BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Application of PACIFIC GAS AND ELECTRIC COMPANY, a California corporation, for a Permit to Construct the Missouri Flat-Gold Hill 115 kV Power Line Reconductoring Project Pursuant to General Order 131-D (U 39 E)	Application No.

EXHIBIT B

PROPONENT'S ENVIRONMENTAL ASSESSMENT FOR THE APPLICATION OF PACIFIC GAS AND ELECTRIC COMPANY FOR A PERMIT TO CONSTRUCT THE MISSOURI FLAT-GOLD HILL 115 KV POWER LINE RECONDUCTORING PROJECT

Proponent's Environmental Assessment

Missouri Flat-Gold Hill 115 kV Power Line Reconductoring Project

Prepared for

Pacific Gas and Electric Company

August 2013

Prepared by

AECOM

300 California Street, Suite 400
San Francisco, CA 94104

2020 L Street, Suite 400
Sacramento, CA 95811

TABLE OF CONTENTS

List of Figures

List of Tables

List of Appendices

ACRONYMS AND ABBREVIATIONS

°F	degree Fahrenheit
1B	CRPR of rare, threatened, or endangered in California and elsewhere
2011 RFPP	Regional 8-Hour Ozone 2011 Reasonable Further Progress Plan
3D	three-dimensional
µg/m3	micrograms per cubic meter
AA	all aluminum
AB	Assembly Bill
ACHP	Advisory Council on Historic Preservation
ACSS	aluminum conductor steel supported
AIA	Airport Influence Area
Alquist-Priolo Act	Alquist-Priolo Earthquake Fault Zoning Act
ALUC	airport land use commission
ALUCP	airport land use compatibility plan
amps	amperes
APLIC	Avian Power Line Interaction Committee
APM	Applicant-Proposed Measure
AQAP	Air Quality Attainment Plan
ARPA	Archaeological Resources Protection Act of 1979
ATCM	Asbestos Airborne Toxic Control Measure
BAAQMD	Bay Area Air Quality Management District
BLM	U.S. Bureau of Land Management
BMP	best management practice
B.P.	Before Present
CAA	Clean Air Act
CAAA	Clean Air Act Amendments of 1990
CAAQS	California Ambient Air Quality Standards
CAISO	California Independent System Operator
CalEEMod	California Emission Estimator Model
Cal/EPA	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
CAP	climate action plan
CAPCOA	California Air Pollution Controls Officers Association
CARB	California Air Resources Board
CBC	California Building Standards Code
CCAA	California Clean Air Act
CCD	Census County Division
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CDP	Census Designated Place
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CGS	California Geological Survey
CH_4	methane
CHRIS	California Historical Resources Information System
CNDDB	California Natural Diversity Database
CNEL	Community noise equivalent level
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalents
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Ranks
CUPA	certified unified program agency
CVC	California Vehicle Code
CWA	Clean Water Act
dB	decibel(s)
dbh	diameter at breast height
Delta	Sacramento-San Joaquin Delta
diesel PM	particulate matter exhaust from diesel-fueled engines
DOC	California Department of Conservation

DOT	U.S. Department of Transportation
DPA	Distribution Planning Area
DPR	California Department of Parks and Recreation (for cultural resource forms and records)
DPS	Distinct Population Segment
DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources
EDCAQMD	El Dorado County Air Quality Management District
EDCTA	El Dorado County Transit Authority
EDCTC	El Dorado County Transportation Commission
EDCWA	El Dorado County Water Agency
EDHFire	El Dorado Hills Fire Department
EID	El Dorado Irrigation District
EIR	environmental impact report
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
ESU	Evolutionary Significant Unit
FE	federally Endangered
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FMMP	Farmland Mapping and Monitoring Program
FR	*Federal Register*
FT	federally Threatened
g	percentage of gravity
GHG	greenhouse gas
HAP	hazardous air pollutant
hp	horsepower
INRMP	Integrated Natural Resources Management Plan
KOP	Key Observation Point
kV	kilovolt
L_{dn}	day-night sound level
L_{eq}	equivalent sound pressure level

L_{max}	maximum noise emission level
lbs/day	pounds per day
LDS	light-duty steel
LOS	level of service
LRA	Local Responsibility Area
Ma	million years ago
MBTA	Migratory Bird Treaty Act
MCAB	Mountain Counties Air Basin
mg/m^3	milligrams per cubic meter
Missouri Flat-Gold Hill Project	Missouri Flat-Gold Hill 115 kV Power Line Reconductoring Project
MMT	million metric tons
mph	miles per hour
MRZ	Mineral Resource Zone
MT	metric tons
MW	megawatt
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act of 1990
NAHC	Native American Heritage Commission
NCIC	North Central Information Center
NEHRP	National Earthquake Hazards Reduction Program
NEHRPA	National Earthquake Hazards Reduction Program Act
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Council
NHPA	National Historic Preservation Act of 1966
NO	oxides of nitrogen
NO_2	nitrogen dioxide
NOA	naturally occurring asbestos
NOAA	National Oceanic and Atmospheric Administration
NOAA Fisheries	NOAA Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NPPA	California Native Plant Protection Act
NPS	National Park Service

NR	Natural Resource
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
OAP	Ozone Attainment Plan
OMR	Office of Mine Reclamation
PEA	Proponent’s Environmental Assessment
PG&E	Pacific Gas and Electric Company
PM	particulate matter
$PM_{2.5}$	fine particulate matter
PM_{10}	respirable particulate matter smaller than 10 microns in diameter
ppb	parts per billion
ppm	parts per million
PPV	peak particle velocity
PRC	California Public Resources Code
PSD	Prevention of Significant Deterioration
QSP	qualified stormwater pollution prevention plan practitioner
RCRA	Resource Conservation and Recovery Act
RMS	root mean square
ROG	reactive organic gases
ROW	right-of-way
RWQCB	regional water quality control board
S&HC	California Street and Highways Code
SACOG	Sacramento Area Council of Governments
SB	Senate Bill
SE	State Endangered
Services	USFWS and NOAA Fisheries
SF_6	sulfur hexafluoride
SFP	CDFW Fully Protected species
SFNA	Sacramento Federal Ozone Nonattainment Area
SHMA	Seismic Hazards Mapping Act
SHPO	State historic preservation officer
SIP	State Implementation Plan
SMAQMD	Sacramento Metropolitan Air Quality Management District

SMARA	Surface Mining and Reclamation Act
SMUD	Sacramento Municipal Utility District
SO_2	sulfur dioxide
SR	State Route
SRA	State Responsibility Area
SSC	Species of Special Concern
ST	State Threatened
SVAB	Sacramento Valley Air Basin
SVRA	State Vehicular Recreation Area
SWPPP	stormwater pollution prevention plan
SWRCB	(California) State Water Resources Control Board
TAC	toxic air contaminant
torr	a unit of pressure equal to 1/760 of an atmosphere (133.3 pascals)
TPZ	timberland preserve zone
TSP	tubular steel pole
U.S. 50	U.S. Highway 50
USA	Underground Service Alert
USACE	U.S. Army Corps of Engineers
UCMP	University of California Museum of Paleontology
USC	U.S. Code
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VMT	vehicle miles traveled

Index to CPUC PEA Requirements

CPUC Requirement	Section Number
Cover Sheet	
Chapter 1: PEA Summary	
1. The major conclusions of the PEA	1.1
2. Any areas of controversy	Not applicable (N/A)
3. Any major issues that must be resolved including the choice among reasonably feasible alternatives and mitigation measures, if any	2.11
4. Description of inter-agency coordination	Permit to Construct (PTC) Application
5. Description of public outreach efforts, if any	PTC Application
Chapter 2: Project Purpose and Need and Objectives ***[Note: This information is included in the Project Description.]***	
2.1 Overview Explanation of the objective(s) and/or Purpose and Need for implementing the Proposed Project.	2.1; 2.2; PTC Application
2.2 Project Objectives Analysis of the reason why attainment of these objectives is necessary or desirable. Such analysis must be sufficiently detailed to inform the Commission in its independent formulation of project objectives which will aid any appropriate CEQA alternatives screening process.	2.1; 2.2; PTC Application
Chapter 3: Project Description	
3.1 Project Location	
1. Geographical Location: County, City (provide project location map(s)).	2.3; Figure 2-1
2. General Description of Land Uses within the project site (e.g., residential, commercial, agricultural, recreation, traverses vineyards, farms, open space, number of stream crossings, etc.).	2.3; 3.10.3; Figure 3.10-1
3. Describe if the Proposed Project is located within an existing property owned by the Applicant, traverses existing rights of way (ROW) or requires new ROW. Give the approximate area of the property or the length of the project that is in an existing ROW or which requires new ROWs.	2.7
3.2 Existing System	
1. Describe the local system to which the Proposed Project relates; include all relevant information about substations, transmission lines and distribution circuits. *[**Note:** Regional system maps would remain confidential for security reasons.]*	2.4
2. Provide a schematic diagram and map of the existing system.	Figure 2-1; PTC Application

CPUC Requirement	Section Number
3. Provide a schematic diagram that illustrates the system as it would be configured with implementation of the Proposed Project.	N/A; No change
3.3 Project Objectives (Can refer to Chapter 2, Project Purpose and Need, if already described there.)	2.2
3.4 Proposed Project	
1. Describe whole of the Proposed Project. Is it an upgrade, a new line, new substations, switching station etc.?	2.5; 2.6
2. Describe how the Proposed Project fits into the Regional system. Does it create a loop for reliability, etc.?	2.2; 2.4; 2.5
3. Describe all reasonably foreseeable future phases, or other reasonably foreseeable consequences of the Proposed Project.	N/A; project described in 2.5; 2.6
4. Provide capacity increase in MW. If the project does not increase capacity, state it.	2.6 (amps), 3.13-5 (MW)
5. Provide GIS (or equivalent) data layers for the Proposed Project preliminary engineering including estimated locations of all physical components of the Proposed Project as well as those related to construction. For physical components, this could include but is not limited to the existing components (e.g., ROW, substation locations, poles, etc.) as well as the proposed pole locations, transmission lines, substations, switching station etc. For elements related to construction include: proposed or likely lay-down areas, work areas at the pole sites, pull and tension sites, access roads (e.g., temporary, permanent, existing, etc.), areas where special construction methods may need to be employed, areas where vegetation removal may occur, areas to be heavily graded, etc. More details about this type of information are provided below. *[**Note**: For security reasons, GIS data layers are submitted by PG&E Law Department under confidentiality restrictions.]*	For security reasons, GIS data layers will be submitted confidentially under California Public Utilities Code (PUC) Section 583
3.5 Project Components	
3.5.1 Transmission Line	
1. What type of line exists and what type of line is proposed (e.g., single-circuit, double-circuit, upgrade 69 kV to 115 kV).	2.6.1
2. Identify the length of the upgraded alignment, the new alignment, etc.	2.6.1
3. Would construction require one-for-one pole replacement, new poles, steel poles, etc.?	2.6.1
4. Describe what would occur to other lines and utilities that may be collocated on the poles to be replaced (e.g., distribution, communication, etc.).	2.6.1
3.5.2 Poles/Towers Provide the following information for each pole/tower that would be installed <u>and</u> for each pole/tower that would be removed:	

CPUC Requirement	Section Number
1. Unique ID number to match GIS database information.	For security reasons, unique ID numbers have not been provided. Available GIS data layers will be submitted confidentially under PUC Section 583.
2. Structure diagram and, if available, photos of existing structure. Preliminary diagram or "typical" drawings and, if possible, photos of proposed structure. Also provide a written description of the most common types of structures and their use (e.g., Tangent poles would be used when the run of poles continues in a straight line, etc.). Describe if the pole/tower design meets raptor safety requirements.	Figures 2-2 to 2-6; Section 2.6.2
3. Type of pole (e.g., wood, steel, etc.) or tower (e.g., self-supporting lattice).	2.6.2
4. For poles, provide "typical" drawings with approximate diameter at the base and the tip; for towers, estimate the width at base and top.	Figures 2-2 to 2-6
5. Identify typical total pole lengths, the approximate length to be embedded, and the approximate length that would be above ground surface; for towers, identify the approximate height above ground surface and approximate base footprint area.	2.6.2
6. Describe any specialty poles or towers; note where they would be used (e.g., angle structures, heavy angle lattice towers, stub guys); make sure to note if any guying would likely be required across a road.	2.6.2
7. If the project includes pole-for-pole replacement, describe the approximate location of where the new poles would be installed relative to the existing alignment.	2.6.2
8. Describe any special pole types (e.g., poles that require foundations, transition towers, switch towers, microwave towers, etc.) and any special features.	2.6.2
3.5.3 Conductor Cable	
3.5.3.1 Above-Ground Installation	
1. Describe the type of line to be installed on the poles/tower (e.g., single circuit with distribution, double circuit, etc.).	2.6.1
2. Describe the number of conductors required to be installed on the poles or tower and how many on each side including applicable engineering design standards.	2.6.1
3. Provide the size and type of conductor (e.g., ACSR, non-specular, etc.) and insulator configuration.	2.6.1
4. Provide the approximate distance from the ground to the lowest conductor and the approximate distance between the conductors (i.e., both horizontally and vertically) Provide specific information at highways, rivers, or special crossings.	2.6; Figures 2-2 and 2-3; 2.8.8.4

CPUC Requirement	Section Number
5. Provide the approximate span lengths between poles or towers, note where different if distribution is present or not if relevant.	2.6.1
6. Describe if other infrastructure would likely be collocated with the conductor (e.g., fiber optics, etc); if so, provide conduit diameter of other infrastructure.	2.6.1
3.5.3.2 Below-Ground Installation	
1. Describe the type of line to be installed (e.g., single circuit cross-linked polyethylene-insulated solid-dielectric, copper-conductor cables).	Distribution only; 2.8.8.4
2. Describe the type of casing the cable would be installed in (e.g., concrete-encased duct bank system); provide the dimensions of the casing.	Distribution only; 2.8.8.4
3. Provide an engineering ‘typical’ drawing of the duct bank and describe what types of infrastructure would likely be installed within the duct bank (e.g., transmission, fiber optics, etc.).	Distribution only; 2.8.8.4
3.5.4 Substations and Switching Stations	
1. Provide “typical” Plan and Profile views of the proposed substation or switching station and the existing substation or switching station if applicable.	N/A
2. Describe the basic bus pattern or provide a basic one-line diagram and explain the types of equipment that would be temporarily or permanently installed and provide details as to what the function/use of said equipment would be. Include information such as, but not limited to: mobile substations or switching stations, switchgear, circuit breakers, transformers, capacitors, and new lighting.	2.6.3
3. Provide the approximate or “typical” dimensions (width and height) of new structures including engineering and design standards that apply.	N/A
4. Describe the extent of the Proposed Project. Would it occur within the existing fence line, existing property line or would either need to be expanded?	2.6.3
5. Describe the electrical need area served by the distribution substation or switching station.	2.1
3.6 Right-of-Way Requirements	
1. Describe the ROW location, ownership, and width. Would existing ROW be used or would new ROW be required?	2.7
2. If new ROW is required, describe how it would be acquired and approximately how much would be required (length and width).	2.7
3. List properties likely to require acquisition.	2.7

CPUC Requirement	Section Number
3.7 Construction	
3.7.1 For All Projects	
3.7.1.1 Staging Areas	
1. Where would the main staging area(s) likely be located?	2.8.1
2. Approximately how large would the main staging area(s) be?	2.8.1
3. Describe any site preparation required, if known, or generally describe what might be required (i.e., vegetation removal, new access road, installation of rock base, etc.).	2.8.1
4. Describe what the staging area would be used for (i.e., material and equipment storage, field office, reporting location for workers, parking area for vehicles and equipment, etc.).	2.8.1
5. Describe how the staging area would be secured, would a fence be installed? If so, describe the type and extent of the fencing.	2.8.1 –general site preparation is discussed.
6. Describe how power to the site would be provided if required (i.e., tap into existing distribution, use of diesel generators, etc.).	2.8.1
7. Describe any grading activities and/or slope stabilization issues.	2.8.1; 3.6
3.7.1.2 Work Areas	
1. Describe known work areas that may be required for specific construction activities (i.e., pole assembly, hill side construction, etc.).	2.8.2
2. For each known work area, provide the area required (include length and width) and describe the types of activities that would be performed.	2.8.2
3. Identify the approximate location of known work areas in the GIS database.	Available GIS data layers will be submitted confidentially under PUC Section 583.
4. How would the work areas likely be accessed (e.g., construction vehicles, walk in, helicopter, etc.)?	2.8.2; 2.8.3
5. If any site preparation is likely required, generally describe what and how it would be accomplished.	2.8.2
6. Describe any grading activities and/or slope stabilization issues.	2.8.2; 2.8.5; 3.6
7. Based on the information provided, describe how the site would be restored.	2.8 generally; 2.8.5; 2.8.7; 3.6

CPUC Requirement	Section Number
3.7.1.3 Access Roads and/or Spur Roads	
1. Describe the types of roads that would be used and or would need to be created to implement the Proposed Project. See table below as an example of information required. Road types may include, but are not limited to: new permanent road; new temporary road; existing road that would have permanent improvements; existing road that would have temporary improvements, existing paved road; existing dirt/gravel road, and overland access.	2.8.3; Table 2-1
2. For road types that require preparation, describe the methods and equipment that would be used.	2.8.3; Table 2-3
3. Identify approximate location of all access roads (by type) in the GIS database.	Available GIS data layers will be submitted confidentially under PUC Section 583.
4. Describe any grading activities and/or slope stabilization issues. See table in PEA Checklist as an example of information required. Road types may include, but are not limited to: new permanent road; new temporary road; existing road that would have permanent improvements; existing road that would have temporary improvements, existing paved road; existing dirt/gravel road, and overland access	2.8.3; Table 2-1; 3.6
3.7.1.4 Helicopter Access	
1. Identify which proposed poles/towers would be removed and/or installed using a helicopter.	2.8.2.3
2. If different types of helicopters are to be used, describe each type (e.g., light, heavy or sky crane) and what activities they will be used for.	2.8.2.3
3. Provide information as to where the helicopters would be staged, where they would refuel, where they would land within the Project site.	2.8.2.3
4. Describe any Best Management Practices (BMPs) that would be employed to avoid impacts caused by use of helicopters, for example: air quality and noise considerations.	2.11; 3.8; 3.12; 3.16
5. Describe flight paths, payloads, hours of operations for known locations and work types.	2.8.2.3
3.7.1.5 Vegetation Clearance	
1. Describe what types of vegetation clearing may be required (e.g., tree removal, brush removal, flammable fuels removal) and why (e.g., to provide access, etc.).	2.8.4
2. Identify the preliminary location and provide an approximate area of disturbance in the GIS database for each type of vegetation removal.	Available GIS data layers will be submitted confidentially under PUC Section 583.
3. Describe how each type of vegetation removal would be accomplished.	2.8.4

CPUC Requirement	Section Number
4. For removal of trees, distinguish between tree trimming as required under GO-95D and tree removal.	2.8.4 – All tree trimming and removal will be completed to accommodate project construction activities.
5. Describe the types and approximate number and size of trees that may need to be removed.	2.8.4; 3.4
6. Describe the type of equipment typically used.	2.8.4; Table 2-3
3.7.1.6 Erosion and Sediment Control and Pollution Prevention during Construction	
1. Describe the areas of soil disturbance including estimated total areas, and associated terrain type and slope. List all known permits required. For project sites of less than one acre, outline the BMPs that would be implemented to manage surface runoff. Things to consider include, but are not limited to, the following: • Erosion and Sedimentation BMPs; • Vegetation Removal and Restoration; and/or • Hazardous Waste and Spill Prevention Plans.	2.8.5; 2.8.6; 2.10; 2.11; 3.6; 3.8; 3.9
2. Describe any grading activities and/or slope stabilization issues.	2.8.5; 3.6; 3.9
3. Describe how construction waste (i.e., refuse, spoils, trash, oil, fuels, poles, pole structures, etc.) would be disposed.	2.8.5; 2.8.6; 3.6; 3.8; 3.17
3.7.1.7 Cleanup and Post-Construction Restoration	
1. Describe how cleanup and post-construction restoration would be performed (i.e., personnel, equipment, and methods). Things to consider include, but are not limited to, restoration of the following: Natural drainage patterns; wetlands; vegetation, and other disturbed areas (i.e. staging areas, access roads, etc).	2.8.7; 3.4; 3.6; 3.8; 3.9; 3.17
3.7.2 Transmission Line Construction (Above Ground)	
3.7.2.1 Pull and Tension Sites	
1. Provide the general or average distance between pull and tension sites.	2.8.2.2
2. Provide the area of pull and tension sites, include the estimated length and width.	2.8.2.2
3. According to the preliminary plan, how may pull and tension sites would be required, and where would they be located? Please provide the location information in GIS.	2.8.2.2. Available GIS data layers will be submitted confidentially under PUC Section 583.
4. What type of equipment would be required at these sites?	2.8.2.2; Tables 2-3, 2-4
5. If conductor is being replaced, how would it be removed from the site?	2.8.2.2; 2.8.8.4

CPUC Requirement	Section Number
3.7.2.2 Pole Installation Removal	
1. Describe how the construction crews and their equipment would be transported to and from the pole site location. Provide vehicle type, number of vehicles, and estimated number of trips and hours of operation.	2.8.8.1; Tables 2-3, 2-4
Pole and Foundation Removal	
1. Describe the process of how the poles and foundations would be removed.	2.8.8.2
2. Describe what happens to the hole that the pole was in (i.e., reused or backfilled)?	2.8.8.2
3. If the hole is to be filled, what type of fill would be used, where would it come from?	2.8.8.2
4. Describe any surface restoration that would occur at the pole site?	2.8.2.1
5. Describe how the poles would be removed from the site?	2.8.8.2
Top Removal If topping is required to remove a portion of an existing transmission pole that would now only carry distribution lines, please provide the following:	
1. Describe the methodology to access and remove the tops of these poles	N/A
2. Describe any special methods that would be required to top poles that may be difficult to access, etc	N/A
Pole Tower Installation	
1. Describe the process of how the new poles/towers would be installed; specifically call out any special construction methods (e.g., helicopter installation) for specific locations or for different types of poles/towers.	2.8.2.1; 2.8.8.1
2. Describe the types of equipment and their use as related to pole/tower installation.	2.8.8.1; Table 2-4
3. Describe actions taken to maintain a safe work environment during construction (e.g., covering of holes/excavation pits, etc.).	2.8.8.1
4. Describe what would be done with soil removed from a hole/foundation site.	2.8.8.1
5. For any foundations required, provide description of construction method(s), approximate average depth and diameter of excavation, approximate volume of soil to be excavated, approximate volume of concrete or other backfill required, etc.	2.8.8.1
6. Describe briefly how poles/towers and associated hardware are assembled.	2.8.8.1

CPUC Requirement	Section Number
7. Describe how the poles/towers and associated hardware would be delivered to the site; would they be assembled off-site and brought in or assembled on site?	2.8.8.1
8. Provide a table of pole/tower installation metrics and associated disturbance area estimates as in PEA Checklist 3.7.2.2	Table 2-2
3.7.2.3 Conductor/Cable Installation	
1. Provide a process-based description of how new conductor/cable would be installed and how old conductor/cable would be removed, if applicable. *[**Note**, graphical representation of the general sequencing is helpful for the reader here.]*	2.8.8.4
2. Generally describe the conductor/cable splicing process.	2.8.8.4
3. If vaults are required, provide their dimensions and approximate location/spacing along the alignment.	N/A
4. Describe in what areas conductor/cable stringing/installation activities would occur.	2.8.8.4
5. Describe any safety precautions or areas where special methodology would be required (e.g., crossing roadways, stream crossing).	2.8.8.4
3.7.3 Transmission Line Construction (Below Ground)	
3.7.3.1 Trenching	
1. Describe the approximate dimensions of the trench (e.g., depth, width).	N/A
2. Describe the methodology of making the trench (e.g., saw cutter to cut the pavement, back hoe to remove, etc.).	N/A
3. Provide the total approximate cubic yardage of material to be removed from the trench, the amount to be used as backfill and the amount to subsequently be removed/disposed of off-site.	N/A
4. Provide off-site disposal location, if known, or describe possible option(s).	N/A
5. If engineered fill would be used as backfill, provide information as to the type of engineered backfill and the amount that would be typically used (e.g., the top two feet would be filled with thermal-select backfill).	N/A
6. Describe if dewatering would be anticipated, if so, how the trench would be dewatered, what are the anticipated flows of the water, would there be treatment, and how would the water be disposed.	N/A
7. Describe the process for testing excavated soil or groundwater for the presence of pre-existing environmental contaminants that could be exposed as a result of trenching operations.	N/A
8. If a pre-existing hazardous waste were encountered, describe the process of removal and disposal.	N/A

CPUC Requirement	Section Number
9. Describe any standard BMPs that would be implemented.	N/A
3.7.3.2 Trenchless Techniques: Microtunnel, Bore and Jack, Horizontal Directional Drilling	
1. Provide the approximate location of the sending and receiving pits.	N/A
2. Provide the length, width and depth of the sending and receiving pits.	N/A
3. Describe the methodology of excavating and shoring the pits.	N/A
4. Describe the methodology of the trenchless technique.	N/A
5. Provide the total cubic yardage of material to be removed from the pits, the amount to be used as backfill and the amount to subsequently be removed/disposed of off-site.	N/A
6. Describe process for safe handling of drilling mud and bore lubricants.	N/A
7. Describe process for detecting and avoiding "fracturing-out" during HDD operations.	N/A
8. Describe process for avoiding contact between drilling mud/lubricants and stream beds.	N/A
9. If engineered fill would be used as backfill, provide information as to the type of engineered backfill and the amount that would be typically used (e.g., the top two feet would be filled with thermal-select backfill).	N/A
10. Describe if dewatering would be anticipated, if so, how the pit would be dewatered, what are the anticipated flows of the water, would there be treatment, and how would the water be disposed.	N/A
11. Describe the process for testing excavated soil or groundwater for the presence of pre-existing environmental contaminants.	N/A
12. If a pre-existing hazardous waste were encountered, describe the process of removal and disposal.	N/A
13. Describe any grading activities and/or slope stabilization issues.	N/A
14. Describe any standard BMPs that would be implemented.	N/A
3.7.4 Substation and Switching Station Construction	
1. Describe any earth moving activities that would be required; what type of activity and, if applicable, estimate cubic yards of materials to be reused and/or removed from the site for both site grading and foundation excavation.	N/A
2. Provide a conceptual landscape plan in consultation with the municipality in which the substation or switching station is located.	N/A
3. Describe any grading activities and/or slope stabilization issues.	N/A
4. Describe possible relocation of commercial or residential property, if any.	N/A

CPUC Requirement	Section Number
3.7.5 Construction Workforce and Equipment	
1. Provide the estimated number of construction crew members.	2.8.9; Table 2-3
2. Describe the crew deployment, would crews work concurrently (i.e., multiple crews at different sites); would they be phased, etc.	2.8.9
3. Describe the different types of activities to be undertaken during construction; the number of crew members for each activity i.e. trenching, grading, etc.; and number and types of equipment expected to be used for said activity. Include a written description of the activity. See example in PEA Checklist 3.7.5.	Table 2-3
4. Provide a list of the types of equipment expected to be used during construction of the Proposed Project as well as a brief description of the use of the equipment. See example in PEA Checklist 3.7.5.	Table 2-4
3.7.6 Construction Schedule	
1. Provide a Preliminary Project Construction Schedule; include contingencies for weather, wildlife closure periods, etc. Include Month Year, or Month Year to Month Year for each. See example in PEA Checklist 3.7.6.	2.8.10
3.8 Operation and Maintenance	
1. Describe the general system monitoring and control (i.e., use of standard monitoring and protection equipment, use of circuit breakers and other line relay protection equipment, etc.).	2.9
2. Describe the general maintenance program of the Proposed Project, include items such as: • Timing of the inspections (i.e., monthly, every July, as needed); • Type of inspection (i.e., aerial inspection, ground inspection); and • Description of how the inspection would be implemented. Things to consider, who/how many crew members; how would they access the site (walk to site, vehicle, ATV); would new access be required; would restoration be required, etc.	2.9
3. If additional full time staff would be required for operation and/or maintenance, provide the number and for what purpose.	N/A
3.9 Applicant Proposed Measures	
1. If there are measures that the Applicant would propose to be part of the Proposed Project, please include those measures and reference plans or implementation descriptions.	2.11

CPUC Requirement	Section Number
Chapter 4: Environmental Setting *[**Note:** PG&E has elected to combine Environmental Setting with the impact assessment. Detailed descriptions should be limited to those resource areas which may be subject to a potentially significant impact.]*	
4.1 Aesthetics	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	
• Local environment (site-specific)	3.1.3
• Regional environment	3.1.3
2. A description of the regulatory environment/context	
• Federal	3.1.2.1
• State	3.1.2.1
• Local	3.1.2.1
4.2 Agriculture Resources	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	
• Local environment (site-specific)	3.2.3.2
• Regional environment	3.2.3.1
2. A description of the regulatory environment/context	
• Federal	3.2.2.1
• State	3.2.2.1
• Local	3.2.2.1
4.3 Air Quality	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	
• Local environment (site-specific)	3.3.3
• Regional environment	3.3.3
2. A description of the regulatory environment/context	
• Federal	3.3.2.1
• State	3.3.2.1
• Local	3.3.2.1
4.4 Biological Resources	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	

CPUC Requirement	Section Number
• Local environment (site-specific)	3.4.3
• Regional environment	3.4.3
2. A description of the regulatory environment/context	
• Federal	3.4.2.1
• State	3.4.2.1
• Local	3.4.2.1
4.5 Cultural Resources	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	
• Local environment (site-specific)	3.5.3
• Regional environment	3.5.3
2. A description of the regulatory environment/context	
• Federal	3.5.2.1
• State	3.5.2.1
• Local	3.5.2.1
4.6 Geology, Soils and Seismic Potential	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	
• Local environment (site-specific)	3.6.3
• Regional environment	3.6.3
2. A description of the regulatory environment/context	
• Federal	3.6.2.1
• State	3.6.2.1
• Local	3.6.2.1
4.7 Hazards and Hazardous Materials	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	
• Local environment (site-specific)	3.8.3
• Regional environment	3.8.3
2. A description of the regulatory environment/context	
• Federal	3.8.2.1

CPUC Requirement	Section Number
• State	3.8.2.1
• Local	3.8.2.1
4.8 Hydrology and Water Quality	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	
• Local environment (site-specific)	3.9.3
• Regional environment	3.9.3
2. A description of the regulatory environment/context	
• Federal	3.9.2.1
• State	3.9.2.1
• Local	3.9.2.1
4.9 Land Use and Planning	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	
• Local environment (site-specific)	3.10.3.2
• Regional environment	3.10.3.1
2. A description of the regulatory environment/context	
• Federal	3.10.2.1
• State	3.10.2.1
• Local	3.10.2.1
4.10 Mineral Resources	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	
• Local environment (site-specific)	3.11.3
• Regional environment	3.11.3
2. A description of the regulatory environment/context	
• Federal	3.11.2.1
• State	3.11.2.1
• Local	3.11.2.1

CPUC Requirement	Section Number
4.11 Noise	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	
• Local environment (site-specific)	3.12.3
• Regional environment	3.12.3
2. A description of the regulatory environment/context	
• Federal	3.12.2.1
• State	3.12.2.1
• Local	3.12.2.1
4.12 Population and Housing	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	
• Local environment (site-specific)	3.13.3.2
• Regional environment	3.13.3.1
2. A description of the regulatory environment/context	
• Federal	3.13.2.1
• State	3.13.2.1
• Local	3.13.2.1
4.13 Public Services	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	
• Local environment (site-specific)	3.14.3
• Regional environment	3.14.3
2. A description of the regulatory environment/context	
• Federal	3.14.2.1
• State	3.14.2.1
• Local	3.14.2.1
4.14 Recreation	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	
• Local environment (site-specific)	3.15.3.2
• Regional environment	3.15.3.1

CPUC Requirement	Section Number
2. A description of the regulatory environment/context	
• Federal	3.15.2.1
• State	3.15.2.1
• Local	3.15.2.1
4.15 Transportation and Traffic	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	
• Local environment (site-specific)	3.16.3
• Regional environment	3.16.3
2. A description of the regulatory environment/context	
• Federal	3.16.2.1
• State	3.16.2.1
• Local	3.16.2.1
4.16 Utilities and Public Services	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	
• Local environment (site-specific)	3.17.3
• Regional environment	3.17.3
2. A description of the regulatory environment/context	
• Federal	3.17.2.1
• State	3.17.2.1
• Local	3.17.2.1
Chapter 5: Environmental Impact Assessment Summary	
5.1 Aesthetics Provide visual simulations of prominent public view locations, including scenic highways to demonstrate the before and after project implementation. Additional simulations of affected private view locations are highly recommended.	Figure 3.1-3; Figure 3.1-5 and Figure 3.1-7
5.2 Agriculture Resources Identify the types of agricultural resources affected.	3.2.4.3
5.3 Air Quality	
1. Provide supporting calculations / spreadsheets / technical reports that support emission estimates in the PEA.	Air Quality & Greenhouse Gas Emissions Worksheets will be provided separately to CPUC staff.

CPUC Requirement	Section Number
2. Provide documentation of the location and types of sensitive receptors that could be impacted by the project (e.g., schools, hospitals, houses, etc.). Critical distances to receptors is dependent on type of construction activity.	3.3.3.5
3. Identify Project greenhouse gas (GHG) emissions as follows:	
• Quantify GHG emissions from a business as usual snapshot. That is, what the GHG emissions will be from the proposed project if no mitigations were used	3.3.3; Table 3.3-3
• Quantify GHG emission reductions from every Applicant Proposed Measure that is implemented. Itemize quantifications and place in a table format	3.7.4.3; Table 3.7-2
• Identify the net emissions of a project after mitigations have been applied.	3.7.4.3; Table 3.7-2
• Calculate and quantify GHG emissions (CO_2 equivalent) for the project including construction & operation.	3.7.4.3; Table 3.7-2
• Calculate and quantify the GHG reduction based on reduction measures proposed for the project.	3.7.4.3; Table 3.7-2
• Propose Applicant Proposed Measures (APMs) to implement and follow to maximize GHG reductions. If sufficient, CPUC will accept them without adding further mitigation measures.	3.7.4.2
• Discuss programs already in place to reduce GHG emissions on a system wide level. This includes Applicant's voluntary compliance with USEPA SF_6 reduction program, reductions from energy efficiency, demand response, LTPP, et al.	3.7.4.2
5.4 Biological Resources - In addition to an impacts analysis:	
1. Provide a copy of the Wetland Delineation and supporting documentation (i.e., data sheets). If verified, provide supporting documentation. Additionally, GIS data of the wetland features should be provided as well.	A Wetland Delineation and available GIS data layers will be submitted confidentially under PUC Section 583.
2. Provide a copy of special status surveys for wildlife, botanical and aquatic species, as applicable. Any GIS data documenting locations of special-status species should be provided.	A Biological Resources Technical Report, Addendum and available GIS data layers will be submitted confidentially under PUC Section 583.
5.5 Cultural Resources - In addition to an Impacts Analysis:	
1. Cultural Resources Report documenting a cultural resources investigation of the Proposed Project. This report should include a literature search, pedestrian survey, and Native American consultation.	A Cultural Resources Technical Report and Addendum will be submitted confidentially under PUC Section 583.

CPUC Requirement	Section Number
2. Provide a copy of the records found in the literature search.	A Cultural Resources Technical Report and Addendum will be submitted confidentially under PUC Section 583.
3. Provide a copy of all letters and documentation of Native American consultation.	Appendix D: NAHC Correspondence
5.6 Geology, Soils and Seismic Potential - In addition to an impacts analysis:	
1. Provide a copy of geotechnical investigation if completed, including known and potential geologic hazards such as ground shaking, subsidence, liquefaction, etc.	A Geotechnical Report will be submitted separately to CPUC staff.
5.7 Hazards and Hazardous Materials [Reference and list the documents that apply.] - In addition to an impacts analysis:	
1. Environmental Data Resources report.	Equivalent to be provided separately to the CPUC staff when available.
2. Hazardous Substance Control and Emergency Response Plan.	Equivalent to be provided separately to the CPUC staff when available.
3. Health and Safety Plan.	Equivalent to be provided separately to the CPUC staff when available.
4. Worker Environmental Awareness Program (WEAP).	Equivalent to be provided separately to the CPUC staff when available.
5. Describe what chemicals would be used during construction and operation of the Proposed Project. For example: fuels, etc. for construction, naphthalene to treat wood poles before installation.	3.8.4.3
5.8 Hydrology and Water Quality – In addition to an impacts analysis:	
1. Describe impacts to groundwater quality including increased run-off due to construction of impermeable surfaces, etc.	3.9.4.3
2. Describe impacts to surface water quality including the potential for accelerated soil erosion, downstream sedimentation, and reduced surface water quality.	3.9.4.3
5.9 Land Use and Planning - In addition to an impacts analysis:	
1. Provide GIS data of all parcels within 300’ of the Proposed Project with the following data: APN number, mailing address, and parcel’s physical address.	Available GIS data layers will be submitted confidentially under PUC Section 583.

CPUC Requirement	Section Number
5.10 Mineral Resources - Data needs already specified under Chapter 3 would generally meet the data needs for this resource area.	
5.11 Noise	
1. Provide long term noise estimates for operational noise (e.g., corona discharge noise, and station sources such as substations, switching stations, etc.).	3.12.4.3
5.12 Population and Housing Data needs already specified under Chapter 3 would generally meet the data needs for this resource area.	
5.13 Public Services Data needs already specified under Chapter 3 would generally meet the data needs for this resource area.	
5.14 Recreation Data needs already specified under Chapter 3 would generally meet the data needs for this resource area	
5.15 Transportation and Traffic Describe the likely probable routes that are the subject of the traffic analysis.	
1. Discuss traffic impacts resulting from construction of the Proposed Project including ongoing maintenance operations.	3.16.4.3
2. Provide a preliminary description of the traffic management plan that would be implemented during construction of the Proposed Project.	3.16.4.2
5.16 Utilities and Services Systems	
1. Describe how treated wood poles would be disposed of after removal, if applicable.	3.17.4.3
5.17 Cumulative Analysis	
1. Provide a list of projects (i.e., past, present and reasonably foreseeable future projects) within the Project Area that the applicant is involved in.	Table 4-2
2. Provide a list of projects that have the potential to be proximate in space and time to the Proposed Project. Agencies to be contacted include but are not limited to: the local planning agency, Caltrans, etc.	4.1.1
5.18 Growth-Inducing Impacts, If Significant	
1. Provide information on the Proposed Project's growth inducing impacts, if any. The information should include, but is not necessarily limited, to the following:	
• Any economic or population growth, in the surrounding environment that will directly or indirectly, result from the Proposed Project	N/A
• Any increase in population that could further tax existing community service facilities (i.e., schools, hospitals, fire, police, etc.), that will directly or indirectly result from the Proposed Project	N/A

CPUC Requirement	Section Number
• Any obstacles to population growth that the Proposed Project would remove	N/A
• Any other activities, directly or indirectly encouraged or facilitated by the Proposed Project that would cause population growth that could significantly affect the environment, either individually or cumulatively	N/A
Chapter 6: Detailed Discussion of Significant Impacts *[**Note:** With implementation of PG&E's APMs, all impacts will be less than significant. Therefore the first two sections (6.1, Mitigation Measures Proposed to Minimize Significant Effects, and 6.2, Description of Project Alternatives and Impact Analysis) are not required.]*	
6.3 Growth-Inducing Impacts *[**Note**: Growth-inducing impacts are addressed in the Impact Assessment]*	
Information required to analyze the Proposed Project's effects on growth would vary depending on the type of project proposed. Generally, for transmission line projects the discussion would be fairly succinct and focus on the following:	
1. Would the Proposed Project foster economic or population growth, either directly or indirectly, in the surrounding environment?	3.13
2. Would the Proposed Project cause an increase in population that could further tax existing community service facilities (i.e., schools, hospitals, fire, police, etc.)?	3.13; 3.14
3. Would the Proposed Project remove obstacles to population growth?	3.13
4. Would the Proposed Project encourage and facilitate other activities that would cause population growth that could significantly affect the environment, either individually or cumulatively?	3.13; 4.2
6.4 Applicant Proposed Measures to address GHG Emissions *[**Note**: GHG Emissions and PG&E's associated APMs are discussed in the Air Quality chapter.]*	
See the menu of suggested APMs in PEA Checklist Section 6.4 that applicants can consider. Applicants can and are encouraged to propose other GHG reducing mitigations. Priority is given to on-site and/or nearby mitigation measures. Off-site mitigation measures within California will be considered.	3.7.4.2
Chapter 7: Other Process-Related Data Needs	
1. Excel spreadsheet that includes all parcels within 300 feet of any project component with the following data: APN number, owner mailing address, and parcels physical address. *[**Note**: notice of all property owners within 300 feet is required under GO 131-D.]*	A list of affected properties will be submitted confidentially under PUC Section 583.

1 EXECUTIVE SUMMARY

1.1 OVERVIEW

Pacific Gas and Electric Company (PG&E) is proposing to reinforce the electric system in El Dorado County by replacing existing conductor (reconductoring) and poles and modifying existing lattice steel towers on the Missouri Flat-Gold Hill 115 kilovolt (kV) Power Line (Missouri Flat-Gold Hill Line), an approximately 12.5-mile, double-circuit power line between the City of Folsom in Sacramento County and the community of Shingle Springs in El Dorado County. The Missouri Flat-Gold Hill 115 kV Power Line Reconductoring Project (project) also will include modifying and upgrading existing substations and converting the Gold Hill No. 1 60 kV Power Line (Gold Hill No. 1 Line), an existing area 60 kV power line, to 115 kV to provide power to customers during construction of the Missouri Flat-Gold Hill Line.

The project was planned and engineered to avoid or minimize environmental impacts, and Applicant-Proposed Measures (APMs) will be implemented to further avoid or minimize impacts to environmental resources. This Proponent's Environmental Assessment (PEA) describes the project and PG&E's APMs for minimizing potential environmental impacts caused by the project. For each environmental resource, the project's environmental setting and applicable regulations are described, followed by an evaluation of potential environmental impacts that may result from construction, operation, and maintenance of the project. With implementation of the proposed APMs, all potential project-related impacts will be avoided or reduced to a less-than-significant level.

There are no known areas of controversy, and no major issues that must be resolved related to the project.

1.2 ORGANIZATION OF THE PEA

As required by the California Public Utilities Commission (CPUC) guidelines, this PEA utilizes Appendix G of the California Environmental Quality Act (CEQA) Guidelines (hereafter referred to as the CEQA Checklist) for assessing potential impacts. The CPUC will review this PEA and any supplemental information submitted, and it will serve as lead agency responsible for conducting an environmental review under CEQA.

This PEA is organized as follows:

- Chapter 1, Executive Summary
- Chapter 2, Project Description, provides a detailed description of the project and a list of all the APMs described in the individual resource subsections in Chapter 3.
- Chapter 3, Environmental Setting and Impact Assessment Summary, describes the environmental setting and presents an assessment of potential impacts to individual environmental resources (as defined in the CEQA Checklist) that may result from project implementation. Each resource subsection discusses the regulatory context, assessment

methodology, environmental setting, and resource-specific APMs for minimizing potential impacts (as needed), as well as provides an assessment of potential resource-specific impacts resulting from construction, operation, and maintenance of the project.

- Chapter 4, Mandatory Findings of Significance and Cumulative and Growth-Inducing Analysis, discusses these issues in the context of the project.

Appendices include the following:

- Appendix A: Electric and Magnetic Fields Discussion (general background information)
- Appendix B: Representative Visual Conditions and Public Views in the Project Area (existing visual conditions along the project)
- Appendix C: Native American Heritage Commission Correspondence (project correspondence with the Native American Heritage Commission and Native American organizations and individuals)
- Appendix D: List of Preparers (consultant experts who contributed to the preparation of the PEA and supporting documents)

TABLE OF CONTENTS

List of Figures

List of Tables

2 PROJECT DESCRIPTION

2.1 OVERVIEW

Pacific Gas and Electric Company (PG&E) proposes to reinforce the electric transmission and distribution system in El Dorado County by replacing existing conductor (reconductoring), replacing existing poles, and modifying existing lattice steel towers on the Missouri Flat-Gold Hill 115 kilovolt (kV) Power Line (Missouri Flat-Gold Hill Line). The Missouri Flat-Gold Hill Line is an approximately 12.5-mile, double-circuit power line between the City of Folsom in Sacramento County and the community of Shingle Springs in El Dorado County. The Missouri Flat-Gold Hill 115 kV Power Line Reconductoring Project (project) also will include modifying and upgrading existing substations and converting the Gold Hill No. 1 60 kV Power Line (Gold Hill No. 1 Line), an existing area 60 kV power line, to 115 kV to temporarily provide power to customers during construction of the Missouri Flat-Gold Hill Line.

PG&E owns and operates the Missouri Flat-Gold Hill Line, as well as the El Dorado-Missouri Flat 115 kV Power Line (El Dorado-Missouri Flat Line) and the Gold Hill-Clarksville 115 kV Power Line (Gold Hill-Clarksville Line), all of which serve electric customers in El Dorado County, including the City of Placerville and the communities of Diamond Springs, Shingle Springs, Cameron Park, and El Dorado Hills. Population growth and development in El Dorado County have steadily increased the demand for electric power, which is expected to grow approximately 2 percent per year for the next 10 years. A majority of the current load in this region is served by the Missouri Flat-Gold Hill and Gold Hill-Clarksville lines through Clarksville and Shingle Springs substations, and much of the future growth is expected to occur in the areas served by these substations.

If an outage occurs on either circuit of the Missouri Flat-Gold Hill Line during 2014 summer peak conditions, planning analyses have determined that the other circuit between Gold Hill and Shingle Springs substations will have the potential to overload and exceed its emergency rating. The thermal overloads will be exacerbated if the Gold Hill-Clarksville Line also experiences an outage. To prevent such outages and potential overloads, and to continue to provide safe and reliable service to its customers in this region, PG&E is planning to reconductor the power line between Gold Hill and Shingle Springs substations. Specifically, the project will include the following components:

- **Missouri Flat-Gold Hill Line Reconductoring.** Approximately 12.5 miles of the double-circuited Missouri Flat-Gold Hill Line that interconnects Shingle Springs, Clarksville, and Gold Hill substations will be reconductored (including approximately 0.3 mile of conductor east of Shingle Springs Substation to facilitate project construction activities). To accommodate the reconductored line, this project component will include:
    - replacing the 115 kV conductor with new 115 kV conductor;
    - replacing approximately 60 tubular steel poles (TSP);
    - modifying approximately 13 lattice steel towers; and

- converting approximately 1,000 feet of overhead 21 kV distribution line to underground in the community of El Dorado Hills to comply with power line clearance requirements.

- **Gold Hill No. 1 Line Reconductoring.** To provide electric service to customers while the Missouri Flat-Gold Hill Line is being reconductored, approximately 7 miles of the Gold Hill No. 1 Line from just beyond Shingle Springs Substation to Clarksville Substation will be temporarily converted to 115 kV voltage. After project completion, the voltage will be returned to 60 kV; however, the upgraded structures and facilities will remain in place. This project component will include:
  - replacing the 60 kV conductor with 115 kV conductor;
  - replacing approximately 80 wood poles with new wood or light-duty steel (LDS) poles and approximately one TSP;
  - installing approximately seven new wood or LDS poles to be interset along the Gold Hill No. 1 Line; and
  - relocating approximately 150 feet of existing distribution line by replacing approximately three wood structures with approximately two new wood poles in the community of Cameron Park.

- **Substation and Switching Station Modifications.** Minor modifications to substation and switching station equipment and facilities at Shingle Springs, Pacific Western Pipe, Limestone, Clarksville, and Gold Hill substations and Missouri Flat Switching Station will be completed to tie the upgraded lines into the existing system and accommodate construction activities.

This chapter has been prepared in accordance with the California Public Utilities Commission (CPUC) Proponent's Environmental Assessment Checklist (dated November 24, 2008) and describes the project's objective, location, purpose and need, and construction methods. This chapter also provides a detailed description of the project components that will be constructed and/or modified as part of the project.

2.2 PROJECT OBJECTIVE, PURPOSE, AND NEED

PG&E currently owns and operates a 115 kV electric power system serving customers in El Dorado County, including the communities of El Dorado Hills, Cameron Park, Shingle Springs, Diamond Springs and the City of Placerville. The system is made up of three lines—the double-circuit Missouri Flat-Gold Hill and El Dorado-Missouri Flat lines and the single-circuit Gold Hill-Clarksville Line—that, with their extensions, feed six electric distribution substations (Clarksville, Shingle Springs, Diamond Springs, El Dorado, Placerville and Apple Hill substations) serving more than 76,000 customers in the area. A separate 60 kV system is also located in El Dorado County, serving customers in southwest El Dorado and adjacent Amador counties; it is made up of a single, 28-mile-long single-circuit power line—the Gold Hill No. 1 Line—linking Gold Hill Substation in El Dorado County with Martell Substation in Amador County. In El Dorado County, the 60 kV system serves a few customers in the community of Cameron Park from PG&E's Limestone Substation and Pacific Western Pipe Substation, a customer-owned substation.

According to El Dorado County's economic and demographic profile,[1] the county's population is expected to increase approximately 2 percent per year for the next 10 years, which will create increasing demand for electric power. The majority of El Dorado County's current load is served by the Missouri Flat-Gold Hill and Gold Hill-Clarksville lines through Clarksville and Shingle Springs substations, and much of the future growth is expected to occur in the areas served by these substations.

The increased demand for electricity has put PG&E's local 115 kV power line system at risk of overloading in the event of an outage on either circuit of the Missouri Flat-Gold Hill Line. In addition, if the Gold Hill-Clarksville Line also experiences an outage, the amount of overload could be substantially higher. When the demand on the equipment exceeds its rated capacity, the equipment becomes overheated and may be irreversibly damaged. The electric system is designed with protective equipment to prevent this type of damage by automatically disconnecting equipment from service during equipment failures or when pre-set design limits are reached, which in turn causes power outages in the areas served by the affected equipment. For example, in 2009, approximately 18,600 customers served from Clarksville Substation were without power when a single electric outage led to a local area blackout due to cascading equipment shut-downs and ensuing outages.

To address this issue and continue to provide safe and reliable service to PG&E's customers in El Dorado County, PG&E proposes to reconductor both circuits of the Missouri Flat-Gold Hill Line between Gold Hill, Clarksville and Shingle Springs substations. The new, higher-capacity conductor will allow these area substations to provide uninterrupted electrical service to area customers even if there are multiple 115 kV line outages because each line will have sufficient capacity to handle the entire load if the other line or lines fail. To facilitate project construction, PG&E will reconductor approximately 0.3 mile of the line east of Shingle Springs Substation, and reconductor and convert the nearby Gold Hill No. 1 Line to 115 kV voltage from Clarksville Substation to just beyond Shingle Springs Substation to allow PG&E to temporarily transfer existing electric loads along the Missouri Flat-Gold Hill Power Line to the Gold Hill No. 1 Line during construction. Once the project is completed, the Gold Hill No. 1 Line will be returned to 60 kV service.

2.3 PROJECT LOCATION

The project is located between the community of Shingle Springs in western El Dorado County and the City of Folsom in northeastern Sacramento County. Modifications are also being made within existing substations and a switching station in surrounding areas, including the community of Diamond Springs and in an unincorporated area of western El Dorado County. Dominant geographic features that intersect the project include U.S. Highway 50 (U.S. 50), which is crossed in several locations. Within the developed communities of Diamond Springs, Shingle Springs, Cameron Park, and El Dorado Hills, and the City of Folsom, the land use is primarily residential, interspersed with light industrial development. Between these areas, undeveloped rolling grasslands and oak woodlands dominate the project alignment.

[1] Center for Economic Development. 2011. *El Dorado County 2010-2011 Economic and Demographic Profile*. Chico, CA.

Detailed location information is provided below by project component, and is illustrated in Figure 2-1: Project Overview Map. Detailed Route Maps will be provided separately to CPUC staff.

2.3.1 Missouri Flat-Gold Hill Line Reconductoring

The primary project component is the reconductoring of the 12.5-mile Missouri Flat-Gold Hill Line, which travels in a generally east-west direction from Shingle Springs Substation, located near the intersection of Haven Lane and Durock Road in the community of Shingle Springs, to Clarksville Substation, located near the intersection of U.S. 50 and Silva Valley Parkway in the community of El Dorado Hills, to Gold Hill Substation, located just west of the intersection of Clarksville Road and East Bidwell Street in the City of Folsom. In addition, approximately 0.3 mile of the line east of Shingle Springs Substation will be reconductored as part of this project component to facilitate construction activities.

The Missouri Flat-Gold Hill Line generally parallels U.S. 50 for approximately 6.4 miles and crosses the highway at five locations. Approximately 0.4 mile of the eastern portion of the project alignment bisects a U.S. Bureau of Land Management (BLM) parcel—Pine Hill Preserve—located northwest of Shingle Springs Substation.

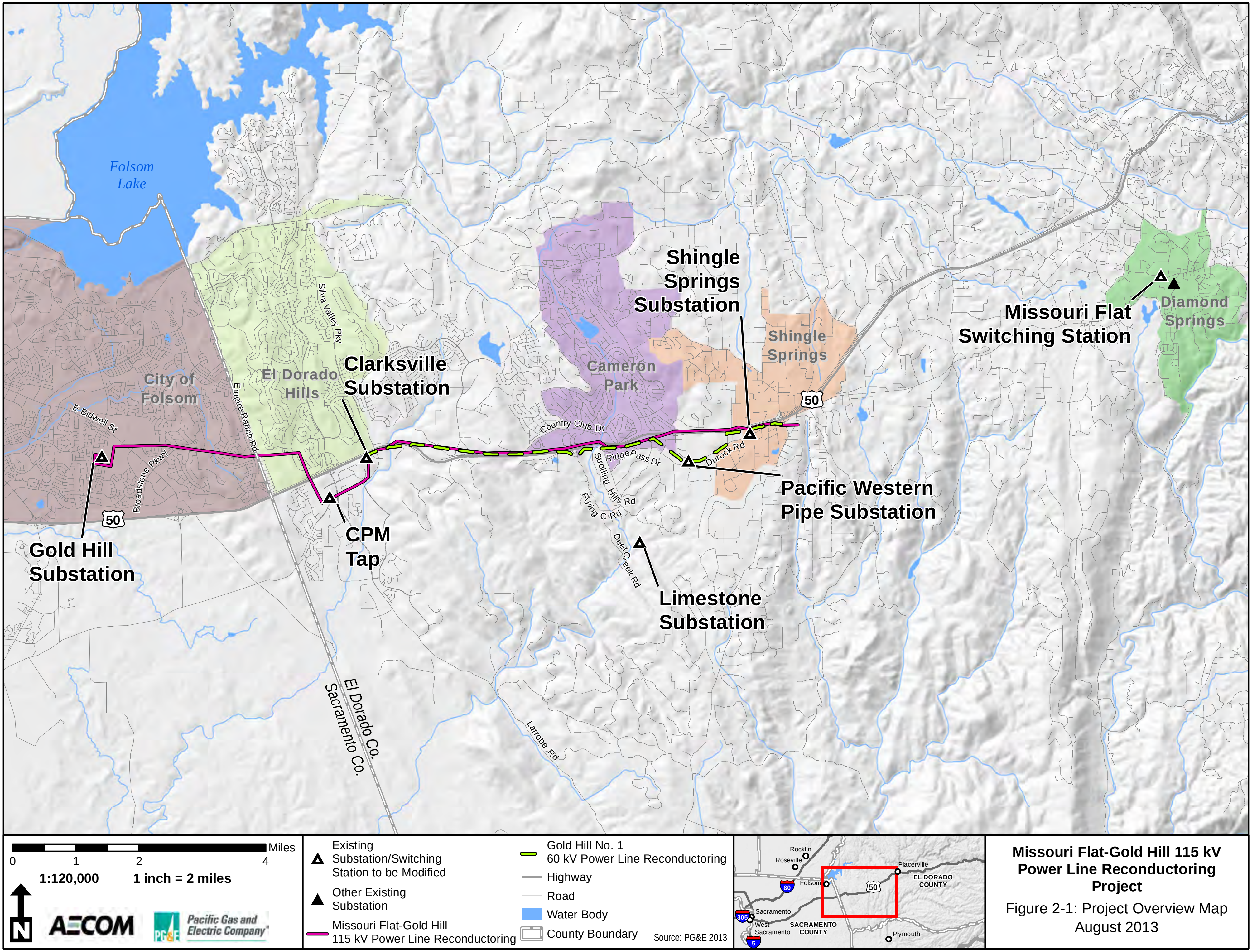
2.3.2 Gold Hill No. 1 Line Reconductoring

To provide backup electric service during construction, approximately 7 miles of the existing Gold Hill No. 1 Line will be upgraded. This portion of the line begins approximately 0.6 mile east of Shingle Springs Substation in the community of Shingle Springs and continues west to Shingle Springs Substation. From the substation, the alignment continues westerly, closely paralleling the Missouri Flat-Gold Hill Line; however, the two alignments slightly diverge in three primary locations, including:

- beginning approximately 0.3 mile east of Clarksville Substation, where the Missouri Flat-Gold Hill Line crosses from the south side of U.S. 50 to the north side and the Gold Hill No. 1 Line continues south of U.S. 50 for approximately 0.4 mile;
- in the community of Cameron Park near the U.S. 50 and Cambridge Road crossing, where the Missouri Flat-Gold Hill Line continues to parallel the north side of U.S. 50 and the Gold Hill No. 1 Line crosses to the south side of the highway and parallels Crazy Horse Road for approximately 0.9 mile; and
- between the communities of Cameron Park and Shingle Springs at the eastern terminus of Coach Lane, where the Missouri Flat-Gold Hill Line crosses to the north side of U.S. 50 (traversing the BLM's Pine Hill Preserve) and the Gold Hill No. 1 Line continues south of U.S. 50 (paralleling Durock Road) for approximately 2.2 miles.

