mitigation: No mitigation is required because the impact would be considered **less than significant**.

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

Less than Significant. The project involves the replacement of conductor and modification or replacement of existing tower and pole structures along the South of Palermo 115 kV Power Line. The proposal includes neither new residences or businesses that could introduce additional sensitive receptors to the project area. The Siller Brothers Incorporated Airport, a small private airstrip in Oroville, is approximately 1.6 miles west of the northern portion of the alignment. Because of the distance between this airstrip and the project site, aircraft operations at this private airstrip would not be anticipated to expose residents or workers in the project area to excessive noise levels. Therefore, the project would result in a **less-than-significant impact** related to airstrip noise exposure.

Significance After Mitigation: No mitigation is required because the impact would be considered **less than significant**.

5.12.6 References Cited

Caltrans (California Department of Transportation). 2009. *Technical Noise Supplement*. Sacramento, California: Caltrans, Division of Environmental Analysis. November 2009.

Caltrans. 2011. *Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects*. May 2011. Accessed May 2015. http://www.dot.ca.gov/hq/env/noise/pub/ca_tnap_may2011.pdf.

City of Marysville. 1985. *City of Marysville General Plan*. August 1985.

City of Marysville. 2015. *Marysville Municipal Code*. September 1, 2015. Accessed September 30, 2016. http://www.codepublishing.com/CA/Marysville/html/MarysvilleCA18/MarysvilleCA1895.html#18.95.080.

City of Oroville. 2015. *Oroville 2030 General Plan*. Adopted March 31, 2015.

City of Oroville. 2016. "Title 9, Public Peace and Safety; Chapter 9.20, Noise." In *Oroville Municipal Code*. Accessed September 30, 2016. http://qcode.us/codes/oroville/.

City of Yuba. 2004. *Yuba City General Plan.* Adopted April 8, 2004.

City of Yuba. 2016. "Title 4, Public Safety." In *Yuba City Municipal Code*. Online content updated August 29, 2016. Accessed September 30, 3016. https://www.municode.com/library/ca/yuba%20city/codes/code_of_ordinances.

County of Butte. 2012. *Butte County General Plan 2030*. Amended November 6, 2012.

County of Butte. 2016. "Chapter 41A, Noise Control." *Butte County, California, Code of Ordinances*. Online content updated on August 9, 2016. Accessed September 30, 3016. https://www.municode.com/library/ca/butte_county/codes/code_of_ordinances?nodeId=CH41ANOCO&searchText=#TOPTITLE.

County of Sutter. 2011. *Sutter County 2030 General Plan*. Adopted March 29, 2011.

County of Yuba. 2011. *Yuba County 2030 General Plan*. Adopted June 7, 2011.

County of Yuba. 2014. Title VIII, Public Peace and Safety, Chapter 8.20 Noise Regulations. In *Yuba County Code of Ordinances*. Online content updated on July 31, 2014. Accessed September 30, 3016. https://www.municode.com/library/ca/yuba_county/codes/code_of_ordinances?nodeId=TITVIIIPUPESA_CH8.20NORE.

EPA (U.S. Environmental Protection Agency). 1973. Public Health and Welfare Criteria for Noise. Publication N.p.:550/9-73-002.

FHWA (Federal Highway Administration). 2006. *FHWA Roadway Construction Noise Model User's Guide.*

FTA (Federal Transit Administration). 2006. *Transit Noise and Vibration Impact Assessment*. FTA-VA-90-1003-06. Washington, DC: FTA, Office of Planning and Environment. May 2006.

NPS (National Park Service). 2007. *NPS Report No. GRCA-07-05, 2007, Helicopter Sound Levels at Grand Canyon National Park.*

USFS (U.S. Forest Service). 2008. *Sound Measurements of Helicopters during Logging Operations at Southwestern Oregon Timber Sales*.

Veneklasen Associates Inc. 2004. *Stagecoach Substation: Preliminary Environmental Noise Study*.

5.13 Population and Housing

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
POPULATION AND HOUSING – Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

5.13.1 Environmental Setting

This section of the Initial Study evaluates impacts to population and housing trends associated with proposed project implementation. The analysis is based on the review of PG&E's Proponent's Environmental Assessment (PG&E 2016) and population and housing data provided by the Department of Finance and review of the general plans for the Counties of Yuba (County of Yuba 1994), Butte (County of Butte 2012), and Sutter (County of Sutter 2011) and the City of Marysville (City of Marysville 2014).

Population

The most recent available Department of Finance data indicates that Yuba County had an overall population of 74,345 in January 2016, 58,816 of which was in unincorporated areas of the County. Butte County had an overall population of 224,601 in January 2016, with 80,262 in unincorporated areas of the County, and Sutter County had an overall population of 97,308 in January 2016, 20,910 of which was in unincorporated areas of the County (DOF 2016a). The 2016 population of the incorporated cities in the project area are as follows: Marysville, 12,010, (Yuba County); Oroville, 17,996 (Butte County); Yuba City, 68,052 (Sutter County) (DOF 2016a).

Between 2010 and 2015 the average growth rate for unincorporated areas of the Counties of Yuba, Butte, and Sutter was a relatively low 2.5% (Yuba, 3.2%; Butte, 2.5%; and Sutter, 1.8%) (U.S. Census Bureau 2016). The Department of Finance (2014) population projections for counties in the project area are summarized in Table 5.13-1 and indicate that the population in

Yuba County is projected to increase from an estimated 75,093 in 2015 to 81,467 in 2020, which translates into a growth in population of 8.5% over the 5-year period. Population projections indicate that Butte County would grow from 226,656 to 236,936 (4.5%) and that Sutter County would grow from 97,887 to 105,107 (7.4%) over the same period. The Department of Finance does not provide population projections for incorporated cities in the project area. However, the incorporated cities in the project area grew at the following rates from 2010 to 2015: Marysville, 1.2% (Yuba County); Oroville, 1.8% (Butte County); and Yuba City, 2.0% (Sutter County) (U.S. Census Bureau 2016).

Table 5.13-1
Estimated Population Growth – 2015 to 2020

Jurisdiction	2015	2020 est.	Projected % Change from 2015 to 2020
Yuba County (unincorporated)	75,093	81,467	8.5%
Butte County (unincorporated)	226,656	236,936	4.5%
Sutter County (unincorporated)	97,887	105,107	7.4%

Source: DOF 2014.

Housing

The majority of the project corridor traverses areas characterized by agricultural and rural residential land uses, though a variety of urban and higher-density residential land uses are present near the established community centers along the transmission corridor. The Department of Finance (2016b) estimates a 2016 housing unit vacancy rate of 10.2% for Yuba County, 2.5% for Butte County, and 7.9% for Sutter County. Cities within the project area are estimated to have the following 2016 housing vacancy rates: Marysville, 9.9%; Oroville, 10.7%; and Yuba City, 7.0% (DOF 2016b).

5.13.2 Regulatory Setting

Federal

There are no relevant federal policies related to population or housing.

State

General Plans and Housing Elements

State law requires each city and county to adopt a general plan for its future growth. The general plan must include a housing element that identifies housing needs for all economic segments and provide opportunities for housing development to meet those needs. At the state level, the Housing and Community Development Department estimates the relative share of California's projected population growth that would occur in each county presented by the California Department of Finance's demographic research unit.

Each city and county must update its general plan housing element on a regular basis (usually every 5 years). Among other things, the housing element must incorporate policies and identify potential sites that would accommodate the city's and county's share of the regional housing need. General plans and housing elements are adopted for each of the counties within the project area, including Yuba County, Butte County, and Sutter County, and for each of the incorporated cities in proximity to the transmission corridor, including the Cities of Marysville, Yuba, and Oroville.

Local

General plans and housing elements are adopted for each of the counties within the project area, including Yuba County, Butte County, and Sutter County, and for each of the incorporated cities in proximity to the transmission corridor, including the Cities of Marysville, Yuba, and Oroville.

There are no relevant general plan policies related to population or housing.

5.13.3 Applicant Proposed Measures

No applicant proposed measures have been proposed for or apply to the analysis of impacts associated with population and housing.

5.13.4 Environmental Impacts and Mitigation

a) Would the project induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

Less-than-Significant Impact. The proposed project would not construct new homes or businesses or directly induce permanent population growth in the project area. Construction of the proposed project would take approximately 36 months and would occur in three overlapping phases. Although the number of workers on site at any time

would vary depending on individual construction tasks and project scheduling, it is estimated that a maximum of 45 workers would be on site during peak construction activity. These workers would come from local PG&E crews, though some workers from out of the area could intermittently work on the project. Workers from outside the local area would be housed in existing hotels or other temporary lodging in the surrounding community. Staffing requirements for operations and maintenance are expected to remain the same as under existing conditions. A temporary and intermittent increase of several workers from outside the area would not represent a substantial growth in population in the project area. Direct impacts associated with inducing population growth would be less than significant.

The proposed project could also indirectly induce population growth if it extends infrastructure to areas not served or facilitates increased capacity that could result in population growth in excess of community growth projections. The main objective of the proposed project is to ensure that the Palermo–Rio Oso transmission system continues to meet planning standards and criteria established by the California Independent System Operator and North American Electric Reliability Corporation. A secondary objective is to replace aging facilities, some of which were constructed in the early 1900s. The upgrades do not extend service to areas that are not currently served and are intended to address potential overloads and power outages that could affect customers in the service area.

Although the system upgrades included in the proposed project would improve system reliability and accommodate increased load growth in the service area, which could accommodate additional development and population in the area served, growth in the study area is planned and regulated by applicable local planning and zoning ordinances. The proposed project would result in no change in zoning or land use in the project area, but would ensure system reliability and adequate system capacity to accommodate growth in the service area as envisioned by local planning policies and land use regulations. The proposed project would induce no growth in population beyond that which is anticipated and allowable under existing adopted plans and land use regulations. Accordingly, the proposed project would not indirectly induce population growth and impacts would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

b) Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

No Impact. The proposed project would be constructed entirely within the existing utility transmission corridor and within the existing footprints of PG&E substation facilities and would result in no displacement of existing housing in the project area. No dwelling units would be demolished or otherwise made unusable as a result of the proposed project. The proposed project would result in **no impact** associated with displacement of existing housing.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

c) Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

No Impact. As discussed above, the proposed project would result in no displacement of existing dwelling units. The proposed project would be constructed entirely within existing utility transmission corridors and existing substation facilities and includes no components that would displace housing or people from any area along the alignment. The proposed project would have **no impact** associated with the displacement of people or the construction of replacement housing.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

5.13.5 References Cited

City of Marysville. 2014. City of Marysville 2013–2021 Housing Element Update. Accessed September 15, 2016. http://www.marysville.ca.us/images/website_docs/marysville-2013-2021-housing-element_adoption-draft_11-27-13.pdf.

County of Butte. 2012. *Butte County General Plan*. Accessed September 16, 2016. https://www.buttecounty.net/dds/Planning/GeneralPlan/Chapters.aspx.

County of Sutter. 2011. *Sutter County General Plan*. Accessed September 15, 2016. https://www.co.sutter.ca.us/pdf/cs/ps/General_Plan_Policy_Document.pdf.

County of Yuba. 1994. *Yuba County General Plan*. Accessed September 16, 2016. http://www.co.yuba.ca.us/Departments/Community%20Development/Planning/Default%20Pages/yubacountygeneralplan.aspx.

DOF (Department of Finance). 2014. Total Population Projections for California and Counties: July 1, 2015, to 2060 in 5-Year Increments. December 2014. Accessed September 15, 2016. http://www.dof.ca.gov/Forecasting/Demographics/Projections/.

DOF. 2016a. E-4 Population Estimates for Cities, Counties, and the State, 2011–2016 with 2010 Census Benchmark. May 2016. Accessed September 15, 2016. http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-4/2011-20/.

DOF. 2016b. Table 2: E-5 City/County Population and Housing Estimates, 1/1/2016. Accessed September 15, 2016. http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-5/.

PG&E (Pacific Gas and Electric Company). 2016. *Proponent's Environmental Assessment for the South of Palermo 115 kV Power Line Replacement Project*.

U.S. Census Bureau, 2016. United States Census Bureau, QuickFacts. Accessed September 15, 2016. http://www.census.gov/quickfacts/table/PST045215/06007.

5.14 Public Services

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
PUBLIC SERVICES – Would the project:				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

5.14.1 Environmental Setting

This section of the Initial Study (IS) evaluates impacts to fire protection, police protection, schools, parks, and other public facilities associated with proposed project implementation. The analysis is based on the review of the Pacific Gas and Electric Company's (PG&E's) Proponent's Environmental Assessment (PEA; PG&E 2016)

A majority of the proposed project area is located in Yuba County and the project extends into Sutter County, Butte County, and the Cities of Yuba City and Marysville. The proposed project would upgrade facilities along approximately 59.5 miles of PG&E's existing Palermo–Rio Oso 115-kilovolt (kV) transmission system. Proposed modifications to existing facilities would take place within PG&E's existing utility corridor and within the footprints of existing power substations. All substation improvements would occur within the existing facility footprints and would not affect the bulk and scale of the existing substations.

Fire Protection and Emergency Medical Services

Fire protection services and emergency response in the project area are provided within the project area by the agencies and departments serving Yuba County, Butte County, and Sutter County. Yuba County does not have a County fire department so fire protection is provided to various communities within the County by a number of fire protection districts (FPDs), including the Plumas-Brophy FPD, Smartsville FPD, Dobbins-Oregon House FPD, and Foothill FPD. Several public utility districts (PUDs) and community service districts (CSDs) also provide fire protection services, including the Olivehurst PUD, Loma Rica-Browns Valley CSD, and Camptonville CSD. Several city fire departments also provide fire protection service within

Yuba County, including the City of Wheatland Fire Department and City of Marysville Fire Department (County of Yuba 2011). The California Department of Forestry and Fire Protection (CAL FIRE) provides additional protection within State Responsibility Areas (SRAs) of the County and the U.S. Forest Service responds within National Forest areas. Beale Air Force Base provides its own fire protection. Fire protection agencies in the County are party to a mutual-aid agreement with other fire protection agencies in the County to ensure adequate fire protection resources.

Butte County is served by the Butte County Fire Department and CAL FIRE and by city fire departments and one FPD. The Cities of Chico and Oroville, the Town of Paradise, and the El Medio FPD also operate independent fire departments (County of Butte 2012). CAL FIRE provides fire protection services within SRAs of the County and the U.S. Forest Service responds within National Forest areas. Fire protection agencies in the County are party to a mutual-aid agreement with other fire protection agencies in the County to ensure adequate fire protection resources.

Fire protection and emergency services in Sutter County are provided by Sutter County Fire, the Yuba City Fire Department, Meridian FPD, and the Sutter Basin FPD. Mutual-aid agreements are established between all of the fire protection agencies to respond to major incidents in the County (County of Sutter 2008). Sutter County does not contain any SRAs or National Forest areas.

CAL FIRE

CAL FIRE is responsible for SRAs, and primarily fights wildland fires; CAL FIRE is not responsible for structural fires. CAL FIRE's Nevada-Yuba-Placer Unit serves the majority of the proposed project area and surrounding areas and participates in a mutual-aid agreement with other fire agencies in the project area. This unit staffs 25 fire stations, an air attack base, and a conservation camp (CAL FIRE 2011a). CAL FIRE's Butte Unit serves SRAs in Butte County (CAL FIRE 2011b). Please refer to the expanded discussion of CAL FIRE responsibilities with respect to utility facilities provided in Section 5.8, Hazards and Hazardous Materials.

Police Protection

Police protection services in the project area are provided by the following agencies: Yuba County Sheriff's Department, Sutter County Sheriff's Department, Butte County Sheriff's Department, California Highway Patrol, Marysville Police Department, Yuba City Police Department, and the Oroville Police Department.

Schools

A number of school districts serve the project area and there are 17 schools located within 0.25 mile of the project corridor. These include schools serving all grade levels, including preschools to community colleges.

Parks

Please refer to Section 5.15, Recreation, for further discussion of recreational facilities, including parks, in the vicinity of the proposed project.

5.14.2 Regulatory Setting

Federal

There are no federal policies relevant to the analysis of environmental impacts associated with public services.

State

California Public Utilities Commission

The California Public Utilities Commission ***(***CPUC) regulates privately owned telecommunications, electric, natural gas, water, railroad, rail transit, and passenger transportation companies in the state. CPUC is responsible for ensuring that California utility customers have safe, reliable utility service at reasonable rates, protecting utility customers from fraud, and promoting the health of California's economy. CPUC establishes service standards and safety rules and authorizes utility rate changes. CPUC enforces California Environmental Quality Act (CEQA) compliance for utility construction.

Local

There are no relevant general plan policies related to public services.

5.14.3 Applicant Proposed Measures

No applicant proposed measures have been identified that apply to the analysis of impacts associated with public services.

5.14.4 Environmental Impacts and Mitigation

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

Fire protection?

No Impact. Increases in long-term demand for fire protection services are typically associated with substantial increases in population. Staffing requirements for operations and maintenance would remain the same as the existing condition and the proposed project would result in no permanent increase in population, and would introduce no new uses to the project area that would generate increased long-term demand for fire protection services.

Refer to Section 5.13, Population and Housing, for more information regarding potential increases in population that could result from the proposed project. See also the discussion of fire hazards in Section 5.8, Hazards and Hazardous Materials, for more information related to fire codes applicable to utility projects, including Title 14, Section 1254 of the California Code of Regulations and California Public Resources Code Section 4290 regulations, which identify minimum clearance requirements required around utility poles and utility equipment; California Public Resources Code, Division 4, Chapter 6, which includes specific requirements related to controlling ignition sources; California Code of Regulations Title 14, Sections 1250–1258, Fire Prevention Standards for Electric Utilities, which includes fire prevention measures; CPUC General Order 95, which outlines maintenance and clearance requirements for safe operation or use of overhead lines; and General Order 165, which requires inspections of transmission facilities to ensure safe and high-quality electrical service. The facilities would continue to be maintained in accordance with fire-safe standards and regulations applicable to electrical transmission lines and facilities. Therefore, no impact would result from construction of new facilities to meet an increased long-term demand for fire protection services as a result of implementing the proposed project.

As discussed in Section 5.13, Population and Housing, construction of the proposed project would be carried out in three phases over approximately 36 months. It is estimated that construction of the proposed project would require a maximum of 45 workers during peak construction activity. Construction workers would come from local PG&E crews, though some workers from out of the area could intermittently work on the

project. Workers from outside of the local area would be housed in existing hotels or other temporary lodging in the surrounding communities. A temporary and intermittent increase in population of several non-local workers would result in no substantial permanent growth in population in the project area and would not require the construction of new facilities to meet an increased short-term demand for fire protection services. See also the discussion of fire-safe measures during construction and Mitigation Measure (MM) HAZ-1, which requires implementation of a Construction Fire Prevention Plan that would be developed in consultation with and approved by local fire agencies. Implementation of these fire-safe measures during construction would ensure that temporary construction activities would result in no need for new facilities to accommodate a short-term increase in demand for fire response during construction; therefore, **no impact** would occur.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

Police protection?

No Impact. Increases in the demand for police protection services are typically associated with substantial increases in population. The proposed project would result in no change in long-term maintenance or operations staffing needs that could result in a long-term increase in population in the project area, and would result in no change in land use in the project area that could generate increased long-term demand for police protection services. Refer to Section 5.14 for more information related to potential long- and short-term population increase associated with the proposed project. Construction activities would last approximately 36 months and would be carried out in three phases. It is estimated that a maximum of 45 workers would be on site in various locations within the project area during peak construction activity periods. Most of these workers would be from local PG&E crews, though non-local workers could intermittently supplement the local construction crews. A temporary and intermittent increase in population of several non-local construction workers would result in no substantial or permanent growth in population in the project area and would not require the construction of new facilities to meet an increased short-term demand for police protection over the construction period; therefore, **no impact** would occur.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

Schools?

No Impact. Increased demand for public school services are typically associated with increases in the local population or demand for housing. The proposed project would result in no change in long-term maintenance or operations staffing needs that could result in a long-term increase in population in the project area. Construction activities would last approximately 36 months. Construction activities would require up to 45 workers during peak construction activity periods and would be carried out primarily by local PG&E crews, though construction staff could intermittently include some non-local workers. Construction staff from out of the area on short work assignments would result in no change in the demand for public school facilities and no new facilities would be required as a result of implementing the proposed project; therefore, there would be **no impact**.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

Parks?

No Impact. See Section 5.15 for a discussion of potential impacts on recreational facilities, including parks. The proposed project would not require new or altered parks facilities and would result in **no impact** associated with the provision of new or physically altered parks or other public recreational facilities.

Significance After Mitigation: No mitigation is required because **no impact** would result from the proposed project**.**

Other public facilities?

No Impact. The proposed project would not result in substantial adverse impacts related to other types of public facilities (e.g., public libraries, hospitals, or other civic uses) because, as discussed above, the proposed project would not result in a significant increase of local population or housing, which is typically associated with increased demand for public facilities. Short-term construction activities could add several non-local construction workers to the population in the project area intermittently over the 36-month construction period. Operation and maintenance activities would consist of periodic (typically annual) inspection and minor repairs by existing employees. Therefore, the proposed project would not have an effect on the ability of other public services to maintain their service levels, and would have **no impact** associated with the provision of new or physically altered facilities for libraries, hospitals, or other civic uses.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

5.14.5 References Cited

County of Butte. 2012. *Butte County General Plan 2030*. Amended November 6, 2012. Accessed September 16, 2016. https://www.buttecounty.net/Portals/10/Docs/GP2030/Chapters/Cover_2012.pdf.

County of Sutter. 2008. *General Plan Update Technical Background Report*. Accessed September 16, 2016. https://www.co.sutter.ca.us/pdf/cs/ps/gp/tbr/tbr.pdf.

County of Yuba. 2011. *Yuba County 2030 General Plan*. Adopted June 7, 2011. Accessed September 16, 2016. http://www.co.yuba.ca.us/Departments/Community%20Development/Planning/documents/General%20Plan/1996/Volume%20I/Section%209%20-%20Public%20Safety.pdf.

CAL FIRE (California Department of Forestry and Fire Protection). 2011a. "Unit Strategic Fire Plan Nevada-Yuba-Placer Unit." Accessed September 16, 2016. http://cdfdata.fire.ca.gov/pub/fireplan/fpupload/fpppdf1009.pdf.

CAL FIRE. 2011b. "Unit Strategic Fire Plan Butte Unit." Accessed September 16, 2016. http://cdfdata.fire.ca.gov/pub/fireplan/fpupload/fpppdf703.pdf.

PG&E (Pacific Gas and Electric Company). 2016. *Proponent's Environmental Assessment for the South of Palermo 115 kV Power Line Reinforcement Project*. Prepared for Pacific Gas & Electric by ICF International. April 2016.