2.3.3 Substation and Switching Station Modifications

To tie the upgraded lines into the existing system and accommodate construction activities, minor modifications will be made to equipment and facilities at Shingle Springs, Pacific Western Pipe, Limestone, Clarksville, and Gold Hill substations and Missouri Flat Switching Station.



Missouri Flat-Gold Hill 115 kV Power Line Reconductoring Project

Figure 2-1: Project Overview Map

August 2013

All modifications will be completed within existing substation or switching station fence lines. The locations of these facilities are listed below.

- **Shingle Springs Substation** is located in the community of Shingle Springs in western El Dorado County on the north side of Durock Road, between Haven Lane and Durock Court.
- **Pacific Western Pipe Substation** is located in the community of Shingle Springs off Saratoga Lane, south of its intersection with Robins Lane.
- **Limestone Substation** is located in unincorporated El Dorado County, south of the community of Cameron Park at the confluence of Shingle Lime Mine Road, Amber Fields Drive, and Marble Valley Road.
- **Clarksville Substation** is located just south of U.S. 50, east of the Silva Valley Parkway underpass and south of the community of El Dorado Hills.
- **Gold Hill Substation** is located in the City of Folsom in northwestern Sacramento County and occupies a parcel on the southeast corner of the intersection of Riley Street and Oak Avenue Parkway.
- **Missouri Flat Switching Station** is located in the community of Diamond Springs on the west side of Missouri Flat Road, between Golden Chain Highway and Enterprise Drive.

2.4 EXISTING SYSTEM

El Dorado County is served by a number of substations and transmission lines, as well as an extensive network of distribution lines carrying lower voltage electricity from the substations to PG&E residential, commercial, and private customers. PG&E relies on six distribution substations—Apple Hill, Placerville, Diamond Springs, El Dorado, Shingle Springs, and Clarksville substations—that are connected to the 115 kV transmission network to serve its electric customers in El Dorado County. Two of these substations—Clarksville and Shingle Springs—serve approximately 60 percent of PG&E customers in this area, while the remaining four substations—Apple Hill, Placerville, Diamond Springs, and El Dorado—serve the remaining customers. Electric power is delivered to these substations through three area power lines—the El Dorado-Missouri Flat Line (No. 1 and No. 2), the Missouri Flat-Gold Hill Line (No. 1 and No. 2), and the Gold Hill-Clarksville Line.[2]

The Missouri Flat-Gold Hill Line is a double-circuit line that travels generally in an east-west direction, interconnecting Diamond Springs, Shingle Springs, Clarksville, and Gold Hill substations and Missouri Flat Switching Station. No electric power generation facility is within the immediate project vicinity; however, 30 MW of generation capacity exists in the larger area from hydroelectric generation. The generation is located approximately 30 miles east of the City of Folsom and is connected to Placerville and El Dorado substations.

[2] The Gold Hill-Clarksville and Gold Hill No. 1 lines generally run adjacent to the Missouri Flat-Gold Hill Line on separate, double-circuit structures.

PG&E also has an underlying 60 kV system interconnecting El Dorado County to Amador County. The system includes the Gold Hill No. 1 Line, which is an approximately 28-mile-long, single-circuit power line, interconnecting Gold Hill and Martell substations.

Residential, commercial, and private customers in the region are served by two PG&E-owned distribution substations—Limestone and Oleta distribution substations—and one privately owned distribution substation—Pacific Western Pipe Substation.

The existing system will not be reconfigured as part of the project.

2.5 PROPOSED PROJECT

2.5.1 MISSOURI FLAT-GOLD HILL LINE RECONDUCTORING

The project includes reconductoring approximately 12.5 miles of 115 kV double-circuit (No. 1 and No. 2) power line between Shingle Springs and Gold Hill substations. In addition, approximately 0.3 mile of the existing 115 kV power line east of Shingle Springs Substation will be reconductored to facilitate construction activities.

Existing project components and equipment, including lattice steel towers, TSPs, and substation equipment, will also be upgraded to ensure they are sized and configured adequately to accommodate the new conductor. From Shingle Springs Substation (as well as approximately 0.3 mile east of Shingle Springs Substation) west approximately 9.6 miles to the intersection of Empire Ranch Road and Broadstone Parkway, the existing conductor is supported by approximately 60 double-circuit TSPs. Along the remaining approximately 2.9 miles of the Missouri Flat-Gold Hill Line, from the intersection of Empire Ranch Road and Broadstone Parkway to Gold Hill Substation, the existing conductor is supported by 17 double-circuit lattice steel towers. The project will require modifying approximately 13 of the 17 existing lattice steel towers and replacing all existing TSPs with new TSPs to support the heavier conductor.

In addition, as part of this project component, approximately 1,000 feet of existing 21 kV overhead distribution line will be placed underground along Platt Circle (between Arches Avenue and Finders Way) in the community of El Dorado Hills to meet conductor clearance requirements for the reconductored Missouri Flat-Gold Hill Line.

2.5.2 GOLD HILL NO. 1 LINE RECONDUCTORING

Along the TSP portion of the Missouri Flat-Gold Hill Line, the existing conductor lacks a second line that can provide back-up electric service to area customers. To ensure that there are no service interruptions during reconductoring of the Missouri Flat-Gold Hill Line, approximately 7 miles of the nearby 60 kV Gold Hill No. 1 Line will be upgraded and temporarily converted to 115 kV voltage to provide electric service during construction. The Gold Hill No. 1 Line reconductoring will extend from just beyond Shingle Springs Substation west to Clarksville Substation, and will include replacing approximately 80 existing wood poles with new wood or LDS poles and approximately one new TSP. In addition, approximately seven new interset poles will be added to the existing project alignment.

Limestone Substation is tied into the Gold Hill No. 1 Line through a distribution feeder line that is supported by a series of wood poles. To maintain service to Limestone Substation during construction, approximately 150 feet of the distribution feeder line north of the intersection of Strolling Hills Road and Ridge Pass Drive will be relocated within approximately 80 feet of the existing distribution line. The preliminary design includes replacing three structures that currently support the line with two new wood poles. The relocated distribution line will likely remain in place after construction.

2.5.3 SUBSTATION AND SWITCHING STATION MODIFICATIONS

Minor modifications will be made to substation equipment and facilities at Shingle Springs, Pacific Western Pipe, Limestone, Clarksville, and Gold Hill substations, and Missouri Flat Switching Station to tie the new conductor into the substations and modify existing equipment to accommodate the line upgrades. All substation equipment will be sized adequately to match or exceed new line requirements. All substation and switching station modifications will be completed within existing substation or switching station fence lines and no substation expansions are proposed.

2.6 PROJECT COMPONENTS

2.6.1 POWER LINE

2.6.1.1 Missouri Flat-Gold Hill Line Reconductoring

The Missouri Flat-Gold Hill Line is an approximately 12.5-mile-long, 115 kV double-circuit power line. The existing 715 all aluminum (AA) conductors are 0.974 inches in diameter and capable of carrying 759 amperes (amps) under normal conditions and 881 amps under emergency conditions. To increase capacity, the project will replace the existing conductors with 1.092-inch-diameter, non-specular (dulled finish) type 795 aluminum conductor steel supported (ACSS), which is rated to handle 1,500 amps. The span distances between structures vary from approximately 50 to 1,400 feet, with an average span length of approximately 850 feet. To optimize operations and maintenance activities, insulators along the entire 12.5-mile-long line will be replaced during construction.

In addition, approximately 1,000 feet of existing 21 kV overhead distribution line will be placed underground along Platt Circle, between Arches Avenue and Finders Way in the community of El Dorado Hills, to meet conductor clearance requirements for the reconductored Missouri Flat-Gold Hill Line. This work will include installing an interset pole adjacent to the east side of Platt Circle approximately 300 feet southeast of the intersection of Platt Circle and Arches Avenue, installing a riser pole at the northeast corner of the intersection of Platt Circle and Finders Way, and removing existing power line poles, which also support the existing distribution line.

2.6.1.2 Gold Hill No. 1 Line Reconductoring

The Gold Hill No. 1 Line reconductoring portion is approximately 7 miles long. The existing 60 kV conductor is 397 AA (0.724-inch diameter), capable of carrying up to 711 amps, and 2/0 copper (0.416-inch diameter) conductor, capable of carrying up to 443 amps. To increase capacity and voltage, the line will be reconductored with new 715 AA conductor that is 0.974 inches in diameter and rated to handle a maximum of 1,039 amps. The span distances between structures vary from approximately 40 to 550 feet, with an average span length of approximately 250 feet. To optimize operations and maintenance activities, insulators along the entire 7-mile-long portion will be replaced during construction.

2.6.1.3 **Distribution Switching Operations**

To reconductor both the Missouri Flat-Gold Hill and Gold Hill No. 1 lines, PG&E will temporarily take out of service specific sections of distribution lines that cross the power line or are co-located on the power line (also known as taking clearances). As part of ongoing operation and maintenance of the distribution system, PG&E's Distribution System Operations group will manage distribution clearances and balance the system by routing power to different lines. This normally involves turning existing distribution switches on and off, and installing additional switches if needed.

Distribution switches may be located along the distribution lines that are being taken out of service or along other distribution lines that may be affected by taking a line out of service. Some switches are operated at a central location, such as a substation, or are controlled remotely. Other switches are operated manually in the field by operations personnel, using a bucket truck or similar equipment. The location where switching activities will be required will depend on daily and seasonal power demand scenarios and generally is not possible to determine in advance. PG&E crews will perform this work as needed to comply with safety procedures, limit customer outages, and manage the operational needs of the system.

2.6.2 STRUCTURES

The project will include modifying existing lattice steel towers and replacing TSPs along the Missouri Flat-Gold Hill Line, as well as replacing existing wood poles with new wood or LDS poles and approximately one TSP along the Gold Hill No. 1 Line. Approximately seven interset wood or LDS poles will also be installed along the Gold Hill No. 1 Line.

Temporary wood poles will also be installed to accommodate various construction activities. Guard structures consisting of temporary wood poles will be installed to establish conductor-stringing guard structures for safety at various locations along the project alignment, including public road crossings and crossings with other utility lines. Snub poles, which are temporary wood poles used to facilitate pulling operations, may be required at each pull site where the conductor cannot be attached directly to the structure because of structure design. Wood pole structures also will be installed to establish temporary lines at four locations—Shingle Springs Substation, the private CPM tap, Pacific Western Pipe Substation, and Gold Hill Substation—during construction.

The anticipated new and temporary pole locations, heights, and types are discussed in the following section.

2.6.2.1 **Poles**

Missouri Flat-Gold Hill Line Reconductoring

Approximately 9.6 miles of the existing Missouri Flat-Gold Hill Line—from Shingle Springs Substation west to the intersection of Broadstone Parkway and Empire Ranch Road (located on the east side of the City of Folsom)—is supported by approximately 60 double-circuit TSPs and one single-circuit TSP. The existing TSPs will be removed and replaced at an approximately one-to-one ratio generally in line with new TSPs within approximately 20 feet of existing pole locations. Replacement TSPs for approximately 40 of the existing 60 TSPs will be approximately 3 to 20 feet taller to conform to applicable PG&E requirements, provide electric and magnetic field minimization near residences and schools, and meet the clearance requirements provided in CPUC General Order 95, Rules for Overhead Electric Line Construction. The remaining TSPs will be replaced with new TSPs of approximately the same height. As a result, all new TSPs will range in height from approximately 55 to 135 feet. TSPs will be equipped with new, non-ceramic insulators made of polymer composite materials. As part of the TSP replacement, other equipment on the existing poles will be transferred to the new TSPs.

Concrete-Pier Foundations

The majority of the new TSPs are anticipated to have belowground concrete-pier foundations for stabilization. The concrete-pier footings will measure approximately 5 to 8 feet in diameter and approximately 15 to 23 feet in depth, with an average footing diameter of approximately 6 feet and an average depth of approximately 21 feet. A diagram of a typical TSP with a concrete-pier foundation is provided in Figure 2-2: Typical Tubular Steel Pole Drawing – Concrete-Pier Foundation.

Micropile Foundations

Although the majority of the new TSPs will be stabilized belowground with concrete-pier foundations, several TSPs along the project alignment may require the use of micropile foundations to minimize the amount of ground disturbance or because of site-specific substrate constraints. Micropile foundation systems will include approximately four to twelve composite piles constructed in an approximately 5- to 6-foot-diameter array at the ground line. Composite piles will be constructed using up to approximately 9-inch high-strength steel casing, high-strength all-thread rebar, and grout. The steel casings will project a minimum of approximately 1 foot aboveground and the piles will connect to TSPs by either a steel cap or cast-in-place concrete cap connection. The maximum depth for each composite micropile will be up to approximately 30 feet belowground. A diagram of a typical TSP with a micropile foundation is provided in Figure 2-3: Typical Tubular Steel Pole Drawing – Micropile Foundation.

Gold Hill No. 1 Line Reconductoring

The Gold Hill No. 1 Line is supported by approximately 120 wood poles that range in height from approximately 45 to 95 feet. Of the existing poles, approximately 40 will require only minor modifications (e.g., reframing, installing new clamps) to existing poles; however, approximately 80 poles will be replaced and approximately seven new interset poles will be installed. Approximately three distribution wood pole structures, which include one wood H-frame structure and two wood poles, also will be replaced with approximately two new wood poles as part of this project component.

Pole Replacement

Of the existing 120 poles along the Gold Hill No. 1 Line, approximately 80 poles will be replaced at an approximately one-to-one ratio with new wood or LDS poles and approximately one TSP. Replacement wood or LDS poles, which will be located within approximately 20 feet of existing pole locations, will range in height from approximately 55 to 90 feet, and will be up to approximately 25 feet taller than existing wood poles. Replacement wood or LDS poles will be direct-bury poles (not requiring a foundation), placed generally in line with the existing alignment. A drawing of a typical wood or LDS pole structure is provided in Figure 2-4: Typical Wood or LDS Pole Drawing. Other existing lines, equipment, and utilities that are collocated on the existing poles will be transferred to the new poles.

One existing wood switch pole, located approximately 700 feet east of the intersection of Strolling Hills Road and Lariat Road in the community of Cameron Park, will be replaced with a TSP to accommodate a new transmission switch. The existing wood pole is approximately 70 feet tall. The new TSP, which will be stabilized by a concrete-pier foundation, will be approximately 90 feet tall. A drawing of a typical TSP with a concrete-pier foundation is provided in Figure 2-2: Typical Tubular Steel Pole Drawing – Concrete-Pier Foundation.

In the community of Cameron Park, north of the intersection of Strolling Hills Road and Ridge Pass Drive, approximately 150 feet of the Limestone Substation distribution feeder line will be relocated by replacing three existing distribution wood pole structures, including one wood H-frame structure and two wood poles, with two new wood poles within approximately 80 feet of the existing structures. A drawing of a typical wood pole is provided in Figure 2-4: Typical Wood or LDS Pole Drawing.

New Pole Installation

To ensure adequate ground-to-conductor clearance, approximately seven new permanent wood or LDS poles will be installed generally in line with the existing Gold Hill No. 1 Line alignment, where the line crosses Strolling Hills Road and parallels Ridge Pass Drive south of the community of Cameron Park. The new poles, which will be direct buried, will be approximately 75 feet tall. A drawing of a typical wood or LDS pole structure is provided in Figure 2-4: Typical Wood or LDS Pole Drawing.

Temporary Wood Poles

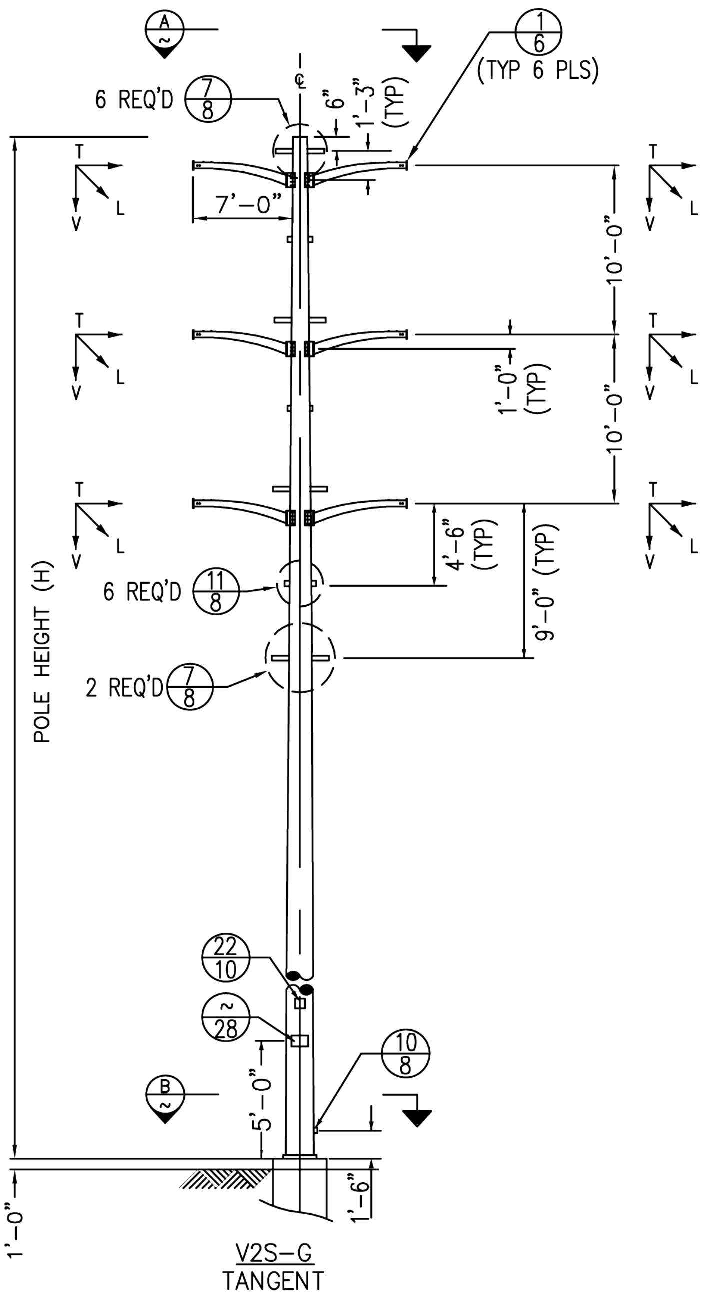
Guard Structures

Temporary guard structures will be installed at road and aboveground utility crossings. These structures will be temporary direct-bury wood poles that typically extend approximately 50 feet aboveground and approximately 7 feet belowground. These poles will have a minimum of 25 feet of aboveground clearance.

In lieu of installing temporary wood poles as guard structures, bucket or line trucks may be staged at crossings to minimize ground disturbance or accommodate other construction-related needs.

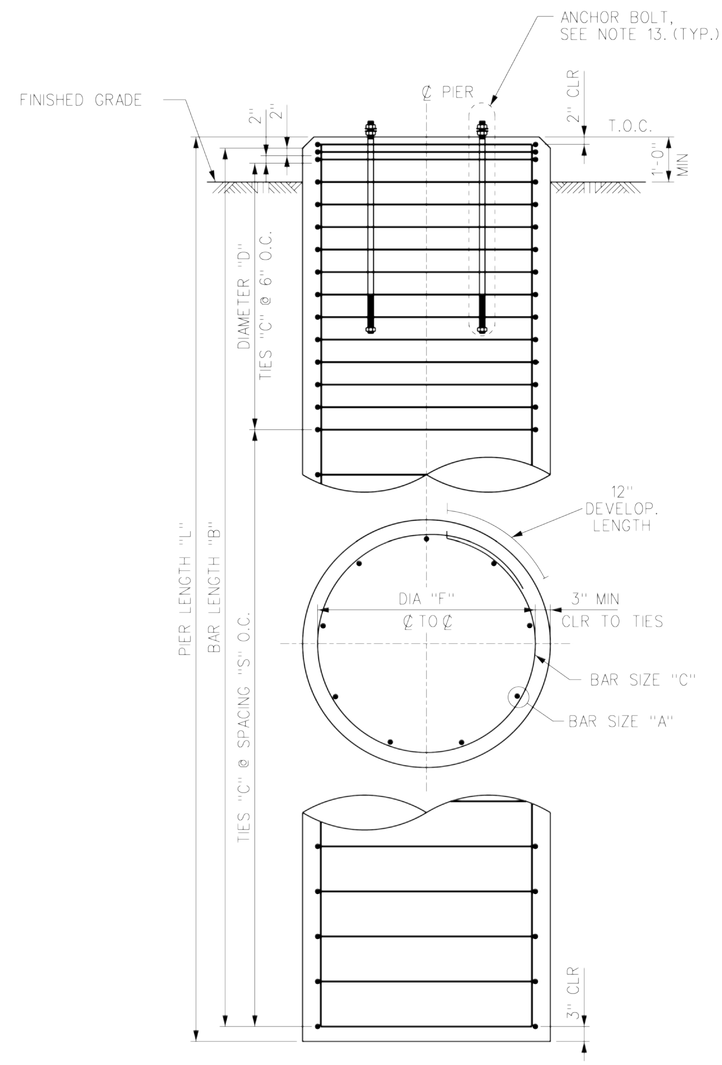
Tubular Steel Pole - Aboveground

*Not to Scale



Concrete-Pier Foundation - Belowground

*Not to Scale



Preliminary and subject to change based on California Public Utilities requirements, final engineering and other factors.

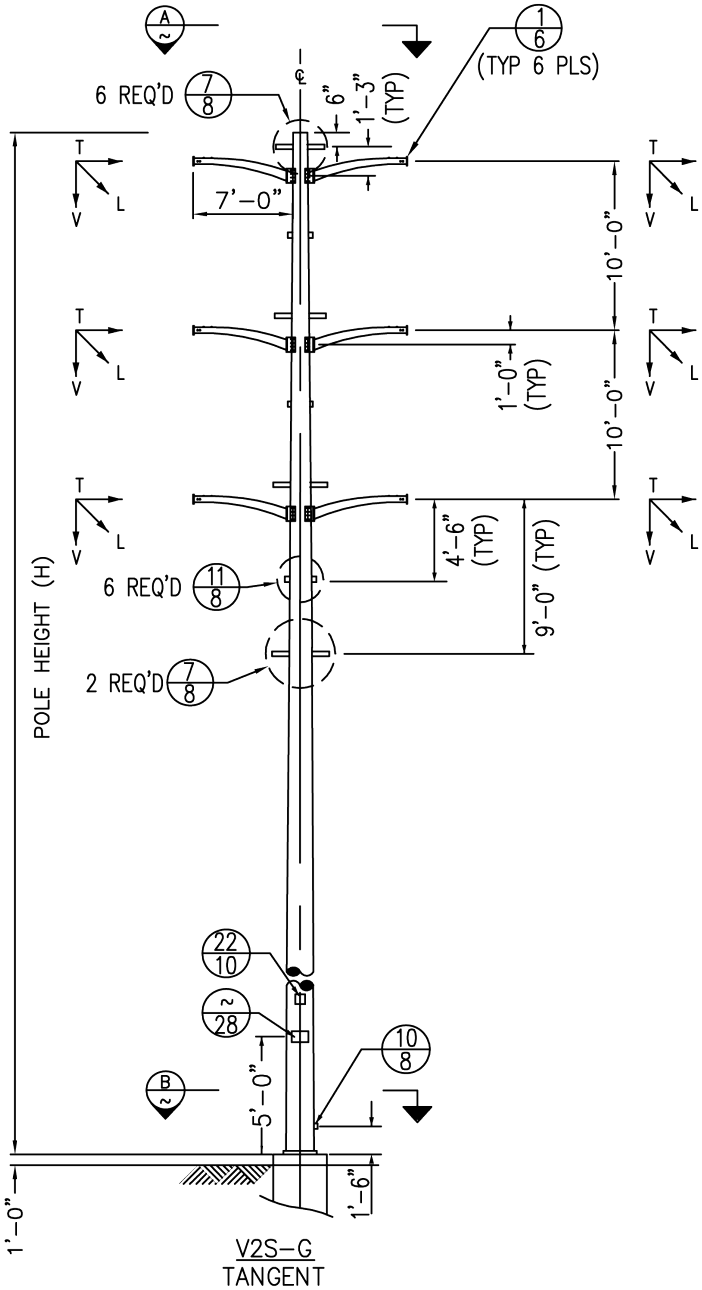
Source: Data compiled by AECOM 2013

Figure 2-2: Typical Tubular Steel Pole Drawing - Concrete-Pier Foundation

Missouri Flat-Gold Hill 115 kV Reconductoring Project

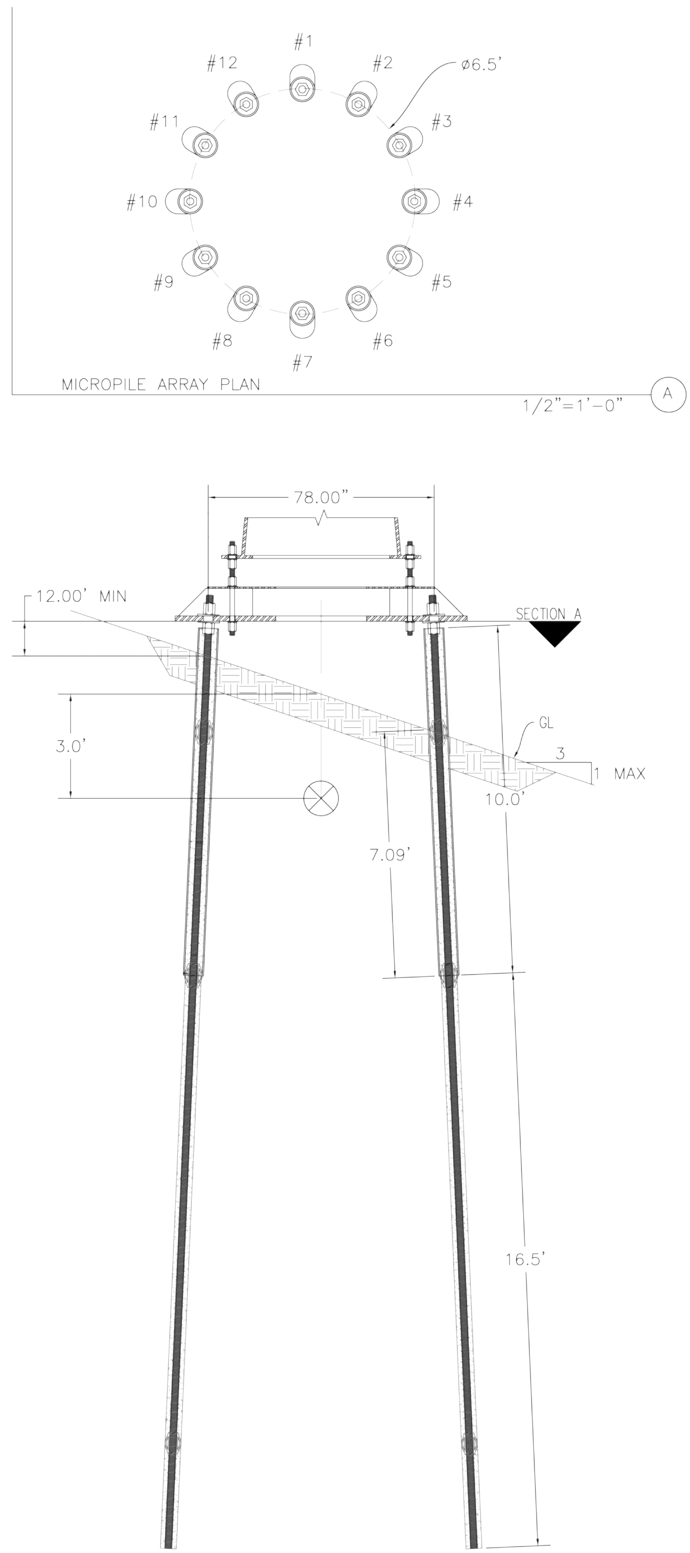
Tubular Steel Pole - Aboveground

*Not to Scale



Micropile Foundation - Belowground

*Not to Scale

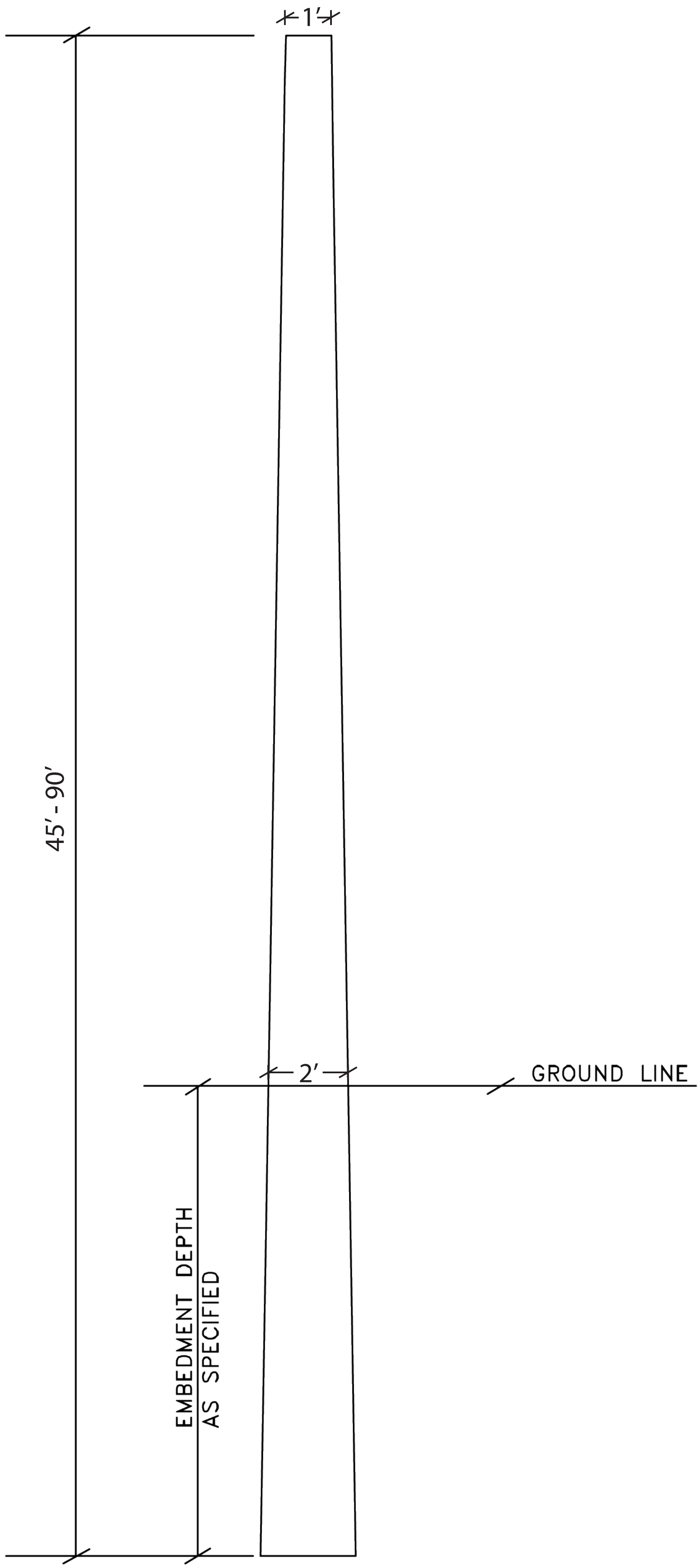


Preliminary and subject to change based on California Public Utilities requirements, final engineering and other factors.

Source: Data compiled by AECOM 2013

Figure 2-3: Typical Tubular Steel Pole Drawing - Micropile Foundation

Missouri Flat-Gold Hill 115 kV Reconductoring Project



Preliminary and subject to change based on California Public Utilities requirements, final engineering and other factors.

*Not to Scale

Source: Data compiled by AECOM 2013

Figure 2-4: Typical Wood Pole Drawing

Missouri Flat-Gold Hill 115 kV Reconductoring Project

Snub Poles

Up to two 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.

Temporary Line Poles

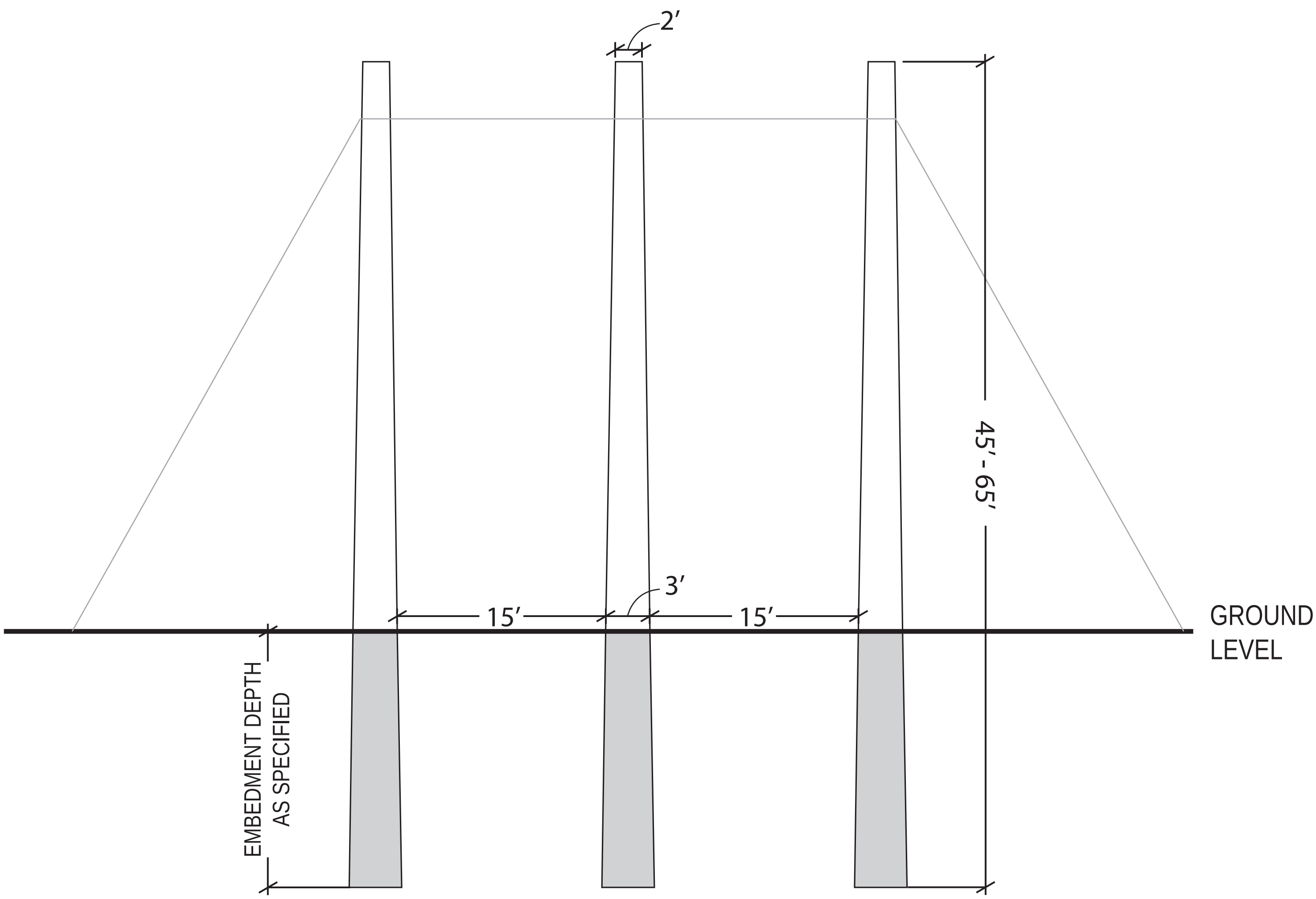
Four temporary lines are planned as part of the project to accommodate required line outages during construction. Specifically, temporary lines will be installed at Shingle Springs Substation, Pacific Western Pipe Substation, the private CPM tap, and Gold Hill Substation, as all of these facilities must remain energized throughout construction. The temporary lines will be supported by wood poles and three-pole wood structures that will be guyed for stability and range in height from approximately 40 to 65 feet. Drawings of a typical wood pole and three-pole structure are provided in Figure 2-4: Typical Wood or LDS Pole Drawing and Figure 2-5: Typical Three-Pole Structure Drawing, respectively.

2.6.2.2 **Towers**

Approximately 2.9 miles of the Missouri Flat-Gold Hill Power Line—from the intersection of Broadstone Parkway and Empire Ranch Road west to Gold Hill Substation—are supported by 17 double-circuit lattice steel towers, approximately 13 of which will be modified as part of the project. The majority of the tower modifications will be minor, including structural reinforcements and/or cross-arm replacement. One tower—located south of the intersection of Nesmith Court and East Bidwell Street—will require new bracings and leg reinforcements. Another tower—located approximately 650 feet east of Gold Hill Substation—will be raised from approximately 93 feet to approximately 100 feet with the installation of a leg extension. The lattice steel towers will be equipped with new ceramic insulators made of glass or porcelain. A typical lattice steel tower diagram is provided in Figure 2-6: Typical Lattice Steel Tower Drawing. Other equipment that is collocated on existing lattice steel towers will be replaced or maintained, as needed.

2.6.3 SUBSTATION AND SWITCHING STATION MODIFICATIONS

Minor modifications will be made to substation and switching station equipment and facilities at Shingle Springs, Pacific Western Pipe, Limestone, Clarksville, and Gold Hill substations and Missouri Flat Switching Station to tie the upgraded lines into the existing system and accommodate construction activities. Because minor modifications are being made at existing facilities only, no changes to existing operation and maintenance activities are anticipated with project implementation. All substation equipment will correspond to match or exceed the new line requirements. Construction activities will include replacing circuit breakers, switches, conductor, busses, jumpers, and line relays; installing junction boxes and pull boxes for new equipment; and upgrading existing supervisory control and data acquisition systems. All work at the substations and the switching station will be completed within existing fence lines, and no facility expansions are proposed.



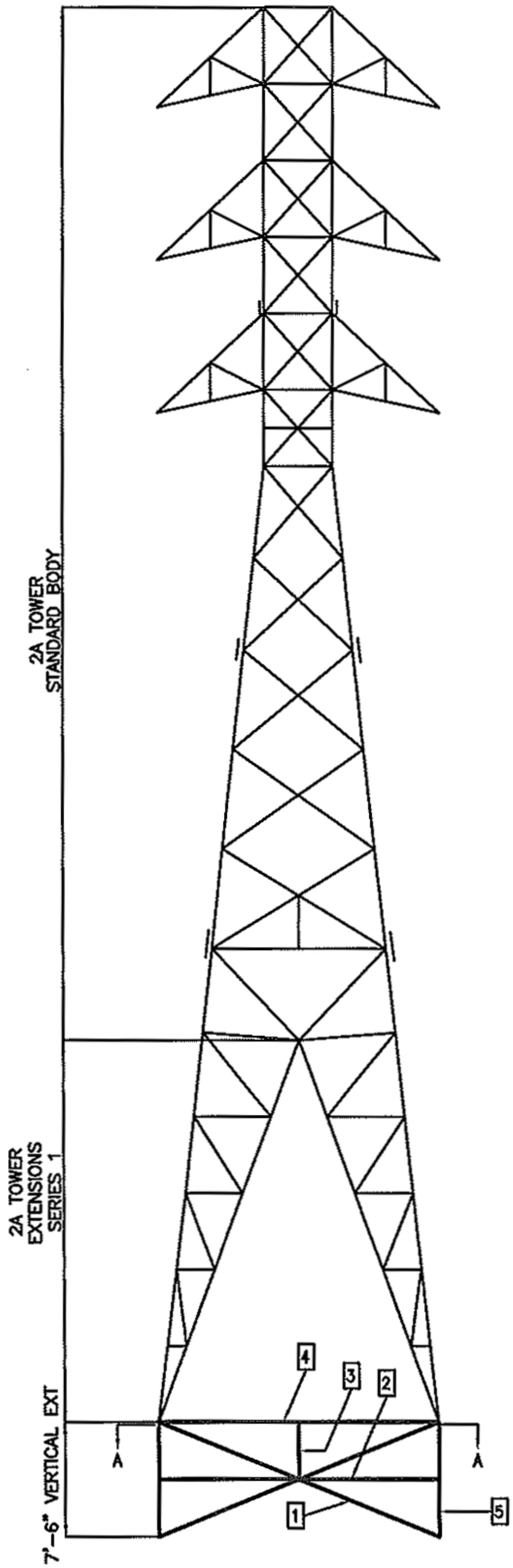
Preliminary and subject to change based on California Public Utilities requirements, final engineering and other factors.

*Not to Scale

Source: Data compiled by AECOM 2013

Figure 2-5: Typical Three-Pole Structure Drawing

Missouri Flat-Gold Hill 115 kV Reconductoring Project



Preliminary and subject to change based on California Public Utilities requirements, final engineering and other factors.

*Not to Scale

Source: Data compiled by AECOM 2013

Figure 2-6: Typical Lattice Steel Tower Drawing

Missouri Flat-Gold Hill 115 kV Reconductoring Project

2.7 RIGHT-OF-WAY REQUIREMENTS

2.7.1 Missouri Flat-Gold Hill Line Reconductoring

The Missouri Flat-Gold Hill Line is located within an existing 80-foot-wide PG&E easement. This easement will be used throughout the project and no additional ROW or easement expansions will be required to accommodate construction or operation and maintenance of the line.

2.7.2 Gold Hill No. 1 Line Reconductoring

The existing Gold Hill No. 1 Line easement varies in width up to approximately 120 feet wide, with the majority of the easement being approximately 40 feet wide. The existing easement will be used throughout the project, and no additional ROW or easement expansions will be required to accommodate construction or operation and maintenance of the line.

Near the intersection of Strolling Hills Road and Ridge Pass Drive, approximately 150 feet of an existing distribution feeder line associated with Limestone Substation will be relocated within approximately 80 feet of the existing line. Additional ROW may be required to accommodate the relocation.

2.8 CONSTRUCTION

2.8.1 Staging Areas

Temporary staging areas will be the main base of operations during project construction and will serve a variety of purposes, including construction equipment and material storage and assembly, personnel and construction trailer parking, and a meeting area for project management and work crews. Various existing PG&E industrial facilities or private parcels in the general project area may be used as temporary staging areas to facilitate project activities throughout the duration of construction, including, but not limited to:

- an existing industrial site located west of Shingle Springs Substation off Durock Road;
- an undeveloped lot approximately 600 feet southwest of the intersection of Greenwood Lane and Merrychase Drive in the community of Cameron Park;
- a paved parking lot approximately 700 feet southeast of the intersection of Country Club Drive and El Norte Road in the community of Cameron Park;
- an undeveloped lot at the intersection of Bass Lake Road and Country Club Drive in the community of El Dorado Hills; and
- PG&E facilities, such as Missouri Flat Switching Station and Shingle Springs, Limestone, Clarksville, and Gold Hill substations.

The staging areas will typically be approximately 5 acres or less in size; however, the footprints will vary depending on the area available for use at the time of construction and project needs. No substantial site preparation is expected to be necessary, as these areas are primed with appropriate site conditions to serve as staging areas; however, minor modifications may be necessary. Access routes to proposed temporary staging areas are generally well established, and improvements to these routes are not expected to be necessary. Power to the proposed staging areas will be provided by tapping into existing local systems.

2.8.2 WORK AREAS

The following discussion is preliminary and based on typical construction practices and anticipated construction needs. Final design may require modifications to the expected work areas described herein; however, impacts associated with potential refinements are not anticipated to differ.

2.8.2.1 **Towers and Poles**

Modifications to towers, removal of existing poles, and assembly and installation of new poles will require an approximately 0.30-acre work area at each tower and pole location along the Missouri Flat-Gold Hill Line and an approximately 0.05- to 0.10-acre work area at each pole location along the Gold Hill No. 1 Line. Site preparation is not expected to be necessary for the majority of the tower and pole work areas; however, some limited surface blading, grading, and filling to create a stable and level work pad may occur on an as-needed basis. Vegetation removal, tree trimming, and matting or plating of drainage crossings may be required for vehicle access. Site restoration is not expected to be necessary; however, restoration activities will be conducted in accordance with landowner preferences, as needed.

Construction materials will be delivered using line trucks and staged near existing structures. Construction vehicles are anticipated to access work areas using existing paved, dirt, and gravel roads and overland travel routes, with the exception of one tower located approximately 800 feet northwest of the intersection of Broadstone Parkway and Empire Ranch Road, which is located in a seasonal pond. To avoid impacts to the pond, this tower is anticipated to be accessed using a helicopter; however, depending on site-specific conditions at the time of construction, other construction methods may be employed, including accessing the tower on foot and using pulley equipment staged outside of the pond or completing tower work only during the dry season and staging construction equipment on temporary matting. In addition, work at one pole located approximately 170 feet northwest of the intersection of Finders Way and Saratoga Way in El Dorado Hills will require construction of a new gravel road, as described in Section 2.8.3.

2.8.2.2 **Pull Sites**

Approximately 14 pull sites will be located generally in line with the existing Missouri Flat-Gold Hill Line and approximately 15 pull sites will be located generally in line with the existing Gold Hill No. 1 line. The average distance between pull sites along the Missouri Flat-Gold Hill Line is approximately 1.2 miles; the average distance between pull sites along the Gold Hill No. 1 Line is approximately 0.4 mile. These pull sites will be used during construction to stage conductor-pulling trucks and conductor reel trucks to install the new conductors onto the lattice steel towers, TSPs, and wood or LDS poles. Each site will have a footprint of up to approximately 2.4 acres along the Missouri Flat-Gold Hill Line and up to approximately 0.8 acre along the Gold Hill No. 1 Line. The locations of the pull sites will be sited within the larger potential pull site siting areas identified in Detailed Route Maps (to be provided separately to CPUC staff); however, the exact locations and footprints of the sites will depend on conditions on the ground and will not be determined until just prior to construction. Site preparation is not expected to be necessary for the majority of the pull sites; however, some limited surface blading, grading, and filling to create a stable and level work area may occur on an as-needed basis. Vegetation removal, tree trimming, and matting or plating of drainage crossings may be required for vehicle access to pull sites.

Construction vehicles and equipment needed at the pull sites are expected to be parked or staged within the project ROW or alongside access roads. Transport vehicles (e.g., crew-cab trucks and half-ton pickups) will be used to transport personnel to pull sites. To haul the conductor to the site, reel trailers with reel stands will be mounted on a line truck. On the line truck, pullers will be mounted to install the conductor. The old conductor will be removed from the sites on a line truck.

2.8.2.3 **Helicopter Landing Zones**

Modifications to one tower, located approximately 800 feet northwest of the intersection of Broadstone Parkway and Empire Ranch Road, may require use of a helicopter to facilitate access to the tower work area. To accommodate use of a helicopter, two helicopter landing zones have been preliminarily identified—one approximately 560 feet southeast of the intersection of Montridge Way and Wilson Boulevard in an undeveloped area of El Dorado County and one on Buljan Court where the paved road terminates in the City of Folsom. These landing zones will have a temporary footprint of up to approximately 1 acre; however, the exact locations and footprints will depend on conditions on the ground and will not be determined until just prior to construction. Helicopter landing zones will be used to support helicopter operations (e.g., transport materials to and from the tower), as well as facilitate other project activities, including, but not limited to, staging and storing construction materials and equipment, refueling, and assembling construction materials. Ground access to helicopter landing zones will be by overland access routes or existing paved roads. Site preparation is not expected to be necessary for the majority of the helicopter landing zones; however, some limited surface blading, grading, and filling to create a stable and level area may occur on an as-needed basis. Vegetation removal, tree trimming, and matting or plating of drainage crossings may be required for vehicle access to helicopter landing zones.

The project will require only limited use of a helicopter, and the helicopter flight path generally will follow the existing alignment and will avoid flying over residences. The helicopter type will depend on availability at the time of construction; however, the actual helicopter to be used is not anticipated to be larger than a Bell L3 (long ranger) with a load capacity of approximately 1,200 pounds. It is not anticipated that residents will be required to temporarily vacate their homes; however, in the unlikely event that final construction plans require otherwise, all Federal Aviation Administration (FAA) requirements will be met and PG&E will coordinate with potentially affected residents (providing a minimum of 30 days advance notice) to minimize the necessary work duration and any resultant inconvenience.

Any need for highway or roadway closures or rolling stops will be coordinated with the appropriate jurisdictions, as described in Section 3.16, Transportation and Traffic. Applicant-Proposed Measures (APMs) to avoid and minimize potential impacts from helicopter use are listed in Section 2.11, Applicant-Proposed Measures, as well as Section 3.12, Noise, and Section 3.16, Traffic and Transportation.

2.8.2.4 Underground Distribution

Conversion of the existing overhead 21 kV distribution line to underground will require an approximately 1.4-acre work area, which will be primarily within the paved area of Platt Circle in the community of El Dorado Hills.

2.8.3 ACCESS ROADS AND/OR SPUR ROADS

Construction vehicles are anticipated to access work areas using existing access roads that are currently used for operations and maintenance. The majority of the project alignment crosses through developed areas, and tower and pole work areas are expected to be accessed from existing roads that are either paved, gravel, or dirt. An overview of the preliminary access routes identified for use is provided in Table 2-1: Access Summary Table; however, planned access routes may change depending on construction needs and site conditions at the time of construction. Construction crews will access the project area primarily by using U.S. 50 and traveling along East Bidwell Street, Broadstone Parkway, Silva Valley Parkway, Latrobe Road, Old Bass Lake Road, White Rock Road, Country Club Drive, Crazy Horse Road, Flying C Road, Strolling Hills Road, Ridge Pass Drive, Rodeo Road, Durock Road, and Merrychase Drive, which are all existing paved roads.

Table 2-1: Access Summary Table

Road Type	Description	Potential Improvements Required	Approximate Distance (miles)
Existing Paved Road	Typically a highway (U.S. 50) or two-lane county road	None	22.8
Existing Dirt/Gravel Road [1]	Typically a previously graded road with a dirt or gravel base	Minor road repair and maintenance, as needed	4.2
Existing Unpaved Road Requiring Improvement [1]	Typically an unmaintained previously graded road with a dirt or gravel base	Vegetation removal, grading, filling, or other repair and maintenance, as needed	6.6
New Unpaved Road [1]	Typically located in areas with problematic access to establish a road to facilitate operation and maintenance	Vegetation removal, grading, and/or fill, as needed to establish road	0.02 (100 feet)
Overland Route	Typically relatively flat grassy areas	Mowing as needed	2.9

Note:
[1] Unpaved access roads are expected to have a width of approximately 12 feet.

Access in several locations will be by unpaved (dirt or gravel) roads. Portions of some of these unpaved access roads may need to be reestablished and maintained through tree trimming, vegetation clearing, the addition of substrate, and some minor grading/blading. Along access routes within the Pine Hill Preserve and parcels immediately adjacent to the preserve, existing gates may be repaired or replaced and new gates may be installed on an as-needed basis in coordination with the BLM and relevant landowners.

Access to one pole located north of the intersection of Finders Way and Saratoga Way in El Dorado Hills will require establishing a new, approximately 100-foot-long spur road, which will be graded and graveled. Typical construction equipment required for the construction of unpaved roads includes a grader, bulldozer, compactor, and haul trucks.

Overland access from existing access roads or along the existing easement in relatively flat, grassy areas is anticipated to reach various work sites. These overland routes are not expected to require grading, or filling; however, mowing of vegetation may be required.

2.8.4 Vegetation Clearance

Up to approximately 8 acres of vegetation trimming and tree or shrub removal, including removing a total of approximately 225 trees, will be required along proposed access roads and temporary work areas to accommodate construction vehicles and equipment. The majority of vegetation removal, including tree removal, will be required at two primarily undeveloped sections of the project alignment that are each approximately 1 mile long, including:

- one section located between Strolling Hills Road and Rodeo Road, where the project traverses oak woodland vegetation; and
- one section located between Palmer Drive and Shingle Springs Substation, where the project traverses multiple parcels comprised of mixed chaparral vegetation, including the Pine Hill Preserve, one parcel west of the preserve, and another parcel south of U.S. 50.

Shrubs will be mowed and shredded or removed from access roads using an all-season vehicle mower or similar equipment on rubber tracks to clear access roads for subsequent grading. Up to four vegetation management crews will be used, typically consisting of two to three people per truck. Crews will access work areas with lift trucks equipped with hydraulic buckets to reach areas that require high pruning work, where accessible. Chippers, which will be used to process wood of up to 4 inches in diameter, will be towed to work sites by lift trucks, climb trucks (with no hydraulic buckets), or four-wheel drive pick-up trucks. On sensitive or remote sites, remote-controlled track chippers that can process wood of up to 12 inches in diameter may be utilized. In some areas, limbs and pruning debris will be lopped and scattered outside the power line ROW, to less than 18 inches in depth. Wood chips will be spread on site, where appropriate, and/or hauled away from work sites, depending on landowner preferences. Vegetation management equipment typically will include manual clippers, hand saws, pole saws, chainsaws, and shredders. For brush and tree species that are prone to resprouting and where trees have been removed along roads, an approved herbicide will be applied to control resprouting and maintain a clear ROW for continued emergency and service access and to encourage the growth of ROW-compatible grasses and low-growing brush species. Generally, removed vegetation will be shredded in place and spread nearby. During clearing activities, vegetation will be mowed or grubbed, leaving root systems intact wherever possible to encourage resprouting and to minimize erosion.

2.8.5 Erosion and Sediment Control and Pollution Prevention during Construction

Construction will include ground-disturbing activities, including grading and vegetation clearing in conjunction with the construction of necessary work areas, TSP foundation and wood or LDS pole installation, and access road improvement and establishment. Small, temporary stockpiles of excavated dirt may be located near the excavations for the new TSP foundations and wood or LDS poles. These materials will be used to backfill the holes left by removal of the existing TSPs and wood poles. Stockpiles will be located away from or downgradient from waterways, and other sediment control best management practices (BMP) will be implemented to manage temporary stockpiles. Construction debris, including removed TSPs and wood poles, will be taken on a line truck with a trailer to an area service center for recycling or disposal.

Because these activities will result in more than 1 acre of disturbance, PG&E will obtain coverage under the California State Water Resources Control Board (SWRCB) General Permit for Storm Water Discharges Associated with Construction Activity Order Number 2009-0009-DWQ (General Permit). To obtain coverage under the permit, PG&E will develop and submit Permit Registration Documents—including a Notice of Intent, a stormwater pollution prevention plan (SWPPP), a risk assessment, a site map, certification, and an annual fee—to the SWRCB prior to initiating construction activities.

In conjunction with the SWPPP, appropriate BMPs will be developed for each activity that has the potential to degrade surrounding water quality through erosion, sediment run-off, and other pollutants. These BMPs then will be implemented and monitored throughout construction by a qualified SWPPP practitioner.

APMs to reduce and avoid erosion and control sediment and pollution during construction are provided in Section 2.11, Applicant-Proposed Measures, and are discussed further in Section 3.8, Hazards and Hazardous Materials and Section 3.9, Hydrology and Water Quality.

2.8.6 Best Management Practices

Construction crews working on PG&E projects routinely use relevant BMPs to ensure crew and public safety and to avoid and minimize impacts on resources. At a minimum, the following BMPs will be implemented during project construction:

- **Litter and Trash Management**. All food scraps, wrappers, food containers, cans, bottles, and other trash from the project area will be deposited in closed trash containers.

- **Parking Requirements**. Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed or developed areas or work areas, as identified in this document. Off-road parking will only be permitted in previously identified and designated work areas.

- **Route and Speed Limitations**. Vehicles will be confined to established roadways and pre-approved access roads, overland routes, and access areas. Access routes and temporary work areas will be limited to the minimum necessary to achieve the project goals. Routes and boundaries of work areas, including access roads, will be clearly mapped prior to initiating project construction. Vehicular speeds will be kept to 15 mph on unpaved roads with no posted speed limit.

- **Maintenance and Refueling Requirements**. All equipment will be properly maintained for the duration of construction. All refueling and maintenance of vehicles and other construction equipment will be restricted to designated work areas and located at least 100 feet from any downgradient aquatic habitat, unless otherwise isolated from habitat. Proper spill prevention and cleanup equipment will be maintained in all refueling areas.

- **Prohibited Activities**. Trash dumping, firearms, open fires (such as barbecues), hunting, and pets will be prohibited at work sites.

- **Erosion Control Materials.** Only tightly woven netting or similar material will be used for erosion control materials, such as coir rolls and geo-textiles, within or adjacent to suitable habitat for sensitive species. No plastic monofilament matting will be used.

2.8.7 CLEANUP AND POST-CONSTRUCTION RESTORATION

During construction, construction debris will be picked up from work areas and stored in approved containers on site, and will be hauled away for recycling or disposal periodically during construction. PG&E will conduct a final inspection to ensure that cleanup activities have been successfully completed as required. Restoration activities will be conducted as needed and in coordination with landowners.

2.8.8 POWER LINE CONSTRUCTION

2.8.8.1 Pole Installation

Approximate dimensions for TSPs and wood and LDS poles are provided in Table 2-2: Summary of Typical Structure Dimensions. Pole installation is anticipated to occur during daylight hours and will require approximately four to five truck trips to each pole location to install new poles and remove existing poles.

Tubular Steel Poles

Each new TSP will be delivered and staged next to the TSP that it will be replacing, and a crane will be used to assemble the TSP. Installation of TSPs typically will include the following steps for site preparation, foundation installation, and TSP installation. To prepare the site, required BMP measures will be implemented. A work area will be prepared by surface blading or minor grading to create a level surface at TSP locations on an as-needed basis. Once TSP work areas are prepared, a line truck or boom truck with a small crane mounted on a flatbed will be used to haul foundation forms, anchor bolts, rebar, and pole structures to the TSP locations. The truck also will be used to place foundation forms, anchor bolts, and rebar prior to pouring the concrete for the foundations. A concrete truck (i.e., a four-wheel-drive mixer capable of delivering 10 yards of concrete) then will be used to deliver and pour concrete for the TSP foundations. Depending on site-specific conditions, one of two construction methods—concrete-pier or micropile foundation—will be employed to construct the TSP foundation.

Table 2-2: Summary of Typical Structure Dimensions

Structure Feature	Structure Type	Approximate Metrics
Pole Diameter	TSP	30 inches to 50 inches
	Wood and LDS Pole	1 to 2 feet
	Temporary Wood Pole	16 to 24 inches
	Lattice Steel Tower	Not Applicable (NA)
Auger Hole Depth	TSP	19 to 24 feet
	Wood and LDS Pole	7 to 10 feet
	Temporary Wood Pole	6.5 to 16 feet
	Lattice Steel Tower	NA
Footprint (Permanent and Temporary)	TSP	5 to 8 square feet (permanent)
	Wood and LDS Pole	1 to 3 square feet (permanent)
	Temporary Wood Pole	1 to 3 square feet (temporary)
	Lattice Steel Tower	600 to 800 square feet (permanent)
Number of Poles/Towers	TSP	60
	Wood and LDS Pole	122
	Temporary Wood Pole	301
	Lattice Steel Tower	13
Average Pole/Tower Work Area	TSP	0.3 acre
	Wood and LDS Pole	0.05 acre
	Temporary Wood Pole	0.06 acre
	Lattice Steel Tower	0.3 acre
Approximate Total New Permanent Pole/Tower Footprint Acreage[1]		**0.002 acre**

Notes:
[1] Because the project involves replacement of existing structures at an approximately one-to-one ratio, the total permanent pole/tower footprint acreage includes the permanent footprints for new additional structures only.

Concrete-Pier Foundations

Concrete-piers foundations, which will be approximately 5 to 8 feet in diameter and approximately 18 to 23 feet in depth, are generally constructed using the following steps:

1) Auger new hole using drill rig (track or wheel mounted)

2) Install foundation forms, rebar, and anchor bolts

3) Pour concrete foundation

4) Remove forms and place gravel around and groom the base area

Micropile Foundations

Micropile foundations will consist of up to 12 composite piles constructed in up to an approximately 6-foot-diameter array. Individual composite piles will consist of up to an approximately 9-inch high-strength steel casing, high-strength all-thread rebar, and grout. Composite piles will be imbedded up to 30 feet belowground. Micropile foundations are generally constructed using the following steps:

1) Drill multiple batter shafts approximately 6 to 8 inches in diameter with platform mounted drill rig

2) Install anchor bolts in batter shafts, grout/slurry backfill on shafts

3) Install steel/concrete cap on micropiles

Following the installation of concrete-pier and micropile foundations, a line or boom truck will be used to remove the form. The new TSP then will be installed using a crane to place the TSP on the foundation. Existing conductor then will be transferred to the new TSP using a line truck or by hand using ropes and the new conductor will be pulled while existing conductor is removed. Once the conductor has been replaced, the existing poles then will be removed by crane and the remaining void will be backfilled. Excess soil on site will be feathered around the work area or placed consistent with applicable requirements and in consultation with the landowner. A backhoe will be used to place gravel around the TSP foundation after the formwork has been removed and to groom the area surrounding the TSP installations.

Portable washing stations will be established at various locations throughout the project alignment to minimize time between the concrete pour and truck clean out. These stations will include dike walls and tarping, allowing washed materials to be contained and disposed of properly. Alternatively, self-washing concrete trucks with mobile containment may be used or equipment will be washed and contained in accordance with local encroachment permits. Excess construction materials will be transported to an area service center or other appropriate facility for disposal in accordance with applicable laws.

Wood and Light-Duty Steel Poles

The first step to install wood and LDS poles, including temporary and permanent wood poles, will be to excavate a pole hole using an auger. Depending on the pole size, the hole dimensions will range between approximately 3 to 4 feet in diameter and approximately 7 to 10 feet in depth. Following excavation, the poles, insulators, and hardware will be delivered to the pole work area and assembled. The poles then will be placed in the excavation using line trucks or cranes, the remaining void will be backfilled, and the surrounding area will be compacted. Poles will be direct buried (no foundation or footing) and may be guyed for stability. Once the pole is embedded and the surrounding area is compacted, additional hardware will be installed using a bucket truck.

LDS poles will be manufactured in two pieces that are engineered specific to a pole location. The pole pieces are closed at each end, thereby removing any openings that smaller wildlife may utilize as a potential burrow. The bottom piece of the pole will be placed in the hole; the top piece will have the hardware assembled to it on the ground. The poles will be assembled by having a truck-mounted crane lift the top piece and lower it onto the lower pole section. Soil will be backfilled around the newly installed pole to fill any remaining void.

2.8.8.2 **Pole Removal**

Tubular Steel Poles

To remove the existing TSPs, a crane will be rigged to the top of the pole, and the pole will be cut off below the bottom arms with a torch and lowered to the ground. The bottom section of the pole will be supported by the same crane and will be cut with the torch at ground level and lowered to the ground. Most existing foundations will be removed up to approximately 3 feet below grade, including concrete and steel. The excavation will be filled in with the spoils from the new foundations.

Existing TSP foundations within environmentally sensitive areas, such as the Pine Hill Preserve, may be abandoned in place to minimize ground-disturbing impacts. Should TSP foundations be abandoned, the steel pole portion will be removed using the same methods described above. The abandoned foundation will contain a void and, to avoid potential safety concerns, a cement truck will be mobilized to fill the void with slurry. The foundation will then be left in place. The crane, cement truck, and other construction equipment will be staged outside of environmentally sensitive areas, matted, or otherwise protected.

Wood Poles

A hydraulic jack mounted on a line truck will be used to loosen wood poles, including existing wood poles along the Gold Hill No. 1 Line and temporary wood poles installed to accommodate construction (e.g., guard structures, snub poles, and temporary line poles). Poles are expected to be cut into two sections and then removed using a line truck with a trailer. Once the poles are removed, the soil removed while auguring the new pole hole will be used to backfill the remaining void. Any unused soil will be feathered in around the new pole site.

2.8.8.3 Tower Modifications

Tower Reinforcement and Antennae Installation

The reinforcement of eight towers will be accomplished with crew trucks, pickups, and boom trucks. Some towers may be accessed on foot where only light modifications are needed.

One tower with cellular equipment mounted at the top of the tower will require substantial reinforcement of the tower body. The cellular equipment that may interfere with work will be removed prior to modification of the tower. The reinforcement will be accomplished using pickups trucks and boom trucks. Once tower modifications are completed, any cellular equipment removed will be reinstalled on the tower.

Tower Raise

The vertical tower raise within Gold Hill Substation will be completed by utilizing a tower lifter, which will be mobilized to the tower from Gold Hill Substation, to install the leg extension. The equipment, which will be positioned beneath the tower, will lift the structure to facilitate the installation of the new extension steel.

2.8.8.4 Conductor Installation

Temporary Guard Structures and Snub Poles

To facilitate conductor installation, two types of temporary wood poles will be installed—guard structures and snub poles.

- **Guard Structures.** Guard structures will be installed alongside roadways or at utility crossings to prevent conductor from sagging or falling into traveled lanes or into contact with other utility lines if the conductor loses tension during reconductoring activities. As such, guard structures will be installed at crossing locations before conductor pulling activities begin. The structures typically consist of paired, single-Y configured pole structures or paired wood poles with cross bracing designed to catch falling conductor; a network of cables and netting may also be tied onto these poles. An approximately 40- by 40-foot work area will be used to install the guard structures. Final design will determine guard structure work area locations. Guard structures will be installed from paved roads whenever possible, and will be located along roadsides in disturbed areas, causing relatively limited disturbance. Where this is not feasible, guard structure sites will be accessed by existing dirt roads and structures will be installed in a way that minimizes soil disturbance. As an alternative to the installation of guard structures, line or bucket trucks may be staged at crossings. PG&E will obtain any necessary city, county, or state encroachment permits.

- **Snub Poles.** Snub poles, which are single wood poles, will be used to facilitate pulling operations. Up to two poles will be installed at pull sites where the conductor cannot be directly attached to the structure because of structure design.

Both guard structures and snub poles are directly buried and may be guyed for stability. A line truck will be used to auger and set the wood poles. Following reconductoring activities, guard structures and snub poles will be removed, the holes will be backfilled, and the disturbed areas will be recontoured and reseeded as needed.

Reconductoring

During reconductoring activities, when existing conductor is replaced with new conductor, the existing power line and any distribution lines that cross or are collocated on the line will be taken out of service (known as "taking a clearance"). To avoid potential safety concerns, a road closure or a rolling stop will be arranged for any locations where lines cross over roads before conductor installation begins. Any road closures that must occur on private and county roads typically will not exceed a few minutes in duration and will be coordinated with the county or landowner. Alternatively, guard structures may be installed at road crossings in lieu of road closures.

To replace a conductor with a new conductor, the existing conductor first will be detached from its support structure and temporarily lifted. Rollers then will be installed at the conductor's attachment point, and the conductor will be placed onto the rollers. The rollers will 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 will require one bucket truck. Crews will access each tower or pole work area by pick-up truck or bucket truck using existing access roads. 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 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 will be pulled out of place. A cable will be attached between the old conductor and new conductor, which will be on a reel attached to a line truck at a pull site.

A line truck with a drum puller and empty conductor reel will pull the old conductor onto the reel, where it will be collected for salvage. Reel stands mounted on a line truck at the pull site will 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 will be adjusted to required tensions. The conductor will then be clamped to the end of each insulator as the rollers are removed. The final step in the conductor installation will be to install vibration dampers and other accessories. Old conductor will be removed from sites on a line truck.

Packing crates, spare bolts, and construction debris will be picked up and hauled away for recycling or disposal during construction. PG&E will conduct a final inspection to confirm that cleanup activities have been successfully completed as required.

Underground Distribution

Approximately 1,000 feet of existing 21 kV overhead distribution line will be placed underground along Platt Circle in the community of El Dorado Hills to meet ground-to-conductor clearance requirements for the reconductored Missouri Flat-Gold Hill Line. Using a backhoe, an approximately 20-inch-wide trench with a minimum depth of approximately 42 inches will be excavated. After the trench is excavated, cable and conduit will be installed and the trench will be backfilled and the soil compacted. In-ground splice boxes, which are approximately 5.5 feet in width, 9.5 feet in length, and 7 feet in depth, will be installed as needed. The paved roadway then will be repaved to required specifications.

2.8.9 Construction Workforce and Equipment

On a typical work day, approximately 15 to 20 construction workers will be at the project site; however, because of the variety of work activities that may be completed concurrently, up to 45 workers may be on site at any time. During line work, crews typically will be working at adjacent poles. Table 2-3: Typical Construction Workers and Equipment provides the typical number of construction workers and equipment generally required for each construction activity and Table 2-4: Anticipated Construction Equipment details the equipment that is planned for use. Not all equipment or workers may be used during all stages of the activity. This table represents a preliminary equipment list; additional equipment and/or workers may be identified once project design is finalized or during construction if unexpected conditions are encountered.

2.8.10 Construction Schedule

Construction is scheduled to begin in summer 2015 and is estimated to be completed by summer 2017; however, some construction-related project activities may extend beyond summer 2017. The schedule is preliminary and subject to change.

2.9 OPERATION AND MAINTENANCE

No changes to existing operation and maintenance activities are anticipated with project implementation. Reconductoring of the Missouri Flat-Gold Hill Line and Gold Hill No. 1 Line will result in less conductor breakage from corrosion and brittleness, thereby improving reliability. Less breakage is anticipated to result in fewer events or incidents that require emergency responses and inspections.

The existing power lines are inspected yearly, or as needed when driven by an event or incident, such as an emergency. A detailed ground inspection is required every other year, with a subsequent aerial patrol in between those years. The routine annual inspections, detailed ground inspections, and aerial patrols will not change from existing conditions with project implementation. Any existing access roads that are reestablished during the project will be used. As maintenance needs arise, repairs and preventative maintenance will continue to be fulfilled by the PG&E transmission line crew (approximately five trained employees).

Table 2-3: Typical Construction Workers and Equipment

Activity	Number of Construction Workers	Equipment Quantity and Type
Site Preparation	5	1 backhoe 1 small bulldozer 1 truck with trailer 1 500-gallon water truck 1 light-duty pickup truck
Auger Holes	3	1 water truck 1 pickup truck 1 line truck with auger attachment
Haul Material	3	1 line truck with trailer
Tubular Steel Pole Installation	6 per crew	1 line truck with boom and crane 2 crew-cab pickup trucks 1 light-duty pickup truck 1 hole digger 3 cement trucks 1 backhoe
Tubular Steel Pole Delivery	2	1 pole delivery truck 1 pickup truck
Wood and LDS Pole Installation	20	3 pickups 1 35-ton crane 3 line trucks 3 bucket trucks 3 light-duty pickup trucks 2 tractors 3 backhoes 8 small line/bucket trucks 1 dump truck 3 water trucks
Wood Pole Removal	6 per crew	2 crew-cab trucks 1 line truck with bucket and trailer
Tower Modification	6	1 200-ton crane
Conductor Installation	6 per crew	1 line truck or semi-truck with conductor reel 2 pickup trucks 2 line trucks with bucket/crane 1 line truck with conductor puller 1 line truck with conductor tensioner
Distribution Placement Underground	5	1 wet vacuum trailer 1 saw cutter 1 dump truck 1 trailer with backhoe 1 crew truck 1 water truck
Substation Modification	5	1 pickup truck 1 line truck 1 bucket truck

Table 2-4: Anticipated Construction Equipment

Equipment	Use
Aerial Lift	Lift crew members to make line connections
Auger	Drill holes for pole installation
Crane	Lift heavy equipment and materials
Crew-cab truck or pickup truck	Transport workers
Dump truck	Remove trash
Excavator	Install mats, trenching
Fork lifts	Install mats
Gas crew truck (26,000 lbs) with trailer	Transport equipment and materials
Generator set	Generate power for operation of tools
Hand-digging equipment	Use for air or hydrologic-operated tooling
Helicopter	Transport personnel workers and equipment
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
Motor grader	Grade work areas and access roads
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
Saw-cutting equipment	Cut pavement for distribution placement underground
Semi-truck (with trailer)	Haul motor grader, conductor reel, or tubular steel pole
Sweeper/Scrubber	Clean roads, if necessary
Tensioner (line truck-mounted)	Install conductor
Tractor/loader/backhoe	Grade and remove foundation; backfill holes
Trencher	Excavate for placing distribution line underground
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

2.10 ANTICIPATED PERMITS AND APPROVALS

The CPUC is the lead state agency for the project under the California Environmental Quality Act (CEQA) because a Permit to Construct (PTC) is required in accordance with the CPUC's General Order No. 131-D Section III.B (GO 131-D). GO-131-D contains the permitting requirements for the construction of transmission and power line facilities. In addition to the PTC, PG&E will obtain all applicable permits for the project from federal, state, and local agencies. Table 2-5: Permits and Approvals that may be Required provides the potential permits and approvals that may be required for project construction.

Table 2-5: Permits and Approvals that may be Required

Permit/Authorization	Agency	Purpose
Federal		
Special Use Permit	BLM	Project activities in the Pine Hill Preserve
Section 7 Consultation (Biological Opinion)	U.S. Fish and Wildlife Service (consulting through the BLM)	Potential impacts to federally listed species
Section 106 Consultation (National Historic Preservation Act) (consultation)	State Historic Preservation Officer	Consultation with the BLM regarding impacts to cultural resources
Notification of Proposed Construction or Alteration	FAA	Height increase of power line structures
State		
PTC	CPUC	Overall project approval and CEQA review
CEQA Review/Approval		Issuance of a PTC
Section 2081 Incidental Take Permit	California Department of Fish and Wildlife (CDFW)	Coverage for potential take of state-listed species
Asbestos National Emission Standards for Hazardous Air Pollutants Notification (notification)	California Air Resources Board	Demolition activities in El Dorado County
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 1 acre of land
Local		
Encroachment Permit (ministerial)	California Department of Transportation	Activities related to the placement of encroachments within, under, or over State highway rights-of-way
Utility Encroachment Permit (ministerial)	El Dorado County	Work within county roads/road ROW or property
Encroachment Permit (ministerial)	City of Folsom	Work within city roads/road ROW or property

Permit/Authorization	Agency	Purpose
Grading Permit (ministerial)	City of Folsom	Disturbance over 800 cubic yards, or 400 cubic yards in a flood hazard/erosion area or is more than 2 feet deep

2.11 APPLICANT-PROPOSED MEASURES

PG&E proposes to implement the APMs listed in Table 2-6: Applicant-Proposed Measures to avoid impacts, further reduce less-than-significant impacts, and minimize impacts to a less-than-significant level. The APMs are discussed in context with the environmental resources presented in their respective resource category subsections in Chapter 3.0.

Table 2-6: Applicant-Proposed Measures

Section 3.1 – Aesthetics
APM AE-1: Include Non-Reflective Finish Non-specular conductor and a non-reflective finish for the poles will be used to reduce the potential for new sources of glare.
APM AE-2: Minimize Effects of Temporary Nighttime Construction Lighting on Sensitive Receptors If temporary lighting is required for nighttime construction, it will be focused on work areas and directed on-site to minimize potential effects with respect to nearby sensitive receptors, particularly residences.
Section 3.3- Air Quality
APM AQ-1: Minimize Fugitive Dust PG&E will minimize fugitive dust during construction by implementing the following measures, which comply with EDCAQMD and SMAQMD requirements: • Reduce the amount of the disturbed area where possible. • Use water trucks or sprinkler systems in sufficient quantity to prevent airborne dust from leaving the site. Increase watering frequency whenever wind speeds exceed 15 miles per hour (mph). Use reclaimed non-potable water whenever possible. Do not use non-potable water in or around crops intended for human consumption. • Implement permanent dust control measures as soon as possible following completion of any soil-disturbing activities. • Enforce a policy that vehicle speed for all construction vehicles is not to exceed 15 mph on any unpaved surface. • Water all active construction areas as needed to suppress dust. Base the frequency on the type of operation and the soil and wind exposure. • Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. • Cover inactive storage piles. • Sweep public roads if visible soil material is carried out from a work site. • Post a publicly visible sign with the phone number for the EDCAQMD for compliance in reporting any Rule 205 (Nuisance) violations, as well as the telephone number and person to contact regarding dust complaints. Instruct this person to respond to complaints and take corrective action within 48 hours. • Limit the area of earth-disturbing activities at any one time.
APM AQ-2: Minimize Vehicle and Equipment Emissions PG&E will minimize vehicle emissions during project construction by implementing the following measures: • Maintain construction equipment in proper working conditions in accordance with PG&E standards. • Minimize unnecessary construction vehicle idling time. 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.

- Minimize construction equipment exhaust by using low-emission or electric construction equipment where feasible. Portable diesel-fueled construction equipment with engines 50 hp 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.

APM AQ-3: Minimize Potential Naturally Occurring Asbestos Emissions

The project will develop a preemptive Asbestos Dust Mitigation Plan to identify all necessary best management practices that will be implemented if NOA is encountered at any time during construction. The Asbestos Dust Mitigation Plan will be compliant with the requirements of CARB's Asbestos ATCM, EDCAQMD's Rule 223-2 (Fugitive Dust – Asbestos Hazard Mitigation), and SMAQMD's Rule 902 (Asbestos).

Before beginning any earth-disturbing activities in areas identified in Section 3.6, Geology and Soils (i.e., "areas more likely to contain asbestos," "areas where the presence of asbestos is possible but unlikely," "areas moderately likely to contain NOA," or "areas least likely to contain naturally occurring asbestos"), a geological evaluation will be performed by a registered geologist to determine whether NOA is present. In addition, before beginning any earth-disturbing activities that will occur within 50 feet of residences and 500 feet of schools, a geological evaluation also will be performed by a registered geologist, to test for the presence of NOA. If NOA is detected during any geological evaluation or during subsequent construction activities, PG&E will minimize NOA emissions by implementing the Asbestos Dust Mitigation Plan, which will comply with the requirements of CARB's Asbestos ATCM, EDCAQMD's Rule 223-2 (Fugitive Dust – Asbestos Hazard Mitigation), and SMAQMD's Rule 902 (Asbestos).

CARB's Asbestos ATCM includes asbestos management requirements that range from creating and implementing an Asbestos Dust Mitigation Plan, observing pre-notifications of construction activities, maintaining construction best management practices, meeting post-construction stabilization requirements, and performing administrative recordkeeping. Construction best management practices include monitoring all potential NOA emission sources: road dust (e.g., limiting vehicle speeds); earth-disturbing activities (e.g., watering before, during, and after disturbance); track-out from work sites (e.g., washing equipment and vehicle tires); material export (e.g., haul truck material handling requirements); and post-construction stabilization (e.g., covering, chemical stabilizers, or vegetation). In addition, if deemed necessary by the local air district or air pollution control officer, air monitoring for asbestos may be required. The project will comply with EDCAQMD's Rule 223-2, which provides a list of best management practices to minimize the generation of asbestos dust from construction activities. The Asbestos Dust Mitigation Plan will include, but will not be limited to measures from EDCAQMD's Rule 223-2, as applicable. Asbestos best management practices for the project may include, but will not be limited to the following:

Backfilling

- Mix backfill soil with water before moving the soil.
- Have a dedicate water truck or a high-capacity hose connected to backfilling equipment.
- Empty the loader bucket slowly to prevent dust plumes from being generated.
- Minimize the drop height from the loader bucket.

Clearing and Grubbing

- Maintain live perennial vegetation where possible.
- Apply water in sufficient quantity to prevent generation of visible dust.

Cut and Fill

- Pre-water with sprinklers or water trucks and allow time for penetration.

- Use water as necessary to minimize dust.
- Install upwind fencing to prevent material movement on site.
- Suspend operations when winds generate visible dust emissions despite control measures.
- Use tarps or other suitable enclosures on haul trucks.
- Provide water while loading and unloading to reduce visible dust plumes.
- If excavated material is classified as a hazardous waste material, verify that off-site transport complies with state and federal rules and regulations.

Disturbed Soil

- Limit vehicular traffic and disturbances on soils where possible.
- Limit vehicle speeds to 15 miles per hour.
- Apply water or a stabilizing agent in sufficient quantities to prevent generation of visible dust plumes.

General Site Management

- Wash mud and soil from equipment and vehicles after completing earth-disturbing activities to prevent them from crusting and drying.
- Prohibit the use of blower devices, dry rotary brushes, or dry brooms.
- Restrict vehicular access to established, unpaved travel paths and parking lots, to meet stabilization requirements.
- Document all locations and quantities of cut and fill, and off-site soil transport.
- Provide signage at work sites that meet Occupational Safety and Health Administration requirements.

Section 3.4 – Biological Resources

APM BIO-1: General Biological Resources Measures

APM BIO-1.1: Worker Environmental Awareness Training Program

A qualified biologist will develop an environmental awareness training program that is specific for 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 ESA and CESA, 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.

APM BIO-1.2: Identification and Marking of Sensitive Resource Areas

Sensitive 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-3), elderberry shrubs having one or more stems measuring 1 inch or more in diameter at ground level within 20 feet of work sites (see APM BIO-4), special-status plants adjacent to work sites, special-status vegetation types adjacent to work sites, and vernal pool and wetland boundaries in and adjacent to work sites. Such areas will be avoided during construction to the extent practicable. .

APM BIO-1.3: Construction Monitoring

A qualified biologist will monitor construction activities in sensitive habitats previously identified by a qualified biologist. The monitor will ensure implementation of and compliance with all avoidance and mitigation measures. The monitor will have the authority to stop or redirect work if construction activities are likely to affect sensitive biological resources.

If a wildlife species is encountered during construction, project activities will cease in the area where the animal is found until the biologist determines the animal has moved out of harm's way, or with prior authorization from the USFWS and/or CDFW if necessary, relocates the animal out of harm's way, and/or takes other appropriate steps to protect the animal. Work may resume once the biologist has determined that construction activities will not harm any wildlife species. If recommended by the biologist, a temporary silt-fence barrier will be installed to prevent wildlife species from entering the work area(s) during project activities. The biological monitor will be responsible for any necessary reporting to USFWS and/or CDFW of any capture and relocation, or inadvertent harm, entrapment or death of a listed species.

APM BIO-1.4: Tree Removal and Mitigation

Trees being felled in the vicinity of a sensitive resource area exclusion zone will be directionally felled away from the zone, where possible. Trees and other vegetation that are removed from the project area will be removed using equipment and access routes that avoid sensitive resource areas.

Oak tree removal will be minimized to what is required to implement the project. Oak trees greater than 6 inches diameter at breast height (dbh), or having multiple trunks with an aggregate over 10 inches dbh, that are removed will be documented and replaced based on a 1:1 ratio or other measure derived through coordination with El Dorado County that provides an equal level of compensation.

APM BIO-2: Special-Status Species Pre-construction Surveys

Before project construction begins, a qualified biologist will perform a pre-construction survey for work areas within 100 feet of suitable habitat for special-status species. If any special-status species are found nearby but outside the proposed work area, they will not be disturbed. If recommended by the biologist, a temporary silt-fence barrier will be installed to prevent special-status species from entering the work area(s) during project activities. If a special-status species is found in a work area prior to construction, the biologist will relocate the species out of harm's way, or with prior authorization from USFWS and/or CDFW if necessary, relocates the animal out of harm's way, and/or takes other appropriate steps to protect the animal.

APM BIO-3: Special-Status Bird Measures

Before project activities in proximity to nesting birds begins, PG&E will obtain the applicable permit or follow relevant protocol that is authorized by Section 3503 and/or Section 3503.5 of the California Fish and Game Code, or by any regulation adopted pursuant thereto, pertaining to nesting birds. If no such permit or protocol is available under the above authorities before project construction begins, PG&E will comply with the following measure:

APM BIO-3.1: Pre-construction Survey and Avoidance of Active Nests

For any tree trimming or other potential nest-disturbing activities to be conducted between February 1 and August 31, a qualified biologist will conduct a pre-construction survey for nesting birds. The survey will be conducted no more than one week prior to the start of work activities and will cover all affected areas where substantial ground disturbance or vegetation clearing is required. If any active nests containing eggs or young are found, an appropriate nest exclusion zone will be established by the biologist. The standard buffers included in PG&E's Avian Conservation Strategy (e.g., 50 to 400 feet from non-special-status bird nests, 75 to 350 feet from non-raptor special-status bird nests, and 300 to 1,320 feet from raptor nests, depending on species) will serve as a guideline for exclusion zones, but may be modified on a site-specific basis as determined by the biologist. To the extent practicable, no project vehicles, chain saws, or heavy equipment will be operated in this exclusion zone until the biologist has determined that the nest is no longer active and or the young have fledged. If it is not practicable to avoid work in an exclusion zone around an active nest, work activities will be modified to minimize disturbance of nesting birds but may proceed in these zones at the discretion of the biologist. The biologist will monitor all work activities in these zones daily when construction is occurring and assess their effect on the nesting birds. If the biologist determines that particular activities pose a high risk of disturbing an active nest, the biologist will recommend additional, feasible measures to minimize the risk of nest disturbance.

APM BIO-4: Valley Elderberry Longhorn Beetle Habitat Avoidance and Mitigation

PG&E's Valley Elderberry Longhorn Beetle 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 (File 1-1-01-F-0114). The Biological Opinion provides for thirty years of incidental take coverage and was initiated on June 27, 2003. It defines reasonable and prudent measures required to avoid and minimize impacts to habitat for the federally listed Valley elderberry longhorn beetle. 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, for example: (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 to elderberry shrubs to USFWS for coverage under the Conservation Program's funding of VELB habitat acquisition, development, and protection.

APM BIO-5: Special-Status Plant Avoidance and Impact Minimization Measures

In addition to APM BIO-1 and APM BIO-2, the following measures will be implemented in gabbroic chaparral habitat in and immediately east of the BLM Pine Hill Preserve, and south of U.S. 50, where the highway borders the BLM Pine Hill Preserve, to avoid and minimize impacts on special-status plants.

APM BIO-5.1: Seasonal Timing Restrictions

If a special-status annual plant species is present, any work that may impact the plant will occur after plant senescence and prior to the first significant rain, to the extent practicable.

APM BIO-5.2: Noxious Weed Assessment and Control Plan

Prior to the commencement of construction activities in the BLM Pine Hill Preserve, a Noxious Weed Assessment and Control Plan will be developed and implemented for work in the BLM Pine Hill Preserve. The plan will assess the areas at risk for noxious weed introduction and/or spread and will identify measures for equipment and vehicle inspection.

APM BIO-5.3: Plant Salvage Requirements

Prior to construction, the location of special-status plants that will be affected by grading and excavation will be surveyed and documented, and the seeds and/or rhizomes of special-status plants that may be destroyed during construction will be collected. Following construction, which plants were permanently or temporarily impacted by the project will be determined. PG&E will develop a Rare Plant Strategy that specifies salvage and propagation methods for special-status plants, as well as pre- and post-project monitoring methods.

APM BIO-5.4: Topsoil Stockpiling Requirements

Where grading or excavation is required in gabbroic chaparral habitat, the upper 4 inches of topsoil will be stockpiled separately during grading or excavations, following any necessary plant salvage efforts. When this topsoil is replaced, compaction will be minimized to the extent consistent with utility standards.

APM BIO-5.5: Locking Gate Installation

Following project completion, locking gates will be installed at the two main roads leading into the BLM Pine Hill Preserve to limit unauthorized vehicle access that may threaten special-status plant populations.

APM BIO-6: Special-Status Plant Impact Mitigation

To compensate for permanent impacts on special-status plants, PG&E will explore options to mitigate for impacts on special-status plants with USFWS and CDFW, and will implement the preferred option. The options may include: on-site planting of propagated seeds and cuttings, which will be described in the Rare Plant Strategy; providing funding to the BLM Pine Hill Preserve for the purpose of habitat enhancement, management, and/or monitoring of gabbroic chaparral habitat; acquiring land that contains gabbroic chaparral habitat and deeding it to the BLM Pine Hill Preserve based on a ratio to be determined in coordination with the BLM Pine Hill Preserve Manager, USFWS and CDFW; or acquiring credits from an approved mitigation bank for special-status gabbroic chaparral plants species, if available.

APM BIO-7: Seasonal Wetland Protection

Seasonal wetlands that may provide habitat for special-status species will not be entered. Travel across seasonal wetlands that do not provide such habitat will be limited to the greatest extent feasible. Where travel across seasonal wetlands is necessary, it will occur during dry conditions to avoid soil compaction and mixing. If travel is required during wet conditions, matting and other protection measures will be implemented to avoid soil compaction or mixing. Matting and other protection measures will be approved by the biological monitor before work at that location begins.

Section 3.5 – Cultural and Paleontological Resources
APM CUL-1: Develop and Implement Worker Environmental Awareness Program Prior to Construction PG&E will design and implement a worker environmental awareness program that will be provided to all project personnel involved in earth-moving activities. No construction worker will be involved in field operations without having participated in the worker environmental awareness program. The worker environmental awareness program will include a kick-off tailgate session to present site avoidance requirements and procedures to be followed if unanticipated cultural or paleontological resources are discovered during project implementation, and a discussion of actions that could be taken against persons violating historic preservation laws and PG&E policies. Key project workers involved with ground-disturbing activities will receive a pamphlet listing how to identify a cultural resource or fossil and what to do if an unanticipated discovery is made during construction. The worker environmental awareness training may be conducted in concert with other environmental or safety awareness and education training programs for the project, and may be recorded for use in subsequent training sessions.
APM CUL-2: Manage Unanticipated Cultural Resources Discoveries Properly In the unlikely event that previously unidentified cultural resources are uncovered during project implementation, 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. The specialist will inspect the discovery and determine whether further investigation is required. If additional disturbance to the resource cannot be avoided, PG&E will evaluate the resource's significance and CRHR eligibility and, if warranted, will implement data recovery excavation or other appropriate treatment measures. The methods and results of evaluation or data recovery work at an archaeological find will be documented in a professional-level technical report to be filed with the NCIC. If previously unidentified cultural resources are uncovered during project implementation on BLM land, procedures will be similar to those described above; however, if additional disturbance to a cultural resource cannot be avoided, PG&E will evaluate the significance and NRHP eligibility per Section 106 of the NHPA in consultation with BLM. Any cultural resource or paleontological work conducted on BLM lands will be conducted under a valid cultural resource and paleontological use permit issued by the BLM California State office, and may require a fieldwork authorization by the local field office. Cultural materials and paleontological resources collected under a BLM-use permit will be curated in an accredited museum repository.
APM CUL-3: Follow Statutory Requirements for Treatment of 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 APM CUL-2 applies. If the remains are human, the cultural resources specialist will immediately implement the provisions in PRC Sections 5097.9 through 5097.996, beginning with the immediate notification to the affected county coroner. The coroner has 2 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 NAHC within 24 hours. The NAHC, as required by PRC Section 5097.98, determines and notifies the Most Likely Descendant. If potential human remains are discovered during any project activity on lands administered by BLM, the procedures identified in NAGPRA will be closely adhered to and the following steps will be taken: 1. All activities that may further disturb the potential human remains will cease immediately in the vicinity of the discovery. 2. PG&E will take appropriate steps to secure and protect human remains and any funerary objects from further disturbance. 3. PG&E's cultural resources specialist will notify BLM's archaeologist by telephone within 24 hours of discovery, followed within 3 days by written confirmation. Human remains or associated funerary objects will not be excavated or otherwise removed unless a permit is issued under ARPA and after consultation

between the appropriate Native American representative(s), BLM, and PG&E.

4. The activity that resulted in the inadvertent discovery will not resume until clearance is provided by BLM.

APM CUL-4: Flag and Avoid Cultural Resources

The boundaries of all known cultural resources that lie within 100 feet of a designated work area will be marked with flagging tape, safety fencing, and/or a sign designating it as an "environmentally sensitive area" to ensure that PG&E construction crews and heavy equipment will not intrude on these resources during construction. For those eligible or potentially eligible sites that contain an existing access road within their site boundary, 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 compliance with this APM becomes infeasible or impractical, any resource that has the potential to be affected will be evaluated for CRHR eligibility, and mitigation or treatment measures specific to the resource will be developed and implemented, if necessary.

APM CUL-5: Avoid Paleontologically Sensitive Locations

No direct impacts on fossil-bearing deposits (ground disturbance) will occur within the approximately 0.29-acre project area containing Quaternary alluvium just west of Empire Ranch Road and the El Dorado-Sacramento County boundary. However, should project development result in the disturbance of this geologic unit at a depth of 10 feet or greater, a qualified paleontologist will be retained as needed to ensure that impacts on any potential paleontological resources are avoided.

If fossil remains are uncovered during project implementation, all work within 50 feet of the discovery will be halted and the construction crew immediately will notify PG&E. A paleontologist will be retained by PG&E to evaluate the resource and determine whether to prepare a treatment plan based on if the resource is "unique" in accordance with Society of Vertebrate Paleontology guidelines (SVP 2010). Components of the treatment plan related to "unique" fossil specimens that are encountered during construction may include a field survey, additional construction monitoring, specific sampling and data recovery procedures, museum storage coordination for any specimen recovered, and a report of findings.

Section 3.6 – Geology and Soils

APM GEO-1: Minimization of Construction in Soft or Loose Soils

Where soft or loose soils are encountered during project construction, appropriate measures will be implemented to avoid, accommodate, replace, or improve such soils. Depending on site-specific conditions and permit requirements, these measures may include:

- 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 over access roads such as aggregate rock, steel plates, or timber mats; and
- treating soft or loose soils in place with binding or cementing agents.

APM GEO-2: Reduction of Slope Instability during Construction

Existing natural or temporarily constructed slopes affected by construction or operations will be evaluated for stability. In developing grading plans and construction procedures for access roads, the stability of both temporary and permanent cut, fill, and otherwise affected slopes will be analyzed. Construction slopes and grading plans will be designed to limit the potential for slope instability and minimize the potential for erosion and flooding during construction. During construction, slopes affected by construction activities will be monitored and maintained in a stable condition. Construction activities likely to result in slope instability will be suspended, as necessary, during and immediately following periods of heavy precipitation when unstable slopes are more susceptible to failure.

Section 3.7 – Greenhouse Gas Emissions

APM GHG-1: Minimize GHG Emissions

- Maintain construction equipment in proper working conditions in accordance with PG&E standards.
- Minimize unnecessary construction vehicle idling time. 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.
- Minimize construction equipment exhaust by using low-emission or electric construction equipment where feasible. Portable diesel fueled construction equipment with engines 50 hp 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.

APM GHG-2: Minimize SF_6 Emissions

- Incorporate the new breakers at Gold Hill Substation into PG&E's system-wide SF_6 emission reduction program. CARB has adopted the Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear sections 95350 to 95359, title 17, California Code of Regulations, which requires that company-wide SF_6 emission rate not exceed 1 percent by 2020. Since 1998, PG&E has implemented a programmatic plan to inventory, track, and recycle SF_6 inputs, and inventory and monitor system-wide SF_6 leakage rates to facilitate timely replacement of leaking breakers. PG&E has improved its leak detection procedures and increased awareness of SF_6 issues within the company. X-ray technology is now used to inspect internal circuit breaker components to eliminate dismantling of breakers, reducing SF_6 handling and accidental releases. As an active member of EPA's SF_6 Emission Reduction Partnership for Electrical Power Systems, PG&E has focused on reducing SF_6 emissions from its transmission and distribution operations and has reduced the SF_6 leak rate by 89 percent and absolute SF_6 emissions by 83 percent.
- Require that breakers to be replaced at Gold Hill Substation have a manufacturer's guaranteed maximum leakage rate of 0.5 percent per year or less for SF_6.
- Maintain substation breakers in accordance with PG&E's maintenance standards.
- Comply with CARB Early Action Measures as these policies become effective.

Section 3.8 – Hazards and Hazardous Materials

APM HAZ-1: Hazardous-Substance Control and Emergency Response

PG&E will implement a Hazardous Substance Control and Emergency Response Plan, which will identify methods and techniques to minimize exposure of the public and construction workers to potentially hazardous materials during all phases of project implementation. The procedures require PG&E to provide worker training in hazardous-substance control and emergency response that is appropriate to the workers' roles. The procedures also require implementation of appropriate control methods and approved containment and spill-control practices for construction and materials stored in the project area. If it is necessary to store chemicals, the chemicals will be managed in accordance with all applicable regulations. Material safety data sheets will be maintained and kept available in the project area, as applicable.

Project construction may require blading/leveling of the soil surface and excavation or auguring to a depth of approximately 24 feet. However, if soils suspected of contamination (based on visual, olfactory, or other evidence) are removed during grading or excavation/auguring activities, the excavated soil will be tested. If they are contaminated above hazardous-waste levels, those soils will be contained and disposed of at a licensed waste facility. Any known or suspected contaminated soil will undergo testing and investigation procedures, supervised by a qualified person as appropriate, to meet the requirements of 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 will include but will not be limited to the following measures:

- proper disposal of potentially contaminated soils;
- establishment of project area–specific buffers for construction vehicles and equipment located near sensitive resources; and
- implementation of emergency-response and reporting procedures to address spills of hazardous materials.

APM HAZ-2: Smoking and Fire Rules

Smoking will be permitted only in designated smoking areas or within the cabs of vehicles or equipment.

APM HAZ-3: Fire Risk Management

Project personnel will be directed to park away from dry vegetation. During fire season in designated SRAs, 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.

Section 3.9 – Hydrology and Water Quality

APM HYDRO-1: Stormwater Pollution Prevention Plan

PG&E will file a Notice of Intent with the SWRCB for coverage under the General Construction Storm Water Permit and will prepare and implement an SWPPP in accordance with General Order No. 2009-0009-DWQ, which typically includes measures such as placement of straw wattles or silt fencing, flagging, mulching, seeding and other means to help stabilize disturbed areas and reduce erosion and sedimentation.

APM HYDRO-2: Water Feature Protection Requirements

Where access through hydrologic resources are required, PG&E will install temporary bridges or plates over drainages (spanning the ordinary high water mark) and install fiberglass or wood matting in wetland features to reduce water quality impacts to these features.

Section 3.12 – Noise

APM NO-1: 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.

APM NO-2: Minimize Noise with Portable Barriers

Compressors and other small stationary equipment used during project construction will be shielded with portable barriers if the equipment is located near noise-sensitive receptors.

Section 3.15 – Recreation

APM REC-1: Coordination with Park and Open Space Management and Signage

PG&E will coordinate closely with park and open space management for temporary public land closures during project construction activities. If traditional access is temporarily unavailable, signs advising recreational facility users of construction activities, including directions to alternative trails and/or bikeways, will be posted at entrance gates to park and open space areas. Signage will be posted at least 1 week in advance of construction, near parks and open space areas.

Section 3.16 – Transportation and Traffic
APM TRA-1: Air Transit Coordination PG&E will implement the following protocols that pertain to helicopter use during construction and air traffic: • PG&E will comply with all applicable FAA regulations regarding air traffic within 2 miles of the project alignment. • PG&E's helicopter operator will coordinate all project helicopter operations with the local airport before and during project construction. • PG&E does not anticipate that residents will be required to temporarily vacate their homes or businesses. In the unlikely event that final construction plans require otherwise, PG&E will coordinate with potentially affected residents or businesses to minimize the duration of the necessary work and any resultant inconvenience.
APM TRA-2: Temporary Traffic Controls PG&E will obtain any necessary transportation and/or encroachment permits, including those for the U.S. 50 crossings and transport of oversized loads and certain materials, and will comply with permit requirements designed to prevent excessive congestion or traffic hazards during lane closures. PG&E will 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 will follow best management practices and/or local jurisdictional encroachment permit requirements, to minimize impacts to traffic and transportation in the project area.

TABLE OF CONTENTS

List of Figures

List of Tables

3.1 AESTHETICS

3.1.1 INTRODUCTION

This section describes existing conditions and potential aesthetic impacts as a result of the project. Because the minor modifications to the switching station and substations will not be noticeable to the public, this evaluation focuses solely on impacts relating the construction of the Missouri Flat-Gold Hill 115 Kilovolt (kV) Power Line (Missouri Flat-Gold Hill Line) and Gold Hill No. 1 60 kV Power Line (Gold Hill No. 1 Line). The analysis concludes that any aesthetic impacts will be less than significant or that no impact will occur. The Applicant-Proposed Measures (APMs) described in Section 3.1.4.2, Applicant-Proposed Measures, will further reduce any less-than-significant impacts.

The project's potential effects on aesthetic resources were evaluated using the significance criteria set forth in Appendix G of the California Environmental Quality Act (CEQA) Guidelines, as shown Table 3.1-1: CEQA Checklist for Aesthetics. The conclusions are discussed in more detail in Section 3.1.4, Applicant-Proposed Measures and Potential Impacts.

Table 3.1-1: CEQA Checklist for Aesthetics

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

3.1.2 REGULATORY BACKGROUND AND METHODOLOGY

3.1.2.1 Regulatory Background

Federal

No federal regulations related to aesthetic resources are applicable to the project.

State

California Scenic Highway Program

The California Scenic Highway Program, described in the Streets and Highways Code, was established by the Legislature in 1963 to preserve and enhance California's natural beauty. The State Scenic Highway System includes highways that either are eligible for designation as scenic highways or have been designated as such. The status of a State scenic highway changes from eligible to officially designated when the local jurisdiction adopts a scenic corridor protection program, applies to the California Department of Transportation (Caltrans) for scenic highway approval, and receives the designation from Caltrans (Caltrans 2009). A city or county may propose adding routes with outstanding scenic elements to the list of eligible highways. However, State legislation is required before a highway can be officially designated.

Local

The project is not subject to local discretionary land use regulations because the California Public Utilities Commission (CPUC) has exclusive jurisdiction over the siting, design, and construction of the project. However, PG&E has considered local plans and policies as part of the environmental review process. Additional information regarding these plans and policies is available in Section 3.10, Land Use.

The project alignment is located in unincorporated areas of El Dorado County and in the City of Folsom. This section reviews the county's and city's visual resource-related policies and regulations. Table 3.1-2: Summary of Designated Scenic Resources in the Project Area presents a summary of the roadways designated by these jurisdictions as scenic.

Table 3.1-2: Summary of Designated Scenic Resources in the Project Area

Scenic Resource (Location Relative to Project Alignment)	Designation	Appendix B Photograph(s)[1]
U.S. Highway 50 (Bass Lake Grade, view facing west toward Sacramento Valley)	El Dorado County Scenic Viewpoint	7
Latrobe Road (White Rock Road to southern county line)	El Dorado County Scenic Viewpoint	9
East Bidwell Street	City of Folsom Scenic Corridor	16
U.S. Highway 50 (South Lake Tahoe to Placerville, 8.25 miles away)	Officially Designated State Scenic Highway	Project not visible
State Routes 160 and 84 (24 miles away)	Officially Designated State Scenic Highway	Project not visible
State Route 49 (4.25 miles away)	State Eligible Scenic Highway, El Dorado County	Project not visible
U.S. Highway 50 (east of Bass Lake Road, view facing south toward Marble Valley)	El Dorado County Scenic Viewpoint	Project not visible
U.S. Highway 50 (between South Shingle Road and Greenstone Road, view facing east toward Crystal Range)	El Dorado County Scenic Viewpoint	Project not visible
U.S. Highway 50 (Sacramento County, 0.65 mile away)	Sacramento County Scenic Corridor	Project not visible
Gold Rush Parkway (2.25 miles away)	Sacramento County Scenic Corridor	Project not visible
Lower American River (2.5 miles away)	Sacramento County Scenic Corridor City of Folsom Scenic Corridor	Project not visible
Blue Ravine Road (1 mile away)	City of Folsom Scenic Corridor	Project not visible
Prairie City Road (1.25 miles away)	City of Folsom Scenic Corridor	Project not visible

Notes:
[1] Photographs are provided in Appendix B: Representative Visual Conditions and Public Views in the Project Area.
Source: Data compiled by AECOM in 2013

El Dorado County General Plan

The El Dorado County General Plan (El Dorado County 2004) includes goals, policies, and implementation measures to guide development and protect visual quality in the county on a long-term basis. Scenic resources are addressed in the Land Use, Public Services and Utilities, and Conservation and Open Space elements.

The Land Use Element contains general provisions regarding sensitive aesthetic resources, namely the preservation of natural landscape features, community identities and separation, corridor viewsheds, and lighting standards. Although this general plan element describes provisions related to a scenic-corridor ordinance, the ordinance has yet to be prepared or adopted, and thus does not identify any scenic resources.

The Public Services and Utilities Element contains general provisions for many subject areas, including public services, water supply, wastewater collection and treatment, storm drainage, solid waste, utility services, emergency services, schools, library services, and cultural facilities. The following policy from the Public Services and Utilities Element pertains to aesthetic resources:

Policy 5.6.1.1 Promote and coordinate efforts with utilities for the undergrounding of existing and new utility distribution lines in accordance with current rules and regulations of the California Public Utility Commission and existing overhead power lines within scenic areas and existing Community Regions and Rural Centers.

The Conservation and Open Space Element contains general provisions about the management, preservation, and conservation of natural resources. This element also includes goals and policies related to preserving the visual integrity of historic resources and to designating important outdoor recreation areas, including those of outstanding scenic value and areas that serve as links between major recreation and open space reservations, including utility easements and scenic highway corridors. However, it does not contain specific provisions concerning resources in the project area.

City of Folsom General Plan

The project alignment crosses the center of the City of Folsom from the eastern edge of the city to Gold Hill Substation near Oak Avenue Parkway. The Land Use, Open Space and Conservation, Parks and Recreation, and Public Facilities elements of the City of Folsom General Plan (City of Folsom 1993) were reviewed for policies regarding aesthetics and scenic corridors.

The Land Use Element focuses primarily on the distribution and development intensity of residential, commercial, industrial, and open space land uses. Although the element describes goals and policies related to the preservation of natural resources and scenic viewsheds in the context of new development, this element does not contain specific provisions identifying aesthetic resources that relate to existing electric utilities.

The Open Space and Conservation Element focuses on the preservation and management of limited resources, including natural and historic resources as they relate to development. This element does not contain specific provisions applicable to aesthetic resources that relate to existing electric utilities.

The Parks and Recreation Element primarily discusses the existing and projected inventory of open space and parklands, including dedication standards and maintenance/enhancement programs. This element does not contain specific provisions applicable to treatment of aesthetic resources.

The Public Facilities Element primarily discusses municipal services and facilities that support development projects. This element does not contain specific provisions applicable to aesthetic resources.

3.1.2.2 **Methodology**

Preliminary drawings and project data provided by PG&E were reviewed to determine the physical characteristics of the project area and potential extent of project-generated changes. In addition, background materials consisting of aerial photographs, geographic information system data, and policy documents were reviewed to ascertain general visual conditions in the project area and establish the locations of sensitive viewing areas. The following viewing locations were determined to be sensitive:

- Locations along designated scenic resources
- Nearby residences in the communities of Shingle Springs and El Dorado Hills and other unincorporated areas of El Dorado County, and in the City of Folsom
- Schools
- Recreational use areas and public parks

Field reviews and site photography were completed in May 2013 to document existing visual conditions along the project alignment. In accordance with CEQA guidance for evaluating aesthetic impacts and based on the field observations, 17 representative public viewing locations, or Key Observation Points (KOPs), were photo-documented along the project alignment to show existing visual conditions. KOPs were selected based on consideration of professionally accepted criteria and included locations where project-related changes will be most visible to the public or be seen by the greatest number of viewers. Locations where project-related changes will be seen from sensitive viewing locations (such as residences or recreation areas) or designated scenic resources (such as scenic routes or scenic vistas) were also included. Of the 17 KOPs selected for detailed evaluation, three visual simulations were developed to illustrate before-and-after visual conditions along the project alignment.

The baseline (before project) photographs were taken using a digital single-lens reflex camera and a “normal” 50-millimeter equivalent lens that represents a horizontal view angle of approximately 40 degrees. The simulation methods employ systematic computer modeling and rendering techniques. Digital aerial photographs and information about the project alignment and project design, both supplied by PG&E, provided the basis for developing a 3-dimensional

(3D) computer model of the existing poles, towers, and proposed replacements or modifications. For each simulation viewpoint, viewer location was input from Global Positioning System data, using 5 feet as the assumed eye level. Computer "wireframe" perspective plots were overlaid on the simulation photographs to verify scale and viewpoint location. Digital visual simulation images were then produced based on computer renderings of the 3D model combined with digital versions of the selected site photographs. Figures showing existing views and computer-generated visual simulations of the project alignment were produced and are discussed in Section 3.1.4.3, Potential Impacts.

The evaluative process set out by the Federal Highway Administration's (FHWA) Visual Impact Assessment for Highway Projects document (FHWA 1988) and other accepted visual analysis techniques informed analysis of the views. The FHWA analysis approach was developed by a major federal agency that has invested considerable resources in its creation, testing, and implementation. As a result, this approach is robust and is now widely used to provide systematic and objective evaluations of visual change. FHWA's visual quality and aesthetics assessment method addresses the visual qualities and characteristics of the existing landscape in the project area, the project's potential effects on the area's visual quality and aesthetics, and viewers' likely level of concern about or reaction to the way in which the project visually fits within the existing landscape.

Visual or aesthetic resources are generally defined as both the natural and built features of the landscape that are seen and that contribute to the public's experience and appreciation of the environment. Impacts on visual or aesthetic resources are generally defined in terms of a project's physical characteristics and potential visibility and the extent to which its presence will alter the perceived visual character and quality of the environment. The project's visual impact assessment is based on evaluating the changes to the existing visual resources that will result from construction, operation, and maintenance of the project. These changes, and viewer response to those changes, were assessed in part by evaluating the "after" views provided by the computer-generated visual simulations and comparing them to the existing visual environment.

3.1.3 Environmental Setting

The project alignment (the general corridor containing the existing power lines that will be modified as part of this project) lies in Northern California, south of Folsom Lake and northeast of the Sacramento–San Joaquin Delta, which runs farther southwest into San Francisco Bay. The eastern terminus of the project alignment is located in the community of Shingle Springs, which is located in the center of El Dorado County and is part of the Sierra Nevada foothills. From there, the project alignment extends approximately 12.5 miles west into the City of Folsom in Sacramento County, where the alignment enters Sacramento Valley (see Figure 3.1-1: Regional Landscape Context, Landscape Units, and Key Observation Points Map). In general, the project alignment, including the Gold Hill No. 1 Line where it diverges from the Missouri Flat-Gold Hill Line, traverses a landscape ranging from areas with high levels of human modification—including suburban residential and commercial development—to rural and hilly terrain.

At its eastern end, where the project alignment lies in the Sierra Nevada foothills, a grid of roadways, rolling hills and utility lines provides a physical and visual framework for the area's overall land use, which includes a prevailing residential development pattern. The western portion of the project alignment is dominated by a significantly populated suburban environment at the edge of the Sacramento Valley. Elevations along the project alignment range from approximately 1,500 feet (in El Dorado County) to 350 feet (near the City of Folsom).

The project alignment crosses or lies near several local and regional roadway corridors. U.S. Highway 50 (U.S. 50) provides a major east-west connection in the area from South Lake Tahoe through El Dorado County and Folsom to central Sacramento. Nearby major highways include Interstate 80, which provides an east-west transportation link from Reno through Sacramento to the San Francisco Bay Area, and State Route 49 provides a north-south connection between Madera County in the Sierra Nevada to Placerville and Plumas County, near the Nevada state border. Local arterial roads and rural roads further connect local communities. The project area is visible from places along nearby public roadways.

Throughout the project area, electric utility structures, including substations and overhead power lines, are established landscape features.