INTENTIONALLY LEFT BLANK

5.15 Recreation

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
RECREATION – Would the project:				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

5.15.1 Environmental Setting

The proposed project would replace existing conductor and modify and/or replace existing lattice steel towers along approximately 59.5 miles of the existing Palermo–Rio Oso transmission system, which is within Pacific Gas and Electric Company's (PG&E's) existing utility corridor. The project would modify existing PG&E facilities within an existing utility right-of-way. The existing utility corridor runs through portions of Butte, Yuba, and Sutter Counties between PG&E's Palermo, Pease, Bogue, and Rio Oso Substations. Portions of the corridor run through or near the incorporated cities of Oroville (Butte County), Marysville (Yuba County), and Yuba City (Sutter County), and near the unincorporated communities of Palermo (Butte County), Linda (Yuba County), Olivehurst (Yuba County), Plumas Lakes (Yuba County), and Rio Oso (Sutter County). See Figure 4-1, Regional Map.

A majority of the project corridor is within rural agricultural and undeveloped areas. Regional recreational opportunities in the project vicinity include the South Yuba River State Park, approximately 4 miles from the project area, and the Oroville Wildlife Area, which is more than 20 miles east of the project corridor. The only public recreational facility immediately adjacent to the project corridor is the Olivehurst Community Park in Olivehurst, Yuba County, which includes playing fields, a public pool facility, and other recreational facilities (County of Yuba 1994). A number of other public recreational facilities are located within 0.5 miles of the project corridor, including Palermo Park (Palermo), Gavin Park (Marysville), Chestnut Park (Olivehurst), Johnson Park (Olivehurst), Landhurst Memorial Park (Olivehurst), Tahiti Village Park (Olivehurst), Fernwood Park (Linda), POW/MIA Park (Linda), Bear River Park (Plumas Lake), Eufay Wood Sr. Memorial Park (Plumas Lake), Orchard Glen Park (Plumas Lake), Rio Del Oro Park (Plumas Lake), Rolling Hills Park (Plumas Lake), Veteran's Park (Plumas Lake),

and the Yuba–Sutter Dog Park (Yuba City). Recreational facilities and parks in Olivehurst are operated and maintained by the Olivehurst Public Utility District (Olivehurst PUD 2012), Yuba County Department of Public Works (County of Yuba DPW 2016), the City of Marysville (City of Marysville 2016), and the Feather River Recreation and Park District (Feather River RPD 2016). Other recreational opportunities near the project corridor include open space areas that are used informally for passive recreation (County of Yuba 1994). A temporary overland access route would traverse approximately 900 feet of the Peach Tree Golf and Country Club, a private recreational facility just south of Marysville. No public recreational facilities are within the proposed project area and no helicopter landing zones, access routes, or other temporary construction work areas are proposed within public recreational facilities.

5.15.2 Regulatory Setting

Federal and State

There are no federal or state policies relevant to the analysis of impacts of the proposed project on recreation resources.

Local

There are no city or county policies relevant to the analysis of the proposed project's impact on recreation.

5.15.3 Applicant Proposed Measures

No applicant proposed measures have been proposed for or apply to recreation resources.

5.15.4 Environmental Impacts and Mitigation

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

Less-than-Significant Impact. The proposed project would be constructed in three overlapping phases over a period of 36 months. Disturbed areas would be restored and monitoring of some areas for restoration success would be conducted as required by terms and conditions of applicable permits and project commitments. Construction of the proposed project would require up to 45 workers on site at any one time, although personnel requirements of the project would be variable over the construction period. Workers would be on work sites in various locations within the 59.5-mile transmission

corridor and temporary construction work areas. The project workforce is anticipated to consist of PG&E workers from the local area and possibly some temporary workers from outside the area and would result in no change in the permanent population of the project area. Following project construction, workers would intermittently be on site to monitor restoration and for operations and maintenance purposes. Operations and maintenance activities would be similar to those under existing conditions and would result in no increase in population in the area or use of existing recreational facilities. The temporary increase in use of recreational facilities that could result from non-resident workers over the anticipated 36-month construction period is not expected to cause substantial physical deterioration of existing recreational facilities in the vicinity of the proposed project. The proposed project would result in no direct or indirect permanent increase in population in the project area that would result in increased use of recreational facilities that could result in physical deterioration of these facilities. Impacts to recreational facilities would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

b) Would the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

No Impact. The proposed project does not include construction of new recreational facilities. The project would result in no permanent increase in demand for recreational facilities that would require construction or expansion of recreational facilities; therefore, **no impact** would occur.

Significance After Mitigation: Mitigation is not required because **no impact** would occur.

3.15.5 References Cited

City of Marysville. 2016. "Parks/Facilities." Website. Accessed September 14, 2016. http://www.marysville.ca.us/index.php/city-services/parks-facilities.

County of Yuba. 1994. *Yuba County General Plan*. Updated May 1994. Accessed September 14, 2016. http://www.co.yuba.ca.us/Departments/Community%20Development/Planning/Default%20Pages/yubacountygeneralplan.aspx.

Feather River RPD (Feather River Recreation and Park District). 2016. Website. Accessed September 14, 2016. http://frrpd.com/.

Olivehurst PUD (Olivehurst Public Utility District). 2012. "Parks." Olivehurst PUD Website. Accessed September 14, 2016. http://www.opud.net/parks.

County of Yuba DPW (County of Yuba Department of Public Works).2016. "Yuba County Parks Overview." County of Yuba DPW Website. Accessed September 14, 2016. http://www.co.yuba.ca.us/Departments/Community%20Development/Public%20Works/PARKS/default.aspx.

5.16 Transportation and Traffic

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
TRANSPORTATION/TRAFFIC – Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☒	☐	☐
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☒	☐	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☒	☐
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☒	☐	☐
e) Result in inadequate emergency access?	☐	☒	☐	☐
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☒	☐	☐

5.16.1 Environmental Setting

This section of the Initial Study evaluates impacts to traffic and transport associated with proposed project implementation. The following analysis is based on the review of PG&E's Proponent's Environmental Assessment (PG&E 2016); traffic and transportation data contained in California Department of Transportation (Caltrans) documentation (Caltrans 2014); review of the general plans for the Counties of Yuba (County of Yuba 1994), Butte (County of Butte 2012), and Sutter (County of Sutter 2011) and the City of Marysville (City of Marysville 1985); and review of PG&E's helicopter use plan for the proposed project (PG&E 2016).

The following includes a description of the roadways that would be used to for the proposed project. This includes those roads that would be used to transport materials to the site and those that may be affected by construction activities associated with the proposed project.

The proposed project would involve removing and replacing existing conductor and modifying/ replacing existing lattice steel towers with hybrid poles, tubular steel poles, or lattice steel poles along approximately 59.5 miles of the existing Palermo–Rio Oso transmission system. All modifications would take place within the existing utility corridor. Construction activities would include the movement and transportation of project materials and construction crews throughout the project area.

Regional Roadways

Major regional roadways that would be used for accessing the project corridor during construction and for operations and maintenance purposes include State Route (SR) 20, SR-65, SR-70, and SR-99. The South of Palermo Line segment of the project corridor runs generally parallel to SR-70 and east of the Feather River in a north–south alignment from near the community of Nicolaus in Sutter County in the south to just south of Oroville in the north where it meets the Palermo Sub-Line Segment (refer to Figure 4-1). SR-99 runs in a north–south alignment parallel to the South of Palermo Line segment and west of SR-70 and the Feather River. The South of Palermo Line segment of the project corridor crosses SR-70 and SR-20, as well as many smaller, local roadways. In the project region SR-70 links the cities and communities of Oroville, Marysville, Olivehurst, Plumas Lake, Rio Oso, and East Nicolaus, and numerous other small communities, including Palermo, Honcut, Tambo, Linda, and Arboga, are accessed from SR-70 via smaller, local roads. SR-20 links Marysville to Yuba City and SR-99 to the west. SR-70 is expected to serve as the primary route for transporting construction materials and equipment into the project area.

In conjunction with SR-99 to the south, SR-70 is the primary north–south transportation corridor serving the eastern Sacramento Valley. The segment of SR-70 from the Sutter/Yuba County line at the south end of the project corridor north to Marysville is constructed to freeway standards while the segment from Marysville to the northern end of the project corridor near Oroville is a two-lane conventional highway. Traffic volume data along SR-70 in the vicinity of the project corridor is provided in Table 5.16-1. The Transportation Concept Report prepared for SR-70 by Caltrans (2009) states, "The expressway and freeway gaps along the route contribute to an overall lack of adequate capacity. Population growth over several decades in the urbanized areas adjacent to SR-70 has led to increases in vehicle traffic and congestion." Levels of service (LOS) for specific segments of SR-70 are provided in Table 5.16-2, which indicates that the primary area of traffic congestion is associated with the portion of SR-70 that runs through the urbanized area in and around the City of Marysville. An explanation of LOS ratings is provided in Table 5.16-3.

Table 5.16-1
Existing Traffic Volume Levels at Select Locations in the Project Area – SR-70

Postmile	County	Description	Back Peak Hour	Back Peak Month	Back AADT	Ahead Peak Hour	Ahead Peak Month	Ahead AADT
4.049	Sutter	Nicolaus Avenue OC	1,550	16,500	15,400	1,550	16,500	15,400
0.354	Yuba	Feather River Boulevard	1,550	17,500	16,400	1,550	18,600	17,700
8.293	Yuba	Junction SR-65 South	2,000	25,500	20,500	3,450	40,000	38,000
10.16	Yuba	Erle Road	3,800	42,000	40,500	3,900	44,500	44,000
13.008	Yuba	Feather River Boulevard	3,900	44,500	44,000	4,200	48,000	47,500
13.5	Yuba	North Beale Road	4,300	48,000	47,500	5,200	61,000	58,000
14.71	Yuba	Marysville, Junction SR-20	3,500	34,500	32,000	1,350	15,300	14,300
19.743	Yuba	Woodruff Lane	1,350	12,800	12,700	1,200	13,300	12,000
25.822	Yuba	Yuba/Butte County line	1,200	13,200	12,000			
0	Butte	Yuba/Butte County line				1,200	13,200	12,000
1.01	Butte	Lower Honcut Road	1,200	13,200	12,000	1,150	13,300	11,800
4.06	Butte	East Gridley Road/Stimpson Lane	1,150	13,300	11,800	1,150	11,300	11,000
9.06	Butte	Welsh/Palermo Roads	1,150	11,300	11,000	1,350	14,400	12,400
11.55	Butte	Marysville Baggett Road	1,350	14,400	12,400	1,350	15,000	13,100
13.901	Butte	Oroville, Junction SR-162	1,350	15,000	13,100	1,550	22,000	19,200

Source: Caltrans 2014.
AADT = Annual Average Daily Traffic; SR = State Route

Table 5.16-2
Existing Roadway Segment Level of Service in the Project Area – SR-70

Postmile From	Postmile To	County	Description	Current LOS
0.05	8.30	Sutter	SR-99/SR-70 junction to the Sutter/Yuba County line at the Bear River	E
0.00	6.63	Yuba	Sutter/Yuba County line, Bear River to McGowan Parkway	A
6.63	13.50	Yuba	McGowan Parkway to south end of Yuba River Bridge	C
13.50	14.08	Yuba	South end of Yuba River Bridge to 1st Street	F
14.08	14.25	Yuba	1st Street to 3rd Street in Marysville	F
14.25	14.70	Yuba	3rd Street to 9th Street in Marysville	F
0.99	1.47	Yuba	Between 9th and E Streets to 12th and B Streets	F
14.70	15.35	Yuba	12th and B Streets to 24th Street	E
15.35	25.82	Yuba	24th Street to Yuba/Butte County line	E
0.00	13.51	Butte	Yuba/Butte County line to beginning of freeway segment of SR-70 0.6 miles south of SR-162	D

Source: Caltrans 2009.
LOS = level of service; SR = State Route.