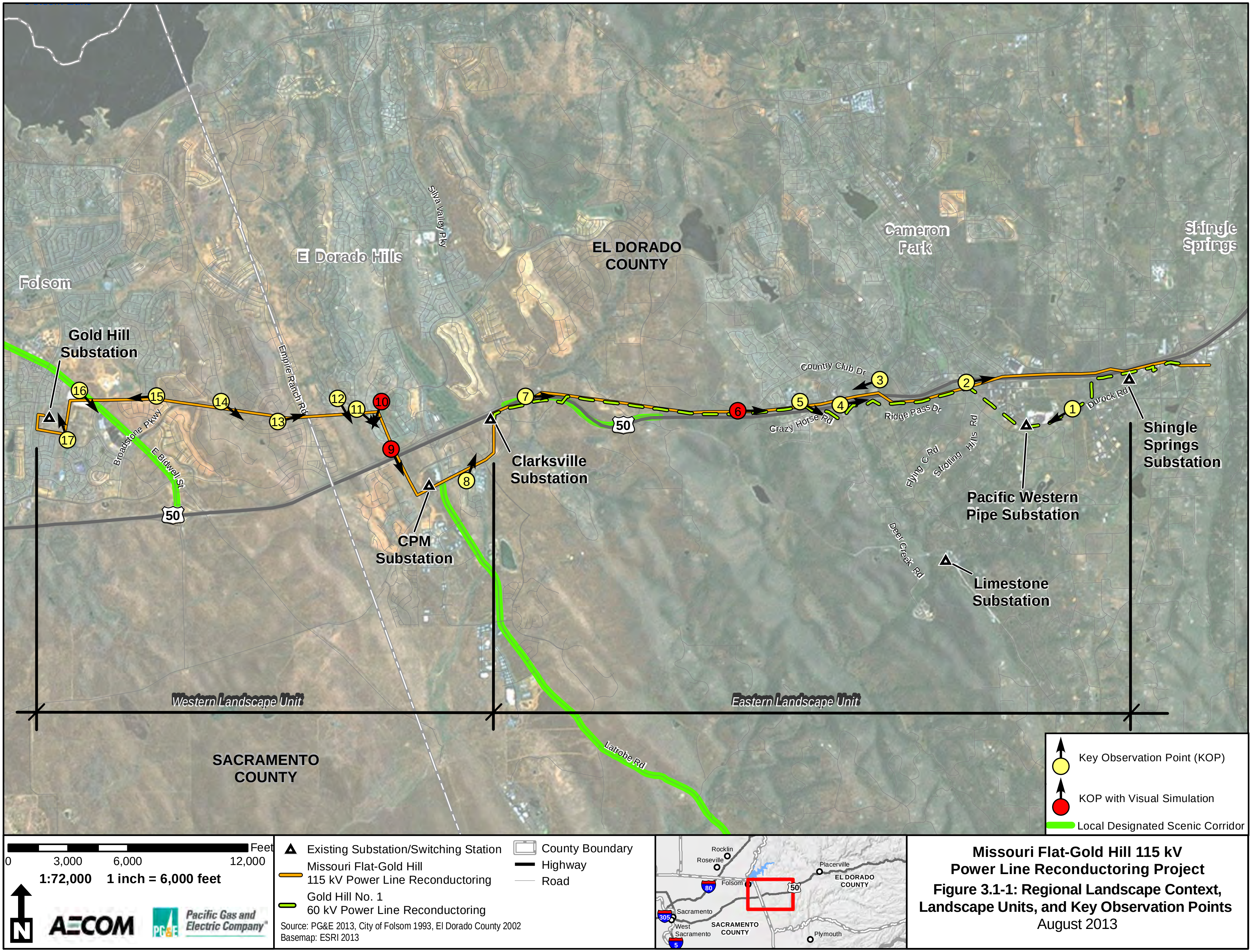
3.1.3.1 Project Viewshed and Representative Views

The project viewshed is defined as the general area from which a project is visible or can be seen. For purposes of describing a project's visual setting and assessing potential visual impacts, the viewshed can be broken down into three distance zones: foreground, middleground, and background. The foreground is defined as the zone within 0.25 to 0.5 mile of the viewer. Landscape detail is most noticeable and objects generally appear most prominent when seen in the foreground. The middleground is a zone that extends from the foreground up to 3 to 5 miles from the viewer, and the background extends from approximately 3 to 5 miles away to infinity (Smardon et al. 1986).

For the purpose of this analysis, the potential effects on foreground viewshed conditions are emphasized, particularly those areas within 0.25 mile of the project alignment. Because of intervening vegetation and terrain, views of the project alignment are partially or fully screened from many locations in the area. Where the project alignment can be seen by the public, viewing conditions range from foreground unobstructed views to relatively rugged, forested terrain with partially screened views. The project alignment is not visible in its entirety from any single viewing location given its overall length, the height of structures, and the presence of intervening vegetation.

3.1.3.2 Landscape Units and Representative Views

The overhead power lines being reconductored as part of this project extend approximately 12.5 miles and connect Shingle Springs Substation in the community of Shingle Springs to Clarksville Substation in the community of El Dorado Hills and Gold Hill Substation in the City of Folsom. The project's foreground viewshed has been divided into two distinct sub-areas or landscape units for purposes of documentation and description (Table 3.1-3: Summary of Landscape Units).



Missouri Flat-Gold Hill 115 kV Power Line Reconductoring Project

Figure 3.1-1: Regional Landscape Context, Landscape Units, and Key Observation Points

August 2013

Table 3.1-3: Summary of Landscape Units

Landscape Unit	Length (approximate)	Primary Affected Viewers	Representative Photographs	Visual Simulations
Eastern—Shingle Springs to Clarksville	6.75 miles	Motorists, residents, recreationalists	Appendix B, Photographs 1–7	Figure 3.1-3
Western—Clarksville Substation to Gold Hill	5.75 miles	Motorists, residents, recreationalists	Appendix B, Photographs 8–17	Figures 3.1-5 and 3.1-7
Source: Data compiled by AECOM in 2013				

Figure 3.1-1: Regional Landscape Context, Landscape Units, and Key Observation Points Map delineates the project alignment and landscape units along with photograph viewpoints. Appendix B: Representative Visual Conditions and Public Views in the Project Area presents a set of 17 photographs that portray representative existing visual conditions and existing public views in the project area.

Eastern Unit—Shingle Springs to Clarksville (Appendix B, Photographs 1–7)

This landscape unit begins in Shingle Springs in western El Dorado County and continues for approximately 6.75 miles west to Clarksville Substation, located at the western edge of the Sierra Nevada foothills, as the landscape transitions into the Sacramento Valley. This area is characterized by rolling hills and a mixture of suburban residential development, scattered rural residences, and open space made up of annual grassland and oak woodland. This alignment crosses multiple watercourses including Old Mill Creek near Shingle Springs Substation, Deer Creek in Cameron Park, and Carson Creek just east of El Dorado Hills. Relatively unobstructed close-range and middleground views of the existing power lines are available from roadways and other public viewing locations in this area. The project alignment crosses and parallels other visible existing utility lines, such as distribution lines, throughout this landscape unit.

Both the Missouri Flat-Gold Hill and Gold Hill No. 1 lines begin near U.S. 50 off South Shingle Road and run west to Shingle Springs Substation, located at approximately 1,450 feet in elevation off Durock Road. From Shingle Springs Substation, the two power lines diverge for a portion of the project alignment, as described below.

- The Gold Hill No. 1 Line extends from Shingle Springs Substation west along the south side of U.S. 50 for approximately 0.35 mile, then turns south on Via del Gatos until it reaches Durock Road, which the line parallels in a southwest direction through a rural residential area. The line then turns northwest on Rodeo Road, where it meets the Missouri Flat-Gold Hill Line at the Rodeo Road northwest terminus. Appendix B, Photograph 1 provides a view of the Gold Hill No. 1 Line as it parallels Durock Road.

- Extending from Shingle Springs Substation, the Missouri Flat-Gold Hill Line crosses northwest over U.S. 50 and continues parallel on the north side of the highway for approximately 1 mile through undeveloped open space, then crosses back over U.S. 50 near the northwest terminus of Rodeo Road at a shopping center. Appendix B, Photograph 2 shows the view from U.S. 50 near Rodeo Road as the Missouri Flat-Gold Hill Line crosses over to the south side of the highway.

The two power lines again converge at Rodeo Road and extend parallel to each other south of U.S. 50. The parallel lines traverse a forested buffer area between the highway and a relatively undeveloped rural residential area for approximately 0.3 mile until the lines again diverge, as described below.

- The Missouri Flat-Gold Hill Line crosses northwest over U.S. 50 and remains parallel to the highway approximately 0.7 mile through open space and a commercial zone. Photograph 3 provides a view of the Missouri Flat-Gold Hill Line as it is seen from residences north of the power line along County Club Drive. Appendix B, Photograph 4 shows a view from U.S. 50 at the Cambridge Road overpass looking east, where the Missouri Flat-Gold Hill Line is visible on the north side of the highway

- The Gold Hill No. 1 Line diverges, follows Strolling Hills Road, Flying C Road, and Crazy Horse Road near rural residences and a church. Appendix B, Photograph 4 shows a view from U.S. 50 at the Cambridge Road overpass looking east, where the Gold Hill No. 1 Line is visible on the south. The Gold Hill No. 1 Line continues through open space until just before a single-family residential subdivision at Voltaire Drive, where it crosses north over U.S. 50 and meets the Missouri Flat-Gold Hill Line.

The two lines converge in Cameron Park on the north side of U.S. 50 adjacent to Christa McAuliffe Park. Appendix B, Photograph 5 shows a tubular steel pole (TSP) on the Missouri Flat-Gold Hill Line, as seen from Christa McAuliffe Park near multiple school buildings. The power lines continue west, generally parallel to U.S. 50 behind commercial buildings and a church. Appendix B, Photograph 6 provides a view of both power lines looking east from Country Club Drive and Tierra de Dios Drive—a road that leads solely to the Holy Trinity Church and School. The two power lines continue west through an oak grove and grassy undeveloped lands parallel to U.S. 50 for approximately 1.1 miles, then turn slightly northeast and separate from U.S. 50 through sparsely developed land for approximately 1.2 miles where the power lines are met by the highway again near Tong Road. In this area, both power lines cross south over U.S. 50 and continue west through grassy open space to Clarksville Substation. Appendix B, Photograph 7 shows the Missouri Flat-Gold Hill and Gold-Hill No. 1 lines as seen from Tong Road overlooking U.S. 50. Project-related work on the Gold Hill No. 1 Line terminates at Clarksville Substation.

The primary viewers in this landscape unit are motorists using U.S. 50 and local arterials including Durock Road and Country Club Drive. In addition, concentrations of suburban residences located in Shingle Springs and Cameron Park and rural residences located between the development centers lie near the alignment.

Figure 3.1-2: Existing View from Tierra de Dios Road (KOP 6)

Figure 3.1-3: Visual Simulation of the Project from Tierra de Dios Road (KOP 6)

Figure 3.1-4: Existing View from White Rock Road (KOP 9)

Figure 3.1-5: Visual Simulation of the Project from White Rock Road (KOP 9)

Figure 3.1-6: Existing View from Redwood Lane (KOP 10)

Figure 3.1-7: Visual Simulation of the Project from Redwood Lane (KOP 10)

Western Unit—Clarksville to Gold Hill (Appendix B, Photographs 8–17)

This landscape unit begins in El Dorado Hills at the western edge of the Sierra Nevada foothills and continues for approximately 5.8 miles west to Gold Hill Substation, located in the City of Folsom, as the landscape descends into the Sacramento Valley. This area is characterized by rolling hills, utility lines and primarily suburban residential development, with short breaks through open space made up primarily of annual grassland. As the alignment extends west, the topography becomes increasingly flat and mild as it transitions into the Sacramento Valley. This alignment crosses minor watershed catchments that lead into the upper American River, including Willow Creek in Folsom. Relatively unobstructed close-range and middleground views of the existing power lines are available from roadways and other public viewing locations in this area. The project alignment crosses and parallels other visible existing utility lines, such as distribution lines, throughout the western unit.

The Missouri Flat-Gold Hill Line resumes at Clarksville Substation, located at approximately 695 feet in elevation off Joerger Cutoff Road. Extending from the substation, the power line runs south through undeveloped grasslands for approximately 0.30 mile until the line turns west, generally parallel to White Rock Road, through a commercial and suburban residential development. Appendix B, Photograph 8 provides a view of the existing power line and adjacent lines from within the residential area at Creekside Greens Park. The power line then turns northwest through a grassy open space between developments until the line crosses over U.S. 50, as shown in Appendix B, Photograph 9. The line continues northwest through a suburban residential subdivision, where it meets Bertelsen Park and William Brooks Elementary School in El Dorado Hills, as shown in Appendix B, Photograph 10. At Bertelsen Park, the Missouri Flat-Gold Hill Line turns west out of the residential neighborhood, with partially obstructed views of the alignment as shown in Appendix B, Photographs 11 and 12, then passes through an open space between developments with sparse oak trees, and enters the City of Folsom in Sacramento County.

In Folsom, as the existing Missouri Flat-Gold Hill Line crosses Empire Ranch Road, it converts to lattice steel structures for the remainder of the alignment west to Gold Hill Substation. Appendix B, Photographs 13 and 14 show relatively unobstructed views of the existing power line from residences, bike paths, and Nisenan Park. The power line moves west through multiple residential neighborhoods off Broadstone Parkway and Scholar Way as shown in Appendix B, Photograph 15, and passes Vista del Lago High School and Folsom Lake College. The alignment then crosses west over East Bidwell Street, a designated City of Folsom Scenic Corridor characterized by several commercial buildings and a railroad corridor, as shown in Appendix B, Photograph 16. Finally, the existing Missouri Flat-Gold Hill Line turns south through a utility corridor and wraps around Gold Hill Substation, where the line terminates. Appendix B, Photograph 17 shows a view from John Kemp Community Park looking northwest toward the Missouri Flat-Gold Hill Line. Several other lattice steel tower lines are also visible, including tower lines owned by the Sacramento Municipal Utilities District (SMUD), as well as a SMUD substation.

The primary viewers in this landscape unit are motorists using U.S. 50 and local arterials including Broadstone Parkway, Scholar Road, and East Bidwell Street. In addition, concentrations of suburban residences located in El Dorado Hills and the City of Folsom lie near the alignment.

3.1.3.3 Potentially Affected Viewers

Within the project viewshed there are three primary types of potentially affected viewers—roadway motorists, residents, and recreationalists.

Motorists, the largest viewer group, include people traveling on U.S. 50 and various local roads. Motorists consist of both local and regional travelers who are familiar with the visual setting and travelers who use the roadway less regularly, including tourists visiting the nearby Folsom Lake State Recreation Area, and the Sierra Nevada including the Lake Tahoe area. Affected views are generally brief, typically lasting less than a few minutes. Viewer sensitivity is considered low to moderate.

The second viewer group consists of nearby residents. Residences in Shingle Springs, Cameron Park, El Dorado Hills, and the City of Folsom and scattered rural residences lie near the project alignment; the largest concentration is in the City of Folsom, where the alignment crosses into the city's major development center. As discussed in Section 3.1.3.2, Landscape Units and Representative Views, open views toward the project alignment and other power lines are available from residences at many locations; however, in other locations, such as in the rural forested portion of Cameron Park south of U.S. 50, mature trees and topography limit or completely screen most residential views. Residential views tend to be long in duration, and the sensitivity of this viewer group is considered moderate to high.

Recreationalists, the third group, are people who use parks and trails such as Christa McAuliffe Park, Creekside Greens Park, Bertelsen Memorial Park, Nisenan Park and its associated bike paths, and John Kemp Community Park. Recreational views tend to be brief or moderate in duration, and the sensitivity of this viewer group is moderate to high.

3.1.4 Applicant-Proposed Measures and Potential Impacts

The following sections describe significance criteria for aesthetic impacts derived from Appendix G of the CEQA Guidelines, provide relevant APMs, and contain an assessment of potential project-related construction and operational impacts on aesthetic resources.

3.1.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of the project's impacts on aesthetics was evaluated for each of the criteria listed in Table 3.1-1: CEQA Checklist for Aesthetics, as discussed in Section 3.1.4.3, Potential Impacts.

3.1.4.2 Applicant-Proposed Measures

As described in Section 3.1.4.3, Potential Impacts, impacts on aesthetics will be less than significant or no impact will occur. The following APMs will meet existing regulations and/or requirements or standard practices to further avoid, minimize, or reduce potential less-than-significant impacts on aesthetics.

APM AE-1: Include Non-Reflective Finish

Non-specular conductor and a non-reflective finish for the poles will be used to reduce the potential for new sources of glare.

APM AE-2: Minimize Effects of Temporary Nighttime Construction Lighting on Sensitive Receptors

If temporary lighting is required for nighttime construction, it will be focused on work areas and directed on-site to minimize potential effects with respect to nearby sensitive receptors, particularly residences.

3.1.4.3 Potential Impacts

Potential project impacts on aesthetics were evaluated against the CEQA significance criteria and are discussed in further detail in the following paragraphs.

The upgraded power lines will require no change to existing operation and maintenance activities. Furthermore, temporary and short-term activities during construction will not permanently alter or disturb existing aesthetic resources. As such, the impact analysis is limited to permanent impacts associated with structure replacement or modification, which will include the following components:

- **Missouri Flat-Gold Hill Line Reconductoring**, which will include reconductoring approximately 12.5 miles of the existing line, replacing approximately 60 existing TSPs, modifying approximately 13 existing lattice steel towers, and converting approximately 1,000 feet of existing overhead distribution line to underground;

- **Gold Hill No. 1 Line Reconductoring**, which will include reconductoring approximately 7 miles of the existing line, replacing approximately 80 existing wood poles with new wood or light-duty steel (LDS) poles and approximately one new TSP, installing approximately seven new interset wood poles, replacing approximately three distribution wood structures with approximately two new wood poles, and minor distribution line rewiring on approximately two existing wood poles near Limestone Substation; and

- **Access Road Improvements and Construction,** which will include improvements to various temporary access roads that are planned for use during construction and the creation of an approximately 100-foot-long access road.

The impact analysis also evaluates impacts resulting from required site preparation and vegetation removal and trimming required to accommodate construction activities associated with these project components. The majority of vegetation removal, including tree removal, will be required in two primarily undeveloped sections of the project alignment that are each approximately 1 mile long, including:

- one section located between Strolling Hills Road and Rodeo Road, where the project traverses oak woodland vegetation; and
- one section located between Palmer Drive and Shingle Springs Substation, where the project traverses multiple parcels comprised of mixed chaparral vegetation, including the Pine Hill Preserve, one parcel west of the preserve, and another parcel south of U.S. 50.

The project also includes modifications at Shingle Springs, Pacific Western Pipe, Limestone, Clarksville, and Gold Hill substations, and Missouri Flat Switching Station; however, all work at these facilities will take place within the existing substation boundaries and no substation expansions are proposed. These minor substation and switching station modifications will not substantially alter the character of surrounding visual resources and no impact will occur.

a) Would the project have a substantial adverse effect on a scenic vista? *Less than Significant*

For purposes of this evaluation, a scenic vista is defined as a distant public view along or through an opening or corridor that is recognized and valued for its scenic quality, including scenic viewpoints and scenic corridors. The project area is visible from two scenic viewpoints designated by El Dorado County—the Bass Lake Grade on U.S. 50 facing the Sacramento Valley and Latrobe Road between White Rock Road and South Shingle Road.

Two steel lattice towers from the project are visible from the City of Folsom's designated scenic corridor of East Bidwell Street, and multiple project TSPs are visible from the El Dorado County scenic viewpoint of Latrobe Road south of White Rock Road. However, these structures will not be significantly modified and are located within viewsheds made up of significant commercial and residential development; therefore, any minor modifications to existing structures will be barely visible and unlikely to obstruct or diminish existing scenic resources.

The Bass Lake Grade scenic viewpoint, recognized by El Dorado County, is within the project viewshed between Cameron Park and El Dorado Hills. Existing TSPs on the Missouri Flat-Gold Hill Line can be seen from this scenic viewshed along U.S. 50 between White Rock Road and Bass Lake Road. In this location, the project will include minor changes to existing infrastructure, including the replacement of TSPs on the Missouri Flat-Gold Hill Line and new wood or LDS poles along the Gold Hill No. 1 Line. The representative photograph of U.S. 50 and Tong Road (in Appendix B: Representative Visual Conditions and Public Views in the Project Area), shows that the existing viewshed includes previously established, existing TSPs on the Missouri Flat-Gold Hill Line and wood poles along the Gold Hill No. 1 Line; therefore, any changes are not likely to be noticeable. For the Bass Lake Grade scenic viewpoint, the modifications to structures will be barely evident and are unlikely to be noticed by the casual observer; therefore, the project will not substantially affect this viewpoint. The impact will be less than significant.

The Latrobe Road scenic viewpoint, recognized by El Dorado County, is within the project viewshed in El Dorado Hills. Existing lattice steel towers on the Missouri Flat-Gold Hill Line can be seen from the scenic viewpoint looking north from the Latrobe Road and White Rock Road intersection. In this location, the project will include minor changes to the existing lattice steel towers. Comparing Figure 3.1-4: Existing View from White Rock Road (KOP 9) and Figure 3.1-5: Visual Simulation of the Project from White Rock Road (KOP 9), these changes will be barely evident and are unlikely to be noticed by the casual observer. Furthermore, the representative photograph of Creekside Greens Park in Appendix B: Representative Visual Conditions and Public Views in the Project Area shows that the existing viewshed includes previously established, existing lattice steel towers along the Missouri Flat-Gold Hill Line. For the Latrobe Road scenic viewpoint, the modifications to structures will be barely evident and are unlikely to be noticed by the casual observer; therefore, the project will not substantially affect this viewpoint. The impact will be less than significant.

b) Would the project substantially damage scenic resources? *No Impact*

No designated State scenic highways lie near the project area; the nearest designated State scenic highway is U.S. 50 within El Dorado County between South Lake Tahoe and Placerville, located approximately 8.25 miles to the east, and the project will not be visible from this roadway. Therefore, the project will not affect scenic resources within a State scenic highway corridor. No impact will occur.

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

The project will not substantially degrade the existing visual character or quality of the project area or its surroundings. During construction, visual character will be affected by the presence of workers, temporary structures, equipment, and vehicles associated with construction activities. Although portions of the project alignment lie adjacent to public roadways, some portions of the alignment are not prominently visible to the public. Overall project construction is expected to take approximately 18 months; however, because of the nature of the project, individual construction activities at any specific location (e.g., pull sites, work areas) will take considerably less time (up to approximately 2 weeks for each). Because of the temporary nature of construction activities, the short-term impact will be less than significant.

In addition, site preparation is not expected to be required for the majority of the temporary work areas; however, some work may include vegetation removal, tree trimming, or minor grading/blading of equipment pads, as needed. Construction will use primarily existing roads; limited grading for new temporary unpaved roads or mowing for temporary overland travel routes may occur to provide access to the towers along the project alignment. Site restoration is not expected to be necessary, and temporary roads or routes will be allowed to revegetate naturally after project completion, or they will be restored in coordination with landowners.

The majority of vegetation removal, including tree removal, will be required in two primarily undeveloped sections of the project alignment that are each approximately 1 mile long. These sections are located behind rural residences and will not be visible from major residential neighborhoods or high traffic roads. The undeveloped sections requiring vegetation removal are between approximately 100 and 1,000 feet from U.S. 50. However, due to the existing grade of the area and high density of tree cover, vegetation trimming or removal will be obscured by the existing topography or screened by existing vegetation and, therefore, will not be visible to motorists on U.S. 50. Furthermore, this vegetation removal will take place in an area where there are no state, county, or city designated scenic highways or viewsheds. Therefore, the impact will be less than significant.

The height of the lattice steel tower that requires a leg extension will increase by approximately 7.5 feet; however, the general appearance of this structure will be unchanged. The majority of structural replacements, including approximately 60 TSPs on the Missouri Flat-Gold Hill Line and approximately 80 wood poles on the Gold Hill No. 1 Line, will result in minor height increases of 3 to 20 feet. Some wood and LDS poles will be up to 25 feet taller. However, the project will not further obstruct views of the surrounding hillsides, ridgelines, or mountains, and the visual changes will be minor and not particularly noticeable to the public. Electric utility structures—existing substations, lattice towers, steel and wood poles, and overhead lines—are currently visible along the project alignment.

A set of three "before" and "after" visual simulations show the project's appearance as seen from key public viewpoints along the project alignment within the two landscape units. The location of each simulation view is shown in Figure 3.1-1: Regional Landscape Context, Landscape Units, and Key Observation Points Map. As summarized previously, described in the following subsections, and shown in the set of visual simulations of the project alignment from key viewpoints, the overall project changes will not substantially degrade the existing visual character or quality of the landscape setting. In addition, the project will not conflict with local policies pertaining to visual quality, described in Section 3.1.2.1, Regulatory Background. Therefore, the impact will be less than significant.

The following discussion is presented by landscape unit and contains an evaluation of the project's potential visual effects on key public views, as represented by the visual simulations.

Eastern Landscape Unit

The project will include the replacement of approximately 40 existing TSPs on the Missouri Flat-Gold Hill Line and approximately 80 existing wood poles on the Gold Hill No. 1 Line located within the Eastern Landscape Unit between Shingle Springs Substation and Clarksville Substation. Seven representative photographs, or KOPs, show representative views of the existing project alignment. One KOP was selected to show project-related visual changes along this approximately 6.75-mile section.

A moderately to densely populated landscape unit in the Eastern Unit is a portion of the Sierra Nevada foothills, which is characterized by gradual, rolling topography with increases in elevation toward the Sierra Nevada mountain range. The new TSPs of the Missouri Flat-Gold

Hill Line and new wood or LDS poles of the Gold Hill No. 1 Line will be visible from one El Dorado County scenic viewpoint, high-volume roadways such as U.S. 50, and residential areas that are primarily concentrated in Shingle Springs and Cameron Park. As described in the following discussion, the minor incremental visual effects associated with project changes, including tower raises, will not have a noticeable effect on public views and will not substantially affect the area's visual character or quality.

Figure 3.1-2: Existing View from Tierra de Dios Road (KOP 6) represents a motorist's view from the roadway and approximates the view of nearby residents, churchgoers, and school traffic at the edge of Cameron Park. Views toward the project alignment from this location are relatively unobstructed, although vegetation in nearby wooded areas and buildings provide some obstruction and screening. Existing TSPs of the Missouri Flat-Gold Hill Line and wood poles of the Gold Hill No. 1 Line are visible in the foreground, where they traverse open undeveloped fields, and toward the background through the U.S. 50 corridor. Multiple existing structures are partially silhouetted against the sky, including the upper portion of the nearest tower, which is the most pronounced.

The Figure 3.1-3: Visual Simulation of the Project from Tierra de Dios Road (KOP 6) shows three replaced TSPs, located approximately 900, 1,800, and 2,700 feet away, respectively. The furthest structure includes a cellular antenna, and will result in a total height increase of the structure by approximately 20 feet. In addition, several replaced wood poles are shown on the right, with an average height increase of up to 15 feet. Subtle changes to the project features include the replacement of existing TSPs with non-reflective steel poles and installation of slightly modified overhead equipment, including non-ceramic polymer insulators. The visual simulation illustrates that the changes will be minor and not particularly noticeable, and the project will not substantially affect landscape views in this area.

Western Landscape Unit

The approximately 5.75-mile-long Western Landscape Unit is the shorter of the two units, and it is characterized mainly by heavy suburban development and flattening hills as the area enters the Sacramento Valley. The project alignment crosses and parallels a network of roadways including U.S. 50 and a Folsom scenic corridor. In addition, the alignment passes near a scenic viewpoint in El Dorado County and many suburban residences in El Dorado Hills and Folsom. In the Western Landscape Unit, the project will include replacement of approximately 17 TSPs and modifications to approximately 13 lattice steel towers, including one leg extension. Nine representative photographs, or KOPs, show representative views of the existing power lines, of which two KOPs were selected to show simulated project-related visual changes.

The project's lattice steel tower with a new leg extension is visible from a local park and residences. In addition, multiple existing towers and TSPs are located within 100 feet of residences. Two existing lattice steel towers are visible from the City of Folsom's designated scenic corridor of East Bidwell Street, and multiple TSPs are visible from the El Dorado County scenic viewpoint of Latrobe Road south of White Rock Road. However, these structures will not be significantly modified and are located within viewsheds made up of significant commercial and residential development; therefore, any minor modifications to existing structures will be barely visible and unlikely to obstruct or diminish existing scenic resources. Furthermore, most of the structures in this landscape unit are not visible from any of the designated scenic resources and are visible only from residences and roadways. As described in the following discussion, because of the minor and not particularly noticeable visual changes, the project will not substantially affect the character of views within this landscape unit.

Figure 3.1-4: Existing View from White Rock Road (KOP 9) shows existing views from residences near Saratoga Way overlooking U.S. 50 and White Rock Road to the south. As seen from this view, a series of project TSPs are located in the foreground on the left, moving back to the right. In addition, another row of TSPs and wood poles supporting another power line, unrelated to the project, is visible and parallel to the project alignment on the right. Low and distant vegetation is found behind the power lines and does not obscure the visibility of the existing Missouri Flat-Gold Hill Line. In the background, developments, rolling hillsides, other utility lines and the more distant Sierra Nevada foothills are visible.

Figure 3.1-5: Visual Simulation of the Project from White Rock Road (KOP 9) shows replacement TSPs, including a 10-foot height increase on the second pole, 20-foot height increase on the third pole, and slight horizontal shifts of all three poles. Subtle changes to the structures include replacement of existing TSPs with non-reflective steel poles and installation of slightly modified overhead equipment, including non-ceramic polymer insulators. The overall form of the modified poles is similar to that of the existing and remaining poles. Visible changes will be minor and will not substantially affect the character of views from this scenic roadway.

Figure 3.1-6: Existing View from Redwood Lane (KOP 10) shows existing views from a hillside overlooking Bertelsen Park, William Brooks Elementary School to the north, and residences in the background. This photograph presents a view that will be commonly shared by residences, recreationalists, and school-goers, and it approximates a motorist's view from local roads. The existing Missouri Flat-Gold Hill Line as well as adjacent power lines and structures are also visible from this location.

Figure 3.1-7: Visual Simulation of the Project from Redwood Lane (KOP 10) shows minor project changes, including replacement TSPs with height increases up to 20 feet at the two farthest TSPs in view, and slight horizontal shifts up to 15 feet. Subtle changes to the structures include replacement of existing TSPs with non-reflective steel poles and installation of slightly modified overhead equipment, including non-ceramic polymer insulators. The visual simulation shows that, taken together, project changes will be minor. Therefore, the project will not affect the existing landscape character as seen from this park, residential area, school, or local roadways.

Therefore, the project will not substantially affect views of the landscape setting within this landscape unit and the impact will 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? *Less than Significant*

During construction, if work must be accomplished at night, portable temporary lighting will be used to illuminate the immediate work area. Construction activities generally will occur during daylight hours; however, nighttime construction may be required at specific locations. If nighttime construction is unavoidable, the scope of activities will be limited and the nighttime activities will be temporary and short term. No new permanent lighting is proposed for the project; therefore, the project will not create a substantial source of lighting. As a result, the impact will be less than significant. APM AE-2 will further reduce the less-than-significant impact.

Glare exists when a high degree of contrast between bright and dark areas in a field of view makes it difficult for the human eye to adjust to differences in brightness. At high levels, glare can make it difficult to see, such as when driving westward at sunset. The project area includes electric transmission, distribution, and substation facilities that are visible within the public viewshed. Potential glare from overhead conductors will be similar to what currently exists within the project alignment under baseline conditions. The new TSPs along the Missouri Flat-Gold Hill Line will be composed of TSPs that have a dull, non-reflective appearance. Therefore, the project will not result in new sources of substantial glare and impacts will be less than significant. APM AE-1 will further reduce less-than-significant impacts.

3.1.5 References

California Department of Transportation (Caltrans). 2009. *California Scenic Highway Program*. Sacramento, CA.

City of Folsom. 1993 (January). *City of Folsom General Plan.* Folsom, CA.

El Dorado County. 2004 (July 19). *El Dorado County General Plan, A Plan for Managed Growth and Open Roads; A Plan for Quality Neighborhoods and Traffic Relief.* Adopted by the Board of Supervisors July 19, 2004, Resolution Number 235-2004. Placerville, CA.

Federal Highway Administration (FHWA). 1988. *Visual Impact Assessment for Highway Projects.* Washington, DC: U.S. Department of Transportation.

Smardon, R. C., J. F. Palmer, and J. P. Felleman (editors). 1986. *Foundations for Visual Project Analysis.* New York: Wiley.

TABLE OF CONTENTS

List of Figures

List of Tables

3.2 AGRICULTURE AND FORESTRY RESOURCES

3.2.1 INTRODUCTION

This section describes existing conditions and potential impacts on agriculture and forestry resources as a result of the project. The analysis concludes that no impacts on agriculture and forestry resources will occur.

The project's potential effects on agriculture and forestry resources were evaluated using the significance criteria set forth in Appendix G of the California Environmental Quality Act (CEQA) Guidelines, as shown in Table 3.2-1: CEQA Checklist for Agriculture and Forestry Resources. The conclusions are discussed in more detail in Section 3.2.4, Applicant-Proposed Measures and Potential Impacts.

Table 3.2-1: CEQA Checklist for Agriculture and Forestry Resources

Would the project:	Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
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 forest land to non-forest use?				☒

3.2.2 REGULATORY BACKGROUND AND METHODOLOGY

3.2.2.1 **Regulatory Background**

Federal

No federal regulations related to agriculture or forestry resources are applicable to this project.

State

Williamson Act

The California Land Conservation Act, better known as the Williamson Act, was passed in 1965 by the California Legislature to preserve agricultural and open space lands through private landowner contracts that voluntarily restrict land to agricultural and open space uses. In return, Williamson Act contracts offer tax incentives by ensuring that land will be assessed for its agricultural productivity rather than its highest and best use. Lands under contract also may support uses that are "compatible with the agricultural, recreational, or open-space use of [the] land" subject to the contract (California Government Code, Section 51201[e]). Williamson Act contracts can be divided into the following categories: Prime Agricultural Land, Non-Prime Agricultural Land, Open Space Easement, Built-Up Land, and Agricultural Land in Non-Renewal. The project alignment crosses through one Williamson Act parcel in non-renewal in El Dorado County, as shown in Figure 3.2-1: Agricultural Resources.

In 2010, a legislative decision was made to eliminate State-sponsored financial support for the Williamson Act program. The Legislature then passed two bills providing a short-term solution, to fund and encourage participation in the program. Assembly Bill 2530, signed into law on September 25, 2010, and subsequently replaced by Senate Bill (SB) 863, signed on October 19, 2010, provides an opportunity for counties to offset a portion of the loss of Williamson Act subvention funds. SB 863 is a temporary solution that will expire on January 1, 2015.

Farmland Mapping and Monitoring Program

The Division of Land Resource Protection of the California Department of Conservation (DOC) has established the Farmland Mapping and Monitoring Program (FMMP), which monitors the conversion of the State's farmland to and from agricultural use. The FMMP maintains an inventory of agricultural land in California and updates its Important Farmland series maps every 2 years (DOC 2006, 2007). The project alignment crosses mapped grazing land in El Dorado County and the City of Folsom, as shown in Figure 3.2-1: Agricultural Resources.

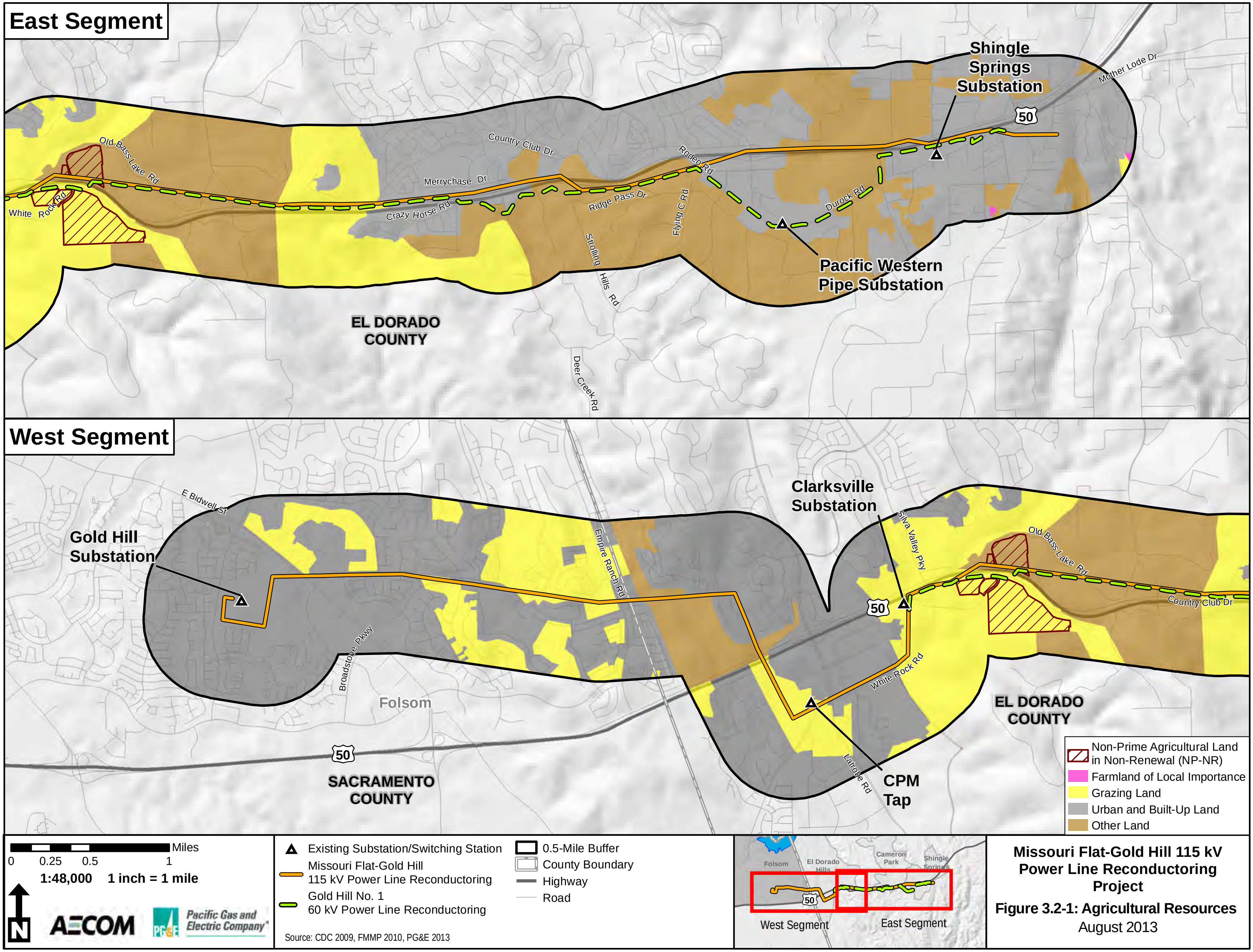
California Public Resources Code

The California Public Resources Code contains the following definitions:

- Forest Land: Section 12220(g) defines "forest land" as land that can support 10 percent 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.

- Timberland: Section 4526 defines "timberland" as land—other than land owned by the federal government and land designated by the State Board of Forestry and Fire Protection—as experimental forest land that is available for, and capable of, growing a crop of trees of a commercial species used to produce lumber and other forest products, including Christmas trees.

No forest land, timberland, or timberland zoned Timberland Production is located within or along the project alignment.



Missouri Flat-Gold Hill 115 kV Power Line Reconductoring Project

Figure 3.2-1: Agricultural Resources

August 2013

Local

The project is not subject to local discretionary land use regulations because the California Public Utilities Commission has exclusive jurisdiction over the siting, design, and construction of the project. However, PG&E has considered local plans and policies as part of the environmental review process.

3.2.2.2 **Methodology**

Maps developed by the DOC FMMP were reviewed to assess whether the project will convert Important Farmland (Prime Farmland, Unique Farmland, or Farmland of Statewide Importance) to non-agricultural uses (DOC 2011, 2012). Williamson Act data developed by DOC also were reviewed to determine whether lands contracted under the Williamson Act will be affected by the project (DOC 2008).

Local policies and zoning maps for El Dorado County and the City of Folsom were examined to determine whether the project will result in conflicts with existing zoning for agricultural or forest use. Project activities during construction and operation were evaluated within the context of existing agricultural zoning and farmland protections to determine whether the project may result in changes that will directly or indirectly lead to conversion of Important Farmland or timber resources to non-agricultural or non-forest use.

3.2.3 ENVIRONMENTAL SETTING

3.2.3.1 **Regional**

The project area is located in El Dorado County and the City of Folsom in Sacramento County. The project alignment extends for approximately 12.5 miles in a general east-to-west direction beginning at the Shingle Springs Substation, located in the community of Shingle Springs, and terminating at the Gold Hill Substation in the City of Folsom.

El Dorado County

Both agricultural land and forests are parts of the rural character in El Dorado County. Cattle ranching and farming continue in Shingle Springs, which began as a mining settlement in the late 1840s. The community of Cameron Park originally was purchased in the1950s for ranching purposes, but it was subsequently divided into lots of varying sizes, with medium- and high-density residential uses, shopping areas, a country club, a recreational lake, and the Airpark Estates. El Dorado Hills, a part of the Sierra Nevada goldfields that started as a gold mining settlement in the late 1840s, was transformed into a residential community with shopping centers and business parks in the 1960s.

The El Dorado County General Plan does not designate any agricultural lands or agricultural districts along the project alignment (El Dorado County 2004). More than 50 percent of the county is designated as Natural Resource (NR) land, including forested areas and grazing lands; however, the project alignment is not located within an area designated as NR. Leading agricultural commodities by gross value in the county in 2010 included apples, cattle, grapes (wine), pasture, Christmas trees/cut greens, miscellaneous nursery products, livestock, apiary products (honey), peaches, and fruits and nuts.

El Dorado County had 43,301 acres enrolled under Williamson Act contracts as of 2009 (DOC 2010a). The county's cumulative non-renewal acreage in 2008–2009 was 1,251 acres. In 2010, 536,404 acres of land were inventoried in El Dorado County as part of the FMMP, with 64,259 acres categorized under Important Farmland designations and 193,883 acres categorized as Grazing Land.

City of Folsom

Most land located outside urban areas in Sacramento County is used for agricultural purposes and agriculture is the planned continuing land use. However, the project alignment traverses the City of Folsom in Sacramento County, which is primarily urban land and is not an agricultural community (City of Folsom 1993:23–37). Because the City of Folsom is urbanized, no Important Farmland designations or Williamson Act contracts exist within this portion of the project alignment.

3.2.3.2 **Local**

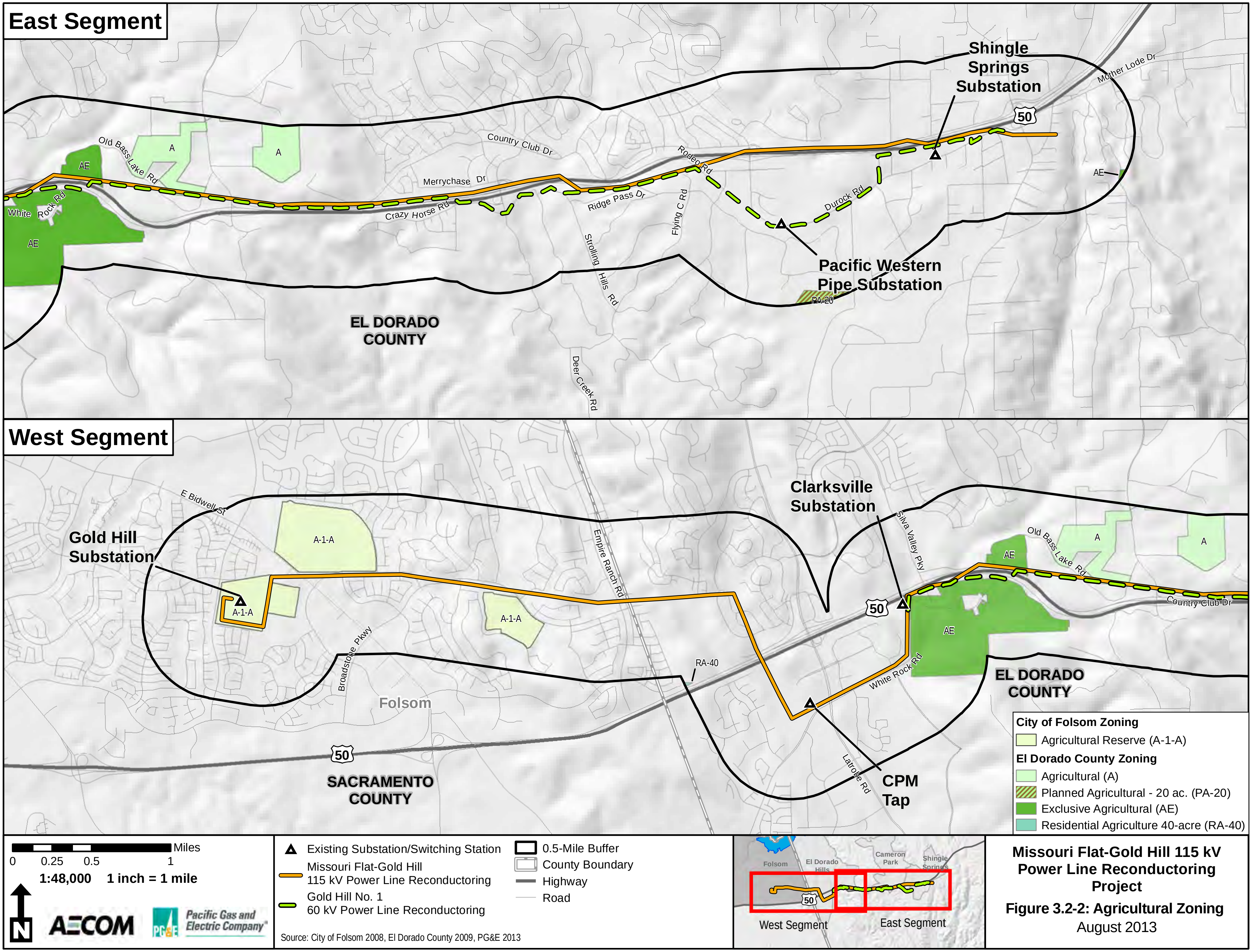
Williamson Act and Important Farmland

In the communities of Shingle Springs, Cameron Park, and El Dorado Hills, as well as in the City of Folsom, land use along the project alignment consists primarily of residential areas interspersed with industrial development. Undeveloped rolling grasslands and oak woodlands dominate portions of the project alignment between these populated places. As shown in Figure 3.2-1: Agricultural Resources, the project alignment traverses one mapped area of Williamson Act agricultural land in non-renewal (Williamson Act Non-Prime Agricultural Land), located just east of El Dorado Hills Boulevard and straddling both sides of U.S. Highway 50 (U.S. 50) (DOC 2008). Williamson Act Non-Prime Agricultural Land is land enrolled under California Land Conservation Act contract and does not meet any of the criteria for classification as Prime Agricultural Land. Most Williamson Act Non-Prime Agricultural Land is in agricultural use, for grazing or non-irrigated crops, but such land also may include other open space uses that are compatible with agriculture and consistent with local general plans.

As shown in Figure 3.2-1: Agricultural Resources, the FMMP has mapped Grazing Land along the project alignment; however, no land is identified as Prime Farmland, Farmland of Statewide Importance, or Farmland of Local Importance (DOC 2011, 2012). Approximately 49 percent of the project alignment is located on Grazing Land, as classified under the FMMP—approximately 25 percent for the Missouri Flat-Gold Hill 115 Kilovolt (kV) Power Line (Missouri Flat-Gold Hill Line) and approximately 24 percent for the Gold Hill No.1 60 kV Power Line (Gold Hill No. 1 Line). Otherwise, the project alignment traverses land mapped as Urban and Built-Up Land. Lands along the project alignment within the City of Folsom are developed primarily as low-density residential.

Zoning Districts

El Dorado County and City of Folsom agricultural zoning designations allow for public utility facilities (El Dorado County 2010; City of Folsom 2013). Areas within 0.5 mile of the existing alignment are located in the following El Dorado County and City of Folsom agriculture-related zoning districts, as shown in Figure 3.2-2: Agricultural Zoning Designations.



Missouri Flat-Gold Hill 115 kV Power Line Reconductoring Project

Figure 3.2-2: Agricultural Zoning

August 2013

El Dorado County

Agriculture (A). The purpose of the Agriculture district is to provide for development of land with the space and natural conditions compatible with horticultural and agricultural pursuits; to encourage these pursuits by providing additional opportunities for sales, packing, processing, and other related activities that may increase their economic viability; and to protect against encroachment by unrelated uses that may adversely affect the area's development.

Planned Agriculture–20 Acres (PA-20). The purpose of the Planned Agriculture–20 Acres district is to provide for development and protection of lands with the space and conditions compatible with horticulture, husbandry, and other agricultural pursuits; to promote and encourage these pursuits by providing additional opportunities for sales, packing, processing, and other related activities that may increase their economic viability; and to protect against encroachment by unrelated and incompatible land uses that may adversely affect the development or use of these lands.

Exclusive Agriculture (AE). Exclusive Agriculture districts apply only to those lands subject to the Land Conservation Act of 1965. No building or structure may be erected, structurally altered, or enlarged, nor may any building, structure, or land be used except as outlined in El Dorado County Zoning Ordinance Sections 17.36.070 through 17.36.090.

City of Folsom

Agricultural Reserve (A-1-A). The purpose of the Agricultural Reserve district is twofold: to provide areas for interim agricultural and livestock grazing uses until community services are available for urban development, and to direct the orderly expansion of urban development consistent with the City of Folsom General Plan.

El Dorado County is a significant contributor to the State's agricultural industry; however, the project area is located primarily in developed and residential areas. Although over 50 percent of the county is designated as Natural Resource (NR), including forested areas and grazing lands, the project alignment does not cross any areas designated as NR. The project alignment traverses one mapped area of Williamson Act Non-Prime Agricultural Land, located just east of El Dorado Hills Boulevard and straddling both sides of U.S. 50; however, the project alignment is located entirely within PG&E's existing right-of-way (DOC 2008).

3.2.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for agriculture and forestry resources impacts derived from Appendix G of the CEQA Guidelines, provide relevant Applicant-Proposed Measures (APMs), and contain an assessment of potential project-related construction and operational impacts on agricultural and forestry resources.

3.2.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines,

the potential impacts on agriculture and forest resources were evaluated for each of the criteria listed in Table 3.2-1: CEQA Checklist for Agriculture and Forestry Resources, as discussed in Section 3.2.4.3, Potential Impacts.

3.2.4.2 Applicant-Proposed Measures

No APMs are included because project construction, operation, and maintenance will have no impact on agriculture or forestry resources.

3.2.4.3 Potential Impacts

Potential project impacts on agriculture and forestry resources were evaluated against the CEQA significance criteria and are discussed in further detail in the following paragraphs.

The upgraded power lines will require no change to existing operation and maintenance activities. As such, impacts on agriculture and forestry resources that result from the project will not change from existing conditions and no operation-related impacts will occur. The impact analysis is limited to temporary and short-term impacts associated with project construction, which includes the following components:

- **Missouri Flat-Gold Hill Line Reconductoring**, which will include reconductoring approximately 12.5 miles of the existing line, replacing approximately 60 existing tubular steel poles (TSP), modifying approximately 13 existing lattice steel towers, and converting approximately 1,000 feet of existing overhead distribution line to underground;
- **Gold Hill No. 1 Line Reconductoring**, which will include reconductoring approximately 7 miles of the existing line, replacing approximately 80 existing wood poles with new wood or light-duty steel poles and approximately one new TSP, installing approximately seven new interset wood poles, replacing approximately three distribution wood structures with approximately two new wood poles, and minor distribution line rewiring on approximately two existing wood poles near Limestone Substation; and
- **Access Road Improvements and Construction,** which will include improvements to various temporary access roads that are planned for use during construction and the creation of an approximately 100-foot-long access road.

The impact analysis also evaluates impacts resulting from required site preparation and vegetation removal and trimming required to accommodate construction activities associated with these project components.

The project also includes modifications at Shingle Springs, Pacific Western Pipe, Limestone, Clarksville, and Gold Hill substations, and Missouri Flat Switching Station; however, all work at these facilities will be minor and within existing fence lines. Therefore, no agriculture and forestry resources-related impacts will occur.

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? ***No Impact***

Project construction activities will require that various temporary construction work areas be established and used within the project alignment, including pull sites, helicopter landing zones, construction yards, pole and tower work areas, and guard structure locations. The majority of the project alignment is located on Grazing Lands and Urban and Built-Up Land, as designated by the FMMP. No construction work areas or activities, including stringing or laydown activities, will be located on any lands categorized as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance; therefore, no such farmland will be affected by the project either temporarily or permanently. No impact will occur.

b) Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract? ***No Impact***

The project alignment neither crosses nor runs adjacent to lands zoned Agricultural Reserve and no impact will occur on lands with these zoning designations.

Public utility facilities are allowed uses in El Dorado County and the City of Folsom within Agricultural zoning designations; therefore, if the project were subject to local zoning, it will not conflict with the existing zoning for agricultural use. Moreover, no change will occur from the existing use. No impact will occur.

The project alignment traverses one mapped area of Williamson Act Non-Prime Agricultural Land, located just east of El Dorado Hills Boulevard and straddling both sides of U.S. 50, in El Dorado County. Work at this location consists of replacing TSPs along the Missouri Flat-Gold Hill Line, replacing wood poles along the Gold Hill No. 1 Line, and reconductoring activities on both the Missouri Flat-Gold Hill and Gold Hill No. 1 lines. However, the project is an upgrade of the existing line and the existing line traverses this parcel. The project will not remove any land from Williamson Act contracts. Construction activities on land currently under agricultural production will not affect the status of the agricultural land's zoning, and existing agricultural land uses will resume after completion of project construction. Therefore, no impact will occur.

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***

No forest land, timberland, or timberland zoned Timberland Production is located within or along the project alignment. Therefore, no impact will occur.

d) Would the project result in the loss of forest land or conversion of forest land to non-forest use? ***No Impact***

Although the project will include upgrading existing power lines and associated facilities within existing utility corridors in primarily developed areas, the project will require some vegetation and tree removal and/or trimming to accommodate construction access and activities. These effects will be temporary and will not result in the loss of forest land or conversion of forest lands to non-forest use. Therefore, no impact will 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? ***No Impact***

The project will upgrade existing power lines that are located within existing utility corridors. Therefore, project implementation will not discourage the continued use of surrounding land for agricultural purposes. No impact will occur.

3.2.5 REFERENCES

California Department of Conservation (DOC). 2006. *2004–2006 California Farmland Conversion Report*. Appendix A, 2004–2006 County Conversion Tables. Available: http://www.conservation.ca.gov/dlrp/fmmp/pubs/2004-2006/Documents/Appendices%202004-06%20FCR.pdf. Accessed July 18, 2012.

———. 2007. Division of Land Resource Protection, Farmland Mapping and Monitoring Program. Available: http://www.consrv.ca.gov/DLRP/fmmp/index.htm. Accessed July 19, 2012.

———. 2008. Land Enrolled in Williamson Act and Farmland Security Zone Contracts as of 01-01-2008. Available: ftp://ftp.consrv.ca.gov/pub/dlrp/wa/Map%20and%20PDF/. Accessed July 18, 2012.

———. 2010a (November). *The California Land Conservation (Williamson) Act 2010 Status Report*. Available: http://www.conservation.ca.gov/dlrp/lca/stats_reports/Documents/2010%20Williamson%20Act%20Status%20Report.pdf. Accessed July 19, 2012.

———. 2010b. Farmland Mapping and Monitoring 2008–2010 Land Use Conversion Tables. Available: http://redirect.conservation.ca.gov/dlrp/fmmp/pubs/2008-2010/conversion_tables/placon10.xls. Accessed July 19, 2012.

———. 2011 (July). El Dorado County Important Farmland Map 2010. Compiled by the Farmland Mapping and Monitoring Program (FMMP), pursuant to Section 65570 of the California Government Code. Available: ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/2010/, select file “eld10.pdf.” Accessed July 19, 2012.

———. 2012 (January). Sacramento County Important Farmland Map 2010. Compiled by the Farmland Mapping and Monitoring Program (FMMP), pursuant to Section 65570 of the California Government Code. Available: ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/2010/, select file "sac10.pdf." Accessed July 19, 2012.

City of Folsom. 1993 (January). *City of Folsom General Plan*. Folsom, CA.

———. 2013. City of Folsom Municipal Code. Adopted March 6, 1990; current through Ordinance 1173, passed January 22, 2013. Folsom, CA. Available: http://www.codepublishing.com/CA/Folsom/. Accessed March 19, 2013.

El Dorado County. 2004 (July 19). *El Dorado County General Plan, A Plan for Managed Growth and Open Roads; A Plan for Quality Neighborhoods and Traffic Relief*. Adopted by the Board of Supervisors July 19, 2004, Resolution Number 235-2004. Placerville, CA.

———. 2010. El Dorado County Zoning Ordinance: Title 17, El Dorado County Code. Last revised November 2010. Placerville, CA.

TABLE OF CONTENTS

List of Tables

3.3 AIR QUALITY

3.3.1 INTRODUCTION

This section describes existing conditions and potential impacts on air quality as a result of the project. The analysis concludes that impacts on air quality will be less than significant. The Applicant-Proposed Measures (APMs) described in Section 3.3.4.2, Applicant-Proposed Measures, will further reduce any less-than-significant impacts.

The project's potential effects on air quality were evaluated using the significance criteria set forth in Appendix G of the California Environmental Quality Act (CEQA) Guidelines, as shown in Table 3.3-1: CEQA Checklist for Air Quality. The conclusions are discussed in more detail in Section 3.3.4, Applicant-Proposed Measures and Potential Impacts. The modeling outputs and assumptions will be provided separately to California Public Utilities Commission (CPUC) staff. Impacts associated with greenhouse gas emissions are addressed in Section 3.7, Greenhouse Gas.

Table 3.3-1: CEQA Checklist for Air Quality

Would the project:	Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
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?			☒	

3.3.2 REGULATORY BACKGROUND AND METHODOLOGY

3.3.2.1 Regulatory Background

Federal

Air quality in the project region is regulated at the federal level by the U.S. Environmental Protection Agency (EPA). The EPA's air quality mandates are drawn primarily from the federal Clean Air Act (CAA), enacted in 1970. The CAA required EPA to set outdoor air quality standards at the national level. The most recent major amendments made by Congress occurred in 1990. EPA currently focuses on the following air pollutants as indicators of ambient air quality: ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM), and lead.

EPA also has established primary and secondary National Ambient Air Quality Standards (NAAQS) for the following criteria pollutants: ozone, CO, NO_2, SO_2, respirable particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), and lead.[1] The NAAQS are summarized in Table 3.3-2: Relevant California and National Ambient Air Quality Standards. Because these are the most prevalent air pollutants known to be deleterious to human health and extensive health-effects criteria documents are available, they commonly are referred to as "criteria air pollutants". The primary standards protect public health and the secondary standards protect public welfare.

The CAA also required each state to prepare an air quality control plan, referred to as a State Implementation Plan (SIP). The federal Clean Air Act Amendments of 1990 (CAAA) added requirements for states with nonattainment areas to revise their SIPs and to incorporate additional control measures to reduce air pollution.

State

California Clean Air Act

The California Air Resources Board (CARB) is the agency responsible for coordination and oversight of State and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA). The CCAA, adopted in 1988, required CARB to establish the California Ambient Air Quality Standards (CAAQS), as shown in Table 3.3-2: Relevant California and National Ambient Air Quality Standards, for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particulate matter, in addition to criteria pollutants. In most cases the CAAQS are more stringent than the NAAQS. Differences in the standards generally are explained by the health effects studies that were considered during the standard-setting process and subsequent interpretation of the studies. In addition, the CAAQS incorporate a margin of safety to protect sensitive individuals. The CCAA requires that all local air districts in the State endeavor to achieve and maintain the CAAQS by the earliest practical date. The CCAA specifies that local air districts should focus particular attention on reducing the emissions from transportation and area-wide emission sources, and it provides the districts with the authority to regulate indirect sources.

Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations

CARB has established the Asbestos Airborne Toxic Control Measure (ATCM) for Construction, Grading, Quarrying, and Surface Mining Operations to minimize the generation of asbestos from earth disturbance or construction activities. The Asbestos ATCM applies to any project that will include sites to be disturbed in a geographic ultramafic rock unit area or an area where naturally occurring asbestos (NOA), serpentine, or ultramafic rocks are determined to be present.

[1] SO_2 and lead are not discussed further because all counties in the Mountain Counties Air Basin (MCAB), which includes El Dorado County, and the Sacramento Valley Air Basin (SVAB), which includes Sacramento County, meet the national and State standards for these pollutants.

Table 3.3-2: Relevant California and National Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1] (Concentration)[2]	National Standards[3]	
			Primary[2,4] (Concentration)	Secondary[2,5] (Concentration)
Ozone	1-hour	0.09 ppm (180 μg/m^3)	–	–
	8-hour	0.070 ppm (137 μg/m^3)	0.075 ppm (147 μg/m^3)	Same as Primary Standard
Carbon Monoxide (CO)	1-hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	–
	8-hour	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	
Nitrogen Dioxide (NO_2)[6]	Annual Arithmetic Mean	0.030 ppm (57 μg/m^3)	0.053 ppm (100 μg/m^3)	Same as Primary Standard
	1-hour	0.18 ppm (339 μg/m^3)	0.100 ppm (188 μg/m^3)	–
Respirable Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 μg/m^3	-	Same as Primary Standard
	24-hour	50 μg/m^3	150 μg/m^3	
Fine Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	12 μg/m^3	12 μg/m^3	Same as Primary Standard
	24-hour	–	35 μg/m^3	

Notes:

μg/m3 = micrograms per cubic meter; ppm = parts per million; mg/m^3 = milligrams per cubic meter

[1] California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Title 17, California Code of Regulations, Section 70200.

[2] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based on a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[3] National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 μg/m^3 is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact EPA for further clarification and current national policies.

[4] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

[5] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[6] To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. The national standards are in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national standards to the California standards, the units can be converted from ppb to ppm. In this case, the national standards of 53 ppb and 100 ppb are identical to 0.053 ppm and 0.100 ppm, respectively.

[7] On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved. The 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard, the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

Source: CARB 2012a (February)

In addition, in the event that NOA, serpentine, or ultramafic rock is discovered during earth disturbance activities, the project also will be subject to the Asbestos ATCM. The Asbestos ATCM establishes notification, management practice, mitigation plan, transport and disposal, and administrative (e.g., recordkeeping and reporting) requirements for projects, to reduce the generation of asbestos from all aspects of construction, grading, quarrying, and mining operations. A possibility of encountering NOA will exist during project construction; if NOA is encountered during construction, the project will comply with the requirements of the Asbestos ATCM.

Regional

El Dorado County Air Quality Management District

El Dorado County Air Quality Management District (EDCAQMD) attains and maintains air quality conditions in El Dorado County through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The clean air strategy of EDCAQMD includes preparation of plans for attainment of ambient air quality standards, adoption and enforcement of rules and regulations concerning sources of air pollution, and issuance of permits for stationary sources of air pollution. EDCAQMD also inspects stationary sources of air pollution and responds to citizen complaints, monitors ambient air quality and meteorological conditions, and implements programs and regulations required by the CAA, CAAA, and the CCAA.

Specific EDCAQMD rules applicable to the off-site elements may include, but are not limited to:

- **Rule 202: Visible Emissions.** A person shall not discharge into the atmosphere from any single source of emission whatsoever any air contaminant for a period or periods aggregating more than 3 minutes in any 1 hour which is as dark or darker in shade as that designated as number 1 on the Ringelmann Chart, as published by the U.S. Bureau of Mines.

- **Rule 205: Nuisance.** A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons, or to the public, or which endanger the comfort, repose, health or safety of any such persons, or the public, or which cause to have a natural tendency to cause injury or damage to business or property. This rule does not apply to odors emanating from agriculture operations necessary for the growing of crops or raising of fowl or animals.

- **Rule 223: Fugitive Dust—General Requirements.** The purpose of this Rule is to reduce the amount of particulate matter entrained in the ambient air as a result of anthropogenic (human-made) fugitive dust sources by requiring actions to prevent, reduce or mitigate fugitive dust emissions.

- **Rule 223-1: Fugitive Dust—Construction, Bulk Material Handling, Blasting, Other Earthmoving Activities and Carryout and Trackout Prevention.** The purpose of this Rule is to reduce the amount of particulate matter entrained in the ambient air as a result of anthropogenic (human-made) fugitive dust sources by requiring actions to prevent, reduce or mitigate fugitive dust emissions.

- **Rule 223-2: Fugitive Dust –Asbestos Hazard Mitigation.** The purpose of this rule is to reduce the amount of asbestos particulate matter entrained in the ambient air as a result of any construction or construction related activities that disturbs or potentially disturbs naturally occurring asbestos by requiring actions to prevent, reduce or mitigate asbestos emissions.

Sacramento Metropolitan Air Quality Management District

Sacramento Metropolitan Air Quality Management District (SMAQMD) attains and maintains air quality conditions in Sacramento County, in a manner similar to that described above for EDCAQMD (e.g., planning, regulation, and enforcement). SMAQMD's Guide to Air Quality Assessment in Sacramento County is an advisory document that provides lead agencies, consultants, and project applicant(s) with uniform procedures for addressing air quality in environmental documents. A new version of the guide was released in December 2009 and supersedes the version released in July 2004. Some sections of the guidelines also have been updated since 2009. The new version of the guide does not include the development of new thresholds of significance; however, it does include updated methodologies for evaluating potential impacts and a refined list of recommended mitigation measures. In addition, the guide contains the following applicable components (SMAQMD 2009a):

- criteria and thresholds for determining whether a project may have a significant adverse air quality impact;
- specific procedures and modeling protocols for quantifying and analyzing air quality impacts;
- methods available to mitigate air quality impacts; and
- information for use in air quality assessments and environmental impact reports (EIR) that will be updated more frequently such as air quality data, regulatory setting, climate, and topography.

As mentioned previously, SMAQMD adopts rules and regulations. All projects are subject to SMAQMD rules and regulations in effect at the time of construction. Specific rules applicable to project construction may include, but will not be limited to, the following:

- **Rule 201: General Permit Requirements.** Any project that includes the use of equipment capable of releasing emissions to the atmosphere may require permit(s) from SMAQMD before equipment operation. The applicant, developer, or operator of a project that includes an emergency generator, boiler, or heater should contact SMAQMD early to determine whether a permit is required, and to begin the permit application process. Portable construction equipment (e.g., generators, compressors, pile drivers, lighting equipment) with an internal combustion engine over 50 horsepower (hp) are required to have a SMAQMD permit or CARB portable equipment registration.

- **Rule 403: Fugitive Dust.** The developer or contractor is required to control dust emissions from earthmoving activities or any other construction activity to prevent airborne dust from leaving the project area.
- **Rule 902: Asbestos.** The developer or contractor is required to notify SMAQMD of any regulated renovation or demolition activity. Rule 902 contains specific requirements for surveying, notification, removal, and disposal of asbestos-containing material.

In addition, effective October 10, 2005, if modeled, construction-generated emissions for a project are not reduced to SMAQMD's threshold of significance (85 pounds per day) by the application of standard construction mitigation, then an off-site construction mitigation fee is recommended (SMAQMD 2009b).

Air Quality Plans

SMAQMD and EDCAQMD, in coordination with the air quality management districts and air pollution control districts of Placer, Solano, Sutter, and Yolo counties, prepared and submitted the 1994 Air Quality Attainment Plan (AQAP), in compliance with the requirements set forth in the CCAA that specifically addressed the nonattainment status for ozone and, to a lesser extent, CO and PM_{10}.

The CCAA also requires a triennial assessment of the extent of air quality improvements and emission reductions that have been achieved through the use of control measures. As part of the assessment, the attainment plan must be reviewed and, if necessary, revised to correct for deficiencies in progress and to incorporate new data or projections. The requirement of the CCAA for a first triennial progress report and revision of the 1991 AQAP was fulfilled with the preparation and adoption of the 1994 Ozone Attainment Plan (OAP). The OAP became part of the SIP, in accordance with the requirements of the CAAA, and amended the 1991 AQAP. However, at that time, the region could not show that the national ozone (1-hour) standard would be met by 1999. In exchange for moving the deadline to 2005, the region accepted a designation of "severe nonattainment," coupled with additional emissions requirements on stationary sources. Additional triennial reports also were prepared in 1997, 2000, 2003, and 2006, in compliance with the CCAA, to act as incremental updates.

Sacramento County and the western portion of El Dorado County are part of the Sacramento Federal Ozone Nonattainment Area (SFNA), which also includes Yolo County and portions of Placer, and Solano counties. As a nonattainment area, the region also is required to submit rate-of-progress milestone evaluations in accordance with the CAAA. Milestone reports were prepared in 1996, 1999, 2002, and 2006 for the 8-hour ozone standard. These milestone reports included compliance demonstrations that the requirements had been met for the SFNA. In 2008, the air pollution control and air quality management districts that make up the SFNA prepared a Sacramento Regional 8-Hour Ozone 2011 Reasonable Further Progress Plan (2011 RFPP) that demonstrated progress toward attainment of the federal 8-hour ozone standard. The 2011 FRPP concluded that the region would not be able to achieve attainment of the 8-hour ozone standard by the required 2013 deadline and requested an extension of the attainment deadline to June 15, 2019. This required reclassification to "severe" 8-hour ozone nonattainment area.

3.3.2.2 Methodology

Short-term construction-generated emissions of criteria air pollutants and ozone precursors were assessed in accordance with methods recommended by EDCAQMD and SMAQMD. Project construction activities were quantified using the California Emission Estimator Model (CalEEMod version 2011.1.1) (SCAQMD 2011). Because CalEEMod has not yet incorporated CARB's most recent on-road emissions model, EMFAC2011, on-road emissions (i.e., construction worker vehicles and haul trucks) were quantified separately from CalEEMod, using EMFAC2011. Specific construction information, such as construction schedule, duration of activities, types of equipment used, and acres of site disturbance, was used in this analysis. Where project-specific information was not available, conservative assumptions and/or default assumptions (contained in CalEEMod) were used to quantify construction emissions. In addition, emission factors specific to the helicopters that will be used during project construction were obtained from Guidance on Determination of Helicopter Emissions (FOCA 2009).

3.3.3 ENVIRONMENTAL SETTING

The project is located in southwestern El Dorado County and northeastern Sacramento County. El Dorado County is part of the Mountain Counties Air Basin (MCAB), which includes all of Amador, Calaveras, Mariposa, Nevada, Plumas, Sierra, and Tuolumne counties and the majority of El Dorado and Placer counties. Sacramento County is part of the Sacramento Valley Air Basin (SVAB), which includes all of Butte, Colusa, Glenn, Sacramento, Shasta, Sutter, Tehama, Yolo, and Yuba counties, the northeast portion of Solano County, and the western portion of Placer County. Because only a small portion of the project area is within the SVAB, this environmental setting and analysis focuses on the MCAB, where the majority of the project area is located.

The MCAB lies along the northern Sierra Nevada mountain range, close to or contiguous with the Nevada border, and it covers an area that is approximately 11,000 square miles. Elevations in the MCAB range from approximately 10,000 feet at the Sierra crest to several hundred feet above sea level at the Sacramento-El Dorado County border, where the project area is located. El Dorado County has hilly and mountainous terrain that affects airflow patterns throughout the county. These hill and mountain formations can create areas of high pollutant concentrations by hindering horizontal air dispersion (El Dorado Weather 2012). Because of its proximity to the Sacramento Valley, the MCAB and El Dorado County are prone to receiving pollutants that are transported from more populated and traffic-heavy areas.

The Sierra Nevada receives large amounts of precipitation from storms moving in from the Pacific in the winter, with lighter amounts from intermittent "monsoonal" moisture flows from the south and cumulus buildup in the summer. Precipitation levels are high in the highest mountain elevations, but decline rapidly toward the western and flatter portions of the basin. Winter temperatures in the mountains can be below freezing for weeks at a time, and substantial depths of snow can accumulate, but in the western foothills, winter temperatures usually dip below freezing only at night and precipitation is mixed as rain or light snow. The average summer temperature near the project area is approximately 91 degrees Fahrenheit (°F), while the average winter temperature is approximately 33°F. In the summer, temperatures in the project area can routinely exceed 100°F.

Inversion layers, where warm air overlays cooler air, frequently occur and trap pollutants close to the ground. In the winter, these conditions can lead to CO "hotspots" (i.e., exceedance of the CO ambient air quality standard) along heavily traveled roads and at busy intersections. During summer's longer daylight hours, stagnant air, high temperatures, and plentiful sunshine provide the conditions and energy for the kind of photochemical reaction between ROG and NO_X that result in the formation of ozone. Because of its long formation time, ozone is a regional pollutant rather than a local hotspot problem.

In the summer, the strong upwind valley air flowing into the MCAB from the Central Valley to the east is an effective transport medium for ozone precursors and ozone generated in the Bay Area and the Sacramento and San Joaquin valleys. These transported pollutants predominate as the cause of ozone in the MCAB and are largely responsible for the exceedances of the CAAQS and NAAQS. CARB has officially designated the MCAB as "ozone impacted" by transport from those areas.

3.3.3.1 **Existing Air Quality and Attainment Status**

Concentrations of criteria air pollutants are measured at monitoring stations throughout the MCAB. The pollutant concentrations data are used by CARB and EPA to determine attainment designations for air basins. The nearest monitoring station to the project alignment is at the 3111 Gold Nugget Way station in Placerville, located approximately 2 miles northeast of the project alignment at the closest distance, and approximately 18 miles northeast at the furthest distance. However, this monitoring station only measures ozone. Monitoring data for other criteria air pollutants were obtained from other monitoring stations in the MCAB or the closest monitoring station in the SVAB. In general, the ambient air-quality measurements from these stations are the most representative of the air quality in the vicinity of the project alignment. Table 3.3-3: Summary of Annual Ambient Air Quality Data (2009–2011) summarizes air quality data from 2009 to 2011, and lists the registered concentrations and exceedances of the CAAQS and NAAQS. During this period, the monitoring stations registered multiple days above the State's 1-hour and 8-hour ozone standards. The national 8-hour ozone standard was exceeded multiple times each year as well. The State's CO and NO_2 standards were not exceeded in any year between 2009 and 2011. The national 24-hour $PM_{2.5}$ standard was exceeded multiple times in 2009 and 2011, but it was not exceeded in 2010. The national 24-hour PM_{10} standard was not exceeded any time between 2009 and 2011; however, the State's 24-hour PM_{10} standard was exceeded multiple times in 2011.

3.3.3.2 **Attainment Status**

The determination of whether a region's air quality is healthful or unhealthful is made by comparing pollutant levels in ambient air samples to the CAAQS and NAAQS. Both CARB and the EPA use the type of monitoring data presented, summarized in Table 3.3-3: Summary of Annual Ambient Air Quality Data (2009–2011), to designate an area's attainment status with respect to the CAAQS and NAAQS, respectively, for criteria air pollutants.

Table 3.3-3: Summary of Annual Ambient Air Quality Data (2009–2011)

	2009	2010	2011
Ozone			
Maximum concentration (1-hour/8-hour, ppm)	0.113/0.095	0.112/0.102	0.103/0.086
Number of days State standard exceeded (1-hour/8-hour)	6/32	3/19	2/16
Number of days national standard exceeded (1-hour/8-hour) [1]	0/20	0/8	0/5
Carbon Monoxide (CO) [2]			
Maximum concentration (1-hour/8-hour, ppm)	2.1/1.66	3.1/1.16	2.3/1.87
Number of days State standard exceeded (8-hour)	0	0	0
Number of days national standard exceeded (1-hour/8-hour)	0/0	0/0	0/0
Nitrogen Dioxide (NO_2) [3]			
Maximum concentration (1-hour, ppm)	0.038	0.028	0.041
Number of days State standard exceeded	0	0	0
Annual average (ppm)	0.006	0.004	0.005
Sulfur Dioxide (SO_2) [3]			
Maximum concentration (24-hour, ppm)	0.002	0.002	-
Number of days State standard exceeded (State/national)	0/0	0/0	-
Annual average (ppm)	0.000	-	-
Fine Particulate Matter ($PM_{2.5}$) [4]			
Maximum concentration (μg/m^3) (National/California[5])	49.8/71.7	33.9/41.6	54.3/62.2
Number of days national standard exceeded (measured/estimated[6])	3/8.9	0/0.0	3/9.5
State annual average (μg/m^3) (National/California)	10.6/15.5	8.7/8.7	10.4/11.6
Respirable Particulate Matter (PM_{10})			
Maximum concentration (μg/m^3) (National/California[5])	45.0/48.0	44.0/44.0	62.0/66.0
Number of days State standard exceeded (measured/estimated[6])	0/0.0	0/0.0	2/12.2
Number of days national standard exceeded (measured/estimated[6])	0/0.0	0/0.0	0/0.0
Annual average (μg/m^3) (National/California)	18.0/18.7	15.9/16.3	19.9/20.7

Notes:

μg/m^3 = micrograms per cubic meter; ppm = parts per million; — = data not available

1 The 8-hour national ozone standard was revised to 0.075 ppm in March 2008. Statistics shown are based on the previous 0.08 ppm standard. The 1-hour national ozone standard was revoked on June 15, 2005. Statistics for the 1-hour national ozone standard are shown for informational purposes.

2 Measurements were registered at the 7823 Blackfoot Way monitoring station in North Highlands, which is approximately 13 miles northwest of the project alignment. Carbon monoxide is not measured at any monitoring stations in the MCAB.

3 Measurements were registered at the 50 Natoma Street monitoring station in Folsom, which is approximately 2 miles west of the project alignment. This is the closest monitoring station to the project alignment that monitors for NO_2.

4 Measurements were registered at the 2701 Avalon Drive monitoring station in Sacramento, which is approximately 12 miles west of the project alignment. This is the closest monitoring station with complete data for $PM_{2.5}$ and PM_{10}.

5 State and national statistics may differ for the following reasons: State statistics are based on California-approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods. State and national statistics may therefore be based on different samplers. State statistics are based on local conditions while national statistics are based on standard conditions. State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

6 Measured days are those days that an actual measurement was greater than the level of the State daily standard or the national daily standard.

	2009	2010	2011
Measurements are typically collected every 6 days. Estimated days are the estimated number of days that a measurement will have been greater than the level of the standard had measurements been collected every day. The number of days above the standard is not necessarily the number of violations of the standard for the year.			
Sources: CARB 2012b, EPA 2012			

The purpose of these designations is to identify areas with air quality problems and thereby initiate planning efforts for improvement. The three basic designation categories are "nonattainment," "attainment," and "unclassified." The "unclassified" designation is used in an area that cannot be classified on the basis of available information as meeting or not meeting the standards. The most recent attainment designations with respect to the MCAB are shown for each criteria air pollutant in Table 3.3-4: Attainment Status of the Mountain Counties Air Basin with Respect to the California and National Ambient Air Quality Standards. With respect to the CAAQS, the MCAB is currently designated as a nonattainment area for ozone and PM_{10}, and as an attainment or unclassified area for all other pollutants. With respect to the NAAQS, the MCAB is designated as a nonattainment area for ozone and as an attainment or unclassified area for all other pollutants.

3.3.3.3 **Toxic Air Contaminants**

Toxic air contaminants (TAC), or hazardous air pollutants (HAP) in federal regulatory terms, are defined as a group of air pollutants that may cause or contribute to an increase in mortality or serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, they may pose a threat to public health even at low concentrations.

According to the California Almanac of Emissions and Air Quality, the majority of the estimated health risk from TACs in ambient air is attributed to relatively few compounds, the most dominant being particulate matter exhaust from diesel-fueled engines (diesel PM) (CARB 2009). In addition to diesel PM, the TACs for which data are available that pose the greatest existing ambient risk in California are benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, *para*-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene. Diesel PM differs from other TACs in that it is not a single substance but rather a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies, depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present.

Table 3.3-4: Attainment Status of the Mountain Counties Air Basin with Respect to the California and National Ambient Air Quality Standards

Pollutant	Averaging Time	California Attainment Status	National Attainment Status
Ozone	1-hour	N	–
	8-hour	N	N
Carbon Monoxide (CO)	1-hour	U	U/A
	8-hour	U	U/A
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	–	U/A
	1-hour	A	U/A
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	–	U
	24-hour	A	U
	3-hour	–	–
	1-hour	A	U
Respirable Particulate Matter (PM_{10})	Annual Arithmetic Mean	N	–
	24-hour	N	U
Fine Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	U	A
	24-hour	–	N
Lead	30-day Average	A	U/A
	Calendar Quarter	–	U/A
Sulfates	24-hour	A	–
Hydrogen Sulfide	1-hour	U	–
Vinyl Chloride (chloromethane)	24-hour	na	–
Visibility Reducing Particles	8-hour (10:00 to 18:00 PST)	U	–

Notes:
N = nonattainment; A = attainment; U/A = unclassifiable/attainment; U = unclassified; — = no standard; na = no available information
Source: CARB 2011

3.3.3.4 Naturally Occurring Asbestos

NOA is located in many parts of California and is commonly associated with ultramafic rocks (Clinkenbeard et al. 2002). Asbestos is the common name for a group of naturally occurring fibrous silicate minerals that can separate into thin but strong and durable fibers. Ultramafic rocks form in high-temperature environments, well below the surface of the earth. By the time they are exposed at the surface by geologic uplift and erosion, ultramafic rocks may be partially to completely altered into a type of metamorphic rock called serpentinite. Sometimes the metamorphic conditions are right for the formation of chrysotile asbestos or tremolite-actinolite asbestos in the bodies of these rocks or along their boundaries (Churchill and Hill 2000). Please refer to Section 3.6, Geology and Soils, for a more detailed description of NOA. For individuals living in areas of NOA, many potential pathways exist for airborne exposure. Exposures to soil dust containing asbestos can occur under a variety of scenarios, including children playing in the dirt; dust raised from unpaved roads, and driveways covered with crushed serpentine; grading and earth disturbance associated with construction activity; rock blasting; quarrying; gardening; and other human activities.

The California Air Pollution Controls Officers Association (CAPCOA) has compiled NOA maps for various areas around California to evaluate potential NOA impacts for projects (CAPCOA 2012). According to these maps and as described in further detail in Section 3.6, Geology and Soils, the El Dorado County portion of the project alignment is located in areas that are considered "areas more likely to contain asbestos" and "areas where the presence of asbestos is possible but unlikely" (Churchill and Hill 2000). The El Dorado County project alignment portions that are located in "areas more likely to contain asbestos" include areas north of U.S. Highway 50, east of Tierra del Dios Road, and along the easternmost portion of the alignment near South Shingle Road (i.e., east of Shingle Springs Substation). The project alignment portions that are located in "areas where the presence of asbestos is possible but unlikely" are in the Pine Hill Intrusive Complex-altered gabbro, which is west of Cameron Park Drive, south of U.S. Highway 50, and west of South Shingle Road. In addition, the City of Folsom portion of the project alignment is located in areas that are considered "areas moderately likely to contain NOA" and "areas least likely to contain naturally occurring asbestos" (California Department of Conservation 2006). The City of Folsom project alignment is located primarily in "areas moderately likely to contain naturally occurring asbestos," which contain the Copper Hill and Gopher Ridge Volcanics. A portion of the City of Folsom project alignment also contains Salt Springs Slate and is categorized as an "area least likely to contain naturally occurring asbestos."

Any project construction activity that will include earth disturbance has the potential to generate NOA emissions. Site grading activities for substation and switching station modifications, crane pads, and conversion of overhead distribution line to underground will alter surface soils and materials that can generate NOA emissions, if present. The biggest potential for generating NOA (if found to be present) is related to construction activities that will require excavation of soils, such as concrete-pier and micropile foundations, the distribution line placed underground, and replacement pole installations. These activities will include drilling, removal, and movement of earth materials that potentially will disturb and release NOA emissions into the atmosphere.

The distribution placement underground, which will require the greatest amount of excavation and create the greatest potential for ground disturbance, will occur in Platt Circle, located in El Dorado County. Platt Circle is not situated in an area that has been found to have NOA or that will be "more likely to contain asbestos." Therefore, the distribution placement underground here is not expected to have the potential to generate NOA emissions. In addition, Gold Hill, CPM, Clarksville, Pacific Western Pipe, and Shingle Springs substations are not located in areas where the presence of NOA is "more likely," "moderately likely," or "possible but unlikely," and no ground-disturbing activities are proposed at the Missouri Flat Switching Station. Therefore, these portions of the project alignment will not have the potential for NOA impacts. However, other portions, including the locations for pole installations, may be located in areas where the presence of NOA is possible. Therefore, the analysis below discusses construction control measures and project components that potentially may disturb NOA.

3.3.3.5 **Sensitive Receptors**

Sensitive land uses or sensitive receptors are facilities that generally accommodate people who may experience adverse effects from unhealthful concentrations of air pollutants. CARB has identified the following groups who are most likely to be affected by air pollution: children under 14, the elderly over 65 years of age, athletes, and people with cardiovascular and chronic respiratory diseases. According to the EDCAQMD, sensitive receptors include, but are not limited to schools, medical facilities, or elder centers. CARB also identifies residential areas and childcare centers as sensitive receptors.

Some project construction activities will occur in areas where no sensitive receptors are located within approximately 500 feet or more; however, various construction activities will occur in areas that are within approximately 50 feet of sensitive receptors (i.e., residences). In addition, the following six schools are located within approximately 500 feet of proposed construction sites:

- Blue Oak Elementary and Charter Montessori School (within approximately 370 feet)
- Camerado Springs Middle School (within approximately 315 feet)
- William Brooks Elementary School (within approximately 105 feet)
- Holy Trinity School (within approximately 420 feet)
- Vista del Lago High School (within approximately 315 feet)
- Los Rios Community College (within approximately 155 feet)

As described in APM AQ-3, before any earth-disturbing activities that may occur within 500 feet of the sensitive receptors discussed above, a geological evaluation by a registered geologist will be required, to test for the presence of NOA. If NOA is found, APM AQ-3 will be implemented throughout construction to minimize the impact of NOA emissions.

3.3.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria air quality impacts derived from Appendix G of the CEQA Guidelines, provide relevant APMs, and contain an assessment of potential project-related construction and operational impacts on air quality.

3.3.4.1 **Significance Criteria**

According to Section 15002(g) of the CEQA Guidelines, “a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project.” As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts on air quality were evaluated for each of the criteria listed in Table 3.3-1: CEQA Checklist for Air Quality, as discussed in Section 3.3.4.3, Potential Impacts.

3.3.4.2 Applicant-Proposed Measures

As described in Section 3.3.4.3, Potential Impacts, impacts on air quality will be less than significant. The following APMs will meet existing regulations and/or requirements or standard practices to further avoid, minimize, or reduce potential less-than-significant impacts on air quality.

APM AQ-1: Minimize Fugitive Dust

PG&E will minimize fugitive dust during construction by implementing the following measures, which comply with EDCAQMD and SMAQMD requirements:

- Reduce the amount of the disturbed area where possible.
- Use water trucks or sprinkler systems in sufficient quantity to prevent airborne dust from leaving the site. Increase watering frequency whenever wind speeds exceed 15 miles per hour (mph). Use reclaimed non-potable water whenever possible. Do not use non-potable water in or around crops intended for human consumption.
- Implement permanent dust control measures as soon as possible following completion of any soil-disturbing activities.
- Enforce a policy that vehicle speed for all construction vehicles is not to exceed 15 mph on any unpaved surface.
- Water all active construction areas as needed to suppress dust. Base the frequency on the type of operation and the soil and wind exposure.
- Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material on the site.
- Cover inactive storage piles.
- Sweep public roads if visible soil material is carried out from a work site.
- Post a publicly visible sign with the phone number for the EDCAQMD for compliance in reporting any Rule 205 (Nuisance) violations, as well as the telephone number and person to contact regarding dust complaints. Instruct this person to respond to complaints and take corrective action within 48 hours.
- Limit the area of earth-disturbing activities at any one time.

APM AQ-2: Minimize Vehicle and Equipment Emissions

PG&E will minimize vehicle emissions during project construction by implementing the following measures:

- Maintain construction equipment in proper working conditions in accordance with PG&E standards.

- Minimize unnecessary construction vehicle idling time. 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.

- Minimize construction equipment exhaust by using low-emission or electric construction equipment where feasible. Portable diesel-fueled construction equipment with engines 50 hp 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.

APM AQ-3: Minimize Potential Naturally Occurring Asbestos Emissions

The project will develop a preemptive Asbestos Dust Mitigation Plan to identify all necessary best management practices that will be implemented if NOA is encountered at any time during construction. The Asbestos Dust Mitigation Plan will be compliant with the requirements of CARB's Asbestos ATCM, EDCAQMD's Rule 223-2 (Fugitive Dust – Asbestos Hazard Mitigation), and SMAQMD's Rule 902 (Asbestos).

Before beginning any earth-disturbing activities in areas identified in Section 3.6, Geology and Soils (i.e., "areas more likely to contain asbestos," "areas where the presence of asbestos is possible but unlikely," "areas moderately likely to contain NOA," or "areas least likely to contain naturally occurring asbestos"), a geological evaluation will be performed by a registered geologist to determine whether NOA is present. In addition, before beginning any earth-disturbing activities that will occur within 50 feet of residences and 500 feet of schools, a geological evaluation also will be performed by a registered geologist, to test for the presence of NOA. If NOA is detected during any geological evaluation or during subsequent construction activities, PG&E will minimize NOA emissions by implementing the Asbestos Dust Mitigation Plan, which will comply with the requirements of CARB's Asbestos ATCM, EDCAQMD's Rule 223-2 (Fugitive Dust – Asbestos Hazard Mitigation), and SMAQMD's Rule 902 (Asbestos).

CARB's Asbestos ATCM includes asbestos management requirements that range from creating and implementing an Asbestos Dust Mitigation Plan, observing pre-notifications of construction activities, maintaining construction best management practices, meeting post-construction stabilization requirements, and performing administrative recordkeeping. Construction best management practices include monitoring all potential NOA emission sources: road dust (e.g., limiting vehicle speeds); earth-disturbing activities (e.g., watering before, during, and after disturbance); track-out from work sites (e.g., washing equipment and vehicle tires); material export (e.g., haul truck material handling requirements); and post-construction stabilization (e.g., covering, chemical stabilizers, or vegetation). In addition, if deemed necessary by the local air district or air pollution control officer, air monitoring for asbestos may be required. The project will comply with EDCAQMD's Rule 223-2, which provides a list of best management practices to minimize the generation of asbestos dust from construction activities. The Asbestos Dust Mitigation Plan will include, but will not be limited to measures from EDCAQMD's Rule 223-2, as applicable. Asbestos best management practices for the project may include, but will not be limited to the following:

Backfilling

- Mix backfill soil with water before moving the soil.
- Have a dedicate water truck or a high-capacity hose connected to backfilling equipment.
- Empty the loader bucket slowly to prevent dust plumes from being generated.
- Minimize the drop height from the loader bucket.

Clearing and Grubbing

- Maintain live perennial vegetation where possible.
- Apply water in sufficient quantity to prevent generation of visible dust.

Cut and Fill

- Pre-water with sprinklers or water trucks and allow time for penetration.
- Use water as necessary to minimize dust.
- Install upwind fencing to prevent material movement on site.
- Suspend operations when winds generate visible dust emissions despite control measures.
- Use tarps or other suitable enclosures on haul trucks.
- Provide water while loading and unloading to reduce visible dust plumes.
- If excavated material is classified as a hazardous waste material, verify that off-site transport complies with state and federal rules and regulations.

Disturbed Soil

- Limit vehicular traffic and disturbances on soils where possible.
- Limit vehicle speeds to 15 miles per hour.
- Apply water or a stabilizing agent in sufficient quantities to prevent generation of visible dust plumes.

General Site Management

- Wash mud and soil from equipment and vehicles after completing earth-disturbing activities to prevent them from crusting and drying.
- Prohibit the use of blower devices, dry rotary brushes, or dry brooms.
- Restrict vehicular access to established, unpaved travel paths and parking lots, to meet stabilization requirements.
- Document all locations and quantities of cut and fill, and off-site soil transport.
- Provide signage at work sites that meet Occupational Safety and Health Administration requirements.

3.3.4.3 Potential Impacts

Potential project impacts on air quality were evaluated against the CEQA significance criteria and are discussed in further detail in the following paragraphs.

The upgraded power lines will require no change to existing operation and maintenance activities. As such, impacts on air quality that result from the project will not change from existing conditions and no operation-related impacts will occur. The impact analysis is limited to temporary and short-term impacts associated with project construction, which includes the following components:

- **Missouri Flat-Gold Hill Line Reconductoring**, which will include reconductoring approximately 12.5 miles of the existing line, replacing approximately 60 existing tubular steel poles (TSP), modifying approximately 13 existing lattice steel towers, and converting approximately 1,000 feet of existing overhead distribution line to underground;

- **Gold Hill No. 1 Line Reconductoring**, which will include reconductoring approximately 7 miles of the existing line, replacing approximately 80 existing wood poles with new wood or light-duty steel poles and approximately one new TSP, installing approximately seven new interset wood poles, replacing approximately three distribution wood structures with approximately two new wood poles, and minor distribution line rewiring on approximately two existing wood poles near Limestone Substation;

- **Substation Modifications**, which will include minor modifications to equipment and facilities at Missouri Flat Switching Station and Shingle Springs, Pacific Western Pipe, Limestone, Clarksville, and Gold Hill substations; and

- **Access Road Improvements and Construction,** which will include improvements to various temporary access roads that are planned for use during construction and the creation of an approximately 100-foot-long access road.

The impact analysis also evaluates impacts resulting from required site preparation and vegetation removal and trimming required to accommodate construction activities associated with these project components.

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

Construction emissions are considered short-term and temporary in nature, but have the potential to affect air quality. Fugitive PM dust emissions are among the pollutants of greatest concern with respect to construction activities. Cut and fill operations along with general site grading operations are the primary sources of fugitive PM dust emissions from construction activities. These types of ground-disturbing activities will be limited to minor grading, blading, vegetation clearing, and/or auguring during construction. Movement of vehicles on unpaved roads also can generate fugitive PM dust emissions by kicking up ground PM dust into the atmosphere. Construction fugitive PM dust emissions can vary greatly, depending on the level of activity, the specific operations taking place, the number and types of equipment operated, vehicle speeds, local soil conditions, weather conditions, and the amount of earth disturbance (e.g., site grading, excavation, cut-and-fill).

Emissions of ozone precursors, ROG and NO_X, are generated primarily from mobile sources (i.e., delivery vehicles, construction worker vehicles) and off-road construction equipment. Generation of these emissions varies as a function of vehicle trips per day associated with delivery of construction materials and worker commute trips, as well as by the types and numbers of heavy-duty, off-road equipment used and the intensity and frequency of their operation.

Table 3.3-5: Summary of Construction Emissions for Missouri Flat-Gold Hill 115 kV Power Line Reconductoring Project (EDCAQMD Jurisdiction) and Table 3.3-6: Summary of Construction Emissions for Missouri Flat-Gold Hill 115 kV Power Line Reconductoring Project (SMAQMD Jurisdiction) present the project's construction emissions that are estimated to occur in EDCAQMD's and SMAQMD's jurisdictions, respectively. Because the project will occur in both jurisdictions, the construction activities occurring in each jurisdiction were separated and modeled using the appropriate region-specific emissions factors. Thresholds of significance are the allowable emissions limits established by local air districts to maintain healthful air quality (i.e., achievement and maintenance of ambient air quality standards). Therefore, projects that will not exceed applicable thresholds of significance are considered not to obstruct implementation of an air quality plan.

The following project components will occur within the EDCAQMD's jurisdiction:

- Missouri Flat-Gold Hill Line Reconductoring
    - Reconductoring approximately 9.6 miles of existing line
    - Replacing approximately 60 TSPs
    - Undergrounding of approximately 1,000 feet of overhead distribution line

- Gold Hill No. 1 Line Reconductoring
    - Reconductoring approximately 7 miles of existing line
    - Replacing approximately 80 wood poles
    - Installing approximately seven new interset wood poles

Table 3.3-5: Summary of Construction Emissions for Missouri Flat-Gold Hill 115 kV Power Line Reconductoring Project (EDCAQMD Jurisdiction)

Construction Phase	Daily Pollutant Emissions (lbs/day)			
	ROG	NO_X	PM_{10}	$PM_{2.5}$
Tubular Steel Pole	1.26	13.13	0.71	0.57
Reconductoring	1.78	15.90	0.88	0.74
Wood Poles	1.13	11.93	0.69	0.55
Grading	0.16	2.85	0.14	0.09
Micropiles[1]	3.06	32.69	1.82	1.47
Maximum Daily Emissions [2]	7.38	76.51	4.24	3.42
EDCAQMD Threshold of Significance [3]	82	82	-	-
Exceeds Thresholds?	No	No	-	-

Notes:
kV = kilovolt; EDCAQMD = El Dorado County Air Quality Management District; lbs/day = pounds per day; ROG = reactive organic gases; NO_X = oxides of nitrogen; PM_{10} = particulate matter with aerodynamic diameter less than 10 microns; $PM_{2.5}$ = particulate matter with aerodynamic diameter less than 2.5 microns.
[1] This analysis assumes a maximum of five micropiles may be constructed per day.
[2] Maximum daily emissions assume project construction associated with all construction activities occurring within the EDCAQMD jurisdiction can occur on the same day. In reality, these activities are likely to be phased and only a couple of the activities will occur on a single day.
[3] Thresholds of significance shown have been developed for short-term construction emissions.
Source: Data compiled by AECOM in 2013

Table 3.3-6: Summary of Construction Emissions for Missouri Flat-Gold Hill 115 kV Power Line Reconductoring Project (SMAQMD Jurisdiction)

Construction Phase	Daily Pollutant Emissions (lbs/day)			
	ROG	NO_X	PM_{10}	$PM_{2.5}$
Reconductoring	0.85	10.38	0.55	0.41
Lattice Steel Towers	1.84	20.28	0.79	0.66
Grading	0.14	2.64	0.13	0.08
Maximum Daily Emissions [1]	2.83	33.30	1.47	1.15
SMAQMD Threshold of Significance	-	85	-	-
Exceeds Thresholds?	-	No	-	-

Notes:
kV = kilovolt; SMAQMD = Sacramento Metropolitan Air Quality Management District; lbs/day = pounds per day; ROG = reactive organic gases; NO_X = oxides of nitrogen; PM_{10} = particulate matter with aerodynamic diameter less than 10 microns; $PM_{2.5}$ = particulate matter with aerodynamic diameter less than 2.5 microns.
[1] Maximum daily emissions assume project construction associated with all construction activities occurring within the SMAQMD jurisdiction will occur on the same day. In reality, these activities are likely to be phased and only a couple of the activities will occur on a single day.
Source: Data compiled by AECOM in 2013

  - Replacing approximately three distribution wood pole structures

  - Minor distribution rewiring on approximately two existing wood poles near Limestone Substation

- Access Road Improvements and Construction: Improvements to various temporary access roads that are planned for use during construction and the creation of an approximately 100-foot-long access road

- Substation and Switching Station Modifications: Minor modifications to equipment and facilities at Shingle Springs, Pacific Western Pipe, Limestone, and Clarksville substations, and Missouri Flat Switching Station

The construction emissions associated with these activities were modeled using EDCAQMD-specific emission factors contained in CalEEMod. Table 3.3-5: Summary of Construction Emissions for Missouri Flat-Gold Hill 115 kV Power Line Reconductoring Project (EDCAQMD Jurisdiction) presents the project's maximum daily EDCAQMD construction emissions along with applicable thresholds of significance.

The following project components will occur within the SMAQMD's jurisdiction:

- Missouri Flat-Gold Hill Line Reconductoring
  - Reconductoring approximately 2.9 miles of existing line
  - Modifying approximately 13 lattice steel towers

- Substation Modifications: Modifications to occur at Gold Hill Substation

- Access Road Improvements: Improvements to various temporary access roads that are planned for use during construction.

The construction emissions associated with these activities were modeled using SMAQMD-specific emission factors contained in CalEEMod. Table 3.3-6: Summary of Construction Emissions for Missouri Flat-Gold Hill 115 kV Power Line Reconductoring Project (SMAQMD Jurisdiction) presents the project's SMAQMD construction emissions along with applicable thresholds of significance.

As shown in Table 3.3-5: Summary of Construction Emissions for Missouri Flat-Gold Hill 115 kV Power Line Reconductoring Project (EDCAQMD Jurisdiction) and Table 3.3-6: Summary of Construction Emissions for Missouri Flat-Gold Hill 115 kV Power Line Reconductoring Project (SMAQMD Jurisdiction), maximum daily emissions associated with construction activities will not exceed any construction-related thresholds of significance within EDCAQMD's and SMAQMD's jurisdictions; thus the project will not conflict with any air quality plan. Therefore, the impact will 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***

The project's construction emissions and activities will not exceed the applicable EDCAQMD or SMAQMD thresholds of significance. The project's daily construction emissions were conservatively calculated for both EDCAQMD and SMAQMD's jurisdictions and assumed that the maximum number of construction activities will occur in one day. However, only a fraction of these construction activities will actually occur on any given day during construction, lowering the daily emissions rate. As summarized in Table 3.3-5: Summary of Construction Emissions for Missouri Flat-Gold Hill 115 kV Power Line Reconductoring Project (EDCAQMD Jurisdiction) and Table 3.3-6: Summary of Construction Emissions for Missouri Flat-Gold Hill 115 kV Power Line Reconductoring Project (SMAQMD Jurisdiction), even with conservatively calculated daily emissions, the project will not exceed applicable thresholds of significance for either EDCAQMD or SMAQMD.

In addition, the project will not include extensive cut/fill or earth-moving activities that can result in high fugitive PM dust concentrations that will exceed an ambient air quality standard. Furthermore, APM AQ-1 will minimize fugitive PM dust (i.e., PM_{10} and $PM_{2.5}$) from all earth disturbance activities. APM AQ-1 includes measures also prescribed by EDCAQMD and SMAQMD as part of their rules and regulations to minimize fugitive dust. According to SMAQMD, projects that implement all Basic Construction Emission Control Practices (such as those included in APM AQ-1) and will not require extensive daily site disturbance (i.e., approximately 15 acres per day maximum) are not anticipated to generate levels of PM_{10} or $PM_{2.5}$ that exceed any ambient air quality standards. In addition, APM AQ-2 will minimize construction emissions to avoid any violation or exceedance of an ambient air quality standard. Construction emissions will not violate any air quality standard or contribute substantially to an existing or projected air quality violation. Therefore, the impact will 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***

As described in Section 3.3.3.2 and shown in Table 3.3-4: Attainment Status of the Mountain Counties Air Basin with Respect to the California and National Ambient Air Quality Standards, the project area is currently designated as nonattainment for the State or federal ozone, PM_{10}, and $PM_{2.5}$ ambient air quality standards. The project's construction activities will not generate significant emissions of any ozone precursors (ROG and NO_X), PM_{10}, or $PM_{2.5}$ and, therefore, will not generate a cumulatively considerable contribution of nonattainment pollutants to regional air quality. As summarized in Table 3.3-5: Summary of Construction Emissions for Missouri Flat-Gold Hill 115 kV Power Line Reconductoring Project (EDCAQMD Jurisdiction) and Table 3.3-6: Summary of Construction Emissions for Missouri Flat-Gold Hill 115 kV Power Line Reconductoring Project (SMAQMD Jurisdiction), daily construction emissions resulting from implementation of the project will be less than significant. Projects that are considered less than significant are considered not to generate emissions at a level that will cause violations of ambient air quality standards or obstruct implementation of an applicable air quality plan. Furthermore, because the project will include APMs consistent with air quality plans in the region to reduce emissions, the emissions are estimated to be substantially below relevant quantified significance thresholds, and the emissions will be short-term, the project will not generate a cumulatively considerable contribution to regional air quality pollutants in the project area that are nonattainment under a State or federal ambient air quality standard.

In addition, the project will not be a land use project that will generate trips or increase population that is not planned in a local general plan. Therefore, the cumulative impact will be less than significant.

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

The project will generate other criteria air pollutant emissions (e.g., CO and $PM_{2.5}$) that can affect sensitive receptors on a localized level. Pollutants of highest concern that can affect receptors on a localized level include CO and diesel PM. During project construction, materials, equipment, and construction workers will be transported to work sites along regional roadways from various locations. The mobilization phase will include the highest volume of vehicle trips traveling to work sites, to deliver construction equipment and materials. Even during this phase, the construction activities are not expected to contribute a significant amount of vehicle traffic to existing roadways.

SMAQMD has established a screening volume for CO hotspots, which are localized exceedance of the State or federal CO ambient air quality standard, at 31,600 vehicles per hour (SMAQMD 2010). The project's maximum hourly construction vehicle volumes are not expected to exceed or make a substantial (i.e., 5 percent or 1,580 vehicle trips per day) contribution to the screening level volumes. In addition, the project alignment is located primarily in unincorporated, western El Dorado County, which is not a high-density, congested area where CO hotspots are more likely to occur because of combination of vehicle volume and congestion. Therefore, the project will not generate or substantially contribute to a localized CO hotspot. The impact will be less than significant.

Construction of the project will result in the generation of diesel PM emissions from the use of off-road diesel equipment for replacing poles, tower modifications, and reconductoring.
Diesel PM has been classified as a TAC by CARB and, therefore, even acute exposure can have potential health impacts. As previously described, various construction activities will occur in areas that are within approximately 50 feet of residences and approximately 500 feet of six schools. However, because of the linear nature of the project, construction activities will be geographically distributed across the 12.5-mile-long project alignment, and diesel PM emissions will vary, depending on the amount and types of construction equipment used each day. Furthermore, emissions will be dispersed over the approximately 18-month duration of construction; therefore, activities at any given location will be temporary and short term. No single receptor will be exposed to all of the construction emissions for the entire construction period and, following completion of project construction, all associated diesel PM emissions will cease. The anticipated exposure period for nearby sensitive receptors, including residences and schools, will be less than 1 percent of the typical exposure period for a health risk assessment (i.e., 70 years). Therefore, the duration of exposure at each work site in proximity of a sensitive

receptor will be minimal and will not generate a significant TAC impact (i.e., greater than 10 in one million cancer risk or greater than one hazard index). The impact will be less than significant. APM AQ-2, which includes measures that will reduce construction-related diesel PM exhaust emissions, will further reduce the less-than-significant impact.

Site preparation for work areas, crane pads, substation and switching station modifications, and access roads; installation of concrete-pier and micropile foundations; and excavation for distribution placement underground will result in ground disturbance. As discussed in Section 3.3.3.4 Naturally Occurring Asbestos and Section 3.6, Geology and Soils, portions of the project alignment are located in areas designed as “areas more likely to contain asbestos,” “areas where the presence of asbestos is possible but unlikely,” and “areas moderately likely to contain asbestos.” As a result, site preparation activities and foundation installations potentially will occur in areas where asbestos is present. In these areas, compliance with APM AQ-3 (requiring a geological evaluation to test for the presence of NOA before any earth-disturbing activities occur in these areas) will provide proper identification of NOA in areas planned for disturbance. If NOA is found present in these areas, the requirements of CARB’s ATCM for Construction, Grading, Quarrying and Surface Mining Operations (Title 17, Section 93105 of the California Code of Regulations), EDCAQMD’s Rule 223-2, and SMAQMD’s Rule 902—such as developing an Asbestos Dust Mitigation Plan that outlines project-specific track-out prevention and control measures, stockpile protection measures, and wetting of soil to control fugitive dust—will be required during construction in these areas. Furthermore, to avoid and minimize NOA impacts on sensitive receptors, for any ground-disturbing activities occurring within 50 feet of residences or 500 feet of schools, a geological evaluation also will be required, to test for the presence of NOA before initiating these activities.

Therefore, all areas of earth disturbance where the potential exists to encounter NOA or located in proximity of sensitive receptors will be evaluated for NOA by a registered geologist before any earth-disturbing activities, and all required NOA abatement measures will be implemented as necessary. With implementation of these measures, along with compliance with the required control measures (e.g., CARB’s Asbestos ATCM, EDCAQMD Rule 223-3, SMAQMD Rule 902), the impact with respect to NOA will be less than significant.

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

The occurrence and severity of odor impacts depends on numerous factors, including the nature, frequency, and intensity of the source, wind speed and direction; and the sensitivity of the receptors. Although offensive odors rarely cause any physical harm, they can be very unpleasant, leading to considerable distress among the public, often generating citizen complaints to local governments and regulatory agencies.

Construction activities will generate diesel PM exhaust from heavy-duty trucks and off-road construction equipment, which can be considered offensive by some individuals. Construction activities will continue to change locations as construction components are completed. Any construction-related odors will be temporary and short term, and they will not be concentrated in any one location throughout the entire construction period; therefore, the project will not expose a large number of receptors to potential odor emissions. Construction activities also will vary from day to day, and thus construction-related odors will not be a constant plume of odor emissions. Therefore, these intermittent and temporary construction activities are not expected to cause a substantial odor impact to large numbers of sensitive receptors. The impact will be less than significant.

3.3.5 REFERENCES

California Air Resources Board (CARB). 2009. The California Almanac of Emissions and Air Quality. Sacramento, CA. Available: http://www.arb.ca.gov/aqd/almanac/almanac09/almanac09.htm. Accessed December 5, 2011.

———. 2011. Area Designations Maps/State and National. Available: http://www.arb.ca.gov/desig/adm/adm.htm. Accessed July 3, 2012.

———. 2012a (February). Ambient Air Quality Standards. Available: http://www.arb.ca.gov/research/aaqs/aaqs2.pdf. Accessed May 2, 2012.

———. 2012b. Top 4 Summary: Select Pollutant, Years, and Area. Available: http://www.arb.ca.gov/adam/topfour/topfour1.php. Accessed May 2, 2012.

California Department of Conservation. 2006. Relative Likelihood for the Presence of Naturally Occurring Asbestos in Eastern Sacramento County, California. Available: http://www.conservation.ca.gov/cgs/information/publications/sr/East_Sac_County_SR192.pdf. Accessed March 28, 2013.

CAPCOA. 2012. NOA. Available: http://www.capcoa.org/noa/. Accessed July 5, 2012.

Churchill, R., and B. Hill. 2000. Areas More Likely to Contain Natural Occurrences of Asbestos in Western El Dorado County, California. Available: http://www.capcoa.org/Docs/noa/%5B2%5D%20El%20Dorado%20County%20-%20CA%20Dept%20of%20Cons.pdf. Accessed July 15, 2012.

Clinkenbeard, J. et al. 2002. Guidelines for Geologic Investigations of Naturally Occurring Asbestos in California. Available: http://www.consrv.ca.gov/cgs/minerals/hazardous_minerals/asbestos/Asbestos_Guidelines_SP124.pdf. Accessed July 12, 2012.

El Dorado Weather. 2012. The Climate of El Dorado County. Available: http://www.eldoradocountyweather.com/climate.html. Accessed July 3, 2012.

Sacramento Metropolitan Air Quality Management District (SMAQMD). 2009a (December). CEQA Guide to Air Quality Assessment. Available: http://www.airquality.org/ceqa/ceqaguideupdate.shtml. Accessed July 12, 2012.

———. 2009b. Mitigation. Available: http://www.airquality.org/ceqa/mitigation.shtml#MitFees. Accessed July 12, 2012.

South Coast Air Quality Management District (SCAQMD). 2011. California Emission Estimator Model. Available: http://www.caleemod.com/. Accessed March 31, 2013.

Swiss Federal Office of Civil Aviation (FOCA). 2009. Helicopter Emissions Table. Available: http://www.bazl.admin.ch/fachleute/01169/02432/02433/02589/index.html?lang=en. Accessed May 14, 2012.

U.S. Environmental Protection Agency (EPA). 2012. Monitor Values Report. Available: http://www.epa.gov/airdata/ad_rep_mon.html. Accessed May 2, 2012.

TABLE OF CONTENTS

List of Figures

List of Tables

3.4 BIOLOGICAL RESOURCES

3.4.1 INTRODUCTION

This section describes existing conditions and potential impacts on biological resources (vegetation, wildlife, and wetlands) as a result of the project. The analysis concludes that, with implementation of Applicant-Proposed Measures (APMs) described in Section 3.4.4.2, Applicant-Proposed Measures, impacts on biological resources will be less than significant or no impact will occur.

The project's potential effects on biological resources were evaluated using the significance criteria in Appendix G of the California Environmental Quality Act (CEQA) Guidelines, as shown in Table 3.4-1: CEQA Checklist for Biological Resources. The conclusions are discussed in more detail in Section 3.4.4, Applicant-Proposed Measures and Potential Impacts. The evaluation herein is derived from the *Biological Resources Technical Report for the Missouri Flat-Gold Hill Transmission Line Reconductoring Project* (Stillwater Sciences 2013a) and the *Delineation of Waters and Wetlands for the Missouri Flat-Gold Hill Transmission Line Reconductoring Project* (Stillwater Sciences 2013c), both of which will be provided separately to California Public Utilities Commission (CPUC) staff.

Table 3.4-1: CEQA Checklist for Biological Resources

Would the project:	Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
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 Wildlife or US 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?				☒

Would the project:	Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
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?				☒

3.4.2 REGULATORY BACKGROUND AND METHODOLOGY

3.4.2.1 Regulatory Background

Federal

Endangered Species Act

The Endangered Species Act (ESA) (7 U.S. Code [USC] Section 136, 16 USC Sections 1531 et seq.) protects fish and wildlife that are listed as endangered or threatened by the U.S. Fish and Wildlife Service (USFWS) or the National Oceanic and Atmospheric Administration (NOAA) Marine Fisheries Service (NOAA Fisheries) (collectively referred to as the Services). The ESA prohibits unauthorized "take" of endangered and threatened species, with take defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct." Harm has been defined to include significant habitat modification or degradation. For plants, this statute governs removing, possessing, maliciously damaging, or destroying any listed plant on federal land and removing, cutting, digging-up, damaging, or destroying any listed plant on non-federal land in knowing violation of the law. Effects on critical habitat are considered by the Services when determining the degree to which a proposed action may adversely affect listed species.

Under Section 7 of the ESA, federal agencies are required to consult with the Services if their actions, including permit approvals or funding, may adversely affect a threatened or endangered species, including plants, or its critical habitat. Through consultation and the issuance of a Biological Opinion, the Services may issue an incidental take statement allowing take of the species that is incidental to an otherwise authorized activity, provided the action will not jeopardize the continued existence of the species.

Under Section 10 of the ESA, an incidental take permit may be issued to a non-federal entity if take is incidental to an otherwise lawful activity, the incidental take permit application meets all issuance criteria, and a Habitat Conservation Plan is developed for the activity.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 (16 USC Sections 703–711) protects all migratory birds, including active nests and eggs, and prohibits killing, possessing, or trading in migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. Birds protected under the MBTA include all native waterfowl, shorebirds, hawks, eagles, owls, doves, and other common birds such as ravens, crows, sparrows, finches, swallows, and others. Enforcement of the provisions of the MBTA is the responsibility of USFWS.