Table 5.16-3
Level of Service Definition

Level of Service	Roadway Segment (Daily)
A	Completely free flow
B	Free flow, presence of other vehicles noticeable
C	Ability to maneuver and select operating speed affected
D	Unstable flow, speeds and ability to maneuver restricted
E	At or near capacity, flow quite unstable
F	Forced flow, breakdown

Source: Transportation Research Board 2000.

Local Roadways

Local roadways in the vicinity of the proposed project corridor are under the jurisdiction of the Counties of Yuba, Sutter, and Butte, and the Cities of Marysville, Yuba City, and Oroville. Along most of the project corridor, local roads are rural in nature and carry very low volumes of traffic. Roadways in Yuba County that the proposed project would cross and that would be likely to be used to access work areas during construction include Ramirez Road, Hammonton Smartville Road, North Beale Road, Erle Road, McGowan Parkway, Arboga Road, and Feather River Boulevard. Each of these roadways operates at LOS C or better, or 2006 traffic levels (County of Yuba 2007a).

Roadways in Sutter County that the proposed project would cross and that would be likely to be used to access work areas during construction include Rio Oso Road, Pleasant Grove Road. Cornelius Avenue, Pacific Avenue, Warren Avenue, Hicks Road, and Waltz Road. The Sutter County General Plan Technical Background Report shows 2006 peak-hour LOS for local roads of regional significance and identifies LOS C or better for Rio Oso Road and Pleasant Grove Road (County of Sutter 2008). The LOS ratings for other roads crossed by the project corridor in Sutter County are not identified in the technical report.

Roadways in Butte County that the proposed project would cross and that would be likely to be used to access work areas during construction include Upper Palermo Road, Lincoln Boulevard, Palermo Road, and Lower Honcut Road, each of which has an LOS of C or better projected to Year 2025, according to the Butte County Setting and Trends Report (County of Butte 2010). The LOS for the remaining roadways crossed by the project in Butte County are not identified in the Setting and Trends Report.

The northern portion of the project corridor crosses Railroad Avenue, which is within the City of Oroville. The LOS for this road was not identified in documents reviewed for this analysis. This

roadway is within an area of sparse rural land uses and undeveloped land south of urbanized areas of the City.

In the City of Marysville, the project corridor crosses Levee Road. The LOS for this road was not identified in documents reviewed for this analysis. This roadway is within an area of sparse rural and agricultural land uses east of the urbanized area in the City of Marysville.

Within the city limits of Yuba City, the project corridor crosses East Onstott Road. The LOS for this roadway was not identified in background material reviewed for this analysis. East Onstott Road is within an area characterized by agricultural fields north of the urbanized city center.

Airports

The nearest airport to the proposed project is the Yuba County Airport, which is 3 miles southeast of the City of Marysville and approximately 1.2 miles from the project corridor at its nearest point. This airport has a 6,000-foot runway with a width of 150 feet. Yuba County Airport is a public airport owned and managed by the County of Yuba. Sutter County Airport is approximately 3.3 miles from the project corridor and is a public airport managed by the Sutter Buttes Regional Aviation Association and the County of Sutter. This airport does not have a control tower and has a single runway that is 3,040 feet long and 75 feet wide. The airport is primarily used by agricultural aircraft involved in crop-spraying activities; no commercial flights are supported by the facility. The Oroville Municipal Airport is approximately 4.5 miles northwest of the project alignment and is owned by the City of Oroville. The largest facility in the region is the Sacramento International Airport, which is approximately 16 miles south of the project corridor. Airport Land Use Compatibility Plans in effect for the project region include those prepared for the Yuba County Airport, Sutter County Airport, Oroville Municipal Airport, and Sacramento International Airport.

5.16.2 Regulatory Setting

Federal

Airports and navigable airspace not administered by the Department of Defense are under the jurisdiction of the Federal Aviation Administration (FAA). Title 14 of the Code of Federal Regulations, Section 77, establishes the standards and required notification for objects affecting navigable airspace. In general, construction projects exceeding 200 feet in height above ground level, or extending at a ratio greater than 50 to 1 (horizontal to vertical) from a public or military airport runway less than 3,200 feet long, out to a horizontal distance of 20,000 feet are considered potential obstructions and require FAA notification (14 CFR, Part 77). In addition, the FAA requires a Helicopter Lift Plan for operating a helicopter within 1,500 feet of residential dwellings. All helicopter construction activities would be required to comply with all appropriate FAA regulations.

State

Caltrans manages interregional transportation, including management of construction activities within or above State Roadways. Caltrans is also responsible for permitting and regulating the use of State roadways. Within the project area, Caltrans has responsibility for SR-99, SR-65, and SR-70. Caltrans has the following requirements for project proponents: Caltrans requires that permits be obtained for transportation of oversized loads and transportation of certain materials, and for construction-related traffic disturbances (California Vehicle Code, Division 15). Caltrans regulations would apply to the transportation of oversized loads on state routes associated with the construction of the proposed project. Further, the Caltrans Construction Manual requires temporary traffic control planning "during any time the normal function of a roadway is suspended" (Caltrans 2001). Prior to project construction, Caltrans would require the PG&E to obtain all necessary transportation and encroachment permits accordance with the Caltrans Transportation Permit Manual and Encroachment Permit Manual. Conditions of such permits would require the proposed project to Caltrans best management practices (BMPs) to minimize impacts to traffic and transportation.

Local

It is noted that the proposed project is not subject to local land use and discretionary regulations because the California Public Utilities Commission (CPUC) jurisdiction precludes any local land use authority over project construction, design, or siting. However, the following provides a brief summary of local transportation policies, plans, and programs for informational purposes and to assist in framing the discussion and analysis of potential traffic or transportation impacts that could result from implementation of the proposed project.

Yuba County

Local roads within the portion of the project area in unincorporated Yuba County are under the jurisdiction of the County of Yuba. County policies and regulations regarding the design or use of roadways are detailed in the Land Use and Circulation Element of the County's General Plan and the County Code. The County's Public Works Department issues special permits for the movement of vehicles/loads exceeding limitations on the size, weight, and loading of vehicles as specified in Division 15 of the California Vehicle Code. These special permits require an applicant to complete an application for a Transportation Permit to be reviewed and approved by the Yuba Department of Public Works. Similarly, an encroachment permit from the County of Yuba is required for any work that affects the right-of-way of any County roadway (County of Yuba 2007b).

The Yuba County Bikeway Master Plan is a planning guide for bicycle routes in the County (County of Yuba 2013). The plan identifies existing and planned bicycle routes and provides a basis for applying for funding for future bicycle projects.

Butte County

Local roads in Butte County are under the jurisdiction of the County of Butte. County policies and regulations regarding the design or use of roadways are detailed in the Land Use and Circulation Element of the County's General Plan and the County Code. An encroachment permit is required for any work in the right-of-way of any County road. The County's Public Works Department also requires a transportation permit for any overweight or oversized load that is transported on a County-maintained road. Applications for each of these permits are reviewed and approved by the Butte County Department of Public Works (County of Butte 2013).

The Butte County Bicycle Plan (2011) identifies existing and future bike routes and makes recommendations for projects, programs, and policies to encourage bicycling as an alternative form of transportation.

Sutter County

Local roads within the portion of the project area in Sutter County are under the jurisdiction of the County of Sutter. County policies and regulations regarding the design or use of roadways are detailed in the Land Use and Circulation Element of the County's General Plan and the County Code. The Sutter County Public Works Division issues Transportation Permits for the movement of extralegal (oversize) loads (County of Sutter 2016). An encroachment permit is required for any work in the right-of-way of any County road. Each of these special permits requires that an application be submitted to the Sutter County Public Works Division (previously the Public Works Department) for review and approval (County of Sutter 2016).

The Sutter County Pedestrian and Bicycle Master Plan (2012) provides guidance for the County for planning and construction of new bicycle and pedestrian facilities as funding is available. The document identifies existing and potential future bikeways and pedestrian facilities.

City of Marysville

Local roads in the portion of the project area in the City of Marysville are within the jurisdiction of the City of Marysville. City policies and regulations regarding the design or use of roadways are detailed in the City's General Plan and Municipal Code. The City of Marysville requires an encroachment permit for any work within the City right-of-way. Applications for encroachment permits are reviewed and approved by the City's Department of Public Works.

The City of Marysville Bicycle and Pedestrian Plan identifies existing bike and pedestrian facilities in the City as well as a plan for future facilities to be constructed as funding is available (City of Marysville 2016).

City of Yuba City

Local roads in the portion of the project area in Yuba City are within the jurisdiction of the City of Yuba City. City policies and regulations regarding the design or use of roadways are detailed in the City's General Plan and Municipal Code. The City of Yuba City requires an encroachment permit for any work within the City right-of-way. Applications for encroachment permits are reviewed and approved by the City's Department of Public Works.

The Yuba City Bicycle Master Plan (2011) identifies existing and planned future bicycle facilities and includes recommendations to implement to expand the existing bikeway network, increase ridership, and achieve goals provided in the plan.

5.16.3 Applicant Proposed Measures

The following applicant proposed measures (APMs) have been proposed for or apply to the analysis of impacts associated with transportation and traffic:

APM TRA-1 **Temporary Traffic Controls.** Pacific Gas and Electric Company (PG&E) will obtain any necessary transportation and encroachment permits from the California Department of Transportation (Caltrans) and the local jurisdictions, as required, including those related to state route crossings and the transport of oversized loads and certain materials, and will comply with permit requirements designed to prevent excessive congestion or traffic hazards during construction. PG&E will coordinate with affected transit agencies on any temporary lane closures or transit delays to inform transit riders of potential delays. PG&E will develop road and lane closure or width reduction or traffic diversion plans as required by the encroachment permits. Construction activities that are in, along, or cross local roadways will follow best management practices (BMPs) and local jurisdictional encroachment permit requirements, such as traffic controls in the form of signs, cones, and flaggers, to minimize impacts on traffic and transportation in the project area.

APM TRA-2 **Air Transit Coordination.** PG&E will implement the following protocols related to helicopter use during construction and air traffic:

- PG&E will comply with all applicable Federal Aviation Administration (FAA) regulations regarding air traffic within 2 miles of the project alignment.

- PG&E's helicopter operator will coordinate all project helicopter operations with local airports before and during project construction.

Helicopter use and landing zones will be managed to minimize impacts on local residents. PG&E will submit to California Public Utilities Commission (CPUC) staff a Helicopter Use Plan, which will identify the anticipated landing zones, flight paths, and general helicopter operation procedures.

APM TRA-3 Coordinate Road Closures with Emergency Service Providers. At least 24 hours prior to implementing any road or lane closure, PG&E will coordinate with applicable emergency service providers in the project vicinity. PG&E will provide emergency service providers with information regarding the road or lanes to be closed; the anticipated date, time, and duration of closures; and a contact telephone number.

5.16.4 Environmental Impacts and Mitigation

a) Would the project conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

Construction Impacts

Operational Phase

No Impact. Operations and maintenance requirements for the proposed project, once complete, would require no additional trips in comparison with the existing conditions. No change from existing traffic conditions is expected. Once completed, the project would result in **no impact** associated with a change in traffic conditions in the project area and no conflict with any applicable plans, ordinances, or policies establishing measures of effectiveness for the performance of the circulation system in the project area.