U.S. Bureau of Land Management, Sensitive Species

The U.S. Bureau of Land Management (BLM) has a policy to conserve special-status species and their habitats. The policy ensures that actions authorized, funded, or carried out by BLM do not contribute to the need to list any sensitive species as threatened or endangered under the ESA. BLM Sensitive species include those listed as endangered or threatened, or are candidates for listing under the ESA, and species designated by the BLM State Director as deserving special management consideration. In California, BLM Sensitive plant species include those listed as endangered or threatened under the California Endangered Species Act, those listed as rare under the Native Plant Protection Act, vascular and non-vascular plants with a California Rare Plant Rank of 1B (if not already listed as endangered, threatened, or rare), or other plants that the State Director believes meet the definition of sensitive.

U.S. Bureau of Land Management, Pine Hill Preserve Management Plan

An approximately 0.4-mile-long section of the project alignment traverses the BLM Pine Hill Preserve in the community of Shingle Springs. The preserve was established in April 2001 to protect habitat for eight special-status plant species that grow on gabbro soils in western El Dorado County. The Pine Hill Preserve Management Plan (Hinshaw et al. 2008) guides management activities at the preserve and serves as the basis for consultations with State and federal wildlife agencies to evaluate impacts of management on the special-status plants. The plan describes physical and biological conditions in the preserve, identifies management challenges, outlines management activities, and proposes a strategy for conserving the special-status plants.

State

California Endangered Species Act

The California Endangered Species Act (CESA) (Fish and Game Code Sections 2050–2098) gives authority to the Fish and Game Commission to identify species as threatened or endangered, and prohibits the importation, take, possession, and sale of such species. Under CESA, California agencies reviewing a proposed action in its jurisdiction must determine whether any State-listed endangered or threatened species may be affected by the action. Pursuant to Section 2081 of the California Fish and Game Code, California Department of Fish and Wildlife (CDFW) may grant a permit for the take of endangered, threatened, or candidate species if all of the following conditions are met: the take is incidental to an otherwise lawful activity; the effects of the authorized take are minimized and fully mitigated; and the permit is consistent with other regulations.

Native Plant Protection Act

The California Native Plant Protection Act (NPPA) of 1973 (Fish and Game Code Sections 1900–1913) directed CDFW to preserve, protect, and enhance native plants. It gave CDFW the power to designate native plants as endangered or rare. Many of the species designated under the NPPA were subsumed by CESA, but there is a subset of species, subspecies, and varieties of plants that were not, and they are protected as rare under the NPPA.

Protection of Birds and Birds' Nests

Under California Fish and Game Code Section 3503, it is unlawful to take, possess, or needlessly destroy the nests or eggs of any bird, except as otherwise provided. Fish and Game Code Section 3503.5 protects all birds-of-prey (raptors) and their eggs and nests. Under California Fish and Game Code Section 3513, it is unlawful to take or possess any migratory non-game bird that is designated under the federal Migratory Bird Treaty Act.

Species of Special Concern

Species of Special Concern (SSC) is a category conferred by CDFW on animal species that meet the State definition of threatened or endangered, but have not been formally listed (e.g., federally or State-listed species), or are considered at risk of qualifying for threatened or endangered status in the future based on known threats. SSC is an administrative classification only, but CEQA lead agencies frequently consider these "special-status" for the purposes of this analysis. Furthermore, any species that can be shown to meet the definition of "rare" or "endangered" under Section 15380 of the CEQA Guidelines is included in the project impacts analysis.

Fully Protected Species

California Fish and Game Code Sections 3511, 4700, 5050, and 5515 apply "fully protected" status to 37 birds, mammals, reptiles, amphibians, and fish. Take or possession of these species is prohibited at all times and no incidental take permits may be issued for these species.

California Rare Plant Ranks

CDFW considers plants with California Rare Plant Ranks (CRPR) of 1 and 2 to potentially meet the criteria for listing under CESA, even if they are not listed currently. The designations in the CRPR are determined through a Memorandum of Understanding between the California Native Plant Society (CNPS) and CDFW.

California Special-status Natural Communities

CDFW maintains a list of vegetation communities that are of limited distribution, either statewide or in a county or region. Communities of special concern are assigned a State rank, based on their degree of imperilment (as measured by rarity, threats, and ecological trends). These communities do not necessarily contain special-status species or their habitat. Most wetlands and riparian plant communities are considered special-status natural communities.

Local

The project is not subject to local discretionary land-use regulations because the CPUC has exclusive jurisdiction over the siting, design, and construction of the project. However, PG&E has considered local plans and policies as part of the environmental review process.

El Dorado County

The Conservation and Open Space Element of El Dorado County's General Plan (El Dorado County 2004) includes the following goals to protect and manage natural habitats and ecological functions:

- Identify, protect, and manage wildlife, wildlife habitat, fisheries, and vegetation resources of significant biological, ecological, and recreational value, with associated policies to protect rare, threatened, and endangered species, their habitats.
- Protect and maintain native trees including oaks, heritage, and landmark trees. This goal has associated policies for the county's Oak Tree Removal Permit Process, which is not applicable to the project.
- Identify and protect, where feasible, critical fish and wildlife habitat including: deer winter, summer, and fawning ranges; deer migration routes; stream and river riparian habitat; lake shore habitat; fish spawning areas; wetlands; wildlife corridors; and diverse wildlife habitat.
- Coordinate with wildlife and vegetation protection programs of appropriate federal and California agencies.
- Protect and conserve forest and woodland resources for their wildlife habitat, recreation, water production, domestic livestock grazing, production of a sustainable flow of wood products, and aesthetic values.

City of Folsom General Plan

The City of Folsom General Plan's (City of Folsom 1993) Conservation and Open Space Element includes the following goals related to biological resources that are relevant to the project:

- Preserve existing heritage trees, with related policies for a Tree Preservation/Landscape Ordinance and replacement of removed heritage trees.
- Wherever feasible, preserve, acquire, rehabilitate, enhance, and maintain sensitive vegetation, wetland, and aquatic resources, including a vegetation preservation ordinance.

City of Folsom Plan Area Specific Plan

The City of Folsom Plan Area Specific Plan (City of Folsom, adopted in 2011) expanded the city's boundaries south of U.S. Highway 50 (U.S. 50). The Specific Plan's Resource Management and Sustainable Design section includes the following objectives related to biological resources that are relevant to the project:

- Protect delineated wetlands, and implement a wetland mitigation and monitoring program where delineated wetlands cannot be preserved.
- Promote the preservation of habitat areas that contain special-status species, and implement mitigation measures for impacts on special-status species.
- Preserve existing oak woodlands and isolated oak trees wherever practical. This objective includes a number of policies related to oak tree removal mitigation.

Habitat Conservation Plans and Natural Community Conservation Plans

No adopted habitat conservation plans or natural community conservation plans are applicable to the project; however, one non-applicable plan—the El Dorado County Integrated Natural Resources Management Plan (INRMP)—is under development by El Dorado County (SACOG 2013) and currently is in the first phase of planning studies. The El Dorado County INRMP is intended to develop strategies to conserve and restore habitat connectivity in an effort to offset the effects of habitat loss from land development in western El Dorado County. Project activities will occur in El Dorado County within the boundary of the INRMP.

3.4.2.2 **Methodology**

This section summarizes the methods used to identify and analyze potential impacts on special-status species that may occur in the project area. For biological resources, the impact analysis area includes the 12.5-mile-long, 300-foot-wide project alignment along the Missouri Flat-Gold Hill Line and Gold Hill No. 1 Line. Biological resource survey areas include all relevant non-developed areas in the impact analysis area. A more detailed description of these methods is provided in the project's Biological Resources Technical Report (Stillwater Sciences 2013a), which will be provided to the CPUC under separate cover.

Plants are considered to be special-status if they are threatened, endangered, or rare as described in Section 15380 of the CEQA Guidelines. Specifically, if they are the following:

- listed as endangered or threatened, or are candidates for listing, under the ESA and/or CESA;
- designated as rare under the NPPA;
- included on the CDFW's Special Vascular Plants, Bryophytes, and Lichens List with a CRPR of 1 or 2 (CDFW 2013b);
- designated as Sensitive by BLM; and/or
- a species not included in any listing identified above, but which is likely to become endangered in the foreseeable future throughout all or a significant portion of its range.

Wildlife species are considered to be special-status if they are:

- listed as endangered or threatened, or are candidates for listing, under the federal ESA and/or CESA;
- designated by CDFW as Fully Protected or as a Species of Special Concern;
- designated as Sensitive by the BLM; and/or

- not included in any listing identified above, but is a species likely to become endangered in the foreseeable future throughout all or a significant portion of its range.

Natural communities were considered to be special-status if they were identified on the most recent CDFW List of Vegetation Alliances and Associations as being highly imperiled (CDFG 2010[1]).

The following biological databases were queried for records of special-status plants, natural communities, and wildlife in the project region:

- USFWS list of federally listed and proposed endangered, threatened, and candidate species (USFWS 2013)
- CNPS online Inventory of Rare and Endangered Vascular Plants of California (CNPS 2013)
- California Natural Diversity Database (CNDDB) (CDFW 2013a)

The database queries were each based on a search of the three U.S. Geological Survey (USGS) 7.5-minute quadrangles in which the project is located (Shingle Springs, Clarksville, and Folsom), and the surrounding twelve quadrangles (Roseville, Rocklin, Pilot Hill, Coloma, Garden Valley, Placerville, Fiddletown, Latrobe, Folsom SE, Buffalo Creek, Carmichael, and Citrus Heights). The USFWS database was queried for both Sacramento and El Dorado counties.

The potential for the special-status species identified from the database queries to occur in the project area was determined by: reviewing the locality information from the CNDDB and other information sources; comparing the habitat associations, distributions, and life histories of each species with existing sources of information; and conducting protocol-level surveys to assess habitat suitability for select wildlife species and confirm the presence of special-status plants. Existing information sources included:

- a previous biological constraints analysis of the project area (GANDA 2008);
- soil maps (California Department of Conservation 2011, NRCS 2007);
- CDFW's List of Vegetation Alliances and Associations (CDFG 2010);
- A Manual of California Vegetation (Sawyer et al. 2009);
- eBird, an online database of bird distribution and abundance (eBird 2013);
- aerial photographs; and
- Jepson Manual: Vascular Plants of California (Baldwin et al. 2012).

Surveys or habitat assessments were conducted for special-status species that had been identified previously as having potential to be affected by project activities (GANDA 2008). Vegetation and wetland surveys were conducted to inform the permitting requirements of the project and to help assess the habitat suitability and potential for other special-status wildlife species to occur in the project area. The following surveys were conducted for the project:

[1] Documents published prior to CDFW's 2013 name change are cited using the agency's previous name, California Department of Fish and Game (CDFG).

- Surveys for special-status plants, using CDFW, USFWS, and BLM protocols, were conducted in suitable habitat locations in the project area by a team of Stillwater Sciences botanists on April 9–13 and 26–27, 2012, to capture early-blooming species, and May 23–25 and 29–31, 2012, and May 9–10, 2013, to capture late-blooming species. To assess project impacts, mapped locations of special-status plants were overlain with project features.

- A habitat assessment for vernal pool fairy shrimp (*Branchinecta lynchi*) and vernal pool tadpole shrimp (*Lepidurus packardi*) was conducted on March 2, 2012, by a Stillwater Sciences biologist.

- During the special-status plant surveys, locations of blue elderberry shrubs, the host plant of valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), were surveyed according to avoidance and protective measures in the Valley Elderberry Longhorn Beetle Conservation Program (PG&E and USFWS 2003).

- A California red-legged frog (*Rana draytonii*) habitat assessment was conducted in potential habitat in the project area in April 2012, by a Stillwater Sciences wildlife biologist who is permitted under Section 10(a)1(A) of the federal ESA for the species. The habitat assessment methodology followed the most recent USFWS guidance, as described in Revised Guidance on Site Assessment and Field Surveys for the California Red-legged Frog (USFWS 2005a). The methods used and results of this habitat assessment are reported in the project's Habitat Assessment for the California Red-legged Frog (Stillwater Sciences 2013b).

- Concurrent with the plant surveys, an earlier vegetation map (GANDA 2008) was updated to account for changes in the project area and improved information on water and wetland resources. The updated map utilized the California Wildlife Habitat Relationships classification system (Mayer and Laudenslayer 1988), as well as that of A Manual of California Vegetation (Sawyer et al. 2009), to determine if any of the mapped vegetation types were included on CDFW's List of Vegetation Alliances and Associations as being rare or sensitive (CDFG 2010).

- Water and wetland features in the project area were delineated in accordance with U.S. Army Corps of Engineers methods by a team of Stillwater Sciences wetland specialists and botanists on April 9–13 and 26–27, May 31, and June 12, 2012. The methods used and results of the wetland delineation are reported in the project's Preliminary Delineation of Waters and Wetlands (Stillwater Sciences 2013c).

The likelihood of a special-status species to occur in the project area is based on the distribution of the species (i.e., that it overlaps with the project area), presence of the species' required or preferred habitat elements in the project area (e.g., associated plant species, vegetation types, soil types, and hydrologic conditions), and professional judgment of assigned biologists. The following general categories for special-status species with potential to occur in the project area subsequently were determined as follows:

- **None:** The project area is outside the species' known distributional or elevation range and/or the species' required habitat is lacking in the project area.

- **Low:** The species' known distributional or elevation range overlaps with the project region, but not the project area and/or the species' required habitat is of low quality or quantity in the project area.
- **Moderate:** The species' known distributional or elevation range overlaps with the project area and the species' required habitat occurs in the project area and is of moderate or high quality.
- **High:** The species has been documented in the project area.

Project impacts were analyzed for special-status plant species observed during the special-status plant surveys and for wildlife species with moderate or high potential to occur in the project area. Special-status species with low potential to occur in the project area are not likely to be affected by the project, and thus they are not discussed further.

3.4.3 ENVIRONMENTAL SETTING

The project alignment is located in El Dorado and Sacramento counties, at the base of the Sierra Nevada foothills. This region experiences a two-season, Mediterranean-type climate with wet cool winters and dry warm summers. Approximately 20 inches of annual precipitation typically falls between October and May (WRCC 2013). Light snowfall occurs in some winters at the higher elevations in the project area. The monthly average temperature range is approximately 38–63 degrees Fahrenheit (ºF) in winter and approximately 58–92ºF in summer.

Elevation in the project area ranges from approximately 350 feet above mean sea level at Gold Hill Substation to approximately 1,575 feet at Shingle Springs Substation.

The project alignment crosses numerous residential, commercial, and industrial areas, as well as open grassy fields and some oak woodlands and chaparral. As mentioned previously, it also traverses a BLM parcel—Pine Hill Preserve—located northwest of Shingle Springs Substation, which it bisects for approximately 0.4 mile.

3.4.3.1 Land Cover, Vegetation, and Wildlife Habitat Types

Approximately 45 percent of the project area is developed for residential and commercial uses. Outside of these areas, dominant vegetation types include non-native annual grasslands, blue oak woodlands, and mixed chaparral. Freshwater emergent wetlands, waters, valley foothill riparian, and vernal pools also occur in the project area. Land cover and vegetation types in the project area are summarized in Table 3.4-2: Land Cover/Vegetation Types in the Project Area.

Annual Grassland

Vegetation in the project area is dominated by annual grasslands. Approximately 199 acres of annual grassland occurs and is widely distributed throughout the project area. Prevalent species include nonnative, annual grasses, including ripgut grass (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), medusa-head (*Elymus caput-medusa*), smooth barley (*Hordeum murinum*), and rye grass (*Festuca perennis*; formerly *Lolium multiflorum*).

Table 3.4-2: Land Cover/Vegetation Types in the Project Area

Land Cover and Vegetation Types	Area (acres)
Developed	288.1
Annual grassland	198.6
Blue oak woodland	61.1
Gabbroic chaparral	53.4
Freshwater emergent wetlands	16.0
Waters	9.3
Valley foothill riparian	7.6
Vernal pool	0.6
Source: Data compiled from Stillwater Sciences (2013a)	

Blue Oak Woodland

Approximately 61 acres of oak woodland occur in the project area. In the western portion of the project area at lower elevations, oak woodlands are dominated by blue oaks (*Quercus douglasii*) and include gray pine (*Pinus sabiniana*) and interior live oak (*Quercus wislizeni*) as common associates. The understory is dominated by nonnative, annual grasses, such as ripgut grass, soft chess, medusa-head, smooth barley, and rye grass. At the upper elevations of the project area, blue oak woodland transitions into stands of interior live oak woodland. Associated species include blue oaks and California buckeye (*Aesculus californica*).

Gabbroic Chaparral

Approximately 53 acres of gabbroic chaparral occurs in the eastern end of the project area, in and adjacent to the BLM Pine Hill Preserve. This vegetation type is heavily influenced by the gabbroic soils formed from weathered gabbrodiorite rocks, and it supports a number of special-status plant species. North of U.S. 50, the overstory of this vegetation type is dominated by sticky whiteleaf manzanita (*Arctostaphylos viscida*), western redbud (*Cercis occidentalis*), chamise (*Adenostoma fasciculatum*), and Pine Hill ceanothus (*Ceanothus roderickii)*, which is federally listed as endangered and State-listed as rare. South of U.S. 50, the overstory of this vegetation type is dominated by interior live oak, while shrub and herbaceous species are generally similar to the habitat to the north; however, a higher mix of nonnative grasses exists.

Other special-status plant species that occur in gabbroic chaparral areas include Stebbins' morning glory (*Calystegia stebbinsii*), Red Hills soaproot (*Chlorogalum grandiflorum*), Layne's ragwort (*Packera layneae*), and El Dorado County mule ears (*Wyethia reticulata*). In the project area, gabbroic chaparral is most equivalent to the *Arctostaphylos viscida* Shrubland Alliance (white leaf manzanita chaparral). Where Sonoma sage (*Salvia sonomensis*) dominates the understory, such as in portions of the BLM Pine Hill Preserve, gabbroic chaparral is most equivalent to the *Arctostaphylos viscida/Salvia sonomensis* (white leaf manzanita/Sonoma sage chaparral) Association (Sawyer et al. 2009), which is a rare natural community (CDFG 2010).

Valley Foothill Riparian

Approximately 8 acres of riparian forest and scrub occur in the project area, generally along waterways with year-round flow. In tree-dominated areas, the overstory is dominated by valley oak (*Quercus lobata*), with Fremont cottonwood (*Populus fremontii* subsp. *fremontii*), interior live oak, and blue oak also present. The shrub-dominated areas generally include arroyo willow (*Salix lasiolepis*), Himalayan blackberry (*Rubus armeniacus*), narrow-leaved willow (*Salix exigua*), and coyote brush (*Baccharis pilularis*).

3.4.3.2 **Wetland and Aquatic Resources**

Aquatic resources in the project area include perennial and intermittent streams, freshwater emergent wetlands, and vernal pools.

Streams

Approximately 9 acres of waters are present in the project area, including ditches and creeks. Deer Creek (a tributary to Cosumnes River), Carson Creek and Marble Creek (both tributaries to Deer Creek), Alder Creek and Willow Creek (both tributaries to Lake Natoma and American River), and several of their unnamed tributaries intersect the project area. In addition, approximately 2 acres of stormwater detention basins are located in the western portion of the project area, near Broadstone Parkway.

Freshwater Emergent Wetlands

Approximately 16 acres of seasonal and permanent wetlands occur in the project area. These features are characterized by erect, rooted, herbaceous hydrophytes that are present for most of the growing season in most years. Seasonal wetlands occur in drainages, swales, and depressional basins that are dry during the summer, but inundated or saturated during the winter. Typical hydrophytic vegetation includes rushes (*Juncus* spp.), nutsedge (*Cyperus* spp.), and nonnative annual grasses. Permanent wetlands also occur throughout the project area where standing water is common through much of the spring and summer. These are typically dominated by broad-leaved cattail (*Typha latifolia*).

Vernal Pools

In the western portion of the project area, a subset of wetlands, which covers approximately 1 acre, meets the USACE soil indicator for vernal pools and contains vernal pool plant species. Plant species in the project area indicative of vernal pools include Fremont's goldfields (*Lasthenia fremontii*), hyssop loosestrife (*Lythrum hyssopifolia*), Great Valley coyote-thistle (*Eryngium castrense*), and wavy-stemmed popcornflower (*Plagiobothrys undulatus*). In the project area, vernal pools are most equivalent to the *Lasthenia fremontii-Downingia (bicornuta)* Herbaceous Alliance (Fremont's goldfields-Downingia vernal pools) and *Montia fontana-Sidalcea calycosa* Herbaceous Alliance (water blinks-annual checkerbloom vernal pools) (Sawyer et al. 2009), which are both rare natural communities (CDFG 2010).

3.4.3.3 Special-Status Species

Project field surveys documented several special-status plant species in the project area and determined that habitat elements for several special-status wildlife species are present in the project area. The project area does not include any critical habitat.

Special-Status Wildlife Species

Thirty-one special-status wildlife species were identified from the database queries. Fourteen of these species were eliminated from further consideration, based on no suitable habitat being present in the project area, or the project area is outside of the species' current range. None of these fourteen species has been documented in the project area (CDFW 2013a). Seventeen special-status wildlife species have low, moderate, or high potential to occur in the project area; these species are identified in Table 3.4-3: Special-Status Wildlife Species with Potential to Occur in the Project Area and are discussed next.

Vernal Pool Fairy Shrimp And Vernal Pool Tadpole Shrimp

Vernal pool fairy shrimp and vernal pool tadpole shrimp are listed as threatened under the federal ESA. These species occupy a variety of different vernal pool habitats, from small to large, and also have been observed in other natural and artificial habitats, including seasonal wetlands, ephemeral drainages, stock ponds, roadside ditches, swales, and rock outcrops (Helm 1998). These species may be able to tolerate temporary dry conditions during their life cycles (Helm 1998).

Because of the presence of suitable habitat and proximity to documented occurrences, vernal pool fairy shrimp and/or vernal pool tadpole shrimp have moderate potential to occur in the project area. Many documented occurrences of vernal pool fairy shrimp and vernal pool tadpole shrimp are recorded in the project region, particularly between 3 and 10 miles to the southwest of the western end of the project area (CDFW 2013a). Potential habitat for these species is present in seasonal wetlands, seasonal depressions, and vernal pools around Gold Hill Substation as well as in similar habitats approximately 1.5 miles to the east. These areas include wet and/or ponded areas varying in size (but greater than 6.5 square feet), and they are likely to remain inundated for a sufficient duration, although most are artificially created and/or frequently disturbed by human activities. Seasonal depression, wetland, and vernal pool features farther east in the project area are outside of the species' known distribution.

Valley Elderberry Longhorn Beetle

Valley elderberry longhorn beetle is listed as threatened under the ESA. On October 2, 2012, USFWS proposed delisting this species (USFWS 2012). Elderberry (*Sambucus* spp.) is the primary host plant for valley elderberry longhorn beetle. The beetle may be present in an area despite lack of evidence of emergence holes in host plants, because the beetle may disperse to plants that do not yet contain emergence holes (Kellner 1992). Therefore, the locations of blue elderberry plants may provide a more accurate indication of the presence of the beetle (Kellner 1992).

Table 3.4-3: Special-Status Wildlife Species with Potential to Occur in the Project Area

Common name (Scientific name)	Status[1] Federal/ State	Habitat Associations	Likelihood to Occur in Project Area
Invertebrates			
Vernal pool fairy shrimp (*Branchinecta lynchi*)	FT/–	Vernal pools; also found in sandstone rock outcrop pools; artificial pools include tire ruts, road ditches, and puddles	**Moderate.** Vernal pools and seasonal wetlands occur in the project area; however, most are disturbed.
Vernal pool tadpole shrimp (*Lepidurus packardi*)	FE/–	Vernal pools and ephemeral stock ponds; artificial pools include tire ruts, road ditches, and puddles	**Moderate.** Vernal pools and seasonal wetlands occur in the project area; however, most are disturbed.
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	FT/–	Riparian and oak savanna habitats below 3,000 feet with host plant, blue elderberry (*Sambucus nigra* subsp. *caerulea*)	**Moderate**. Blue elderberry plants occur in the project area.
Fish			
Steelhead, Central Valley Distinct Population Segment *Oncorhynchus mykiss*	FT/–	Rivers and streams with cold water, clean gravel of appropriate size for spawning, and suitable rearing habitat; typically rear in freshwater for one or more years before migrating to the ocean	**Low**. Species not expected to occur in Deer Creek (the only perennially wet tributary in the project area); water temperatures expected to be too high during the summer rearing period (Lindley et al. 2006). Three *O. mykiss* were captured during surveys conducted in Deer Creek in 1994; however, whether these were steelhead or rainbow trout (the non-migrating life form of this species) was not confirmed, nor were they observed during subsequent surveys in 1995, 1996, and 1999 (CRWQCB 2003).
Chinook salmon, Central Valley spring-run Ecologically Significant Unit *Oncorhynchus tshawytscha*	FT/ST	Low- to mid-elevation rivers and streams with cold water, clean gravel of appropriate size for spawning and adequate rearing habitat; typically rear in freshwater for one or more years before migrating to the ocean	**Low**. Species not expected to occur in Deer Creek (the only perennially wet tributary in the project area); summer holding habitat (cool water, deep pools) does not occur; also, no records exist for this species in the Cosumnes River, presumably because of low summer flows (Yoshiyama et al. 2001).

Common name (Scientific name)	Status[1] Federal/ State	Habitat Associations	Likelihood to Occur in Project Area
Amphibians			
Western spadefoot (*Spea hammondii*)	BLM/SSC	Areas with sparse vegetation and/or short grasses in sandy or gravelly soils; primarily in washes, river floodplains, alluvial fans, playas, alkali flats, among grasslands, chaparral, or pine–oak woodlands; breeds in ephemeral rain pools with no predators	**Low**. The project area is at the eastern edge of the western spadefoot's current distribution (USFWS 2005b). The nearest CNDDB occurrence is approximately 4 miles from Gold Hill Substation (CDFW 2013a). The only potential breeding habitat for western spadefoot is limited to the seasonal wetlands and vernal pools near Gold Hill Substation, which is a very small portion of the project area and frequently is disturbed by human activities.
California red-legged frog (*Rana draytonii*)	FT/SSC	Breeds in still or slow-moving water with emergent and overhanging vegetation, including wetlands, wet meadows, ponds, lakes, and low-gradient, slow-moving stream reaches with permanent pools; uses adjacent uplands for dispersal and summer retreat	**Low**. A protocol-level California red-legged frog habitat assessment of the project area found that the species is highly unlikely to occur, based on a lack of suitable breeding habitat in aquatic features in the project area and in a one-mile buffer of the project area; and a lack of documented occurrence records in and near the project area.[2]
Reptiles			
Western pond turtle (*Actinemys marmorata*)	BLM/SSC	Permanent, slow-moving fresh or brackish water with available basking sites and adjacent open habitats or forest for nesting	**High**. Western pond turtle has been documented in the project area, and suitable perennial waterbodies occur in the project area.
Coast horned lizard (*Phrynosoma blainvillii*)	BLM/SSC	Open areas with sandy soil and/or patches of loose soil and low/scattered vegetation in scrublands, grasslands, conifer forests, and woodlands; frequently found near ant hills	**Moderate**. Coast horned lizard has been documented in the BLM Pine Hill Preserve near the project area, but the chaparral habitat in the project area is relatively dense.

[2] The one CNDDB record for this species within 20 miles of the project area is considered unreliable because there was no visual confirmation that it was in fact a California red-legged frog (the observer saw a frog jumping into water without the characteristic alarm call of a bullfrog).

Common name (Scientific name)	Status[1] Federal/ State	Habitat Associations	Likelihood to Occur in Project Area
Birds			
White-tailed kite (*Elanus leucurus*)	–/SFP	Lowland grasslands and wetlands with open areas; nests in trees near open foraging area	**Moderate**. White-tailed kite may nest in trees near open foraging areas in the project area.
Swainson's hawk (*Buteo swainsoni*)	–/ST	Nests in oaks or cottonwoods in or near riparian habitats; forages in grasslands, irrigated pastures, and grain fields	**Low**. Only the western portion of the project area is in the species' Central Valley distribution, and this portion of the project area is highly developed. This species has not been documented in or near the project area (CDFW 2013a).
Golden eagle (*Aquila chrysaetos*)	BGEPA/ SFP	Open woodlands and oak savannahs, grasslands, chaparral, sagebrush flats; nests on steep cliffs or large trees	**Low**. Golden eagle is unlikely to nest in or near the project area because much of the project area is developed or in very close proximity to busy roads and highways, which golden eagles generally avoid. No occurrences are documented for nesting golden eagles in or near the project area (CDFW 2013, eBird 2013).
Burrowing owl (*Athene cunicularia*)	BLM/SSC	Level, open, dry, heavily grazed or low- stature grassland or desert vegetation with available burrows	**Low**. Low-stature grasslands occur in the project area, but no suitable burrows were observed or reported during site visits. There are no CNDDB records for this species in the project area.
Grasshopper sparrow (*Ammodramus savannarum*)	–/SSC	Typically found in moderately open grasslands with scattered shrubs	**Low**. Moderately open grasslands occur in the project area, but the species is extremely uncommon and sparsely distributed in this region. The species was documented once in 2005, 1.5 miles north of the project area in El Dorado Hills (eBird 2013). The closest CNDDB record for grasshopper sparrow in the project region is approximately 8 miles south of the project area (CDFW 2013a).
Tricolored blackbird (*Agelaius tricolor*)	BLM/SSC	Feeds in grasslands and agriculture fields; nesting habitat components include open accessible water, a protected nesting substrate (including flooded or thorny vegetation), and a suitable nearby foraging space with adequate insect prey	**Moderate**. Suitable nesting habitat is present in freshwater marshes in the project area. There are no recent CNDDB records of this species in the project area.

Common name (Scientific name)	Status[1] Federal/ State	Habitat Associations	Likelihood to Occur in Project Area
Mammals			
Pallid bat (*Antrozous pallidus*)	BLM/SSC	Roosts in rock crevices, tree hollows, mines, caves, and a variety of vacant and occupied buildings; feeds in a variety of open habitats	**Moderate**. Pallid bat may roost on bridges in the project area.
American badger (*Taxidea taxus*)	–/SSC	Shrubland, open grasslands, fields, and alpine meadows with friable soils	**Low**. Moderately open grasslands occur in the project area, but no suitable burrows were observed or reported during site visits. One CNDDB record was documented approximately 9 miles southwest of Gold Hill Substation (CDFW 2013a).

[1] Status

– = None

Federal

BGEPA Protected under the Bald and Golden Eagle Protection Act

BLM Designated as Sensitive by BLM

FE Endangered under the ESA

FT Threatened under the ESA

State

SE Endangered under the CESA

ST Threatened under the CESA

SSC CDFW Species of Special Concern

SFP CDFW Fully Protected species

Source: Data compiled by Stillwater Sciences in 2013

Because of the presence of elderberry plants and proximity to documented occurrences, valley elderberry longhorn beetle has moderate potential to occur in the project area. Sixteen blue elderberry plants with one or more stems 1 inch or greater in diameter were found in the elderberry survey area, as defined in PG&E's Valley Elderberry Longhorn Beetle Conservation Program (Stillwater Sciences 2013a, PG&E and USFWS 2003). The two closest documented populations of valley elderberry longhorn beetle to the project area are along Willow Creek, within 1 mile of the western end of the project area (CDFW 2013a).

Western Pond Turtle

Western pond turtle (*Actinemys marmorata*) is a CDFW Species of Special Concern and BLM Sensitive species. Western pond turtle inhabits fresh or brackish water characterized by areas of deep water, low flow velocities, moderate amounts of riparian vegetation, warm water and/or ample basking sites, and underwater cover elements, such as large woody debris and rocks (Jennings and Hayes 1994). Although an aquatic reptile, western pond turtle requires upland habitats for basking, overwintering, and nesting, typically within 0.6 mile from aquatic habitats (Holland 1994).

A western pond turtle was observed basking in a stormwater detention pond at the southern edge of the project area near the intersection of White Rock Road and Monte Verde Drive during the April 2012 California red-legged frog habitat assessment (Stillwater Sciences 2013a). An occurrence of western pond turtle has been documented in Carson Creek near Latrobe Road (CDFW 2013a), less than 1 mile south of the project area. Suitable western pond turtle habitat occurs in permanent water bodies in and near the project area, including perennial tributaries and stormwater detention basins. No such water bodies occur in the BLM portion of the project.

Coast Horned Lizard

Coast horned lizard (*Phrynosoma blainvillii*) is a CDFW Species of Special Concern and BLM Sensitive species. Habitat types used by coast horned lizard include riparian woodlands, chamise chaparral, annual grassland, alkali flats, sandy washes, and, occasionally, agricultural areas with sandy soil. Coast horned lizard habitat typically is composed of unvegetated areas near scattered shrubs with a gravelly-sandy or sandy loam substrate. Coast horned lizard shelters in burrows that the species excavates or are excavated by small mammals (Jennings and Hayes 1994).

Coast horned lizard has moderate potential to occur in the project area. The species has been observed in the BLM Pine Hill Preserve (CDFW 2013a), but the chaparral habitat in the project area is likely denser than that preferred by the species.

White-Tailed Kite

White-tailed kite (*Elanus leucurus*) is a CDFW Fully Protected species. White-tailed kite breeds in lowland grasslands, oak woodlands or savannah, and wetlands with open areas. Riparian corridors represent a preferred landscape, characteristic for the species in both the breeding and non-breeding seasons (Erichsen 1995). Groves of trees are required for perching and nesting, though white-tailed kite do not seem to associate with particular tree species (Dunk 1995). Preferred foraging sites include open and ungrazed grasslands, agricultural fields, wetlands, and meadows that support large populations of small mammals.

White-tailed kite has moderate potential to nest in or near the project area because suitable nesting habitat exists and sightings of white-tailed kite are fairly common in the project region (eBird 2013). A historical occurrence of a white-tailed kite nesting also was recorded approximately 0.5 mile north of the project area between Golf Links Drive and Empire Ranch Road (CDFW 2013a). Potential nesting habitat occurs where tall, isolated trees occur, adjacent to open grassland, meadows, or marshes for foraging.

Tricolored Blackbird

Tricolored blackbird (*Agelaius tricolor*) is a CDFW Species of Special Concern and BLM Sensitive species. It nests in sheltered stands of cattails, tules, blackberry brambles, or willows within 1,600 feet of open, accessible water (Beedy and Hamilton 1997). Tricolored blackbird forages in a variety of habitats, including agricultural fields (such as cut grain fields, rice, and alfalfa), dairies and feedlots, irrigated pastures, annual grasslands, ephemeral pools and ponds, wetlands, riparian scrub, and freshwater marsh (Beedy and Hamilton 1997).

Tricolored blackbird has moderate potential to occur in freshwater marsh habitats in or near the project area. A foraging colony of an estimated 300 tricolored blackbirds was documented in May 2013, located approximately 0.75 mile from the project area (near the intersection of Broadstone Parkway and Golf Links Drive) (eBird 2013). A nesting colony of approximately 500 tricolored blackbirds was observed in 1987, in a small pond approximately 150 feet south of the project area, across the freeway, between the Bass Lake Road and Cameron Park exits from U.S. 50 (CDFW 2013a). The pond still exists, but the open grassy fields that surrounded the pond, which would have provided foraging habitat, have since been developed with houses. No tricolored blackbirds were observed in 1992, when the site was revisited (CDFW 2013a).

Other Migratory Birds And Nesting Raptors

Non-listed migratory bird species or raptors can establish nests in suitable habitat in the project area. The nesting season for migratory birds and raptors generally is between February 15 and August 31. Because of the large number of trees and other nesting substrate present, a high potential exists for numerous common migratory birds to nest in or near the project area.

Pallid Bat

Pallid bat (*Antrozous pallidus*) is a CDFW Species of Special Concern and BLM Sensitive species. Pallid bat occupies a variety of habitats, from arid deserts to grasslands, conifer forests, and riparian areas. Although roosts (including day, night, and maternity roosts) typically are in rock crevices and cliffs, day roosts also can be found in tree hollows and caves (Pierson et al. 1996). In more urban settings, roosts frequently are associated with human structures, such as abandoned buildings, abandoned mines, and bridges (Pierson et al. 1996). Overwintering roosts require relatively cool and stable temperatures, out of direct sunlight.

Pallid bat have moderate potential to roost on bridges that cross the project area. One CNDDB record of pallid bat was documented approximately 4 miles to the northwest of Gold Hill Substation, at the western end of the project area (CDFW 2013a).

Special-Status Plant Species

Twenty-three special-status plant species were identified from the database queries. Two of these species were eliminated from further consideration because their required soil types do not occur in the project area, or the project area is outside of the species' elevation range. Nineteen special-status plant species initially were considered to have potential to occur in the project area; these species are identified in Table 3.4-4: Special-Status Plant Species with Potential to Occur in the Project Area. Subsequent to this review, comprehensive surveys for special-status plants were conducted in suitable habitat portions of the project area in 2012 and 2013. These surveys documented five special-status plant species and, as a result, most of the species shown in the table were determined to have only very low potential to occur in the project area. Documented occurrences of special-status plants are shown in Figure 3.4-1: Special-Status Plants in the Project Area and are described in more detail in the following paragraphs.

Stebbins' Morning-Glory

Stebbins' morning-glory is a perennial rhizomatous herb, listed as endangered under the ESA and CESA, and has a CRPR of 1B.1 (i.e., rare, threatened, or endangered in California and elsewhere; seriously endangered in California). The species is limited to El Dorado and Nevada counties (Baldwin et al. 2012), from approximately 607 to 3,576 feet elevation, but is locally abundant in suitable habitat. Stebbins' morning-glory typically occurs on serpentinite or gabbroic soils, in openings in chaparral and cismontane woodland (CNPS 2013). The species is shade intolerant and is threatened by development, off-road vehicles, road maintenance, and alteration of the natural fire regimes (USFWS 2002). Fire removes over-story trees and shrubs, and either fire or scarification is needed for seed germination (Nosal 1997). By maintaining an open canopy and periodically disturbing the seed bank, existing right-of-way maintenance may contribute to supporting this species. Approximately 3,000 individuals of Stebbins' morning-glory were documented in the plant survey area.

Pine Hill Ceanothus

Pine Hill ceanothus is a perennial evergreen shrub listed as endangered under the ESA, rare under NPPA, and has a CRPR of 1B.2 (i.e., rare, threatened, or endangered in California and elsewhere; fairly endangered in California). The species is limited to western El Dorado County (Baldwin et al. 2012), from approximately 804 to 2,067 feet elevation, but it is locally abundant in suitable habitat. Pine Hill ceanothus typically occurs on serpentinite or gabbroic soils, in open areas in chaparral and cismontane woodland (CNPS 2013). The species is shade intolerant and is threatened by residential development and alteration of fire regimes. After a fire, Pine Hill ceanothus sprouts and proliferates before the formation of overgrowth from whiteleaf manzanita and chamise (USFWS 2002). Research measured a 22-fold increase in seed production following controlled burns, indicating this species' dependence on fire (Boyd 1987, as cited in USFWS 2002). The open canopy of the access road along with disturbance from vehicles and existing right-of-way maintenance may contribute to supporting this species. Approximately 5,000 individuals of Pine Hill ceanothus were documented in the plant survey area.

Table 3.4-4: Special-Status Plant Species with Potential to Occur in the Project Area

Common name (*Scientific name*)	Status[1]: Federal/State	Habitat Association	Likelihood to Occur in Project Area
Big-scale balsamroot (*Balsamorhiza macrolepis*)	–/1B	Chaparral, cismontane woodland, and sometimes serpentinite valley and foothill grassland	**Low.** Chaparral and foothill grasslands are present in the project area, but the species was not detected during systematic surveys conducted when the species would have been both evident and identifiable.
Boggs Lake hedge-hyssop (*Gratiola heterosepala*)	–/SE, 1B	Along lake margins in marshes and swamps and clay vernal pools	**Low**. Marshes and vernal pools are present in the project area, but the species was not detected during systematic surveys conducted when the species would have been both evident and identifiable.
Hispid bird's-beak (*Chloropyron molle* ssp. *hispidum*)	–/1B	Meadows, playas, and valley and foothill grassland	**Low**. Valley and foothill grasslands are present in the project area, but the species was not detected during systematic surveys conducted when the species would have been both evident and identifiable.
El Dorado bedstraw (*Galium californicum* ssp. *sierrae*)	FE/SR, 1B	Chaparral, cismontane woodland, and gabbroic lower montane coniferous forest	**Low**. Chaparral is present in the project area, but the species was not detected during systematic surveys conducted when the species would have been both evident and identifiable.
El Dorado County mule ears (*Wyethia reticulata*)	BLM/1B	Chaparral, cismontane woodland, and clay or gabbroic soils in lower montane coniferous forest	**High**. This species occurs in gabbroic chaparral habitat in the eastern portion of the project area.
Jepson's onion (*Allium jepsonii*)	–/1B	Chaparral, cismontane woodland, and serpentinite or volcanic lower montane coniferous forest	**Low**. Chaparral is present in the project area, but the species was not detected during systematic surveys conducted when the species would have been both evident and identifiable.
Layne's ragwort (*Packera layneae* (formerly *Senecio layneae*))	FT/SR, 1B	Chaparral and rocky serpentinite or gabbroic cismontane woodland	**High**. This species occurs in gabbroic chaparral habitat in the eastern portion of the project area.
Legenere (*Legenere limosa*)	–/1B	Vernal pools	**Low**. Vernal pools are present in the project area, but the species was not detected during systematic surveys conducted when the species would have been both evident and identifiable.

Common name (*Scientific name*)	**Status[1]: Federal/State**	**Habitat Association**	**Likelihood to Occur in Project Area**
Nissenan manzanita (*Arctostaphylos nissenana*)	–/1B	Closed-cone coniferous forest and rocky chaparral	**Low**. Rocky chaparral is present in the project area, but the species was not detected during systematic surveys conducted when the species would have been both evident and identifiable.
Pincushion navarretia (*Navarretia myersii* ssp. *myersii*)	–/1B	Often acidic vernal pools	**Low**. Vernal pools are present in the project area, but the species was not detected during systematic surveys conducted when the species would have been both evident and identifiable.
Pine Hill ceanothus (*Ceanothus roderickii*)	FE/SR, 1B	Chaparral and gabbroic or serpentinite cismontane woodland	**High**. This species occurs in gabbroic chaparral habitat in the eastern portion of the project area.
Pine Hill flannelbush (*Fremontodendron decumbens*)	FE/SR, 1B	Chaparral, and rocky gabbroic or serpentinite cismontane woodland	**Low**. Chaparral and rocky gabbroic habitat is present in the project area, but the species was not detected during systematic surveys conducted when the species would have been both evident and identifiable.
Red Bluff dwarf rush (*Juncus leiospermus* var. *leiospermus*)	–/1B	Chaparral, valley and foothill grassland, cismontane woodlands, and vernal pools	**Low**. Chaparral, foothill grassland, and vernal pools are present in the project area, but the species was not detected during systematic surveys conducted when the species would have been both evident and identifiable.
Red Hills soaproot (*Chlorogalum grandiflorum*)	BLM/1B	Chaparral, cismontane woodland, and serpentinite, gabbroic, and other soils in lower montane coniferous forest	**High**: This species occurs in gabbroic chaparral habitat in the eastern portion of the project area.
Sacramento Orcutt grass (*Orcuttia viscida*)	FE/SE, 1B	Vernal pools	**Low:** Vernal pools are present in the project area, but the species was not detected during systematic surveys conducted when the species would have been both evident and identifiable.
Sanford's arrowhead (*Sagittaria sanfordii*)	–/1B	Assorted shallow freshwater marshes and swamps	**Low:** Shallow freshwater marshes are present in the project area, but the species was not detected during systematic surveys conducted when the species would be both evident and identifiable.
Slender Orcutt grass (*Orcuttia tenuis*)	FT/SE, 1B	Vernal pools	**Low:** Vernal pools are present in the project area, but the species was not detected during systematic surveys conducted when the species would have been both evident and identifiable.

Common name (*Scientific name*)	Status[1]: Federal/State	Habitat Association	Likelihood to Occur in Project Area
Stebbins' morning-glory (*Calystegia stebbinsii*)	FE/SE, 1B	Openings in chaparral and gabbroic or serpentinite cismontane woodland	**High**: This species occurs in gabbroic chaparral habitat in the eastern portion of the project area.
Tuolumne button-celery (*Eryngium pinnatisectum*)	–/1B	Cismontane woodland, lower montane coniferous forest, and mesic vernal pools	**Low:** Vernal pools are present in the project area, but the species was not detected during systematic surveys conducted when the species would have been both evident and identifiable.

[1] Status:

– = None

Federal

BLM Designated as Sensitive by BLM

FE Endangered under the ESA

FT Threatened under the ESA

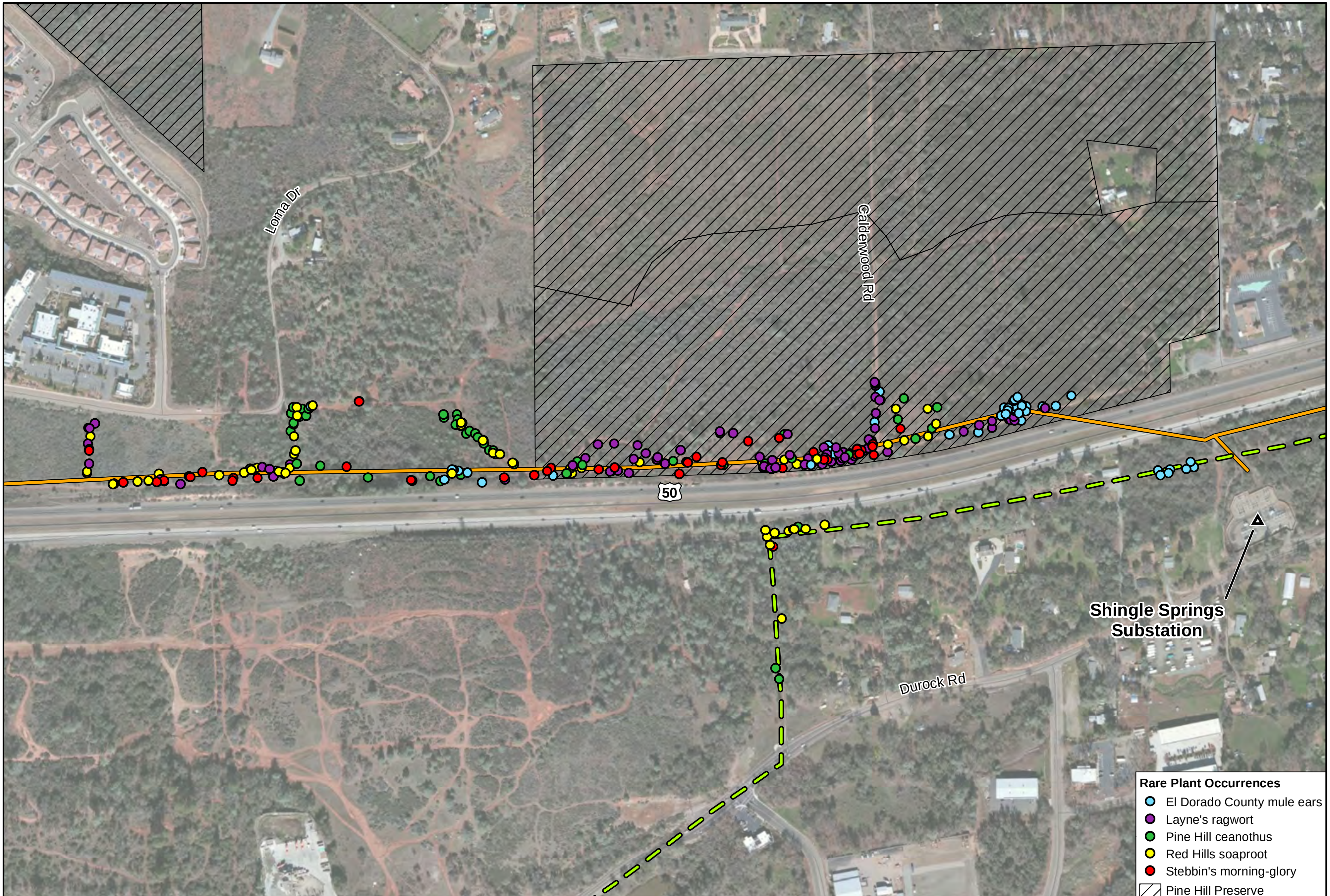
State

SE Endangered under the CESA

SR Rare under the NPPA

1B CRPR of rare, threatened, or endangered in California and elsewhere

Source: Data compiled by Stillwater Sciences in 2013



Feet
0 250 500 1,000
1:6,000 1 inch = 500 feet

N

AECOM

Pacific Gas and Electric Company

▲ Existing Substation/Switching Station

Missouri Flat-Gold Hill
115 kV Power Line Reconductoring

Gold Hill No. 1
60 kV Power Line Reconductoring

Source: PG&E 2013, Stillwater 2013, El Dorado County 2002
Basemap: ESRI 2013

Missouri Flat-Gold Hill 115 kV Power Line Reconductoring Project

Figure 3.4-1: Special-Status Plants

August 2013

Red Hills Soaproot

Red Hills soaproot is a perennial bulbiferous herb that is designated as Sensitive by BLM and has a CRPR of 1B.2. The species is limited to Placer, El Dorado, and Tuolumne counties (Baldwin et al. 2012), from approximately 804 to 4,068 feet elevation, but it is locally abundant in suitable habitat. Red Hills soaproot typically occurs on serpentinite, gabbroic, or other soils in open areas in chaparral, cismontane woodland, and lower montane coniferous forest (CNPS 2013). The species is threatened by development, mining, and vehicles. Approximately 11,000 individuals of red hills soaproot were documented in the plant survey area.

Layne's Ragwort

Layne's ragwort is a perennial herb that is listed as threatened under the ESA, rare under the NPPA, and has as a CRPR of 1B.2. The species is limited to Butte, El Dorado, Placer, Tuolumne, and Yuba counties, from approximately 656 to 3,281 feet elevation, but it is locally abundant in suitable habitat. Layne's ragwort generally occurs in temporary openings on rocky, serpentinite or gabbroic soils, in open areas in chaparral and cismontane woodland (CNPS 2013). The species is shade intolerant and is eliminated as vegetation grows around it (Baad and Hanna 1987 *in* USFWS 2002). The species is threatened by urbanization, grazing, road construction, vehicles, and fire suppression. Approximately 2,000 individuals of Layne's ragwort were documented in the plant survey area.

El Dorado County Mule Ears

El Dorado County mule ears is a perennial herb that is designated as Sensitive by BLM and has a CRPR of 1B.2. The species is limited to El Dorado and Yuba counties, from approximately 607 to 2,067 feet elevation, but it is locally abundant in suitable habitat. El Dorado County mule ears typically occurs on clay or gabbroic soils, in open areas in chaparral, cismontane woodland, and lower montane coniferous forest (CNPS 2013). The species is threatened by development and vehicles (Hinshaw et al. 2008). Approximately 10,000 individuals of El Dorado County mule ears were documented in the plant survey area.

3.4.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for biological resources impacts derived from Appendix G of the CEQA Guidelines, provide relevant APMs, and contain an assessment of potential project-related construction and operational impacts on biological resources.

3.4.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential impacts on biological resources were evaluated for each of the criteria listed in Table 3.4-1: CEQA Checklist for Biological Resources, as discussed in Section 3.4.4.3, Potential Impacts.

3.4.4.2 Applicant-Proposed Measures

As described in Section 3.4.4.3, Potential Impacts, impacts on biological resources will be less than significant. The following APMs, in conjunction with relevant APMs in other resource sections, will meet existing regulations and/or requirements or standard practices to avoid, minimize, or reduce potential less-than-significant impacts on biological resources.

APM BIO-1: General Biological Resources Measures

APM BIO-1.1: Worker Environmental Awareness Training Program

A qualified biologist will develop an environmental awareness training program that is specific for 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 ESA and CESA, 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.

APM BIO-1.2: Identification and Marking of Sensitive Resource Areas

Sensitive 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-3), elderberry shrubs having one or more stems measuring 1 inch or more in diameter at ground level within 20 feet of work sites (see APM BIO-4), special-status plants adjacent to work sites, special-status vegetation types adjacent to work sites, and vernal pool and wetland boundaries in and adjacent to work sites. Such areas will be avoided during construction to the extent practicable. .

APM BIO-1.3: Construction Monitoring

A qualified biologist will monitor construction activities in sensitive habitats previously identified by a qualified biologist. The monitor will ensure implementation of and compliance with all avoidance and mitigation measures. The monitor will have the authority to stop or redirect work if construction activities are likely to affect sensitive biological resources.

If a wildlife species is encountered during construction, project activities will cease in the area where the animal is found until the biologist determines the animal has moved out of harm’s way, or with prior authorization from the USFWS and/or CDFW if necessary, relocates the animal out of harm’s way, and/or takes other appropriate steps to protect the animal. Work may resume once the biologist has determined that construction activities will not harm any wildlife species. If recommended by the biologist, a temporary silt-fence barrier will be installed to prevent wildlife species from entering the work area(s) during project activities. The biological monitor will be responsible for any necessary reporting to USFWS and/or CDFW of any capture and relocation, or inadvertent harm, entrapment or death of a listed species.

APM BIO-1.4: Tree Removal and Mitigation

Trees being felled in the vicinity of a sensitive resource area exclusion zone will be directionally felled away from the zone, where possible. Trees and other vegetation that are removed from the project area will be removed using equipment and access routes that avoid sensitive resource areas.

Oak tree removal will be minimized to what is required to implement the project. Oak trees greater than 6 inches diameter at breast height (dbh), or having multiple trunks with an aggregate over 10 inches dbh, that are removed will be documented and replaced based on a 1:1 ratio or other measure derived through coordination with El Dorado County that provides an equal level of compensation.

APM BIO-2: Special-Status Species Pre-construction Surveys

Before project construction begins, a qualified biologist will perform a pre-construction survey for work areas within 100 feet of suitable habitat for special-status species. If any special-status species are found nearby but outside the proposed work area, they will not be disturbed. If recommended by the biologist, a temporary silt-fence barrier will be installed to prevent special-status species from entering the work area(s) during project activities. If a special-status species is found in a work area prior to construction, the biologist will relocate the species out of harm's way, or with prior authorization from USFWS and/or CDFW if necessary, relocates the animal out of harm's way, and/or takes other appropriate steps to protect the animal.

APM BIO-3: Special-Status Bird Measures

Before project activities in proximity to nesting birds begins, PG&E will obtain the applicable permit or follow relevant protocol that is authorized by Section 3503 and/or Section 3503.5 of the California Fish and Game Code, or by any regulation adopted pursuant thereto, pertaining to nesting birds. If no such permit or protocol is available under the above authorities before project construction begins, PG&E will comply with the following measure:

APM BIO-3.1: Pre-construction Survey and Avoidance of Active Nests

For any tree trimming or other potential nest-disturbing activities to be conducted between February 1 and August 31, a qualified biologist will conduct a pre-construction survey for nesting birds. The survey will be conducted no more than one week prior to the start of work activities and will cover all affected areas where substantial ground disturbance or vegetation clearing is required. If any active nests containing eggs or young are found, an appropriate nest exclusion zone will be established by the biologist. The standard buffers included in PG&E's Avian Conservation Strategy (e.g., 50 to 400 feet from non-special-status bird nests, 75 to 350 feet from non-raptor special-status bird nests, and 300 to 1,320 feet from raptor nests, depending on species) will serve as a guideline for exclusion zones, but may be modified on a site-specific basis as determined by the biologist. To the extent practicable, no project vehicles, chain saws, or heavy equipment will be operated in this exclusion zone until the biologist has determined that the nest is no longer active and or the young have fledged. If it is not practicable to avoid work in an exclusion zone around an active nest, work activities will be modified to minimize disturbance of nesting birds but may proceed in these zones at the discretion of the biologist. The biologist will monitor all work activities in these zones daily when construction is occurring and assess their effect on the nesting birds. If the biologist determines that particular activities pose a high risk of disturbing an active nest, the biologist will recommend additional, feasible measures to minimize the risk of nest disturbance.

APM BIO-4: Valley Elderberry Longhorn Beetle Habitat Avoidance and Mitigation

PG&E's Valley Elderberry Longhorn Beetle 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 (File 1-1-01-F-0114). The Biological Opinion provides for thirty years of incidental take coverage and was initiated on June 27, 2003. It defines reasonable and prudent measures required to avoid and minimize impacts to habitat for the federally listed Valley elderberry longhorn beetle. 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, for example: (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 to elderberry shrubs to USFWS for coverage under the Conservation Program's funding of VELB habitat acquisition, development, and protection.

APM BIO-5: Special-Status Plant Avoidance and Impact Minimization Measures

In addition to APM BIO-1 and APM BIO-2, the following measures will be implemented in gabbroic chaparral habitat in and immediately east of the BLM Pine Hill Preserve, and south of U.S. 50, where the highway borders the BLM Pine Hill Preserve, to avoid and minimize impacts on special-status plants.

APM BIO-5.1: Seasonal Timing Restrictions

If a special-status annual plant species is present, any work that may impact the plant will occur after plant senescence and prior to the first significant rain, to the extent practicable.