Temporary Construction Phase

Less-than-Significant Impact with Mitigation Incorporated. The proposed project would contribute vehicle trips to the existing conditions in the vicinity of the project corridor as a result of construction vehicles transporting construction personnel, equipment, and materials. These vehicle trips would be generated over the duration of the 36-month construction period and throughout the 59.5-mile project corridor in

accordance with the three phases of construction work proposed. Vehicle trips would be distributed throughout the roadway system serving the transmission corridor, with the greatest concentration of vehicle trips being in the immediate area and the road network serving the area of work being performed at any one time. Most of the project corridor is within sparsely developed rural or agricultural areas served by local roads that do not carry high traffic volumes. The greatest congestion within the project area is associated with congestion on the signalized portion of SR-70 through the City of Marysville. PG&E estimates that up to 45 commuting workers would be on site throughout the 59.5-mile project corridor during peak construction activities, generating up to 90 trips per day if they all commute in their personal vehicles. It is expected that nearly all of these workers would be from local PG&E crews that typically work in the project region and typically use area roadways to commute to work. Once construction crews are within the existing utility corridor, most of the vehicle movement would be within and along the transmission corridor within PG&E's established and existing utility easements. To the extent possible, helicopters would be used to replace (remove and install) or modify existing structures. Cranes would be used to perform work where helicopter use is infeasible and trucks would be used to transport materials to project sites.

Reconductoring would be performed over several roads and other features and could require guard structures to minimize roadway interference and allow safe roadway operations while crews are removing and replacing electrical conductor. Temporary lane and road closures could be required in some locations to ensure public safety. The proposed project identifies potential temporary road and bike lane closures that would occur as part of the project. Each closure would last for no more than one week. Temporary road and bike lane closures would occur in the following locations (listed by county):

Yuba County:

- Simpson Dantoni Road
- Hammonton Smartville Road
- Linda Avenue
- North Beale Road
- Erle Road
- McGowan Parkway
- Powerline Road
- Plumas Arboga Road
- Future Class I Bike Path south of Plumas Arboga Road
- Harvey Road
- Ella Avenue
- Railroad Avenue
- Feather Ridge Drive
- Shared-use path north of structures near Levee Road
- Woodruff Lane

- Ellis Road
- Kimball Lane
- SR-70
- SR-65

Butte County:

- Existing bike route adjacent to Palermo Road
- Upper Palermo Road
- Lincoln Boulevard
- Firloop
- Railroad Avenue
- Pinecrest Road
- Kusel Road
- South Villa Avenue
- Cox Lane
- Middle Honcut Road
- Lower Honcut Road
- Ramirez Road
- Fiske Road
- SR-70

Sutter County:

- Pease Road
- Tierra Buena Road
- Stewart Road
- Multi-use gravel trail north of Rio Oso Road
- Cornelius Avenue
- Pacific Avenue
- Pleasant Grove Road
- Hicks Road
- Waltz Road
- SR-70
- SR-99

Road and lane closures, detours, and any other work that could affect roadway operations or right-of-way, including pedestrian, bicycle/multi-use trail/path facilities, would be performed in accordance with APM TRA-1 (see Section 5.16.3, Applicant Proposed Measures), which requires that PG&E obtain and comply with the terms and conditions of applicable transportation and encroachment permits required by the agency with jurisdiction over the affected roadway, including measures to reduce congestion and hazards during construction, coordinate with affected transit agencies for any work that could result in delays from lane closures or effects on transit operations, and plans for any reduction in roadway capacity due to lane closures or other effects. APM TRA-1 also commits PG&E to follow BMPs and encroachment permit requirements for traffic

controls such as signs, cones, and flaggers to minimize impacts on traffic and transit facilities in the project area. To further ensure that a comprehensive program for traffic management is followed throughout the duration of construction, Mitigation Measure (MM) TRA-1 would require that a comprehensive Traffic Management Plan be developed for the project to identify anticipated road closures and standard traffic control and management BMPs that would be implemented for all anticipated roadway/transit closures as well as standards for managing closures and appropriate time periods for closures (non-holidays, low commute times, etc.).

Construction activities would last no longer than 36 months and any increased traffic load would be dispersed throughout the project area and throughout the day. Although the proposed project could contribute to temporary and intermittent degradation in level of service (LOS) on roadways in the project area due to trips generated by construction work, with implementation of APM TRA-1 and MM TRA-1, traffic generated by the proposed project would result in no long-term degradation in LOS within the project area and no long-term exceedance of standards or conflict with applicable plans or policies for operations of transit facilities. With mitigation incorporated, temporary and intermittent degradation of LOS during construction at various locations throughout the 36-month construction period would result in a **less than significant impact** associated with any conflict with applicable plans, policies, or standards for traffic service.

MM TRA-1 PG&E shall obtain all necessary transportation and/or encroachment permits and transport of oversized loads and certain materials, and shall comply with permit requirements designed to prevent excessive congestion or traffic hazards during temporary lane closures. PG&E would develop lane closure/width reduction or traffic diversion plans as required by the encroachment permits. Construction activities that are in, along, or cross local roadways shall follow best management practices and/or local jurisdictional encroachment permit requirements, to minimize impacts to traffic and transportation in the Project area. PG&E will demonstrate to the CPUC that it has obtained all permits prior to construction activity in a given jurisdiction or location.

Significance After Mitigation: With implementation of MM TRA-1, impacts would be **less than significant with mitigation incorporated**.

b) Would the project conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?

Less-than-Significant Impact with Mitigation Incorporated. See discussion in Section 5.16.4(a). No impacts would result in the operational phase of the project. Impacts during construction would be temporary and intermittent and would result in no permanent change in traffic. Temporary construction road closures or detours could intermittently result in substandard roadway operation that could result in temporary and intermittent conflict with applicable roadway standards within the work area. However, as stated in Section 5.16.4(a), implementation of APM TRA-1 and MM TRA-1 would ensure that temporary construction impacts would remain **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

c) Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

Less-than-Significant Impact. The proposed project would rely on helicopters for most structure installation and removal, except in situations where helicopter use is infeasible, and would also rely on helicopters for tie-line installation, changing conductor, and transporting workers and materials. This would be accomplished using 27 helicopter landing zones established along the project corridor. Helicopter flight paths would generally follow the existing transmission corridor alignment, except for moving to and from the transmission corridor to the helicopter landing zones.

APM TRA-2 (see Section 5.16.3) includes protocols for helicopter use during construction and to ensure that air traffic is managed appropriately in the construction area. APM TRA-2 commits PG&E to comply with all applicable FAA regulations regarding air traffic within 2 miles of the project alignment. As per APM TRA-2, PG&E's helicopter pilots will coordinate helicopter air operations with local airports before and during project construction. Additionally, APM TRA-2 requires PG&E to submit to CPUC staff a Helicopter Use Plan, which will identify the anticipated landing zones, flight paths, and general helicopter operation procedures that will be applied during construction. PG&E has prepared a preliminary Helicopter Use Plan (2016), which identifies applicable FAA regulations, anticipated type and duration of helicopter use, construction activities that would be supported by helicopters, rigging and hauling

procedures and protocol, flight management procedures and protocol, and anticipated flight path and use assumptions.

Implementation of APM TRA-2 would ensure that appropriate protocols and FAA regulations are followed and that safety risk impacts associated with construction-supporting helicopter operations would remain **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

d) Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Less-than-Significant Impact with Mitigation Incorporated. See discussion in Section 5.16.4(a) in regard to APM TRA-1 and MM TRA-1, which would require preparation of a Traffic Management Plan, compliance with encroachment and transportation permits obtained from each agency with jurisdiction over transportation facilities affected by the proposed project, coordination with applicable agencies to reduce hazards and congestion, preparation of traffic plans if required for work in the public right-of-way, and implementation of BMPs for traffic control and construction zone safety. The proposed project would result in no permanent change in the configuration (alignment) of area roadways that could result in potential hazards. With implementation of APM TRA-1 and MM TRA-1, impacts associated with any hazard created by temporary construction impacts associated with work in the roadway right-of-way and temporary roadway reconfigurations or closures would be **less than significant**.

Significance After Mitigation: With implementation of MM TRA-1, impacts would be **less than significant with mitigation incorporated**.

e) Would the project result in inadequate emergency access?

Less-than-Significant Impact with Mitigation Incorporated. As discussed in Section 5.16.4(a), construction activities would be subject to APM TRA-1 and MM TRA-1, which would require preparation of a Traffic Management Plan and coordination with applicable agencies and compliance with terms and conditions of encroachment and transportation permits. In addition to APM TRA-1, APM TRA-2 commits PG&E to coordinate all road closures with emergency service providers at least 24 hours in advance of any road or lane closure and to provide information regarding the road closure, date of closure, time and duration of closure, and a contact telephone number. This would ensure that emergency service providers are aware of any temporary closures and can plan alternate routes, if necessary, or respond to PG&E with any concerns about

anticipated lane or road closures. With implementation of APM TRA-1, APM TRA-2, and MM TRA-1, impacts associated with inadequate emergency access would be **less than significant**.

Significance After Mitigation: With implementation of MM TRA-1, impacts would be **less than significant with mitigation incorporated**.

f) Would the project conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

Less-than-Significant Impact with Mitigation Incorporated. As discussed in Section 5.16.4(a), short-term construction impacts would result in less than significant impacts associated with conflicts with any applicable plans, ordinances, or policies establishing measures of effectiveness for the performance of the circulation or transit system in the project area. The project would result in no long-term increase in regional population that would increase demand on existing transit facilities or services.

The project is generally located in rural and agricultural areas and work would occur primarily within the existing utility right-of-way and is therefore not expected to substantially affect transit systems operating in the project area. Construction activities would be subject to APM TRA-1 and MM TRA-1, which would require preparation of a Traffic Management Plan and coordination with applicable agencies and compliance with terms and conditions of encroachment permits that would apply to public rights-of-way, including bicycle or pedestrian facilities, and ensure appropriate access to and operation of mass transit facilities. Pedestrian walkways and bike lanes could be temporarily affected or closed during reconductoring or other work in the public right-of-way, but closures would be temporary and intermittent. Implementation of APM TRA-1 and MM TRA-1 would ensure that temporary effects on bicycle, pedestrian, and mixed-use alternative transportation facilities would be **less than significant**.

Significance After Mitigation: With implementation of MM TRA-1, impacts would be **less than significant with mitigation incorporated**.

5.16.5 References Cited

Caltrans (California Department of Transportation). 2001. *Construction Manual*.

Caltrans. 2009. Transportation Corridor Concept Report State Route 70. Accessed September 19, 2016. http://www.dot.ca.gov/dist3/departments/planning/tcr/draft_sr_70_tccr.pdf.

Caltrans. 2014. "Traffic Data Branch 2014 All Traffic Volumes on CSHS." Accessed September 20, 2016. http://www.dot.ca.gov/trafficops/census/2014all/Route60-70.html.

City of Marysville. 1985. *City of Marysville General Plan*. Accessed September 19, 2016. http://www.marysville.ca.us/images/website_docs/general%20plan.pdf.

City of Marysville. 2016. *City of Marysville Bicycle & Pedestrian Plan.* Accessed September 23, 2016. http://walkbikemarysville.org/.

City of Yuba City. 2011. *Yuba City Bicycle Master Plan.* Accessed September 23, 2016. http://www.yubacity.net/city_hall/departments/public_works/engineering/technical_documents/bicycle_master_plan/.

County of Butte. 2010. Butte County Setting and Trends Report.

County of Butte. 2011. *2011 Butte County Bicycle Plan*.

County of Butte. 2012. *Butte County General Plan.* Accessed September 16, 2016. https://www.buttecounty.net/dds/Planning/GeneralPlan/Chapters.aspx.

County of Butte. 2013. "Transportation Permits." Butte County Public Works Website. Accessed September 19, 2016. https://www.buttecounty.net/publicworks/Permits/TransportationPermits.aspx.