APM BIO-5.2: Noxious Weed Assessment and Control Plan

Prior to the commencement of construction activities in the BLM Pine Hill Preserve, a Noxious Weed Assessment and Control Plan will be developed and implemented for work in the BLM Pine Hill Preserve. The plan will assess the areas at risk for noxious weed introduction and/or spread and will identify measures for equipment and vehicle inspection.

APM BIO-5.3: Plant Salvage Requirements

Prior to construction, the location of special-status plants that will be affected by grading and excavation will be surveyed and documented, and the seeds and/or rhizomes of special-status plants that may be destroyed during construction will be collected. Following construction, which plants were permanently or temporarily impacted by the project will be determined. PG&E will develop a Rare Plant Strategy that specifies salvage and propagation methods for special-status plants, as well as pre- and post-project monitoring methods.

APM BIO-5.4: Topsoil Stockpiling Requirements

Where grading or excavation is required in gabbroic chaparral habitat, the upper 4 inches of topsoil will be stockpiled separately during grading or excavations, following any necessary plant salvage efforts. When this topsoil is replaced, compaction will be minimized to the extent consistent with utility standards.

APM BIO-5.5: Locking Gate Installation

Following project completion, locking gates will be installed at the two main roads leading into the BLM Pine Hill Preserve to limit unauthorized vehicle access that may threaten special-status plant populations.

APM BIO-6: Special-Status Plant Impact Mitigation

To compensate for permanent impacts on special-status plants, PG&E will explore options to mitigate for impacts on special-status plants with USFWS and CDFW, and will implement the preferred option. The options may include: on-site planting of propagated seeds and cuttings, which will be described in the Rare Plant Strategy; providing funding to the BLM Pine Hill Preserve for the purpose of habitat enhancement, management, and/or monitoring of gabbroic chaparral habitat; acquiring land that contains gabbroic chaparral habitat and deeding it to the BLM Pine Hill Preserve based on a ratio to be determined in coordination with the BLM Pine Hill Preserve Manager, USFWS and CDFW; or acquiring credits from an approved mitigation bank for special-status gabbroic chaparral plants species, if available.

APM BIO-7: Seasonal Wetland Protection

Seasonal wetlands that may provide habitat for special-status species will not be entered. Travel across seasonal wetlands that do not provide such habitat will be limited to the greatest extent feasible. Where travel across seasonal wetlands is necessary, it will occur during dry conditions to avoid soil compaction and mixing. If travel is required during wet conditions, matting and other protection measures will be implemented to avoid soil compaction or mixing. Matting and other protection measures will be approved by the biological monitor before work at that location begins.

3.4.4.3 Potential Impacts

Potential project impacts on biological resources were evaluated against the CEQA significance criteria and are discussed in further detail in the following paragraphs.

The upgraded power lines will require no change to existing operation and maintenance activities. As such, impacts on biological resources that result from the project will not change from existing conditions and no operation-related impacts will occur. The impact analysis is limited to temporary and short-term impacts associated with project construction, which will include the following components:

- **Missouri Flat-Gold Hill Line Reconductoring**, which will include reconductoring approximately 12.5 miles of the existing line, replacing approximately 60 tubular steel poles (TSP), modifying approximately 13 existing lattice steel towers, and converting approximately 1,000 feet of existing overhead distribution line to underground;

- **Gold Hill No. 1 Line Reconductoring**, which will include reconductoring approximately 7 miles of the existing line, replacing approximately 80 existing wood poles new wood or light-duty steel poles and approximately one new TSP, installing approximately seven new interset wood poles, and replacing approximately three distribution wood structures with approximately two new wood poles, and minor distribution line rewiring on two existing wood poles near Limestone Substation; and

- **Access Road Improvements and Construction,** which will include improvements to various temporary access roads that are planned for use during construction and the creation of an approximately 100-foot-long access road.

The impact analysis also evaluates impacts resulting from required site preparation and vegetation removal and trimming required to accommodate construction activities associated with these project components. The majority of vegetation removal, including tree removal, will be required in two primarily undeveloped sections of the project alignment that are each approximately 1 mile long, including:

- one section located between Strolling Hills Road and Rodeo Road, where the project traverses oak woodland vegetation; and

- one section located between Palmer Drive and Shingle Springs Substation, where the project traverses multiple parcels comprised of mixed chaparral vegetation, including the Pine Hill Preserve, one parcel west of the preserve, and another parcel south of U.S. 50.

The project also includes modifications at Shingle Springs, Pacific Western Pipe, Limestone, Clarksville, and Gold Hill substations, and Missouri Flat Switching Station; however, all work at these facilities will be minor and within existing fence lines. Therefore, no biological resources-related impacts will occur.

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***

Special-Status Wildlife Species

In the seasonal wetlands along the western third of the project area (from approximately Empire Ranch Road to Gold Hill Substation), **vernal pool fairy shrimp** and **vernal pool tadpole shrimp** have moderate potential to occur. Any construction activity that will directly or indirectly degrade these aquatic features can adversely affect these species. The project has been designed to fully avoid features that may provide habitat for these species. Furthermore, APM BIO-1, APM BIO-7, APM HYDRO-1, and APM HYDRO-2 will avoid direct and indirect impacts on aquatic habitats in the western third of the project area, and these associated species will be avoided. Therefore, no impact will occur.

Valley elderberry longhorn beetle has moderate potential to occur on elderberry plants with one or more stems 1 inch or greater in diameter in the project area. Any project activity that will require significant trimming or removal of such elderberry shrubs can adversely affect valley elderberry longhorn beetle. The project will completely avoid most elderberry shrubs mapped in the project area. Three elderberry shrubs meeting the stem size criteria for valley elderberry longhorn beetle habitat may be within 20 feet of construction activities (shrub numbers 11–13 in the Biological Resources Technical Report [Stillwater Sciences 2013a]), and they will be marked and excluded from work sites prior to construction per APM BIO-1. Two elderberry shrubs meeting the stem size criteria for valley elderberry longhorn beetle habitat may need to be removed to implement the project (shrub numbers 10 and 16 in the Biological Resources Technical Report [Stillwater Sciences 2013a]). APM BIO-4 will reduce any impact to a less-than-significant level.

Western pond turtle has high potential to occur in and around aquatic habitat throughout the project area. The project has been designed and work areas have been sited to avoid impacts to water features. No wetland vegetation will be removed and only a very limited amount of riparian vegetation will need to be trimmed to provide construction equipment access. Furthermore, APM BIO-1 and APM BIO-2 will avoid potential impacts to turtles that may travel incidentally into work sites. Therefore, no direct impact will occur. APM HYDRO-1 will be implemented so that no indirect impacts on western pond turtle habitat (e.g., impairment of waterbodies from sediment or inadvertent release of hazardous materials). No impact will occur.

Coast horned lizard has moderate potential to occur in gabbroic chaparral habitat in the project area. Coast horned lizards can be injured or killed by project vehicles or construction equipment, and their habitat can be removed during vegetation management or damaged during project construction. APM BIO-1 and APM BIO-2 will be implemented so that no direct impact occurs on coast horned lizard. Less than 1 acre of gabbroic chaparral habitat, which represents less than 2 percent of this vegetation type in the project area, will be removed to accommodate construction activities. APM BIO-1, APM BIO-5, and APM BIO-6 will be implemented so that the impact on coast horned lizard habitat is less than significant.

Raptors and/or migratory birds, including special-status species such as **white-tailed kite** and **tricolored blackbird**, have moderate potential to nest in or near the project area. Nesting birds may be adversely affected if construction activities occur near active nests during the breeding season. Direct impacts may include nest destruction or removal during vegetation removal or trimming activities to provide construction equipment access. Indirect impacts may include nest abandonment or premature fledging from construction-related noise and vibration (for example, from heavy equipment, helicopters, vehicles, generators, and human presence). Over 75 percent of the project area is developed or supports only grasslands; nesting birds are highly unlikely to occur in these areas and little to no vegetation will be removed. No freshwater emergent wetland or vernal pool vegetation will be removed in the project area. Vegetation removal in oak, chaparral, and riparian vegetation types will be limited to only the amount needed to provide access for construction equipment. Such vegetation types account for a very small percentage of land cover in the project area (see Table 3.4-2: Land Cover/Vegetation Types in the Project Area). The indirect impact from construction-related noise and vibration will be temporary and will occur only during construction. APM BIO-1 through APM BIO-3 will further reduce impacts on raptors and/or migratory birds to a less-than-significant level.

Although **pallid bat** has moderate potential to roost on bridges crossing the project area, the project will not include disturbance to or be in close proximity to these bridges. Any disturbance from project construction activities occurring near bridges, if any, will be equivalent to the existing ambient noise and vibration from traffic. Therefore, no impact will occur.

Special-Status Plant Species

Five special-status plant species occur in gabbroic chaparral in the project area, and the locations of individuals of these species are known from recent surveys of the project area (see Figure 3.4-1: Special-Status Plants in the Project Area). Most of these special-status plant occurrences will be completely avoided as they are outside anticipated work areas. However, individuals of all five species occur in potential project work areas and access routes. Special-status plants can be damaged or destroyed as a result of vegetation removal or trimming activities before construction by project vehicles traveling on access roads, by staging project vehicles and equipment in work areas and pull sites, and/or by drilling and pouring of foundations for new TSPs. Special-status plants also can be indirectly affected by soil compaction and the spread of nonnative invasive species from project vehicle and equipment travel and staging. Because of the abundance of special-status plants throughout the one-mile section of the project area with gabbroic chaparral, relocating project activities or siting work areas to avoid all special-status plants is not feasible.

Most special-status plants in the project area will be completely avoided with implementation of APM BIO-1. Approximately 0.02 acre of gabbroic chaparral habitat will be permanently impacted by new concrete TSP foundations, and approximately two acres will be temporarily impacted in work areas, pull sites, and along access routes. APM BIO-5 will be implemented to minimize unavoidable impacts on special-status plants in these areas and also will maximize the success of plants re-establishing in the vicinity after construction. The Rare Plant Strategy included in APM BIO-5 will determine which plants are permanently or temporarily impacted by the project. As described previously, all five of the special-status plant species are particularly adapted to fire; however, construction that removes overstory trees and shading shrubs, or scarifies (scratches) seed and opens areas of bare soil, will promote the germination and growth of these species. As a result, most special-status plants in temporary work areas are not anticipated to be permanently impacted and are expected to recover quickly after construction. APM BIO-6 will be implemented to compensate for unavoidable, permanent impacts on special-status plants. Implementation of these APMs, in combination with the fact that the project will not exacerbate the factors that contribute to the rarity of these species (e.g., will not increase urbanization or roads, or alter the fire regime), will ensure that the project will not cause a substantial adverse effect on any of these species. Therefore, the impact will be less than significant.

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 US Fish and Wildlife Service? ***Less than Significant***

Riparian habitat and three other natural communities that CDFW identifies as sensitive—white leaf manzanita/Sonoma sage chaparral, Fremont's goldfields-Downingia vernal pools, and water blinks-annual checkerbloom vernal pools—occur in the project area. Little riparian habitat exists in the project area (see Table 3.4-2: Land Cover/Vegetation Types in the Project Area), and only minor trimming of riparian habitat will be necessary to provide construction equipment access. Therefore, the impact will be less than significant.

The project will avoid all wetlands that support Fremont's goldfields-Downingia vernal pools and water blinks-annual checkerbloom vernal pools. Therefore, no impact will occur.

White leaf manzanita/Sonoma sage chaparral, which is a component of gabbroic chaparral, occurs in the BLM Pine Hill Preserve. Because this vegetation type is fairly widespread in this portion of the project area, relocating project activities or siting work areas to avoid an impact is not feasible. Approximately 1 acre of this vegetation type may be affected by vegetation removal and trimming activities to provide access to project work sites. The effects will be temporary and will make up less than 2 percent of this vegetation type in the project area (see Table 3.4-2: Land Cover/Vegetation Types in the Project Area). Therefore, the impact will be less than significant. APM BIO-1, APM BIO-5, and APM BIO-6 will be implemented to further reduce any less-than-significant impact.

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***

The project has been designed to avoid impacts on waterways and wetlands to the greatest extent feasible, and the project will not remove, fill, or result in the hydrologic interruption to waterways or wetlands. Several seasonal drainages may need to be crossed to access project work areas. In addition, to access an existing wood pole along the Gold Hill No. 1 Line north of U.S. 50 between Bass Lake Road and Tierra De Dios Drive, one seasonal wetland will be traversed for approximately 50 feet. The existing pole will be left in place for distribution purposes and the new pole will be installed east of the existing pole, outside of the limits of the seasonal wetland. Work activities in the seasonal wetland will be limited to approximately 50 feet of overland access and the temporary staging of construction vehicles at the pole base to make minor modifications to aboveground features; no ground-disturbing or fill will be required. Because of the limited scope and nature of activities that will be required in some seasonal drainages and one seasonal wetland, and because the wetland is predominantly dry year-round, the project will not result in adverse effects on these features. Therefore, the impact will be less than significant. Implementation of APM BIO-7, APM HYDRO-1, and APM HYDRO-2 will further reduce the less-than-significant impact.

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? *No Impact*

The western half of the project area is highly developed and few opportunities for wildlife movement are present. The eastern half of the project area is less developed, with tracts of open grassland interspersed with oak woodland. The project will include modifications to existing infrastructure, and project activities will not include construction of any elements that will block wildlife movement. Therefore, the project will not interfere substantially with the movement of any native resident wildlife species, nor impede the use of any wildlife nursery sites (see above for discussion of special-status wildlife species, nesting raptors, and migratory birds). The project will not include any in-water construction and, therefore, will not interfere with the movement of migratory fish. No impact will occur.

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

The project's design and APMs are compatible with the goals for habitat and biological resources in the El Dorado County General Plan (2004), City of Folsom General Plan (1993), and City of Folsom Plan Area Specific Plan (2011).

A total of up to approximately 225 trees will be removed, approximately 125 of which will be oak trees meeting El Dorado County's oak removal permit criteria (at least 6 inches dbh or multiple trunks with an aggregate of at least 10 inches dbh) will be removed in the El Dorado County portion of the project area, to provide construction equipment access to pole work areas and pull sites. Although the project is regulated by the CPUC and will not be subject to local land use regulations, such as El Dorado County's discretionary oak tree removal permit, PG&E will implement APM BIO-1.4. The impact will be less than significant.

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? *Less than Significant*

No Habitat Conservation Plans or Natural Community Conservation Plans include the project area. APM BIO-1, APM BIO-2, APM BIO-5, and APM BIO-6 will avoid, minimize, and mitigate for any project-related effects on special-status plant species that are included in the Pine Hill Preserve Management Plan (Hinshaw et al. 2008). Therefore, the impact will be less than significant.

3.4.5 REFERENCES

Baad, M.F. and G.D. Hanna. 1987. Pine Hill Ecological Reserve operations and maintenance schedule. Prepared for the California Department of Fish and Game. Unpublished report.

Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti and D. H. Wilken, editors. 2012. The Jepson Manual: Vascular Plants of California. Second edition. Berkeley: University of California Press.

Beedy, E. C., and W. J. Hamilton, III. 1997. Tricolored Blackbird Status Update and Management Guidelines. Prepared by Jones & Stokes Associates, Inc. and University of California, Davis for U.S. Fish and Wildlife Service and California Department of Fish and Game.

Bloom, P. H. 1980. The Status of the Swainson's Hawk in California, 1979. California Department of Fish and Game and USDI Bureau of Land Management, Sacramento.

Boyd, R. 1987. The effects of controlled burning on three rare plants. Pages 513-517, *In*: Conservation and management of rare and endangered plants, Elias, T.S. (ed.).

Bulger, J. B., N. J. Scott, Jr., and R. B. Seymour. 2003. Terrestrial Activity and Conservation of Adult California Red-Legged Frogs (*Rana aurora draytonii*) in Coastal Forests and Grasslands. *Biological Conservation* 110: 85–95.

California Burrowing Owl Consortium. 1993. Burrowing Owl Survey Protocol and Mitigation Guidelines. Technical Report. Alviso, CA.

California Department of Conservation. 2011. Preliminary Geologic Map of the Sacramento 30' X 60' Quadrangle, California, with pamphlet. Scale 1:100,000. Compilation and digital preparation by C. I. Gutierrez. Prepared by California Department of Conservation, California Geological Survey, supported by the U. S. Geological Survey. Available: http://www.conservation.ca.gov/cgs/rghm/rgm/Pages/preliminary_geologic_maps.aspx.

California Department of Fish and Game (CDFG). 1992. Annual Report on the Status of California State-Listed Threatened and Endangered Animals and Plants. Fish and Game Commission, Sacramento, CA.

———. 1994. Staff Report Regarding Mitigation for Impacts to Swainson’s Hawks (*Buteo swainsoni*) in the Central Valley of California.

———. 1995. Staff Report on Burrowing Owl Mitigation.

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

California Department of Fish and Wildlife (CDFW). 2013a. California Natural Diversity Database. RareFind3. Electronic database. Natural Heritage Division, California Department of Fish and Game, Sacramento, CA. Available: http://www.dfg.ca.gov/biogeodata/cnddb/rarefind.asp.

———. 2013b. Special Vascular Plants, Bryophytes, and Lichens List. Natural Diversity Database, Quarterly Publication. Sacramento, CA. Available: www.dfg.ca.gov/biogeodata/cnddb/pdfs/spplants.pdf.

California Native Plant Society (CNPS). 2013. Inventory of Rare and Endangered Plants of California. Online database, 7th edition. D. P. Tibor, convening editor. Rare Plant Scientific Advisory Committee, California Native Plant Society, Sacramento, CA. Accessed February 2013.

California Regional Water Quality Control Board (CRWQCB). 2003 (January). Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for Temperature at Deer Creek El Dorado and Sacramento Counties: Final Staff Report. Central Valley Region.

City of Folsom. 1993 (January). *City of Folsom General Plan*. Folsom, CA.

———. 2011. *City of Folsom Plan Area Specific Plan*. Folsom, CA.

Dunk, J. R. 1995. White-tailed kite (*Elanus leucurus*). *In* A. Poole, editor, *The Birds of North America Online*. Cornell Lab of Ornithology, Ithaca, New York. Available: http://bna.birds.cornell.edu/bna/species/178/articles/introduction.

eBird. 2013. eBird: An Online Database of Bird Distribution and Abundance. eBird, Ithaca, NY. Available: http://ebird.org/content/ebird/.

El Dorado County. 2004. *El Dorado County General Plan Conservation and Open Space Element.* Adopted July 2004. Placerville, CA.

Erichsen, A. L. 1995. The White-Tailed Kite (*Elanus leucurus*): Nesting Success and Seasonal Habitat Selection in an Agricultural Landscape. Master’s thesis. University of California, Davis.

Estep, J. A. 1989. Biology, Movements, and Habitat Relationships of the Swainson's Hawk in the Central Valley of California, 1986–87. CDFG, Nongame Bird and Mammal Special Report.

Fellers, G. M., and P. M. Kleeman. 2007. California Red-Legged Frog (*Rana draytonii*) Movement and Habitat Use: Implications for Conservation. *Journal of Herpetology* 41: 271–281.

Garcia and Associates (GANDA). 2008. Biological constraints analysis for the Pacific Gas & Electric Company's Gold Hill–Shingle Springs "Missouri Flat" Transmission Line Reconductoring Project, Sacramento and El Dorado Counties. Prepared for Pacific Gas and Electric Company, Environmental Services Department, San Ramon, CA by Garcia and Associates, Auburn, CA.

Gervais, J. A., D. K. Rosenberg, and L. A. Comrack. 2008. Burrowing Owl (*Athene cunicularia*). Pages 218–226 *in* W. D. Shuford and T. Gardali, editors, *California Bird Species of Special Concern: a Ranked Assessment of Species, Subspecies, and Distinct Populations of Birds of Immediate Conservation Concern*. California Studies of Western Birds No. 1. Western Field Ornithologists, Camarilla, CA and California Department of Fish and Game, Sacramento.

Grinnell, J., and A. H. Miller. 1944. The Distribution of the Birds of California. *Pacific Coast Avifauna* 27.

Harris, J. E., and C. V. Ogan, editors. 1997 (August 12–15). *Mesocarnivores of Northern California: Biology, Management, and Survey Techniques, Workshop Manual*. Humboldt State University, Arcata, CA. The Wildlife Society, California North Coast Chapter, Arcata, CA.

Helm, B. P. 1998. Biogeography of Eight Large Branchiopods Endemic in California. Pages 124–139 *in*: C. W. Witham, E. T. Bauder, D. Belk, W. R. Ferren Jr., and R. Ornduff, editors, *Ecology, Conservation, and Management of Vernal Pool Ecosystems*. Proceedings from a 1996 Conference. California Native Plant Society, Sacramento, CA.

Hinshaw, G., J. Barnes, A. Franklin, and M. Panganiban. 2008. *Pine Hill Preserve Management Plan*. U.S. Bureau of Land Management, Sacramento, CA.

Holland, D. C. 1994. *The Western Pond Turtle: Habitat and History*. Final Report. U.S. Department of Energy, Bonneville Power Administration, Portland, OR.

Jennings, M. R., and M. P. Hayes. 1994. *Amphibian and Reptile Species of Special Concern in California*. Final Report. Prepared by California Academy of Sciences, Department of Herpetology, San Francisco, and Portland State University, Department of Biology, Portland, OR for California Department of Fish and Game, Inland Fisheries Division, Rancho Cordova.

Kellner, C. V. 1992. The Presence of the Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*) in the San Joaquin Valley, California. Pages 143–147 *in* D. F. Williams, S. Byrne and T. A. Rado, editors, *Endangered and Sensitive Species of the San Joaquin Valley, California: Their Biology, Management and Conservation*. California Energy Commission.

Lindley, S. T., R. S. Schick, A. Agrawal, M. Goslin, T. E. Pearson, E. Mora, J. J. Anderson, B. May, S. Greene, C. Hanson, A. Low, D. McEwan, R. B. MacFarlane, C. Swanson, and J. G. Williams. 2006. *Historical Population Structure of Central Valley Steelhead and Its Alteration by Dams*. San Francisco Estuary and Watershed Science, John Muir Institute of the Environment, University of California, Davis.

Mayer, K. E., and W. F. Laudenslayer, Jr. 1988. *A Guide to Wildlife Habitats of California*. State of California Resources Agency, Department of Fish and Game, Sacramento, CA.

Natural Resources Conservation Service (NRCS). 2003a. Official Series Description—Argonaut Series. Soil Survey Division. Available: http://soils.usda.gov.

———. 2003b. Official Series Description—Rescue Series. Available: http://soils.usda.gov.

———. 2006. Official Series Description—Auburn Series. Available: http://soils.usda.gov.

———. 2007. *Custom Soil Resource Report and Soil Map for El Dorado Area and Sacramento County, California*. Web soil survey 2.0. A product of the National Cooperative Soil Survey, a joint effort of the U.S. Department of Agriculture and other federal agencies, State agencies including the Agricultural Experiment Stations, and local participants.

Nosal, T. 1997. A demographic study of Stebbin's morning-glory (*Calystegia stebbinsii, Brummit, Convolvulaceae),* a California state listed and federal listed endangered plant species. Unpublished Masters thesis, California State University, Sacramento.

Pacific Gas and Electric Company (PG&E) and United States Fisheries and Wildlife Service (USFWS). 2003. Valley Elderberry Longhorn Beetle Conservation Program.

Pierson, E. D., W. E. Rainey, and R. M. Miller. 1996. Night Roost Sampling: a Window on the Forest Bat Community in Northern California. Pages 151–163 *in* R. M. R. Barclay and R. M. Brigham, editors, Bats and Forests Symposium, October 19–21, 1995. Working Paper 23/1996. Research Branch, B.C. Ministry of Forests, Victoria, BC.

Sacramento Area Council of Governments (SACOG). 2013. El Dorado County Integrated Natural Resources Management Plan.

Sawyer, J. O., T. Keeler-Wolf, and J. M. Evens. 2009. *A Manual of California Vegetation*. Second edition. California Native Plant Society Press, Sacramento, CA.

Stebbins, R. C. 2003. *A Field Guide to Western Reptiles and Amphibians*. Third edition. Houghton Mifflin Company, Boston-New York.

Stillwater Sciences. 2013a. *Biological Resources Technical Report for the Missouri Flat-Gold Hill Transmission Line Reconductoring Project*. Prepared for Pacific Gas and Electric Company, Sacramento, CA.

———. 2013b. *Habitat Assessment for the California Red-Legged Frog for the Missouri Flat-Gold Hill Transmission Line Reconductoring Project*. Prepared for Pacific Gas and Electric Company, Sacramento, CA.

———. 2013c. *Preliminary Delineation of Waters and Wetlands for the Missouri Flat-Gold Hill Transmission Line Reconductoring Project*. Prepared for Pacific Gas and Electric Company, Sacramento, CA.

Unitt, P. Grasshopper Sparrow (*Ammodramus savannarum*). 2008. *In* W. D. Shuford, and Gardali, T., editors, *California Bird Species of Special Concern: A Ranked Assessment of Species, Subspecies, and Distinct Populations of Birds of Immediate Conservation Concern in California*. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, CA, and California Department of Fish and Game, Sacramento.

U.S. Fish and Wildlife Service (USFWS). 2002. *Recovery Plan for Gabbro Soil Plants of the Central Sierra Nevada Foothills*. Portland, OR.

———. 2005a. Revised Guidance on Site Assessment and Field Surveys for the California Red-Legged Frog. Available: http://www.fws.gov/sacramento/es/Survey-Protocols-Guidelines/Documents/crf_survey_guidance_aug2005.pdf.

———. 2012. Proposed Rule; Removal of the Valley Elderberry Longhorn Beetle from the Federal List of Endangered and Threatened Wildlife. *Federal Register* 77: 60,237–60,276.

———. 2013. Federal Endangered and Threatened Species that Occur In or May Be Affected by Projects in the Counties and/or USGS 7.5-Minute Quads Requested. USFWS, Endangered Species Program, Sacramento, CA. Available: http://www.fws.gov/sacramento/es/.

Western Regional Climate Center (WRCC). 2013. Periods of Record Monthly Climate Summary. Available: http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca3111. Accessed March 18, 2013.

Yoshiyama, R. M., E. R. Gerstung, F. W. Fisher, and P. B. Moyle. 2001. Historic and Present Distribution of Chinook Salmon in the Central Valley Drainage of California. In R. L. Brown, editor, *Fish Bulletin* 179: Contributions to the Biology of Central Valley Salmonids, Vol. 1, pp. 71–176. California Department of Fish and Game, Sacramento, CA.

Zeiner, D. C., W. F. Laudenslayer, Jr., K. E. Mayer, and M. White, editors. 1990a. *California's Wildlife, Volume II, Birds*. California Statewide Habitat Relationships System. California Department of Fish and Game.

———. 1990b. *California's Wildlife, Volume III, Mammals*. California Statewide Habitat Relationships System. California Department of Fish and Game.

TABLE OF CONTENTS

List of Tables

3.5 CULTURAL AND PALEONTOLOGICAL RESOURCES

3.5.1 INTRODUCTION

This section describes existing conditions and potential impacts on cultural and paleontological resources as a result of the project. The analysis concludes that impacts on cultural and paleontological resources will be less than significant. The Applicant-Proposed Measures (APM) described in Section 3.5.4.2, Applicant-Proposed Measures, will further reduce any less-than-significant impacts.

The project's potential effects on cultural and paleontological resources were evaluated using the significance criteria set forth in Appendix G of the California Environmental Quality Act (CEQA) Guidelines, as shown in Table 3.5-1: CEQA Checklist for Cultural and Paleontological Resources. The conclusions are discussed in more detail in Section 3.5.4, Applicant-Proposed Measures and Potential Impacts. The evaluation herein is derived from confidential technical reports (Armstrong et al., 2013, Armstrong and Baloian 2013, Debusk 2012), which will be provided separately and confidentially to the California Public Utilities Commission (CPUC).

Table 3.5-1: CEQA Checklist for Cultural and Paleontological Resources

Would the project:	Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
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?			☒	

3.5.2 REGULATORY BACKGROUND AND METHODOLOGY

3.5.2.1 Regulatory Background

Federal

A portion of the project alignment crosses land administered by the U.S. Bureau of Land Management (BLM). The project will not require federal funding but will require a special use permit from BLM to conduct project-related activities within the Pine Hill Preserve. Although special use permits may trigger the need for compliance with the National Environmental Policy Act of 1969 (NEPA), BLM has determined that the project is exempt from NEPA because

PG&E is conducting construction activities on an existing power line within an existing easement for the Missouri Flat-Gold Hill Line within the Pine Hill Preserve, providing PG&E with prior and existing rights to complete the project. However, cultural resources on public lands administered by BLM are managed to comply with other federal laws and regulations, including:

- **Section 106 of the National Historic Preservation Act (16 USC 470),** which addresses potential impacts to historic properties (resources that are eligible for listing on the National Register of Historic Places [NRHP])
- **Archaeological Resource Protection Act (ARPA) (16 USC 470aa-mm)**, which regulates the excavation of archaeological sites on federal and Indian lands in the United States, and the removal and disposition of archaeological resources
- **Native American Graves Protection and Repatriation Act (NAGPRA)(25 USC 3001-3013)**, which requires federal agencies to consult with the appropriate Native American Tribes before the intentional excavation of human remains and funerary objects on federal and tribal lands (The act requires development of a Plan of Action.)
- **Paleontological Resource Preservation Act (123 Stat. 1172; 16 U.S.C. 470aaa)**, which establishes requirements to manage and protect paleontological resources on federal lands.

State

<u>*California Environmental Quality Act and California Register of Historical Resources*</u>

Under Section 21083.2 of CEQA, an important archaeological or historical resource is an object, artifact, structure, or site that is listed on, or eligible for listing on, the California Register of Historical Resources (CRHR). Eligible resources are those that can be clearly shown to meet any of the following criteria:

- Is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage
- Is associated with the lives of persons important in our past
- 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 value
- Has yielded, or may be likely to yield, information important in prehistory or history

Automatic listings include properties that are listed on the NRHP. In addition, Points of Historical Interest nominated from January 1998 onward are to be jointly listed as Points of Historical Interest and in the CRHR.

Resources listed in a local historic register or deemed significant in a historical resources survey, as provided under California Public Resources Code (PRC) Section 5024.1(g), are presumed to be historically or culturally significant unless the preponderance of evidence demonstrates that they are not. A resource that is not listed on or determined to be ineligible for listing on the CRHR, not included in a local register of historical resources, or not deemed significant in a historical resources survey may nonetheless be historically significant as determined by the lead agency (PRC Section 21084.1 and Section 21098.1).

California Health and Safety Code and Public Resources Code

Broad provisions for the protection of Native American cultural resources are contained in the California Health and Safety Code, Division 7, Part 2, Chapter 5 (Sections 8010 through 8030).

Several provisions of the PRC also govern archaeological finds of human remains and associated objects. Procedures are detailed under PRC Section 5097.98 through 5097.996 for actions to be taken whenever Native American remains are discovered. Furthermore, Section 7050.5 of the California Health and Safety Code states that any person who knowingly mutilates or disinters, wantonly disturbs, or willfully removes human remains in or from any location other than a dedicated cemetery without authority of law is guilty of a misdemeanor, except as provided in Section 5097.99 of the PRC. Any person removing human remains without authority of the law or written permission of the person or persons having the right to control the remains under PRC Section 7100 has committed a public offense that is punishable by imprisonment.

PRC Chapter 1.7, Section 5097.5/5097.9 (Stats. 1965, c. 1136, p. 2792), entitled Archaeological, Paleontological, and Historical Sites, defines any unauthorized disturbance or removal of a fossil site or remains on public land as a misdemeanor and specifies that State agencies may undertake surveys, excavations, or other operations as necessary on State lands to preserve or record paleontological resources.

Local

The project is not subject to local discretionary land-use regulations because the CPUC has exclusive jurisdiction over the siting, design, and construction of the project. However, PG&E has considered local plans and policies as part of the environmental review process.

El Dorado County

Neither El Dorado County's guidelines for cultural resource studies (El Dorado County 1999) nor the El Dorado County General Plan (El Dorado County 2004) contain any specific policies that pertain to the designation of local historical resources. The county's objectives toward the preservation of cultural and paleontological resources are outlined in Policies 7.5.1.1 through 7.5.1.6 of the El Dorado County General Plan's Conservation and Open Space Element.

City of Folsom

The City of Folsom maintains a local cultural resources inventory to encourage public recognition and protection of resources of architectural, historical, archaeological, and cultural significance. None of the cultural resources listed in the City of Folsom Cultural Resources Inventory are located within the project alignment.

3.5.2.2 Methodology

Cultural Resources

Records Searches

Several cultural records searches were conducted for the project:

- In February 2010, a records search was conducted by North Coast Resource Management staff members at the California Historical Resources Information System's (CHRIS) North Central Information Center (NCIC) at California State University, Sacramento.
- On March 13, 2012, Applied EarthWorks, Inc. (Applied EarthWorks) staff members conducted an additional search at the NCIC to obtain updated information.
- On June 4, 2012, a records search that encompassed portions of the Gold Hill No. 1 Line was conducted by NCIC research staff members.
- On May 28, 2013, Applied EarthWorks staff members conducted a records search at the NCIC that encompassed potential project work areas at Limestone Substation and one tubular steel pole (TSP) along the Missouri Flat-Gold Hill Line located approximately 200 feet southeast of the Becken Lane and Sunset Lane intersection in the community of Shingle Springs.

Native American Consultation

The California Native American Heritage Commission (NAHC) was contacted by North Coast Resource Management on March 20, 2009, with a request for information about the potential existence of sacred lands within the project area, and for a list of interested Native American groups and individuals who may be consulted regarding the project. A search of the NAHC's Sacred Lands Files did not result in the identification of any known sacred lands within the project area. In March and September 2009, letters were sent to each of the following individuals or tribes listed by the NAHC:

- Shingle Springs Band of Miwok Indians
- El Dorado Miwok Tribe
- Nashville-El Dorado Miwok Tribe
- Kenneth Counsil

In 2011, PG&E requested an updated list of Native American contacts for the project area. On February 6, 2012, PG&E sent letters to the Native American contacts identified by the NAHC to request any information that they may have on the location and character of Native American cultural resources. In addition to the individuals or tribes listed above, letters were sent to the following:

- Buena Vista Rancheria
- Briana Creekmore
- Ione Band of Miwok Indians

- April Wallace Moore
- United Auburn Indian Community of the Auburn Rancheria
- Randy Yonemura

On April 12, 2012, a follow-up facsimile or e-mail was sent to those contacts who had not yet responded.

To date, PG&E has received responses from three of the 14 individuals contacted (Table 3.5-2: Excerpt from the Native American Outreach Log). The letter sent to Kenneth Counsil on April 12, 2012, was returned without a forwarding address. A contact log and copies of the Native American outreach documentation are included in Appendix C: Native American Heritage Commission Correspondence.

Table 3.5-2: Excerpt from the Native American Outreach Log

Individual/Organization	Contact	Comments	Date Received
Shingle Springs Band of Miwok Indians	Angela Rivera, Cultural Committee	Received a call from Ms. Rivera requesting a copy of the archaeological report upon completion.	February 23, 2013
United Auburn Indian Community of the Auburn Rancheria	Gregory Baker, Tribal Administrator	Received a letter from Mr. Baker requesting copies of the archaeological report and environmental documents prepared for the project. The Tribe requested to be notified if Native American resources are found within the project area. Mr. Baker referred future correspondence to Marcos Guerrero.	March 3, 2012
Shingle Springs Band of Miwok Indians	Daniel Fonseca, Chairperson	Received a letter from Mr. Fonseca, director of cultural resources for the Shingle Springs Rancheria, that requested updates on the project status, as well as copies of the records search and survey reports completed for the project.	March 6, 2012
Source: Armstrong et al. 2013			

Field Inventory

An intensive pedestrian survey was completed by Applied EarthWorks archaeologists in May and July 2012. The survey area included:

- a 300-foot-wide corridor centered on the Missouri Flat-Gold Hill Line and Gold Hill No. 1 Line;
- a 100-foot-wide corridor centered on proposed new access roads, as well as existing access roads planned for improvement;

- a 50-foot-wide corridor centered on proposed overland access routes and access roads that are well maintained or paved and will not require improvement; and
- a 150-foot-wide area around all identified project elements (e.g., pull sites, laydown areas, extra work spaces) that lie outside the 300-foot-wide power line survey corridor.

Applied EarthWorks archaeologists conducted additional fieldwork in May 2013 to survey new project design elements that were added after the initial survey was completed. These elements included newly proposed pole locations, access roads, and additional workspaces. The combined project survey area totals approximately 761 acres, of which approximately 495 acres had the potential to contain cultural resources because the remaining acreage had been developed. Applied EarthWorks archaeologists examined the survey areas using 15- to 20-meter-wide transects wherever possible.

Throughout much of the eastern portion of the project alignment, dense manzanita made systematic transects infeasible or impractical. At these locations, survey coverage was moderate (constituting approximately 20- to 25-meter-wide transects); surveyors penetrated the brush wherever an opening allowed. The area near the intersection of Durock Road and Shingle Springs Road has been developed commercially, greatly obscuring but not entirely eliminating ground visibility. Applied EarthWorks' survey coverage was opportunistic—archaeologists checked native soil for archaeological materials wherever it was present. Other portions of the survey area were not surveyed because they were enclosed behind private-property fences with locked gates, covered by pavement or buildings, or so severely disturbed that surveying the area was not warranted. Furthermore, some of the survey area was not surveyed because it had been subject to an archaeological survey within the last 5 years.

Ground visibility in the survey area ranged from less than 5 percent in areas covered with dense manzanita, tall grass, or pasture to 25 percent or more in areas of shorter grass. The amount of ground disturbance also varied greatly. Much of the landscape has been affected by the built environment (e.g., roads, freeways, housing, and commercial development), while other portions of the survey area remain relatively intact except for disturbances by erosion and other natural agents.

Paleontological Resources

Unlike cultural resources (e.g., artifacts, surface features), paleontological resources are not found in "soil" but are contained within the geologic deposits or bedrock that underlies the soil layer. Therefore, to ascertain whether a particular study area has the potential to contain fossil resources below the surface, it is necessary to review relevant scientific literature and geologic mapping to determine the area's geology and stratigraphy. Furthermore, to delineate the boundaries of an area of paleontological sensitivity, it is necessary to determine the extent of the entire geologic unit, because paleontological sensitivity is not limited to surface exposures of fossil material.

To determine whether fossil localities have been discovered previously within the project alignment or a particular rock unit, a museum records search was conducted at the University of California's Museum of Paleontology (UCMP). The museum records search was supplemented by a review of the UCMP's online database, which contains paleontological records for El Dorado and Sacramento counties. Because of the limited paleontologically sensitive geologic units in the project alignment, a paleontology field survey was not conducted.

3.5.3 ENVIRONMENTAL SETTING

3.5.3.1 **Cultural Resources**

Prehistory

The project area spans two geographic regions—the Sierra Nevada foothills and the Sacramento Valley. These regions have typically been treated separately by archaeologists and historians studying California (e.g., Jones and Klar 2007; Moratto 1984); however, they are inextricably linked within the project alignment, with no clear demarcation. Thus, this section discusses studies conducted in both regions to provide a better understanding of the history of human occupation in the project area.

The earliest human presence in the project area may have been sporadic use by Paleo-Indians (circa 12,000–9000 B.C.). Paleo-Indians were generally mobile or semimobile hunter-gatherers who are identified in the archaeological record primarily by their distinctive fluted projectile points. Their presence in the project area is extrapolated from a handful of discoveries in the San Joaquin Valley, mostly in lakeside contexts (Moratto 1984; Riddell and Olson 1969; Rosenthal et al. 2007), one possibly fluted point found near Thomas Creek in the Sacramento Valley (Dillon and Murphy 1994), and a few in the Sierra Nevada foothills (Bieling et al. 1996; Delacorte et al. 2000; Kowta 1988; Price and Johnston 2002; Rondeau 2009). A set of flaked stone tools found east of Stockton, known as the Farmington Complex (Riddell 1949; Treganza 1952; Treganza and Heizer 1953), was found in gravels associated with the Modesto Formation, suggesting a possible late-Pleistocene or early-Holocene age (circa 10,000–5000 B.C.). However, the exact age and nature of these tools has been a matter of debate since they were first reported (Moratto 1984).

Numerous isolated fluted points also have been discovered in western Nevada (Hull 2007; Tuohy 1968), and sites in the Lahontan Basin east of Lake Tahoe have produced remains of extinct megafauna associated with early artifact types (Dansie et al. 1988). Substantial Paleo-Indian deposits have not been found. However, discoveries of isolated fluted points near Ebbetts Pass, the Skyrocket Site, and other high Sierran locations (Bieling et al. 1996; Davis and Shutler 1969; Erlandson et al. 2007; Price and Johnston 2002) support the concept that Paleo-Indian hunters visited the upper slopes of the Sierra Nevada periodically and might have settled at favored locations in the lower foothills during the late Pleistocene or early Holocene.

Evidence also is scarce that humans occupied the project area immediately after the Paleo-Indian period. Much of the valley floor is covered in alluvium, effectively burying late-Pleistocene and early-Holocene surfaces, and consequently, archaeological sites (Malamud-Roam et al. 2006; Rosenthal et al. 2007). Artifacts dating to circa 7500 B.C. along the Stanislaus River watershed (Hull 2007) suggest that hunter-gatherers during the Lower Archaic (circa 9000–5550 B.C.) used a more diverse resource base than the more mobile Paleo-Indians, which tied their seasonal movements more closely to local conditions (Chartkoff and Chartkoff 1984:97–115).

By contrast, Middle Archaic (circa 5550–550 B.C.) occupation of the foothills is well represented in the archaeological literature. The number of sites identified from this period indicates a broad-based hunting and gathering economy. Limited but widespread evidence exists of ceremonial/religious or social/prestige items in the form of ground stone ornaments (Rosenthal et al. 2007) and an increasingly large dependence on local plant foods (Chartkoff and Chartkoff 1984:133–136). By the latter half of the Middle Archaic, the mortar and pestle were routinely used, indicating an intensification of acorn consumption, although the milling slick and portable milling stone remained important tools for processing seeds well into the historic era (Basgall 2004:91). The Middle Archaic is represented by moderately sized to large settlements dating to 3000 B.C. at the mid to upper elevations (Hull 2007).

The onset of the Upper Archaic (circa 550 B.C.–A.D. 1100) appears to correspond to shifting environmental conditions, including a cooler, wetter, and somewhat more stable climate. A proliferation in local cultural traditions is reflected in different artifact variations and tool kits increasingly well adapted to local environmental niches. Villages began to appear in the Sacramento-San Joaquin Delta (Delta) on large mounds, and residents of these villages likely visited the foothills seasonally. Despite the increasing local specialization, long-distance trade for obsidian and other non-local resources appears to have been vital to Upper Archaic economies (Rosenthal et al. 2007).

After A.D. 500, the settlement pattern shifts, favoring smaller, short-term residential sites, indicating a more mobile population specializing in the pursuit of a smaller range of resources. A return to local longer term occupation and resource diversification occurred during the Emergent Period (circa A.D. 1000 to present) (Hull 2007; Intermountain Research 1995; Rosenthal et al. 2007). The replacement of the atlatl with the bow occurred circa A.D. 600–800 (although Rosenthal et al. 2007 places it closer to A.D. 1000), likely resulting in changes in hunting behaviors (Moratto 1984:303) and probably affecting the social organization surrounding resource procurement. Burial patterns, along with the presence of new types of beads and other ornaments, indicate increasing social complexity and emerging social inequality. Intensive use of the mortar and pestle was prevalent throughout the Central Valley by 1000 years ago (Rosenthal et al. 2007), although their dominance may have begun earlier in some locations in the foothills and Sacramento Valley (Basgall 2004). The increased use of these tools likely represents a shift in resource procurement to a greater focus on acorns.

The timing of the emergence of ethnohistorically known cultural lineages is uncertain. Moratto (1984:302–303) argues that sites associated with the Martis Complex (a material culture identified by artifact types dating to circa 2000 B.C.–A.D. 500, including the latter part of the Middle Archaic) are linked to the ancestral Maidu. Moratto thus suggests that the ancestors of the ethnographic Nisenan were present in the project vicinity by this point in time. Linguistic evidence suggests that the ancestors of the Plains Miwok inhabited the Delta region, and likely other parts of the Sacramento Valley, since at least the Middle Horizon (circa 1500 B.C.–A.D. 500), whereas Miwok cultures did not occupy the Sierra Nevada until after A.D. 500 (Levy 1978). It is reasonable to assume that Miwok peoples were present near the project area prior to A.D. 500, although the archaeological evidence for this is difficult to assess.

3.5.3.2 Ethnographic Period

According to most sources, the project area lies in southern Nisenan territory; however, some question exists about the actual location of the territorial boundary between the Nisenan and their southern neighbor, the Miwok. Kroeber ([1925] 1976) placed the northern boundary of Miwok territory at the Cosumnes River, although he noted uncertainty about the precise boundaries of Nisenan territory. Wilson and Towne (1978) suggested that the boundary between Nisenan and Miwok territory lay somewhere between the Cosumnes and American rivers. Likewise, Levy (1978) placed the northern frontier of Miwok territory north of the Cosumnes River. Because the Nisenan/Miwok boundary was likely fluid over time, both the Nisenan and Miwok are discussed in the following sections.

Nisenan

The Nisenan, also referred to as the Southern Maidu, are the southernmost branch of the Maidu-Konkow ethnolinguistic group (a subgroup of the Californian Penutian linguistic family). They occupied the Yuba, Bear, American, and lower Feather River drainages (Kroeber [1925] 1976; Moratto 1984:538–539). At the time of contact, Nisenan territory covered large portions of El Dorado, Sacramento, Amador, Placer, and Nevada counties (Beals 1933). Kroeber ([1925] 1976) recognized three Nisenan dialects: two northern dialects (Northern Hill Nisenan and Valley Nisenan) and one southern (Southern Hill Nisenan). It is the Southern Hill Nisenan who likely occupied the project vicinity.

The Nisenan were year-round hunter-gatherers with access to varied biotic zones distributed across the western slope of the Sierra Nevada (Hull 2007:180). Hunting was done communally, by conducting drives and burning, with the best marksman doing the killing. Deer, pronghorn, elk, black bears, wildcats, mountain lions, and other small game were caught and either roasted, baked, or dried. Gathering also was a communal activity, organized around seasonal ripening of specific resources including roots, wild onion, wild potato, and a variety of nuts. Acorns were a major staple of the Nisenan diet; these were shelled, ground into flour, and stored for year-round use.

Like most Native Californians, the Nisenan were organized into autonomous groups ranging in size from bands of 15–25 people to tribelets of 500 people (Wilson and Towne 1978). These autonomous groups were separated from each other by a combination of geographic boundaries and linguistic differences (Littlejohn 1928; Wilson and Towne 1978). Some fishing holes or territories for deer drives were used by certain family groups; however, individual hunters crossed family and political boundaries with impunity (Kroeber [1925] 1976; Wilson and Towne 1978). Although villages appeared to be central to the community's organization, main villages were occupied only for short periods of time during the year. Family groups commonly lived in seasonal camps away from the main villages during gathering seasons. Other site types include quarries, ceremonial grounds, trading sites, fishing stations, cemeteries, river crossings, and battlegrounds (Wilson and Towne 1978).

The Nisenan used many tools, including stone knives, arrow and spear points, scrapers, pestles, and mortars. Weirs, nets, harpoons, traps, and gorgehooks were used to fish from tule balsas and log canoes. Baskets woven from willow and redbud were used for storage, cooking, and processing (Hull 2007; Kroeber [1925] 1976; Wilson and Towne 1978). Raw material used to manufacture most tools and ornaments was obtained locally. However, a network of trails running north and south along the west face of the Sierra Nevada and along the crest of the range allowed the Nisenan to access non-local goods to supplement local resources.

Miwok

The Miwok, another division of the Californian Penutian linguistic family, occupied the area south and east of the Nisenan. The Miwok generally have been divided into the Lake Miwok, Coast Miwok, and the Eastern Miwok (or Interior Miwok, after Kroeber [1925] 1976) based on cultural and linguistic differences (Callaghan 1978; Kelly 1978; Levy 1978). The Eastern Miwok occupied the lower watersheds of the Mokelumne and Cosumnes rivers, the Sacramento River drainage, and portions of the eastern Delta as far west as Rio Vista. Ethnographically, the Plains Miwok, a subgroup of the Eastern Miwok, occupied the vicinity of the project area (Levy 1978).

Like most Native Californian groups, the Miwok were organized primarily at the level of the tribelet (Levy 1978). Each tribelet was essentially a small independent nation made up of a number of villages and smaller seasonal camps and task areas. The villages, in turn, were based on and inhabited by members of local lineages, with leadership roles delegated to defined officers who held specific powers and responsibilities (Gifford 1926; Levy 1978; Margolin 1981).

The formality of Miwok political life may be represented through the presence of communal and special-purpose structures within villages (Heizer and Elsasser 1980; Kroeber [1925] 1976; Levy 1978). Although several such villages (including *Lopotsimne*, *Amuchamne*, and *Shalachmushumne*) are known to have been present along the Cosumnes River south of the project area, none are thought to be within or near the project area (Levy 1978). Kroeber ([1925] 1976) notes that much of the ethnohistoric data indicates that the Miwok did not form a strong sense of "nationalistic" identity within or between tribelets.

With the exception of tobacco and dogs, the Eastern Miwok lacked cultivated plants and domesticated animals; they were reliant on hunting and gathering. Evidence exists that groups occupying one ecological zone (the valley floor, the foothills, or the mountains) would travel to other ecological zones, including those in the territory of other groups, to gather plant resources or hunt game (Levy 1978). This implies some degree of social/political articulation between the different Eastern Miwok groups, similar to trade and territory sharing noted among tribes in other parts of California.

Although acorns were of primary importance, they were supplemented by seeds, nuts, and greens. Important game animals included deer, elk, and jackrabbits as well as numerous birds, taken both by hunting and by trapping techniques. Fishing also likely provided a large amount of animal protein. Overall, subsistence activities and the tools used for these activities were similar to those of the Nisenan (Heizer and Elsasser 1980; Levy 1978).

3.5.3.3 Historical Period

Prior to 1848 and the discovery of gold in California, the Sierra Nevada remained largely unpopulated and unexplored by Euro-Americans. The Spanish missions, the first established in 1769, were relegated to the coast, and Spanish incursions into California's interior were limited to the pursuit of runaway Mission Indians and the search for future mission sites. Among the few Europeans to travel to the project vicinity before the 1830s were the Hudson's Bay Company trappers, who began trapping beaver in the local rivers during the 1820s (Starr 2005).

After Mexico gained independence from Spain, California became more interesting as a region of economic value rather than a religious colony. The Mexican government began granting land to ranchers, and in 1839 it granted the region's first large landholdings to John Marsh near Mount Diablo and to John Sutter at the confluence of the American and Sacramento rivers (Jackson et al. 1982; Pittman 1995). With Marsh's and Sutter's settlements available as bases, American explorers and traders began to explore the Sierra Nevada. Among these early explorers were Lieutenant Charles Wilkes, the Stevens-Townsend Party, and Charles Fremont (Jackson et al. 1982; Starr 2005).

Largely as a result of communications from these early settlers and explorers, the U.S. government began to view California as part of its Manifest Destiny. President James K. Polk unsuccessfully attempted to purchase the Californian territory, and ultimately declared war with Mexico. Because of military conflict in Texas, Mexico was in no position to defend California and the Treaty of Guadalupe Hidalgo, signed on February 2, 1848, formally ceded control of California to the United States (Pittman 1995). Two years later, on September 9, 1850, California became the 31st state in the Union (Starr 2005).

James Marshall's discovery of gold in January 1848 at Sutter's Mill triggered the California Gold Rush. Initially, placer gold could be extracted by individual miners or small groups using simple hand techniques. Within a few short years, however, the easily mined placer deposits had been depleted and more complex, mechanized methods had come into use. Hydraulic techniques allowed the mining of lower grade placer deposits, but such techniques required an elaborate water management and delivery system that could be developed and maintained only with a large capital investment beyond the means of most individual miners. Thus, water companies and corporate mining ventures evolved, permitting large-scale hydraulic mining to continue until 1884 when, in one of the earliest cases of litigation regarding environmental law, the Sawyer Decision (named for U.S. Circuit Court Judge L. B. Sawyer) effectively put an end to the practice (Wagner 1970:37).

The influx of people from the U.S. (as well as Europe and Asia) resulted in the displacement of and often violent confrontation with the Miwok and Nisenan in the area. In a period of 30–40 years, their population was nearly decimated. Most of the surviving Native Californians were dispersed throughout their traditional territory, subsisting off work done for the settlers (Cook 1976; Jackson et al. 1982; Markley and Henton 1985; Wilson and Towne 1978).

Although the project vicinity lies on the periphery of the Mother Lode, where the Gold Rush was felt most intensively, the outlying areas also experienced the effects of the estimated 90,000 individuals who had made their way to the California gold fields by the end of 1849 (Holliday

1981). The drainages flowing into the Sacramento River from the northern Sierra Nevada attracted hundreds of gold seekers. The presence of two historical mining districts (the Mormon Hill and American River placer mining districts) in the project area attests to the wide-reaching influence of the Gold Rush. Many of the miners who failed to locate productive claims entered into the developing agriculture, ranching, and logging industries. Dry wheat farming became increasingly important to California's economy, as did cattle ranching.

Toll roads, ferries, and other transportation systems developed simultaneously to facilitate the movement of people and products. Early trails and tracks used to access the gold mines in the mountains turned to maintained, permanent roads traveled regularly by stagecoaches, while steamships plied the navigable waterways. Towns were established along the network of roads and rivers on the west face of the Sierra Nevada and the adjacent valley floor (Duncan 2006).

Agriculture, ranching, and dairy farming had become predominant industries in the project vicinity by the 1860s. Ranchers who maintained large herds of cattle and sheep moved their livestock seasonally between the valley floor and the mountains. Severe drought during the 1860s led to the establishment of the first water districts and the development of irrigated agriculture, which permitted the introduction of new crops. The railroad soon facilitated the expansion of agriculture by increasing access to markets at greater distances (Epstein 1995; Starr 2005).

The Pacific Railway Act of 1862 authorized subsidies and land grants to the Union Pacific and Central Pacific railroads with the intention that these two companies would build a railroad stretching from Omaha, Nebraska, to Oakland, California. Ground broke on the railroad in 1863 and by 1869 the Transcontinental Railroad linked California to the east. This created new markets for California's agricultural and ranching products and opened the doors for an influx of new immigrants into California from the Midwest and the East Coast (Starr 2005).

Simultaneous with the expansion of the railroads, California's surface road system continued to develop. Beginning as wagon, pack, and foot trails during the 1840s and 1850s (which themselves often were derived from Native American trails), the State of California began to grant "exclusive use" permits to road companies for the construction of toll roads. These roads often were maintained as toll roads for a set amount of time, as expressed on their permit, after which they became non-toll public roads. The Mormon Hill Road, a segment of site CA-ELD-721H that lies within the project area, is an example of a historical toll road. This system of toll roads continued through the late 19th century, with some roads being taken over or administered by the State (Duncan 2006).

In 1896, the California Bureau of Highways recommended constructing a State highway system that would connect Sacramento to all of California's county seats. With bonds passed in 1910, the construction of the State highway system began (Duncan 2006). U.S. Highway 50, which intersects much of the project area, was constructed following the routes of older toll roads. The segment through Sacramento and El Dorado counties was completed by 1919, although several changes to the highway's alignment occurred over the next 80 years (Howard 1998).

The first half of the 20th century was a time of general expansion throughout California, including the project area. Immigrants from other parts of the U.S., as well as from overseas, caused populations to swell, and California's urban centers grew at a rapid pace. However, California's economy remained largely agrarian; farming and ranching remained dominant industries (Paddison 2012).

California's population surged again after World War II. The growth of the aerospace industry, later giving way to the growth of the technology industry, resulted in a greater need for skilled and educated workers, particularly in manufacturing plants. The Cold War–era growth of the defense industry in California resulted in the inception of towns and cities near California's numerous military bases. Near the project area, this general growth spurred expansion in the government and private institutions of Sacramento, resulting in a larger urban population and expansion outward into previously rural environments (Paddison 2012; Starr 2005). This general trend has continued into the early 21st century, with a noticeable effect on the project area. Many cultural resources recorded as recently as the 1990s have since been covered by housing developments and shopping centers—a trend consistent with urban development throughout the Sacramento and San Joaquin valleys during the late 20th and early 21st centuries.

3.5.3.4 Known Cultural Resources in the Project Area

The results of the records searches indicate that 140 previous cultural resource investigations have been completed within a 0.5-mile radius of the project alignment, 60 of which have been completed within the project alignment. These studies resulted in the identification of 30 previously recorded cultural resources within the project alignment. The majority of the known cultural resources are historic-era sites and features related to ranching and mining; other site types present include pre-historic sites (e.g., bedrock milling stations, flake scatters), and isolates.