County of Sutter. 2008. *Sutter County General Plan Technical Background Report*. Accessed September 19, 2016. https://www.co.sutter.ca.us/doc/government/depts/cs/ps/gp/gp_documents.

County of Sutter. 2011. *Sutter County General Plan*. Accessed September 15, 2016. https://www.co.sutter.ca.us/pdf/cs/ps/General_Plan_Policy_Document.pdf.

County of Sutter. 2012. *County of Sutter Pedestrian & Bicycle Master Plan*. Accessed September 19, 2016. http://www.suttercounty.org/pdf/pw/bike/Bike_Plan_Final_Draft_Sect_1.pdf.

County of Sutter. 2016. Sutter County Division of Public Works Website. Accessed September 19, 2016. https://www.co.sutter.ca.us/doc/government/depts/pw/pwhome.

County of Yuba. 1994. *Yuba County General Plan*. Accessed September 16, 2016. http://www.co.yuba.ca.us/Departments/Community%20Development/Planning/Default%20Pages/yubacountygeneralplan.aspx.

County of Yuba. 2007a. *Yuba County General Plan Update Background Report*. Accessed September 19, 2016. http://www.yubavision2030.org/General%20Plan%20Background%20Reports.aspx.

County of Yuba. 2007b. "Transportation Permits." Yuba County Department of Public Works Website. Accessed September 19, 2016. http://www.co.yuba.ca.us/Departments/Community%20Development/Public%20Works/pubTP.aspx.

County of Yuba. 2013. Yuba County Bikeway Master Plan. Accessed September 23, 2016. http://www.co.yuba.ca.us/departments/community%20development/public%20works/pubBike.aspx.

PG&E (Pacific Gas and Electric Company). 2016. "Preliminary Helicopter Use Plan." In *Proponent's Environmental Assessment for the South of Palermo 115 kV Power Line Reinforcement Project*.

Transportation Research Board. 2000. *Highway Capacity Manual 2000*.

INTENTIONALLY LEFT BLANK

5.17 Utilities and Service Systems

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
UTILITIES AND SERVICE SYSTEMS – Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
e) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

5.17.1 Environmental Setting

The proposed project would occur within an existing utility or public road right-of-way (ROW) and no net increase in the amount of ROW would be required. The existing power-line ROWs are not served by any existing sewer or septic system because they generate no wastewater. To support construction activities, portable toilets will be provided as needed at work sites and waste will be disposed of at appropriately licensed off-site facilities. Accordingly, this section provides general information regarding water service, stormwater drainage, and solid waste services.

Water Service

Water services along the proposed project alignment consist of irrigation districts, which provide for agricultural demands and in some cases, flood control; providers of potable water, typically

serving the municipal areas crossed by the proposed project; and other public water systems serving small communities and farmers. Both irrigation and domestic water demands are met by both surface water and groundwater sources. Normally, surface water supplies predominate, except in multiple-year droughts when groundwater becomes the primary source of supply. Much of the proposed project alignment crosses lands that have private surface water rights or lands served by private domestic and irrigation water wells.

The Water Management Planning Tool published by the California Department of Water Resources was used to determine the water agency service areas that overlap with the proposed alignment (DWR 2016). The "Water Agencies" layer depicts a compilation of the boundaries of water agencies, including public water systems, agricultural water districts, urban water districts, federal and state water contractors, wholesalers, retailers, and other public or private utilities, that deliver water to the end user. The project alignment is within or immediately adjacent to the service areas for the following main districts, from north to south (information for each water agency is derived from PG&E (2016) and verified by review of DWR (2016)):

- **South Feather Water and Power (formerly Oroville Wyandotte Irrigation District):** This agency serves the northern section of the project area and supplies water used for agricultural, residential, and commercial purposes. South Feather Water and Power owns six reservoirs with a cumulative total capacity of approximately 172,064 acre-feet and storage water rights totaling 800,000 acre-feet. The agency's primary treatment plant, located at the Miners Ranch Reservoir, has capacity to treat approximately 14.5 million gallons per day.
- **Cordua Irrigation District:** The Cordua Irrigation District distributes water to 133 customers and has a boundary area of approximately 11,500 acres. The water supply comes from Yuba River surface water, and is primarily used for rice farming. The district holds water rights to 60,000 acre-feet in Yuba River flows, and contracts with the Yuba County Water Agency for 12,000 acre-feet.
- **City of Marysville and California Water Services Company (CalWater):** Potable water for the City of Marysville is provided by eight wells that are used to pump up to 6 million gallons of groundwater per day, which is delivered using approximately 55 miles of pipeline, two storage tanks, and three booster pumps.
- **Yuba City Utilities Department:** The Yuba City Utilities Department provides water within the City limits and also manages three water treatment plants and 15 wells to provide water service beyond the City limits through the Yuba City Groundwater Service. Most residents in the sphere of influence outside the City limits obtain their water either from private wells or from the Hillcrest Water Company, which had

approximately 4,500 water service connections in 2002. There are several other small, private water districts in Yuba City, such as Wildwood East, Wildwood West, and El Margarita. These water districts serve over 250 homes. The total projected water supply for 2015 is approximately 40,100 acre-feet per year.

- **Linda County Water District:** The Linda County Water District serves approximately 3,360 customers in the community of Linda, and distributed 3,521 acre-feet in 2005. The district's water supply comes from the South Yuba Groundwater Subbasin. Contaminants are removed from the water at four wellhead treatment facilities.
- **Brophy Water District:** The Brophy Water District distributes water to 30 customers—primarily rice farmers—and has a boundary area encompassing approximately 17,200 acres. The primary source of water is Yuba River surface water, though portions of the boundary area are not irrigated by surface water.
- **Olivehurst Public Utilities District:** The OPUD provides groundwater to 5,221 connections, and distributed approximately 3,430 acre-feet in 2005. The OPUD's water supply is provided entirely by the South Yuba Groundwater Subbasin
- **South Yuba Water District:** The South Yuba Water District provides raw water to approximately 8,500 acres located south of the community of Olivehurst and west of the City of Wheatland. The district's water supply comes from surface water from the Yuba River, along with approximately 4,000 acre-feet of spill water. District customers rely on a canal and ditch system for water delivery
- **South Sutter Water District:** The South Sutter Water District is a public agency serving the project area in Sutter County. The district provides irrigation water to approximately 52,000 acres of land. The South Sutter Water District's surface water is taken from the Camp Far West Reservoir, located within the district's service area. The district has also purchased surplus water from the Nevada Irrigation District in the past.

Stormwater Drainage

Aside from areas where the alignment is adjacent to subdivisions in Linda, Olivehurst, and Marysville, there are no engineered/municipal drainage systems along the project alignment. Stormwater runoff within all agricultural areas and rural residential areas is either ponded in the immediate vicinity or carried by agricultural and/or roadside ditches for discharge to the nearest creek, river, or detention basin. Stormwater flow directions are typically to the east or southeast. Along the east side of the South of Palermo Line in Butte and Yuba Counties, railroad embankments exert a significant control on the behavior of stormwater runoff by acting as a barrier to much of the stormwater runoff that would otherwise flow from the east and northeast across the

alignment to the west and southwest. Near subdivisions and more urban areas, stormwater is typically captured by underground storm drain pipes or engineered channels owned and operated by the municipality. In cases where gravity is insufficient, stormwater from such areas is delivered to detention basins and/or collected and pumped to the nearest creek or river.

Waste Disposal Services

The primary waste disposal facilities in the region are the Neal Road Landfill (7 miles southeast of the City of Chico), the Ostrom Road Landfill (5 miles north of the City of Wheatland), and other more distant landfills in the northern Sacramento Valley (PG&E 2016). The primary franchise waste hauler serving the municipalities in the region is Recology (PG&E 2016).

According to a lifetime remaining capacity analysis for Butte, Yuba, and Sutter Counties, there is no projected landfill capacity shortfall through 2025, assuming a medium rate of population growth (CalRecycle 2016a, 2016b).

5.17.2 Regulatory Setting

Federal

There are no federal regulations pertaining to utilities and public service systems that are applicable to the proposed project.

State

Protection of Underground Infrastructure

California Government Code, Section 4216 et seq., requires an excavator to contact a regional notification center (e.g., Underground Service Alert (USA), or DigAlert) at least 2 days prior to excavation of any subsurface installations. Any utility provider seeking to begin a project that could damage underground infrastructure can call DigAlert, the regional notification center for Northern California. DigAlert will notify the utilities that may have buried lines within 1,000 feet of the project. Representatives of the utilities, once notified, are required to mark the specific locations of their facilities within the work area prior to the start of project activities.

State Agency Model Integrated Waste Management Act of 1999

Assembly Bill 75 was passed in 1999, and the State Agency Model Integrated Waste Management Act (Chapter 764, Statutes of 1999, Strom-Martin) took effect on January 1, 2000. The State Agency Model Integrated Waste Management Act mandated that state agencies develop and implement an integrated waste management plan. The act also mandated that

community service districts providing solid waste services report disposal and diversion information to the city, county, or regional agency in which the community service district is located. Provisions of the act require that all state agencies and large state facilities divert at least 50% of solid waste from landfills after 2004 and that each state agency and large facility submit an annual report to the California Department of Resources Recycling and Recovery summarizing its yearly progress in implementing waste diversion programs.

California Public Utilities Commission General Order 95

The Applicant is required to comply with California Public Utilities Commission (CPUC) General Order 95, which institutes requirements for overhead line design, construction, and maintenance (CPUC 2012). The order specifies requirements for joint-use poles, including clearances, inspection schedules, and coordination requirements, intended to minimize conflicts among utility supply lines and telecommunications facilities.

Local

Because the CPUC has exclusive jurisdiction over the siting, design, and construction of the project, the project is not subject to local discretionary regulations. Local general plan policies related to utilities and service systems for all jurisdictions within the proposed alignment (i.e., Counties of Butte, Yuba, and Sutter and Cities of Oroville, Marysville, and Yuba City) focus on encouraging proper management of solid waste, recycling, and diversion of construction and demolition (C&D) debris (PG&E 2016).

5.17.3 Applicant Proposed Measures

No applicant proposed measures have been proposed that apply to utilities and service systems.

5.17.4 Environmental Impacts and Mitigation

a) Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

No Impact. The proposed project includes electrical utility upgrades and would result in no permanent increase in population that would generate additional wastewater with potential to exceed the capacity of existing wastewater treatment facilities or cause existing facilities to exceed wastewater treatment standards. Portable toilets would be used for the construction phase and operational activities along the transmission ROW and at the existing substations would continue to occur as they do under existing conditions. Portable

toilets would be maintained and serviced by an outside contractor, who would dispose of effluent in accordance with applicable regulations for wastewater disposal.

The project would not involve sanitary wastewater discharges; therefore, wastewater treatment requirements of the Regional Water Quality Control Board are not applicable. Discussion of treatment requirements for construction dewatering discharges and stormwater runoff can be found in Section 5.9, Hydrology and Water Quality. Implementation of the proposed project would have **no impact** relating to exceedance of wastewater treatment requirements.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

b) Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

No Impact. The proposed project would generate no permanent change in water demand or wastewater generation that could result in a need for new or expanded facilities. It is anticipated that up to 20 workers may be at any site at any one time, with a total of 45 workers present at various sites at any one time over a period of approximately 36 months. It is estimated that 50% of these workers would be from the local area. The non-local workforce would stay at existing hotels in the vicinity of the project site and no new facilities would be required to provide adequate water and wastewater facilities to serve the temporary workforce.

It is estimated that approximately 9.16 acre-feet (2,985,000 gallons) of water would be used for dust control and worker needs. Water trucks, typically with a capacity of approximately 4,000 gallons, would support project construction activities and dust suppression. Construction water may be obtained from local municipal sources, trucked in by a water supply vendor, or derived from local wells. Water of suitable quality for the intended use would be obtained from the nearest feasible/available source, meaning that these water needs would not require additional treatment capacity or new treatment facilities and **no impact** would occur.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

c) Would the project require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

No Impact. As discussed in Section 5.1.7, Environmental Setting, much of the project alignment is located within rural or undeveloped parcels where municipal or otherwise-developed stormwater collection systems are not established. Stormwater runoff during operation and maintenance activities would occur similarly to the existing conditions, because the electrical lines would be aboveground and located along the same alignments. Although the location of replaced poles would slightly change (i.e., generally spaced within 20 feet of existing towers they would replace), the maximum pole diameter of 60 inches would be insufficient to cause any appreciable or measurable change in stormwater drainage or flow patterns. Accordingly, the project would not trigger the need for construction or expansion of stormwater drainage facilities. Implementation of the proposed project would have **no impact** with regard to construction or expansion of permanent stormwater drainage facilities.

Temporary stormwater quality best management practices (BMPs) are addressed and discussed in Section 5.9.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

d) Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

No Impact. The proposed project would generate no permanent change in water demand that could result in a need for new or expanded water entitlements. It is anticipated that up to 20 workers may be at any site at any one time, with a total of 45 workers present at various sites at any one time over a period of approximately 36 months. It is estimated that 50% of these workers would be from the local area. The non-local workforce would stay at existing hotels in the vicinity of the project that are served by existing water service from existing entitlements.

It is estimated that approximately 9.16 acre-feet (2,985,000 gallons) of water would be used for dust control and worker needs during the construction phase of the project. Water trucks, typically with a capacity of approximately 4,000 gallons, would support project construction activities and dust suppression. PG&E would not require or seek expanded entitlements to water for temporary construction-related purposes; instead PG&E would purchase such water from the nearest feasible and available source of

suitable quality. Construction water may be obtained from local municipal sources, trucked in by a water supply vendor, or derived from local wells. These demands would be minimal, considering they would occur over a 3-year period, would be periodic/ episodic in nature, and would cease following the completion of construction activities.

Water demands for the operation and maintenance of the electric system would remain the same as existing conditions. **No impact** would occur as a result of implementation of the proposed project.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

e) Would the project result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

No Impact. See the discussion in Section 5.17.4(a). The proposed project includes electrical utility upgrades and would result in no permanent increase in population that would generate additional wastewater that would cause or exacerbate a capacity issue. Portable toilets would be used for the construction phase and operational activities along the transmission ROW and at the existing substations would continue to occur as they do under existing conditions. Portable toilets would be maintained and serviced by an outside contractor, who would dispose of effluent in accordance with applicable regulations for wastewater disposal. Because the proposed project would not directly or indirectly increase sanitary wastewater generation, **no impact** would occur with regard to wastewater treatment capacity.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

f) Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

Less-than-Significant Impact. All forms of refuse and waste produced along the ROW during construction would be collected and disposed of in a designated landfill or appropriate waste disposal site. Refuse and waste are defined as any discarded material, trash, garbage, packing material, containers, waste petroleum products, broken equipment, used parts, or excess construction materials (PG&E 2016). All remaining subtransmission, distribution, and telecommunication lines that are not reused by PG&E would be removed and delivered to a suitable facility for recycling. Any wood poles not reused by PG&E would be checked for the presence of wood preservatives (creosote, pentachlorophenol, or other wood preservative) and would disposed of in an appropriately permitted disposal facility,

such as a Class I hazardous waste landfill or in a lined portion of a municipal landfill certified by the Regional Water Quality Control Board (PG&E 2016).

Demolition activities for the proposed project (i.e., removal of existing poles, and if required, foundations) could produce substantial quantities of debris that would need to be disposed of. State regulations (i.e., Integrated Waste Management Act) require diversion (i.e., recycling/reuse) of at least 50% of C&D debris. PG&E would require its employees and/or contractors to comply with these regulations or contract with a local franchise waste hauler. This C&D requirement would substantially reduce solid waste associated with the proposed project's C&D activities. The remaining construction material would be disposed of at a solid waste facility with available capacity.

There would not be an issue with landfill capacity to accommodate C&D debris from construction. According to a landfill capacity analysis, as of 2016, Butte County has a lifetime landfill capacity of approximately 13,000,000 tons and a current managed disposal amount of 131,500 tons, projected to be approximately 157,500 tons by 2025, assuming a medium growth rate projection for the region (CalRecycle 2016b). As of 2016, Butte and Sutter Counties (combined) have a lifetime landfill capacity of 24,000,000 tons and a current managed disposal amount of 257,500 tons, projected to be approximately 281,000 tons by 2025. Therefore, the region has adequate landfill capacity to accommodate regional waste disposal needs through 2025.

In the operational condition, the proposed project would intermittently generate nominal quantities of solid waste associated with normal maintenance activities and would result in little to no change in the existing conditions.

All solid waste generated during construction would be collected and hauled to an approved facility with permitted capacity to accept waste material. As indicated previously, there is sufficient capacity; therefore, the project would have a **less than significant** impact on landfill capacity.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

g) Would the project comply with federal, state, and local statutes and regulations related to solid waste?

No Impact. See the discussion in Section 5.17.4(f). All solid waste generated by the proposed project during and following construction would be handled in accordance with federal, state, and local statutes and regulations and hauled to an approved solid waste

facility with permitted capacity to accept the waste materials. Implementation of the proposed project would have **no impact** regarding solid waste statutes and regulations.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

5.17.5 References Cited

CalRecycle (California Department of Resources Recycling and Recovery). 2016a. "Remaining Lifetime Landfill Capacity Analysis for Butte County." Facility Information Toolbox. Accessed September 18, 2016. http://www.calrecycle.ca.gov/FacIT/Facility/Charts/DisposalGap/04DispLife.pdf.

CalRecycle. 2016b. "Remaining Lifetime Landfill Capacity Analysis for Butte/Sutter County." Facility Information Toolbox. Accessed September 18, 2016. http://www.calrecycle.ca.gov/FacIT/Facility/Charts/DisposalGap/58DispLife.pdf.

CPUC (California Public Utilities Commission). 2012. General Order 95: Overhead Electric Line Construction.

DWR (California Department of Water Resources) 2016. Water Management Planning Tool. Accessed September 18, 2016. https://gis.water.ca.gov/app/boundaries/.

PG&E (Pacific Gas and Electric Company). 2016. *Proponent's Environmental Assessment for the South of Palermo 115 kV Power Line Reinforcement Project*. Prepared for Pacific Gas & Electric by ICF International. April 2016.

5.18 Mandatory Findings of Significance

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
MANDATORY FINDINGS OF SIGNIFICANCE				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☒	☐	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?

Less-than-Significant Impact with Mitigation Incorporated. Operation of the proposed project would be similar to current operation activities associated with the existing South of Palermo transmission lines. Therefore, there would be no incremental change in environmental impacts associated with the new transmission line, and no operational impacts.

However, construction activities could result in impacts to special-status plant and wildlife species. With implementation of Applicant Proposed Measure (APM-) BIO-1 through APM-BIO-14 and Mitigation Measure (MM-) BIO-1 though MM-BIO-3, as described in Section 5.4.4, Biological Resources, impacts would be reduced to less than significant.

As described in Section 5.5.4, Cultural Resources, the proposed project could result in adverse impacts to cultural, archaeological, or paleontological resources. With implementation of APM-CR-1 through APM-CR-4, impacts would be reduced to less than significant. Should unanticipated human remains be discovered during ground-disturbing activities, project personnel would implement California Health and Safety Code Section 7050.5 and California Public Resource Code Section 5097.98. With implementation of current applicable legal regulatory framework, the project would not eliminate important examples of major periods of California history or prehistory.

Therefore, the proposed project does not have the potential to substantially reduce the habitat of fish or wildlife species, reduce the number or restrict the range of a rare or endangered plant or animal, or cause a fish or wildlife population to drop below self-sustaining levels or threaten to eliminate a plant or animal community or eliminate important examples of the major periods of California history or prehistory. Impacts from implementation of the proposed project would be **less than significant with mitigation incorporated**.

Significance After Mitigation: With implementation of MM-BIO-1 through MM-BIO- 3, impacts from the proposed project would be **less than significant with mitigation incorporated.**

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

Less-than-Significant Impact with Mitigation Incorporated. The proposed project does not have impacts that are individually limited but cumulatively considerable. California Environmental Quality Act (CEQA) Guidelines Section 15130 requires a discussion of the cumulative impacts of a project when the project's incremental contribution to a significant cumulative effect is "cumulatively considerable," meaning that the project's incremental effects are considerable when viewed in connection with the effects of past, current, and probable future projects. An incremental, project-specific contribution to a cumulative impact is less than cumulatively considerable, and thus is not significant, if, for example, the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact. The cumulative impacts discussion does not need to provide as much detail as is provided in the analysis of project-only impacts and should be guided by the standards of practicality and reasonableness.

CEQA Guidelines Section 15130(b) identifies the following three elements as necessary for an adequate cumulative analysis:

- A list of past, present, and reasonably anticipated future projects producing related or cumulative impacts, including those projects outside the control of the Lead Agency; or a summary of projections contained in an adopted General Plan or related planning document designed to evaluate regional or area-wide conditions.
- A summary of expected environmental effects to be produced by those projects. The summary shall include specific reference to additional information stating where that information is available.
- A reasonable analysis of the cumulative impacts of the relevant projects and an examination of reasonable options for mitigating or avoiding any significant cumulative effects of a proposed project.

The proposed project would replace the existing transmission lines with similar 115-kilovolt (kV) transmission lines in the same right-of-ways. As such, it is anticipated that operational impacts of the proposed project would not change. Therefore, the proposed project introduces no new long-term impacts to the project area. Any impacts caused by the proposed project would be related to construction activities.

This section analyzes the cumulative impact of construction activities, taking into account the effects in common with other past, present, and reasonably anticipated future projects. As discussed in Sections 5.1 through 5.17, the construction-related impacts of the proposed project would be temporary and localized. However, the construction-related impacts might have potential to combine with similar impacts from other projects if they occur at the same time and in close proximity. Construction impacts, mostly relating to air quality, cultural resources, biological resources, hazards and hazardous materials, and hydrology and water quality, noise, and traffic and transportation, may combine with similar effects of other projects in the vicinity to create a cumulative considerable impact.

Table 5.18-1 presents foreseeable projects in the vicinity that could combine with the proposed project, resulting in cumulative impacts. The potential cumulatively considerable impacts of the proposed project in relation to these nearby projects are discussed in Table 5.18-2. Combined impacts from the proposed project and past, present, and reasonably foreseeable projects would be **less than significant with mitigation incorporated**.

Table 5.18-1
Project in Vicinity of the Project

Project Name	Description / Location	Proximity to Project Route* (miles)	Timeframe
Rio d'Oro Specific Plan	Development of approximately 413 development acres and 276 acres to remain in environmental conservation and scenic open spaces. Includes up to 2,700 dwelling units and 248,000 square feet of commercial uses.	2.0 miles	Full build out 2035
Plumas Lake Specific Plan	Development of approximately 5,254 acres. Includes up to 11,747 dwelling units, commercial uses, industrial uses, open space, and schools.	Adjacent	Approved 1992; approximately 2,500 dwelling units have been constructed
North Arboga Study Area	Development of approximately 1,300 acres. Includes up to 2,500 dwelling units, 205 acres of industrial use, and 225 acres of commercial use.	Adjacent	Approved 1992; approximately 690 dwelling units have been constructed
Olivehurst Avenue Specific Plan	Development of approximately 55 acres. Includes up to 20 acres of commercial/office uses.	Adjacent	Approved 1995
Pease Transformer Addition and Bus Upgrade	Install second 115/60 kV transformer and upgrade Pease 115 kV bus	Adjacent	In service 06/2018
Pease—Marysville 60 kV Line	Construct a new 60 kV line from Pease to Marysville.	Adjacent	In service 06/2022
Western Pacific Interceptor Canal 200-Year Standard Project	Improve various reaches along the approximately 5.9 miles of the Western Pacific Interceptor Canal West Levee that is east of State Route 70.	Adjacent	Currently under construction ending by Fall 2017
Rio Oso 115 kV BAAH GIS	Convert Rio Oso 115 kV bus	Adjacent	In service 02/2020
Rio Oso 230 kV BAAH GIS	Convert Rio Oso 230 kV bus	Adjacent	In service 12/2019
Rio Oso 115 kV MPAC	Install 115 kV control building	Adjacent	In service 12/2020
Rio Oso 230 kV MPAC	Install 230 kV control building	Adjacent	In service 02/2021
Rio Oso Transformer #1 and 2 Replacement	Replace Rio Oso 230/115 kV transformer	Adjacent	In service 01/2020
Rio Oso Voltage Support	Install SVC at Rio Oso 230 kV bus and Install 170 MVAR shunt capacitors at Atlantic 230 kV bus	Adjacent	In service 12/2020
Rio Oso—Atlantic 230 kV Line	New 230 kV line from Rio Oso to Atlantic	Adjacent	On hold

* Distances are approximate.

Table 5.18-2
Analysis of Potential Cumulatively Considerable Impacts

Aesthetics	The proposed project would introduce no significant new elements to aesthetics resources within the project area and would have no significant impact on aesthetics resources. Consequently, the combined effects would not result in a cumulatively considerable impact to aesthetic resources.
Agriculture and Forestry	Individually, the proposed project would result in 32 acres of temporary impacts and 0.09 acre of permanent impacts to Prime Farmland, Unique Farmland, or Farmland of Statewide Importance and result in no impacts forestry or timberland production. Adjacent projects Therefore, the project would not contribute to a potential cumulative impact to agricultural or forestry resources in the project area.
Air Quality	Construction activities within Butte County would not exceed applicable BCAQMD thresholds without mitigation. However, project construction activities within the FRAQMD jurisdiction would exceed applicable daily construction thresholds for ROG and NO_x, even with incorporation of onsite APMs (APM AQ 2) . However, APM AQ-3 (off-site mitigation measures) would require offsets that would reduce criteria air pollutant emissions to levels below the applicable thresholds; therefore, construction emissions would be less than significant. Air quality impacts for other projects listed in Table 5.18-1 would be under the same federal, state, and regional regulation. It is anticipated that impacts from other projects would be similarly mitigated; therefore, taken in their entirety the projects listed in Table 5.18-1 and the proposed project would not result in a cumulatively considerable impact.
Biological Resources	Ground disturbances associated with temporary construction activities, such as work areas, staging areas, pull sites, and temporary access roads, vegetation removal or trimming, construction of new structures, and removal of old structures, have the potential to result in temporary and permanent impacts to biological resources resulting from construction activities be would be localized to the existing right-of-way. Implementation of APM-BIO 1-14 and mitigation measures MM-BIO-1-3 would avoid restore and compensate for potential impacts to biological resources. Therefore, all impacts would be fully mitigated to less than significant. Work areas for WPIC and the proposed project would overlap in the existing transmission line ROW. Elements of both projects have the potential to affect the same biological resources. However, the actual construction footprints of both projects do not overlap Therefore, with implementation of the APMs presented in Section 5.4 the project's effects on biological resources will not be cumulatively considerable.
Cultural Resources	The proposed project has been designed to avoid any known cultural resources. Implementation of APM-CR-1-3 would result in less than significant impacts to cultural resources, while implementation of APM-CR-3 through 4 would result in less than significant impact to paleontological resources. Cultural resources are subject to a federal, state, and regional regulatory framework designed to minimize exposure to geological hazards. The projects listed in Table 5.18-1 would be subject to the same regulatory framework and would therefore also minimize and avoid exposure to geological hazards. Consequently, the potential combined impacts of the proposed project and identified projects would not result in a cumulatively considerable impact.
Geology and Soils	The proposed project would result in less than significant impacts to geological and soils resources with the implementation of APMs described in Section 5.4 (APM –GEO-1-3). Geological resources are subject to a federal, state, and regional regulatory framework designed to minimize exposure to geological hazards. The projects listed in Table 5.18-1 would be subject to the same regulatory framework and would therefore also minimize and avoid exposure to geological hazards. Consequently, the potential combined impacts of the proposed project and identified projects would not result in a cumulatively considerable impact.
Greenhouse Gas Emissions	The proposed project is expected to have a less than significant impact on the environment through the minor generation of greenhouse gas (GHG) emissions during construction, and would only temporarily contribute to the cumulative effect on GHG emissions from other projects in the project area. Furthermore, the proposed project's operation would not require the combustion of fossil fuels; therefore, the proposed project's cumulative impact on GHG emissions would be less than significant.

Table 5.18-2
Analysis of Potential Cumulatively Considerable Impacts

Hazards and Hazardous Materials	Hazardous materials that would be used during operation and construction are identified in Section 5.8, Hazards and Hazardous Materials. Hazardous materials would be stored and used in compliance with applicable regulations. Impacts from operational and construction use of hazardous materials, with implementation of APMs HAZ 1 and APM HAZ-2 would be less than significant. Hazardous materials impacts could combine with related impacts from nearby projects to create a significant cumulative impact. Nearby projects would be required to comply with federal, state, and local regulations to minimize risk. The net effect would be a less than significant cumulative impact The proposed project area is located partially within Moderate and High Fire Hazard Severity Zones and heat or sparks from construction equipment, vehicles, as well as the use of flammable hazardous materials, have the potential to ignite adjacent vegetation and start a fire. Application of applicable APMs (APM HAZ 3) and mitigation measures (MM-HAZ 1) would reduce the impact to less than significant. The projects listed in Table 5.18-1 would be subject to the same regulatory framework and would be required to comply with applicable wildland fire management plans and policies established by state and local agencies. As such, there would be no cumulatively significant impact related to an increased risk of wildfire in the vicinity of the proposed project; therefore, no cumulative impacts relating to wildland fires would result.
Hydrology and Water Quality	Construction of the proposed project would have temporary impacts on water quality that would be mitigated to less than significant with implementation of AMP-HYD -1, that requires the Preparation and Implement of a Storm Water Pollution Prevention Plan (SWPPP). The projects listed in Table 5.18-1 would be subject to the same federal, state, and local regulations regarding drainage plans and flooding potential as the proposed project, and would typically be required to draft and implement a stormwater prevention and protection plan with specific provisions that address erosion and sedimentation control during construction and operation. These impacts would be localized and controlled at the source and would not be considerable in relation to other cumulative projects. The proposed project would not contribute to cumulative effects on surface water or wetland resources in the project area.
Land Use and Planning	The proposed project would have no impact on habitat conservation plans or natural community conservation plans, nor would it split any communities; therefore, it would not contribute to any impacts on these resources. Further, because the California Public Utilities Commission preempts city and county planning and discretionary actions, the project would not adversely contribute to cumulative impacts on local general plans.
Mineral Resources	The proposed project would be in exiting right of way and would not preclude the future exploitation of mineral resources associated with the Yuba River, the project would therefore resulting result in less than significant impacts to mineral resources, and would l not contribute to a cumulatively considerable impact.
Noise	The proposed project would not contribute to long-term ambient noise levels because it is a replacement project, which would add no significant new noise sources to the existing setting. For construction, activities Applicant-Proposed Measures (APM-NOI-1) which provides for noise-reducing construction practices would reduce any potential impacts to less-than-significant levels. However, construction of some projects described in Table 5.18-1 some would overlap with some projects, specifically the Western Pacific Interceptor Canal Project, which is adjacent to the proposed project and currently under construction. However, the proposed project is highly mobile and would not be in any given location for more than a few days at a time. Therefore, any cumulative noise impacts for any particular sensitive receptor would be for a few days and therefore the project would not make a cumulatively considerable contribution to noise sensitive receptors.
Transportation and Traffic	The proposed project would replace an existing transmission line and therefore would introduce no new long-term impacts to traffic or reduce level of service for critical roads. Therefore, the project would not contribute to cumulatively considerable long-term impacts. Construction of the proposed project would have the potential for minor impacts to traffic volumes. With the application of APMs – TRA 1-3, and MM-TRA- 1 impacts would be temporary and less than significant. The potential for cumulative construction traffic impacts would be restricted to projects that are under

Table 5.18-2
Analysis of Potential Cumulatively Considerable Impacts

	construction simultaneously with the proposed project. Construction activities for these projects would be under similar regulatory and traffic control requirements, and while a combination of project construction activities may reduce traffic performance such impacts would be of short duration and would not result in a cumulatively considerable impact to traffic.
Population and Housing; Public Services; Recreation; Utilities and Service Systems	Increased pressure on these services as a result of construction worker activity would be small. Construction activity would last 36 months or less in duration and would not result in long-term demand on any of these resources. Therefore, the project could not contribute to long-term degradation in these resources. The proposed project would result in less than significant impacts related to utilities and service systems. Therefore, the project would not contribute to a potential cumulative impact in relation to these services and utilities. PG&E like most energy and utility providers plan infrastructure upgrades incrementally to accommodate planned growth in their service areas, based on adopted city/county general plans. The proposed project would accommodate the current and planned growth, but would not itself induce growth; thus, the project would not contribute to significant cumulative impacts on energy and utilities in the area.

Significance After Mitigation: Impacts would be **less than significant with mitigation incorporated**.

c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?

Less-than-Significant Impact with Mitigation Incorporated. Integration of APMs into project design for air quality and greenhouse gases (APM-AQ-1 through 3, and APM-GHG-1), geology and soils (APM-GEO-1), hazards and hazardous materials (APM-HAZ-1 through APM-HAZ-3), hydrology and water quality (APM-HYDRO-1), Noise (APM-NOI-1), and transportation and traffic (APM-TRA-1 through 3), in conjunction with mitigation measures for hazards and hazardous materials (MM-HAZ-1) and transportation and traffic (MM-TRA-1), the proposed project would not have the potential to have environmental effects that could cause substantial direct or indirect adverse effects on human beings. The proposed project's impacts would all be less than significant.

Significance After Mitigation: Impacts would be **less than significant with mitigation incorporated.**

INTENTIONALLY LEFT BLANK

6 LIST OF PREPARERS AND AGENCY CONSULTATION

6.1 Lead Agency

Andrew Barnsdale, CPUC Project Manager, Energy Division

6.2 Preparers

Dudek – Primary Consultant

Iain Fisher, Project Manager
Dylan Duvergé, Hydrogeologist and Environmental Analyst
Brian Grattidge, Senior Environmental Specialist
Matthew Morales, Senior Air Quality Specialist
Jonathan Leech, Noise Specialist
Josh Saunders, Aesthetics Specialist and Environmental Analyst
Markus Lang, Environmental Specialist
Sean O'Brien, Senior Biologist
Laura Burris, Biologist
Lisa Achter, Biologist
Scott Eckardt, Fire Hazards and Forestry
Laurel Porter, Technical Editor
Becky Golden Harrell, Technical Editor
Devin Brookhart, Publications Specialist Lead
David Mueller, Publications Specialist
Rachel Strobridge, GIS Specialist

INTENTIONALLY LEFT BLANK