Two historic districts intersect the project alignment: the Mormon Hill Historic District (P-09-001670) and the American River Placer Mining District (P-34-000335). Both districts have been evaluated and have been recommended as eligible for listing in the NRHP. One cultural resource within the project alignment (P-09-000673/P-09-005368) is listed as a contributing element to the Mormon Hill Historic District's eligibility; one resource (P-34-001769) is listed as a contributing element to the American River Placer Mining District's eligibility. However, the latter resource has since been destroyed by a housing development and no longer exists along the project alignment.

Four other cultural resources identified along the project alignment have been evaluated and have been found to be ineligible for listing in the CRHR or NRHP. Three of these have since been destroyed by construction and are no longer present along the project alignment.

Furthermore, 21 cultural resources that were previously identified within the project alignment have not been evaluated as to their eligibility for listing in the CRHR or NRHP. The project alignment contains no cultural resources listed as California Points of Historical Interest or California State Historic Landmarks.

During the pedestrian survey, Applied EarthWorks identified 29 cultural resources within the survey area, in addition to the two historic districts (Mormon Hill Historic District [P-09-001670] and American River Placer Mining District [P-34-000335]). Of the 29 cultural resources identified, 16 were identified previously and 13 were newly identified. These 29 cultural resources include 25 historic-era sites, three pre-historic sites, and one site containing both pre-historic and historic-era features (Table 3.5-3: Cultural Resources within the Project Area and Eligibility Status). Of these resources, the two historic districts and one archaeological resource (P-09-00673/P-09-005368) have been determined eligible for listing in the NRHP/CRHR with concurrence by the State Historic Preservation Officer (SHPO). Another resource (CA-ELD-721H, Durock Road Segment) has been determined ineligible for listing in the NRHP/CRHR with concurrence by the SHPO. The remaining 27 resources have not been evaluated for listing in the NRHP or CRHR. Twenty-five of these resources are assumed to be eligible for listing. The other two are recommended ineligible—one resource is an isolate and by definition is not eligible for listing in the NRHP or CRHR, and on closer inspection, the other resource was determined non-cultural and not eligible for listing in the NRHP or CRHR. The Missouri Flat-Gold Hill Line, Gold Hill No. 1 Line, and associated infrastructure (e.g., towers, poles, and substations) are less than 50 years old and therefore do not meet the minimum age threshold to be considered cultural resources for the purposes of this document.

3.5.3.5 Paleontological Resources

Geologic Formations

The project area is located in the foothills of the Sierra Nevada geomorphic province of California. A geomorphic province is a region of unique topography and geology that is readily distinguished from other regions based on its landforms and diastrophic history. The Sierra Nevada extends about 400 miles from Lassen Peak southward to the Tehachapi Mountains. Its width ranges from about 40 to 100 miles and it is bounded to the west and east by the Great Valley and Basin and Range geomorphic provinces, respectively. Of California's 12 geomorphic provinces, the Sierra Nevada is the most dynamic of all, with an elevation ranging from 400 feet above mean sea level to more than 14,000 feet at its highest summit.

The oldest known rocks in the Sierra Nevada consist of 32,000 feet of basement metasedimentary rocks deposited in the Ordovician (488–444 million years ago [Ma]), according to the age of fossils found near Lake Crowley. These rocks are made up of hornfels, chert, marble, slate, and quartzite and represent a depositional history possibly extending into the Permian (299–251 Ma). Sedimentary and metavolcanic rocks of Mesozoic age can be found in the west-central and northwestern Sierra Nevada and contain some fossil-producing limestone and shales from the Triassic (251 to 201.6 Ma). Cenozoic sedimentary and volcanic deposits unconformably overlie basement rocks of the Sierra Nevada and include terrestrial deposits of lacustrine and fluvial origin, as well as marine sediments along the edge of the Sacramento Valley (Norris and Webb 1990).

Table 3.5-3: Cultural Resources within the Project Area and Eligibility Status

Resource No.	Other Identification No./Name	Description	Eligibility Status
P-09-000010	–	Alleged bedrock mortar	Not eligible (determined to be non-cultural)
P-09-000013	–	Mining prospect	Not evaluated
P-09-000015	–	Rock wall	Not evaluated
P-09-000673/ P-09-005368	–	Cemetery, mining site, bedrock milling station	Eligible for the NRHP/CRHR as a contributor to the Mormon Hill Historic District
P-09-000809	CA-ELD-721H (Durock Road)	Historical road	Not eligible
	CA-ELD-721H (White Rock Road)	Historical road	Not evaluated
	CA-ELD-721H (Mormon Hill Toll Road)	Historical road	Not evaluated
P-09-001590	CA-ELD-1201H	Ranch and homesteads	Not evaluated
P-09-001643	–	Rock wall	Not evaluated
P-09-001670	Mormon Hill Historic District	Mining district	Eligible
P-09-001931	CA-ELD-1381H	Limestone quarry	Not evaluated
P-09-001983	CA-ELD-1407H	Bridge abutment	Not evaluated
P-09-001987	CA-ELD-1410	Bedrock milling station	Not evaluated
P-09-003652	CA-ELD-2392H	Rock wall	Not evaluated
P-09-005356	–	Rock pile	Not evaluated
P-09-005357	–	Mine prospect	Not evaluated
P-09-005358	–	Fence	Not evaluated
P-09-005365	–	Pump house and well	Not evaluated
P-09-005369	–	Bridge	Not evaluated
P-09-005509	–	Collapsed structure, may have associated artifacts or features	Not evaluated
P-09-005510	–	Rock wall	Not evaluated
P-09-005511	–	Fence	Not evaluated
P-09-005512	CA-ELD-2993	Series of rock cairns	Not evaluated
P-09-005513	–	Mining ditch	Not evaluated
P-09-005514	–	Rock wall	Not evaluated
P-09-005515	CA-ELD-2994H	House and concrete foundations	Not evaluated
P-09-005516	CA-ELD-2995H	Foundations of residence	Not evaluated
P-09-005517	–	Fence	Not evaluated
P-09-005518	CA-ELD-2996H	Concrete footings	Not evaluated
P-34-000335	American River Placer Mining District	Mining district	Eligible
	AE-2328-12H	Rock wall	Not evaluated

Resource No.	Other Identification No./Name	Description	Eligibility Status
	AE-2328-13H	Rock wall	Not evaluated
	AE-2328-14H	Isolate; concrete footing	Not eligible
Notes: CRHR = California Register of Historical Resources; NRHP = National Register of Historic Places Sources: Armstrong et al. 2013, Armstrong and Baloian 2013			

The project alignment is located in the western Sierra Nevada, which is underlain mostly by metamorphic rocks of Paleozoic and Mesozoic age. Structurally, the project alignment is situated within the Foothills fault system, which is characterized by steeply dipping to vertical faults that trend northwestward and extend 200 miles in length and 30 miles in width (Clark 1960).

Five geologic units were identified within the project area. The paleontological sensitivity ratings of the geologic units underlying the project area are shown in Table 3.5-4: Geologic Units in the Project Area and their Paleontological Sensitivity.

Table 3.5-4: Geologic Units in the Project Area and their Paleontological Sensitivity

Geologic Unit	Map Abbreviation	Age	Unique Paleontological Resources	Paleontological Sensitivity
Quaternary alluvium	Qa	Holocene	None	Low
		Pleistocene	Terrestrial vertebrates	High
Copper Hill Volcanics	Jch	Jurassic	None	Low
Salt Spring Slate	Jss	Jurassic	None	Low
Gopher Ridge Volcanics	Jch	Jurassic	None	Low
Foothill Mélange	ls, ms, mv, sp	Mesozoic	None	Low
Sources: CGS 2011; Wagner et al. 1981				

Quaternary Alluvium

Quaternary alluvium is mapped in the western portion of the project alignment just west of Empire Ranch Road near the El Dorado-Sacramento County boundary. Quaternary alluvium consists of undivided alluvial deposits of latest Pleistocene (2.6 Ma to 11,700 years ago) to Holocene age (11,700 years ago to recent). Near the project alignment, the Pleistocene and Holocene age alluvium is undivided and consists of relatively undissected low-relief fan, terrace, and basin deposits as well as active streams (CGS 2011).

Quaternary alluvial, fluvial, and lacustrine deposits of Pleistocene age have yielded vertebrate fossil localities throughout California (UCMP collections data). Therefore, this formation is considered paleontologically sensitive. Holocene deposits are too young to contain fossilized material that would consist of "unique" paleontological resources; thus, these deposits have a low paleontological sensitivity.

For this project, a museum records search was requested at UCMP to determine whether any previously recorded paleontological resources occur within the project study area (Debusk 2012). The museum records search was supplemented by a review of the UCMP's online database, which contains paleontological records for Sacramento and El Dorado counties. The UCMP reported that no previous fossil localities are recorded directly within the project alignment; however, museum records indicate that a fossilized molar of a *Mammut americanum* (American mastodon) was discovered at UCMP V6951 near Shingle Springs. Unfortunately, the exact location of the find is unknown.

A review of museum collections records revealed that in addition to UCMP V6951, at least three more Pleistocene-age localities have yielded vertebrate fossil material in El Dorado County. One locality, UCMP V4805, yielded 43 individual specimens from 25 different taxa. A review of records from Sacramento County indicates that at least seven vertebrate fossil localities have been recorded, mostly from the Pleistocene-age Riverbank Formation. The results of the museum records search are provided in Debusk (2012).

Copper Hill Volcanics

The Copper Hill Volcanics underlie approximately one-fourth of the eastern portion of the project alignment. Jurassic in age (201.6 to 145.5 Ma), this rock unit consists of mafic to andesitic pyroclastic rocks, lava and pillow lava, and felsic porphyritic and pyroclastic rocks (CGS 2011). Volcanic rocks rarely yield fossils, as most of these rocks are composed of igneous rock of volcanic origin. Therefore, the Copper Hill Volcanics are considered to be of low paleontological sensitivity.

Salt Springs Slate

The Salt Springs Slate, also Jurassic in age, outcrops at the far western portion of the project alignment. This rock unit consists of dark gray slate with lesser amounts of subordinate tuff, greywacke, rare conglomerate, and mica schist (CGS 2011). Although most metamorphic rocks do not yield fossils, slate is generally formed at low heat and pressure conditions, thus allowing for the possibility for paleontological resources to survive metamorphism. However, a literature review and museum records search of the Salt Spring Slate (DeBusk 2012) found no such documentation of previous fossil resources along the project alignment. Therefore, this geologic unit is considered to be of low paleontological sensitivity.

Gopher Ridge Volcanics

Outcropping immediately to the east of the Salt Spring Slate are the Jurassic Gopher Ridge Volcanics, composed of metamorphosed mafic to andesitic pyroclastic rocks, lava, pillow lava, and lesser amounts of felsic porphyritic and pyroclastic rocks (CGS 2011). Most metamorphosed rocks and rocks of volcanic origin do not contain fossils; therefore, the Gopher Ridge Volcanics are considered to be of low paleontological sensitivity.

Foothill Mélange

The Mesozoic-age Foothill Mélange underlies about one-half of the project alignment and is made up of varying composition, including metasedimentary and metavolcanic rocks of assorted lithology and ages. It includes gabbroic, ultramafic rocks and carbonate rock lenses (CGS 2011; Wagner et al. 1981). As noted previously, most metamorphosed rocks and rocks of volcanic origin do not typically contain fossils; therefore, they are considered to be of low paleontological sensitivity.

Based on a review of the geology and paleontology of the project alignment, and the results of the UCMP records search, the majority of the project alignment has a low potential for paleontological resources because it is underlain by either metamorphosed rock or extrusive igneous rocks (volcanics). Only one small area along the Gold Hill No. 1 Line just west of Empire Ranch Road in the western portion of the project alignment is underlain by sedimentary deposits: Quaternary alluvium of Holocene and Pleistocene age. The Pleistocene-age deposits in this approximately 0.29-acre area have the potential to contain unique paleontological resources at depth and are therefore considered to have a high sensitivity using SVP (2010) guidelines. However, because of the very limited occurrence of these deposits in the project alignment, the overall sensitivity of the project area is considered to be low.

3.5.4 Applicant-Proposed Measures and Potential Impacts

The following sections describe significance criteria for cultural and paleontological impacts derived from Appendix G of the CEQA Guidelines, provide relevant APMs, and contain an assessment of potential project-related construction and operational impacts on cultural and paleontological resources.

3.5.4.1 **Significance Criteria**

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential impacts on cultural and paleontological resources were evaluated for each of the criteria listed in Table 3.5-1: CEQA Checklist for Cultural and Paleontological Resources, as discussed in Section 3.5.4.3, Potential Impacts.

3.5.4.2 **Applicant-Proposed Measures**

APMs provided in this section include existing regulations and/or requirements or standard practices that will further minimize, avoid, or reduce potential less-than-significant impacts on cultural and paleontological resources.

APM CUL-1: Develop and Implement Worker Environmental Awareness Program Prior to Construction

PG&E will design and implement a worker environmental awareness program that will be provided to all project personnel involved in earth-moving activities. No construction worker will be involved in field operations without having participated in the worker environmental awareness program.

The worker environmental awareness program will include a kick-off tailgate session to present site avoidance requirements and procedures to be followed if unanticipated cultural or paleontological resources are discovered during project implementation, and a discussion of actions that could be taken against persons violating historic preservation laws and PG&E policies. Key project workers involved with ground-disturbing activities will receive a pamphlet listing how to identify a cultural resource or fossil and what to do if an unanticipated discovery is made during construction. The worker environmental awareness training may be conducted in concert with other environmental or safety awareness and education training programs for the project, and may be recorded for use in subsequent training sessions.

APM CUL-2: Manage Unanticipated Cultural Resources Discoveries Properly

In the unlikely event that previously unidentified cultural resources are uncovered during project implementation, 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. The specialist will inspect the discovery and determine whether further investigation is required.

If additional disturbance to the resource cannot be avoided, PG&E will evaluate the resource's significance and CRHR eligibility and, if warranted, will implement data recovery excavation or other appropriate treatment measures. The methods and results of evaluation or data recovery work at an archaeological find will be documented in a professional-level technical report to be filed with the NCIC.

If previously unidentified cultural resources are uncovered during project implementation on BLM land, procedures will be similar to those described above; however, if additional disturbance to a cultural resource cannot be avoided, PG&E will evaluate the significance and NRHP eligibility per Section 106 of the NHPA in consultation with BLM. Any cultural resource or paleontological work conducted on BLM lands will be conducted under a valid cultural resource and paleontological use permit issued by the BLM California State office, and may require a fieldwork authorization by the local field office. Cultural materials and paleontological resources collected under a BLM-use permit will be curated in an accredited museum repository.

APM CUL-3: Follow Statutory Requirements for Treatment of 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 APM CUL-2 applies. If the remains are human, the cultural resources specialist will immediately implement the provisions in PRC Sections 5097.9 through 5097.996, beginning with the immediate notification to the affected county coroner. The coroner has 2 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 NAHC within 24 hours. The NAHC, as required by PRC Section 5097.98, determines and notifies the Most Likely Descendant.

If potential human remains are discovered during any project activity on lands administered by BLM, the procedures identified in NAGPRA will be closely adhered to and the following steps will be taken:

1. All activities that may further disturb the potential human remains will cease immediately in the vicinity of the discovery.

2. PG&E will take appropriate steps to secure and protect human remains and any funerary objects from further disturbance.

3. PG&E's cultural resources specialist will notify BLM's archaeologist by telephone within 24 hours of discovery, followed within 3 days by written confirmation. Human remains or associated funerary objects will not be excavated or otherwise removed unless a permit is issued under ARPA and after consultation between the appropriate Native American representative(s), BLM, and PG&E.

4. The activity that resulted in the inadvertent discovery will not resume until clearance is provided by BLM.

APM CUL-4: Flag and Avoid Cultural Resources

The boundaries of all known cultural resources that lie within 100 feet of a designated work area will be marked with flagging tape, safety fencing, and/or a sign designating it as an "environmentally sensitive area" to ensure that PG&E construction crews and heavy equipment will not intrude on these resources during construction. For those eligible or potentially eligible sites that contain an existing access road within their site boundary, 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 compliance with this APM becomes infeasible or impractical, any resource that has the potential to be affected will be evaluated for CRHR eligibility, and mitigation or treatment measures specific to the resource will be developed and implemented, if necessary.

APM CUL-5: Avoid Paleontologically Sensitive Locations

No direct impacts on fossil-bearing deposits (ground disturbance) will occur within the approximately 0.29-acre project area containing Quaternary alluvium just west of Empire Ranch Road and the El Dorado-Sacramento County boundary. However, should project development result in the disturbance of this geologic unit at a depth of 10 feet or greater, a qualified paleontologist will be retained as needed to ensure that impacts on any potential paleontological resources are avoided.

If fossil remains are uncovered during project implementation, all work within 50 feet of the discovery will be halted and the construction crew immediately will notify PG&E. A paleontologist will be retained by PG&E to evaluate the resource and determine whether to prepare a treatment plan based on if the resource is "unique" in accordance with Society of Vertebrate Paleontology guidelines (SVP 2010). Components of the treatment plan related to "unique" fossil specimens that are encountered during construction may include a field survey, additional construction monitoring, specific sampling and data recovery procedures, museum storage coordination for any specimen recovered, and a report of findings.

3.5.4.3 Potential Impacts

Potential project impacts on cultural and paleontological resources were evaluated against the CEQA significance criteria and are discussed in further detail in the following paragraphs.

The upgraded power lines will require no change to existing operation and maintenance activities. As such, impacts on cultural and paleontological resources that result from the project will not change from existing conditions and no operation-related impacts will occur. The impact analysis is limited to temporary and short-term impacts associated with project construction, which includes the following components:

- **Missouri Flat-Gold Hill Line Reconductoring**, which will include reconductoring approximately 12.5 miles of the existing line, replacing approximately 60 existing TSP, modifying approximately 13 existing lattice steel towers, and converting approximately 1,000 feet of existing overhead distribution line to underground;
- **Gold Hill No. 1 Line Reconductoring**, which will include reconductoring approximately 7 miles of the existing line, replacing approximately 80 existing wood poles with new wood or light-duty steel poles and approximately one new TSP, installing approximately seven new interset wood poles, replacing approximately three distribution wood structures with approximately two new wood poles, and minor distribution line rewiring on two existing wood poles near Limestone Substation; and
- **Access Road Improvements and Construction,** which will include improvements to various temporary access roads that are planned for use during construction and the creation of an approximately 100-foot-long access road.

The impact analysis also evaluates impacts resulting from required site preparation and vegetation removal and trimming required to accommodate construction activities associated with these project components.

The project also includes modifications at Shingle Springs, Pacific Western Pipe, Limestone, Clarksville, and Gold Hill substations, and Missouri Flat Switching Station; however, all work at these facilities will be minor and within existing fence lines. Therefore, no cultural and paleontological resources-related impacts will occur.

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***

Cultural resources surveys and records searches identified two historic districts and 29 other cultural resources along the project alignment. Of these, the two districts and one archaeological site (P-09-000673/P-09-005368) have been determined to be eligible for listing in the NRHP/CRHR. Three other previously recorded sites are not eligible for listing in the NRHP/CRHR. These are an isolated concrete footing (AE-2328-14H), which is not eligible for listing in either register; a bedrock mortar feature (P-09-000010), which was determined to be non-cultural; and the Durock Road Segment of CA-ELD-721H, which was determined ineligible for listing in the NRHP/CRHR with concurrence by the SHPO. The unevaluated sites are assumed to be historical resources and will be treated accordingly for management purposes. APM CUL-4 will avoid the historical resources and unevaluated cultural resources within the project alignment, as well as all potentially contributing sites or features associated with the Mormon Hill Historic District (P-09-001670) and American River Placer Mining District (P-34-000335). Therefore, no impacts on the NRHP/CRHR-eligible historical districts, historical resource P-09-000673/P-09-005368, or the known unevaluated cultural resources will occur. In the unlikely event that additional historical resources are discovered during construction activities, APMs CUL-1 through CUL-4 will reduce the potential damage or destruction to historical resources from the inadvertent discovery to undiscovered resources to a less-than-significant level because PG&E will conduct pre-construction worker awareness training, manage undiscovered resources, properly treat human remains if discovered, and establish work exclusion zones around unevaluated cultural resources if discovered. Therefore, impacts will 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***

Surface surveys and records searches identified two NRHP/CRHR historical districts, one historical resource (P-09-000673/P-09-005368), and 27 other cultural resources along the project alignment that have not yet been formally evaluated for listing in the NRHP or CRHR. Of these 27 resources, two have been recommended not eligible for listing in the NRHP/CRHR (one is an isolate and the other has been determined to be non-cultural). The historical resource and all of the unevaluated sites, which are assumed to be historical resources for management purposes, will be avoided by project construction. As described in APM CUL-4, the boundaries of these sites will be clearly marked where necessary using flagging, safety fencing, or signs specifying an “environmentally sensitive area” before construction to ensure that they are avoided. APM CUL-4 will reduce potential impacts to a less-than-significant level.

Although much of the project alignment has been previously affected by residential and light-industrial development, the potential for buried archaeological sites still exists. The presence of both Native American and historic-era cultural resources in the project area indicates that the area has been used over the last several thousand years. Although all of the areas of construction and access roads have been subject to the archaeological survey, the potential remains for previously unidentified archaeological remains to be discovered below the visible ground surface. Project construction will create subsurface disturbances that could result in damage to or destruction of previously undiscovered subsurface cultural resource deposits. In the event that archaeological resources are discovered during construction, APM CUL-1 through APM CUL-4 will reduce potential impacts to a less-than-significant level.

c) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? *Less than Significant*

Based on the results of museum collections data and available literature on the geology and paleontology of the project area, only one geologic unit known to underlie the project alignment is determined to be of high paleontological sensitivity and therefore has the potential to contain unique paleontological resources. This unit, Quaternary alluvium of Holocene and Pleistocene age, is mapped in a very small (0.29-acre) area just west of Empire Ranch Road and the El Dorado-Sacramento County boundary. No earth-moving activities are planned within the area of the Quaternary alluvium; therefore, potential impacts on paleontological or unique geological features will be avoided. If unforeseen circumstances arise in which the project will require disturbance of this geologic unit at this location at a depth of 10 feet or greater, the probability of an impact will be less than significant because of the very limited occurrence of this geological unit within the project alignment. APM CUL-1 and APM CUL-5 will further reduce potential less-than-significant impacts.

d) Would the project disturb any human remains, including those interred outside of formal cemeteries? *Less than Significant*

Cultural resource surveys have not identified any human remains on the project site. However, in the unlikely event that human remains are uncovered during construction, PG&E will implement APM CUL-3, which will reduce potential impacts to a less-than-significant level.

3.5.5 REFERENCES

Armstrong, M. D., M. C. Baloian, and A. P. Monastero. 2013. *Cultural Resources Survey for the Missouri Flat-Gold Hill 115 kV Reconductoring Project, El Dorado and Sacramento Counties, California*. Fresno, CA: Applied EarthWorks, Inc. Submitted to Pacific Gas and Electric Company, Sacramento, CA.

Armstrong, M. D. and M. C. Baloian 2013. *Supplemental Cultural Resources Survey for the Missouri Flat-Gold Hill 115 kV Reconductoring Project, El Dorado and Sacramento Counties, California*. Fresno, CA: Applied EarthWorks, Inc. Submitted to Pacific Gas and Electric Company, Sacramento, CA.

Basgall, M. E. 2004. "Resource Intensification among Hunter-Gatherers: Acorn Economies in Prehistoric California." In *Prehistoric California: Archaeology and the Myth of Paradise*, ed. L. M. Raab and T. L. Jones, 86–98. Salt Lake City: University of Utah Press.

Beals, R. L. 1933. "Ethnology of the Nisenan." University of California Publications in *American Archaeology and Ethnology* 31(6):335–414.

Bieling, D. G., R. M. La Jeunesse, and J. H. Pryor. 1996. "Skyrocket, a Central Sierran Paleoindian Archaic Transition Site." Current research in the *Pleistocene* 13:4–5.

California Geological Survey (CGS). 2011. Preliminary Geologic Map of the Sacramento 30 by 60 Quadrangle, California. Compilation and digital preparation by C. I. Gutierrez. Sacramento: California Department of Conservation, California Geological Survey. Available: http://www.conservation.ca.gov/cgs/rghm/rgm/ Pages/preliminary_geologic_maps.aspx. Accessed June 2012.

Callaghan, C. A. 1978. "Lake Miwok." In *California*, ed. R. F. Heizer, 264–273. *Handbook of North American Indians*, Vol. 8, gen. ed. W. C. Sturtevant. Washington, DC: Smithsonian Institution.

Chartkoff, J. L., and K. K. Chartkoff. 1984. *The Archaeology of California*. Stanford, CA: Stanford University Press.

Clark, L. D. 1960. "Foothills Fault System, Western Sierra Nevada, California." *Geological Society of America Bulletin* 71(4):483–496.

Cook, S. F. 1976. *The Conflict between the California Indian and White Civilization*. Los Angeles: University of California Press.

Dansie, A. J., J. O. Davis, and T. W. Stafford Jr. 1988. "The Wizard's Beach Recession: Farmdalian (25,500 years BP) Vertebrate Fossils Co-occur with Early Holocene Artifacts." In *Early Human Occupation in Far Western North America: The Clovis-Archaic Interface*, ed. J. A. Willig, C. M. Aikens, and J. L. Fagan. Nevada State Museum Anthropological Papers 21:153–200.

Davis, E. L., and R. Shutler Jr. 1969. "Recent Discoveries of Fluted Points in California and Nevada." Nevada State Museum Anthropological Papers 14:154–169.

Debusk, J. L. 2012. *Paleontological Inventory for the Missouri Flat-Gold Hill 115 kV Reconductoring Project*, Sacramento and El Dorado Counties, California. Fresno, CA: Applied EarthWorks, Inc. Submitted to Pacific Gas and Electric Company, Sacramento, CA.

Delacorte, M. G., J. Berg, and J. Meyer. 2000. *Test Excavations and Evaluations at CA-AMA-569, Amador County, California, State Route 88*. Submitted to the California Department of Transportation, Stockton. Report on file, North Central Information Center, California State University, Sacramento.

Dillon, B. D., and D. W. Murphy. 1994. "Fluted Projectile Points from Thomas Creek, Tehama County, California." *TULARG Newsletter* 7(3):2–6.

Duncan, J. E. 2006. *To Donner Pass from the Pacific: A Map History Covering 150 Years of California's Lincoln Highway, Victory Highway, US-40, I-80, Hennes Pass, Pacific*

Turnpike, and Dutch Flat Donner Lake Toll Roads from 1852 to 2002. Colfax, CA: GKM Too.

El Dorado County. 1999. *Guidelines for Cultural Resource Studies, El Dorado County, California*. Approved by Board of Supervisors August 17, 1999. Placerville, CA. Available: http://www.edcgov.us/Government/Planning/Documents/Cultural_Resource_Guidelines.aspx. Accessed March 2013.

———. 2004 (July 19). *El Dorado County General Plan, A Plan for Managed Growth and Open Roads; A Plan for Quality Neighborhoods and Traffic Relief*. Adopted by the Board of Supervisors July 19, 2004, Resolution Number 235-2004. Placerville, CA.

Epstein, R. F. 1995. *Old Mok, Story of a Gold Camp*. San Francisco: Dry Bones Press.

Erlandson, J. M., T. C. Rick, T. L. Jones, and J. F. Porcasi. 2007. "One if by Land, Two if by Sea: Who Were the First Californians?" In *California Prehistory: Colonization, Culture, and Complexity*, ed. T. L. Jones and K. A. Klar, 53–62. Lanham, MD: Alta Mira Press.

Gifford, E. W. 1926. "Miwok Lineages and the Political Unit in Aboriginal California." *American Anthropologist* 28:389–401.

Heizer, R. F., and A. B. Elsasser. 1980. *The Natural World of the California Indians*. Berkeley: University of California Press.

Holliday, J. S. 1981. *The World Rushed In: The California Gold Rush Experience*. New York: Touchstone Books, Simon and Schuster.

Howard, T. F. 1998. *Sierra Crossing: First Roads to California*. Berkeley: University of California Press.

Hull, K. L. 2007. "The Sierra Nevada: Archaeology in the Range of Light." In *California Prehistory: Colonization, Culture, and Complexity*, ed. T. L. Jones and K. A. Klar, 177–190. Lanham, MD: Alta Mira Press.

Intermountain Research, Inc. 1995. *An Archaeological Treatment Plan for the Mount Rose Land Exchange*. Silver City, NV. Submitted to the Humboldt and Toiyabe National Forests on behalf of the American Land Conservancy, San Francisco.

Jackson, W. T., R. Herbert, and S. Wee. 1982. *History of the Tahoe National Forest 1840–1940: A Cultural Resources Overview History*. Davis, CA: Jackson Research Projects.

Jones, T. L., and K. A. Klar (eds.). 2007. *California Prehistory: Colonization, Culture, and Complexity*. Lanham, MD: AltaMira Press.

Kelly, I. 1978. "Coast Miwok." In *California*, ed. R. F. Heizer, 414–425. *Handbook of North American Indians*, Vol. 8, gen. ed. W. C. Sturtevant. Washington, DC: Smithsonian Institution.

Kowta, M. 1988. *The Archaeology and Prehistory of Plumas and Butte Counties, California: An Introduction and Interpretive Model*. Report on file, North Central Information Center, Department of Anthropology, California State University, Sacramento.

Kroeber, A. L. [1925] 1976. *Handbook of the Indians of California*. Reprint. New York: Dover Publications.

Levy, R. 1978. "Eastern Miwok." In *California*, ed. R. F. Heizer, 398–413. *Handbook of North American Indians*, Vol. 8, gen. ed. W. C. Sturtevant. Washington, DC: Smithsonian Institution.

Littlejohn, H. W. 1928. *Maidu Geography*. Manuscript on file, Document 18, Bancroft Library, University of California, Berkeley.

Malamud-Roam, F. P., B. L. Ingram, M. Hughes, and J. L. Florsheim. 2006. "Holocene Paleoclimate Records from a Large California Estuarine System and Its Watershed Region: Linking Watershed Climate and Bay Conditions." *Quaternary Science Review* 25:1570–1598.

Margolin, M. (ed.). 1981. *The Way We Lived, California Indian Stories, Songs & Reminiscences*. Berkeley, CA: Heyday Books.

Markley, R., and G. Henton. 1985. *Tahoe National Forest Cultural Resources Overview, Part 1: Prehistory*. Tahoe National Forest Cultural Resources Report No. 20.

Moratto, M. J. 1984. *California Archaeology*. Orlando, FL, and London: Academic Press.

Norris, R. M., and R. W. Webb. 1990. *Geology of California*. Second edition. New York: John Wiley & Sons.

Paddison, J. 2012. 1866–1920: Rapid Population Growth, Large-Scale Agriculture, and Integration into the United States. Available: http://www.calisphere.universityofcalifornia.edu/calcultures/eras/era5.html. Accessed August 8, 2012.

Pittman, R. 1995. *Roadside History of California*. Missoula, MT: Mountain Press.

Price, B. A., and S. E. Johnston. 2002. "A Fluted Projectile Point from Courtright Reservoir, Fresno County, California." *Society for California Archaeology Newsletter* 36(1):15–16.

Riddel, F. A. 1949. *Appraisal of the Archaeological Resources of Farmington Reservoir, Littlejohns Creek, San Joaquin and Stanislaus Counties, California*. Washington, DC: Smithsonian Institution.

Riddell, F. A., and W. H. Olson. 1969. "An Early Man Site in the San Joaquin Valley, California." *American Antiquity* 34:121–130.

Rondeau, M. F. 2009. "Fluted Points of the Far West." *Proceedings of the Society for California Archaeology* 21:265–274.

Rosenthal, J. S., G. G. White, and M. Q. Sutton. 2007. "The Central Valley: A View from the Catbird's Seat." In *California Prehistory: Colonization, Culture, and Complexity*, ed. T. L. Jones and K. A. Klar, 147–163. Lanham, MD: AltaMira Press.

Society of Vertebrate Paleontology (SVP). 2010. *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources*. Society of Vertebrate Paleontology Impact Mitigation Guidelines Revision Committee.

Starr, K. 2005. *California: A History*. New York: Random House.

Treganza, A. E. 1952. *Archaeological Investigations in the Farmington Reservoir Area, Stanislaus County, California*. University of California Archaeological Survey Reports 14:1–37.

Treganza, A. E., and R. F. Heizer. 1953. *Additional Data on the Farmington Complex, a Stone Implement Assemblage of Probable Early Postglacial Date from Central California*. University of California Archaeological Survey Reports 22:28–41.

Tuohy, D. P. 1968. "Some Early Lithic Sites in Western North America." In *Early Man in Western North America*, ed. C. Irwin-Williams. Contributions in Anthropology 1(4). Portales, NM: Paleoindian Institute, Eastern New Mexico University.

Wagner, D. L., C. W. Jennings, T. L. Bedrossian, and E. J. Bortugno. 1981. Geologic Map of the Sacramento Quadrangle, California. Regional Geologic Map Series, scale 1:250,000, Map No. 1A. Sacramento: California Division of Mines and Geology.

Wagner, J. R. 1970. *Gold Mines of California*. Berkeley, CA: Howell-North Books.

Wilson, N. L., and A. H. Towne. 1978. "Nisenan." In *California*, ed. R. F. Heizer, 387–397. *Handbook of North American Indians*, Vol. 8, gen. ed. W. C. Sturtevant. Washington, DC: Smithsonian Institution.

TABLE OF CONTENTS

List of Figures

List of Tables

3.6 GEOLOGY AND SOILS

3.6.1 INTRODUCTION

This section describes the existing conditions and potential impacts on geology and soils as a result of the project. The analysis concludes that impacts on geology and soils will be less than significant; the Applicant-Proposed Measures (APMs) described in Section 3.6.4.2, Applicant-Proposed Measures, will further reduce the project's less-than-significant impacts on geology and soils.

The project's potential effects on geology and soils were evaluated using the significance criteria set forth in Appendix G of the California Environmental Quality Act (CEQA) Guidelines, as shown in Table 3.6-1: CEQA Checklist for Geology and Soils. The conclusions are discussed in Section 3.6.4, Applicant-Proposed Measures and Potential Impacts. Additional geotechnical information is included in the *Geotechnical Investigation Report for the Pacific Gas and Electric Company Missouri Flat-Gold Hill 115 kV Power Line Transmission Line Reconductoring Project*, which will be provided separately to California Public Utilities Commission staff. Impacts associated with naturally occurring asbestos (NOA) are addressed in Section 3.3, Air Quality.

Table 3.6-1: CEQA Checklist for Geology and Soils

Would the project:	Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
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?			☒	

Would the project:	Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
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?				☒

3.6.2 REGULATORY BACKGROUND AND METHODOLOGY

3.6.2.1 Regulatory Background

Federal

In October 1977, Congress passed the Earthquake Hazards Reduction Act to reduce the risks to life and property from future earthquakes in the United States through the establishment and maintenance of an effective earthquake hazards reduction program. To accomplish this goal, the Act established the National Earthquake Hazards Reduction Program (NEHRP). This program was substantially amended in November 1990, by the National Earthquake Hazards Reduction Program Act (NEHRPA), which refined the description of agency responsibilities, program goals, and objectives. The NEHRPA designates the Federal Emergency Management Agency as the lead agency of the program and assigns several planning, coordinating, and reporting responsibilities. Other NEHRPA agencies include the National Institute of Standards and Technology, the National Science Foundation, and the U.S. Geological Survey (USGS).

State

Alquist-Priolo Earthquake Fault Zoning Act

California enacted the Alquist Priolo Special Studies Zones Act in 1972, which was renamed the Alquist-Priolo Earthquake Fault Zoning Act in 1994 (California Public Resources Code [PRC] Sections 2621–2630) (Alquist-Priolo Act). The Alquist-Priolo Act requires the establishment of "earthquake fault zones" along known active faults in California. Regulations on development within these zones are enforced to reduce the potential for damage resulting from fault displacement.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act (SHMA) 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 SHMA states, "It is necessary to identify and map seismic hazard zones 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." Section 2697(a) of the SHMA additionally requires that "cities and counties shall require, prior to the approval of a project located in a seismic hazard zone, a geotechnical report defining and delineating any seismic hazard." No Seismic Hazard Zone mapping is available for Sacramento or El Dorado counties (CGS 2013).

National Pollutant Discharge Elimination System Permit

In California, the State Water Resources Control Board administers regulations promulgated by the U.S. Environmental Protection Agency (55 Code of Federal Regulations [CFR] 47990), requiring the permitting of stormwater-generated pollution under the National Pollutant Discharge Elimination System. Soil erosion control is a key element of the stormwater program (see Section 3.9, Hydrology and Water Quality, for more information).

Local

No local regulations related to geology and soils are applicable to this project.

3.6.2.2 **Methodology**

The analysis is based on a review of geologic literature and maps published by the California Geological Survey (CGS) and USGS, and soil survey data published by the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS). Impacts associated with geology, seismicity, and soils that may result from project construction and operational activities were evaluated qualitatively, based on: anticipated construction site conditions; expected construction practices; anticipated materials, locations, and duration of project construction; and observations made during a field visit that was conducted on June 18, 2012.

3.6.3 ENVIRONMENTAL SETTING

3.6.3.1 **Geology**

Regional

The project area lies within the Sierra Nevada geomorphic province. The Sierra Nevada trends north-northwest from Bakersfield to Lassen Peak, and includes the Sierra Nevada mountain range and a broad belt of western foothills. The Sierra Nevada is composed of northwest-trending belts of metamorphic, volcanic, and igneous rocks that have undergone intense deformation, faulting, and intrusion. Active faults that mark the eastern edge of the Sierra Nevada have resulted in upthrusting and tilting of the entire Sierra Nevada block in the last 5 million years—steeply on the eastern edge (adjacent to the Mono Basin), and gently along the western edge (where the project area is located).

The rock formations that make up the western Sierra Nevada metamorphic belt, where the project area is located, represent a history of sedimentation at a margin between a continental plate and an oceanic plate, emplacement of magmatic arcs (i.e., rocks deposited by volcanic activity that has occurred above a subduction zone) across this margin, and later accretion (addition) of oceanic terranes to the margin. The western Sierra Nevada metamorphic belt is composed of four north-south trending regional belts: the Western Belt, the Central Belt, the Feather River Belt, and the Eastern Belt. The regional belts are separated by the Foothills Fault system. (Mayfield and Day 2000)

The project area is located within the Western Belt, which formed as an oceanic terrane that was added to the continental margin. These metamorphic rocks were intruded later by plutonic rocks (such as the Pine Hill Intrusive Complex, see Figure 3.6-1: Geologic Formations) in various locations.

Local

The project area lies within two major geologic terranes: a Mesozoic island arc composed of volcanic and sedimentary rocks, and the Foothill melange-ophiolite belt composed of metavolcanic, metasedimentary, and ultramafic rocks (Loyd 1984, Wagner et al. 1987). The project area is located within seven different geologic formations, as shown in Figure 3.6-1: Geologic Formations. Each of these formations is discussed in detail in the following paragraphs (based on Wagner et al. 1987, unless otherwise noted).

Quaternary Alluvium

Quaternary alluvium is mapped in the western portion of the project alignment just west of Empire Ranch Road near the El Dorado-Sacramento County boundary. Quaternary alluvium consists of undivided alluvial deposits of latest Pleistocene (2.6 Ma to 11,700 years ago to Holocene age (11,700 years ago to recent). Near the project alignment, the Pleistocene and Holocene age alluvium is undivided and consists of relatively undissected low-relief fan, terrace, and basin deposits as well as active streams (CGS 2011).

Copper Hill Volcanics

The Copper Hill Volcanics underlie approximately one-fourth of the eastern portion of the project alignment. Jurassic in age (201.6 to 145.5 Ma), this rock unit consists of mafic to andesitic pyroclastic rocks, lava and pillow lava, and felsic porphyritic and pyroclastic rocks (CGS 2011).

Salt Springs Slate

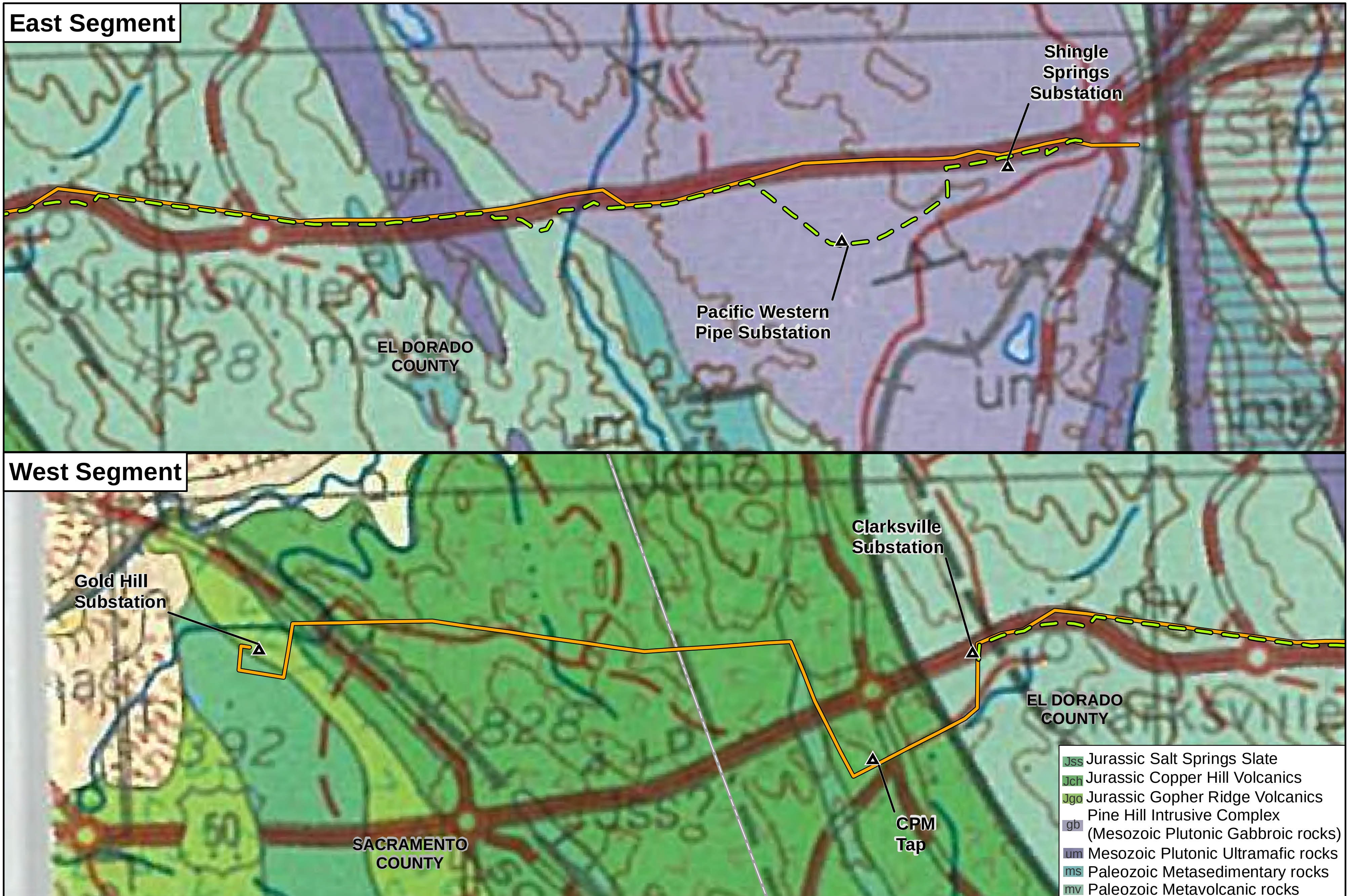
The Salt Springs Slate, also Jurassic in age, outcrops at the far western portion of the project alignment. This rock unit consists of dark gray slate with lesser amounts of subordinate tuff, greywacke, rare conglomerate, and mica schist (CGS 2011).

Gopher Ridge Volcanics

Outcropping immediately to the east of the Salt Springs Slate are the Jurassic Gopher Ridge Volcanics, composed of metamorphosed mafic to andesitic pyroclastic rocks, lava, pillow lava, and lesser amounts of felsic porphyritic and pyroclastic rocks (CGS 2011).

Pine Hill Intrusive Complex

The Pine Hill Intrusive Complex is mid-Jurassic in age (approximately 162 million years BP) and consists of a layered igneous body, composed of gabbro with minor pyroxenite and diorite (Springer 1989).



Miles
0 0.25 0.5 1
1:48,000 1 inch = 1 mile

N

AECOM

Pacific Gas and Electric Company

Existing Substation/Switching Station

County Boundary

Missouri Flat-Gold Hill 115 kV Power Line Reconductoring

Gold Hill No. 1 60 kV Power Line Reconductoring

Source: Geologic Map of the Sacramento Quadrangle, 1987, PG&E 2013

Missouri Flat-Gold Hill 115 kV Power Line Reconductoring Project

Figure 3.6-1: Geologic Formations

August 2013

Foothill Mélange

The Mesozoic-age Foothill Mélange underlies about one-half of the project alignment and is made up of varying composition, including metasedimentary and metavolcanic rocks of assorted lithology and ages. It includes gabbroic, ultramafic rocks, and carbonate rock lenses (CGS 2011; Wagner et al. 1981).

The following units are included in the Foothill Mélange:

- Plutonic Ultramafic Rocks: These rocks are Paleozoic in age (approximately 248 to 545 million years ago) and form part of the Foothill melange-ophiolite belt, described above. Plutonic rocks are large masses of intrusive igneous rock that solidified from molten magma deep within the earth. Ultramafic rocks have high magnesium and iron content, a very low silica content, and are dark colored. In the project area, these rocks are partially to completely serpentinized.

- Metasedimentary Rocks: These rocks are Paleozoic in age (approximately 248 to 545 million years ago) and form part of the Foothill melange-ophiolite belt, described above. They consist of slate, quartzite, chert, and carbonate rock.

- Metavolcanic Rocks: These rocks are Paleozoic in age (approximately 248 to 545 million years ago) and also form part of the Foothill melange-ophiolite belt, described above. Their composition ranges from mafic to felsic and includes minor amounts of sedimentary rocks.

3.6.3.2 Regional Seismicity and Fault Zones

Potential seismic hazards resulting from a nearby moderate to major earthquake generally can be classified as primary and secondary. The primary effect is fault ground rupture, also called surface faulting. Common secondary seismic hazards include ground shaking, liquefaction, and subsidence. Each of these potential hazards is discussed below.

Fault Ground Rupture

Surface rupture is an actual cracking or breaking of the ground along a fault during an earthquake. Structures built over an active fault can be torn apart if the ground ruptures. Surface ground rupture along faults generally is limited to a linear zone a few yards wide. The Alquist-Priolo Act (see Section 3.6.2.1, Regulatory Background) was created to prohibit the location of structures designed for human occupancy across the traces of active faults, thereby reducing the loss of life and property from an earthquake. The project is not located in an Alquist-Priolo Earthquake Fault Zone (CGS 2010). The nearest fault zoned under the Alquist-Priolo Act is the northern segment of the Cleveland Hills Fault, located near Lake Oroville, approximately 50 miles north of the project alignment. Research conducted by the California Department of Water Resources (DWR) indicates that the magnitude 5.7 earthquake that occurred along the Cleveland Hills Fault on August 1, 1975, most likely resulted from reservoir-induced stress (DWR 1989).

Faults in the Project Region

As shown in Figure 3.6-2: Regional Faults, the project alignment crosses the Mormon Island Fault Zone and the West Bear Mountains Fault Zone, and is located adjacent to the East Bear Mountains Fault Zone.

Mormon Island Fault Zone

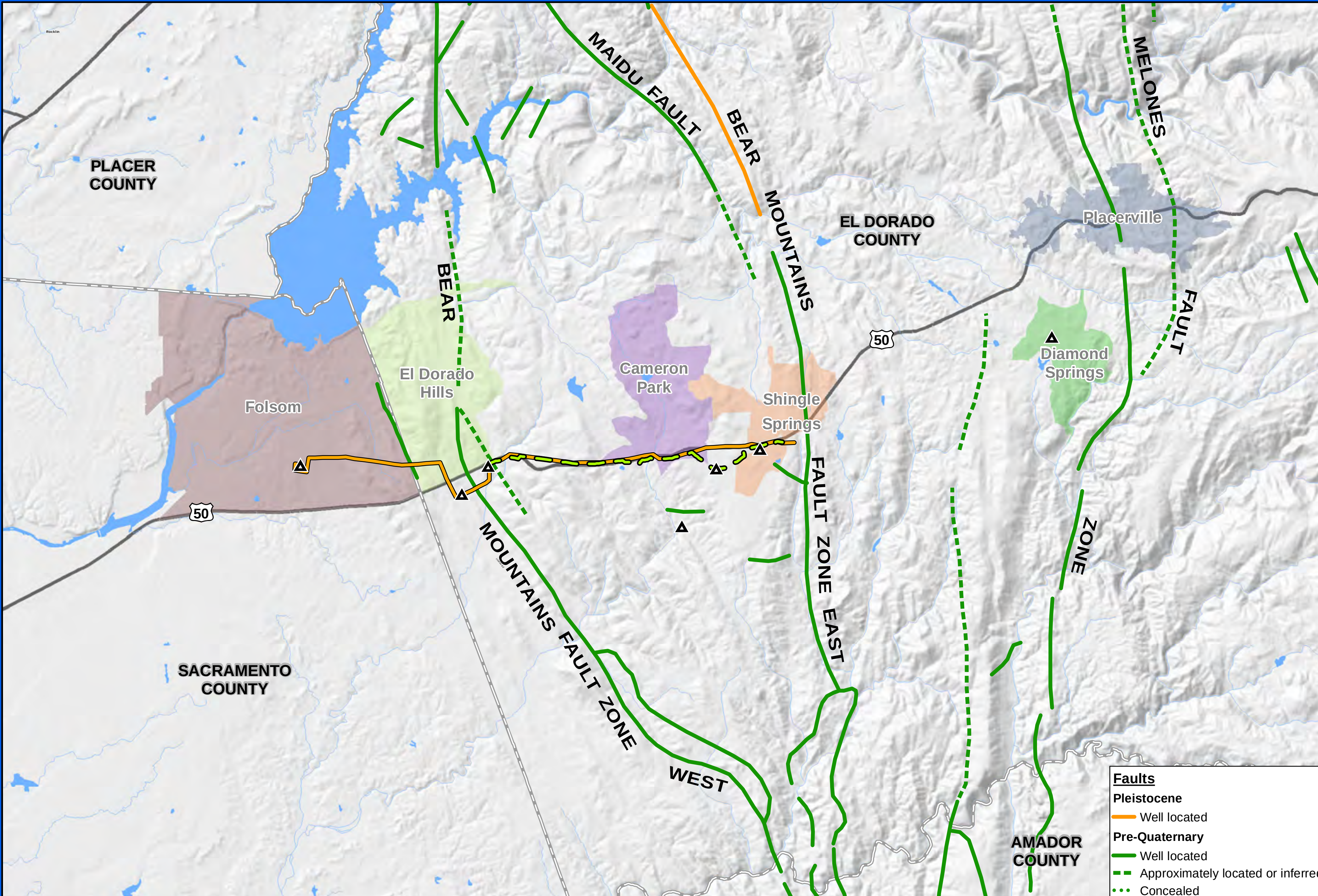
The Mormon Island Fault Zone originally was identified as part of work performed for the Mormon Island Auxiliary Dam. It trends north-northwesterly and is located between U.S. Highway 50 (U.S. 50) and Folsom Lake. The mapped trace of this zone extends for approximately 2 miles in Sacramento County before it crosses into El Dorado County to the east near U.S. 50. Rocks cut by this fault zone have been mapped as Copper Hill Volcanics. Although the width of the fault zone was not precisely estimated because of poor exposure, the width was estimated to range from 500 to 1,000 feet (Tierra Engineering Consultants 1983, cited by Higgins and Clinkenbeard 2006). No evidence exists of Holocene-age fault activity in the Mormon Island Fault Zone (Wahl et al. 1989). The project alignment crosses the Mormon Island Fault Zone near the boundary between Sacramento and El Dorado counties.

East and West Bear Mountains Fault Zones

The Foothills Fault System trends northwestward through an area about 200 miles long and 30 miles wide, from Mormon Bar (east of Merced) in the south to Lake Almanor in the north. The east and west branches of the Bear Mountains Fault Zone are two of the largest fault zones within the Foothills Fault System. Evidence of activity within the past 1.6 million years has not been identified in the West Bear Mountains Fault Zone (Jennings 1994). However, Jennings (1994) indicates that a portion of the East Bear Mountains Fault Zone, near the town of Rescue, shows evidence of displacement in the last 11,000 to 700,000 years (i.e., Pleistocene age). A detailed analysis (prepared by Tierra Engineering Consultants in 1983, and summarized by Wahl et al. 1989) indicated that this fault zone can generate a magnitude 6.0 to 6.5 earthquake with a return period of 400 years. However, the slip rate of the Foothills fault system is extremely low (0.05 millimeters per year), which is well below the planning threshold for major earthquakes (Wills et al. 2007). The project alignment crosses the West Bear Mountains Fault Zone near Latrobe Road. The East Bear Mountains Fault Zone lies less than 1 mile east of the Shingle Springs Substation.

With the exception of the Cleveland Hills fault located near Lake Oroville, the western Sierra Nevada foothills have not been seismically active in the last 11,000 years (Holocene time) (Jennings 1994). Faults with known or estimated activity during the Holocene generally are located in the San Francisco Bay Area to the west, or in the Lake Tahoe area to the east.

Table 3.6-2: Regional Faults with Evidence of Activity during Holocene Time lists the known active faults (i.e., those showing evidence of movement during the last 11,000 years), approximate distance from the project alignment, fault type, slip rate, and projected maximum moment magnitude.



Miles

0 0.75 1.5 3

1:180,000 1 inch = 3 miles

N

AECOM

Pacific Gas and Electric Company

Existing Substation/Switching Station

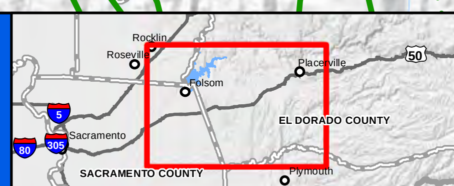
Missouri Flat-Gold Hill 115 kV Power Line Reconductoring

Gold Hill No. 1 60 kV Power Line Reconductoring

County Boundary

Water Body

Source: Jennings 1994, CDC 2006, PG&E 2013



Missouri Flat-Gold Hill 115 kV Power Line Reconductoring Project

Figure 3.6-2: Regional Faults

August 2013

Table 3.6-2: Regional Faults with Evidence of Activity during Holocene Time

Fault Name	Approximate Distance from Proposed Alignment (miles)	Regional Location	Maximum Moment Magnitude[1]	Slip Rate (mm/yr)	Fault Type[2]
Dunnigan Hills	45	Western Sacramento Valley	6.5	N/A	N/A
Cleveland Hills/Swain Ravine	50	Sierra Nevada Foothills	6.5	0.05	N/A
West Tahoe/Dollar Point Fault Zone	45	Lake Tahoe	7.2	N/A	NA
North Tahoe/Incline Village Fault Zone	50	Lake Tahoe	7.0	0.2 – 1.0	B
Great Valley Fault Zone Segment 4	60	Margin between Sacramento Valley and Coast Range	6.6	1.5	B
Great Valley Fault Zone Segment 5	65	Margin between Sacramento Valley and Coast Range	6.5	1.5	B
Green Valley	65	Coast Range	6.2	5.0	B
Greenville Fault Zone (includes Clayton and Marsh Creek sections)	65	Coast Range	6.6	2.0	B
Concord	70	Coast Range	6.2	4.0	B

Notes:
N/A = not available or not known; mm/yr = millimeters per year
1 The moment magnitude scale is used by seismologists to compare the energy released by earthquakes. Unlike other magnitude scales, it does not saturate at the upper end, meaning that there is no particular value beyond which all earthquakes have about the same magnitude, which makes this scale a particularly valuable tool for assessing large earthquakes.
2 Faults with an "A" classification are capable of producing large magnitude (M) events (M greater than 7.0), have a high rate of seismic activity (e.g., slip rates greater than 5 millimeters per year), and have well-constrained paleoseismic data (e.g., evidence of displacement within the last 700,000 years). Class "B" faults are those that lack paleoseismic data necessary to constrain the recurrence intervals of large-scale events. Faults with a "B" classification are capable of producing an event of M 6.5 or greater.
Sources: Cao et al. 2003, Jennings 1994, Ichinose et al. 2000, Sawyer 1999, Sawyer and Haller 2000, Wills et al. 2007; data compiled by AECOM in 2012

Seismic Ground Shaking

Ground shaking, motion that occurs as a result of energy released during faulting, can potentially result in the damage or collapse of buildings and other structures, depending on the magnitude of the earthquake, the location of the epicenter, and the character and duration of the ground motion. Other important factors to be considered are the characteristics of the underlying soil and rock and, where structures exist, the building materials used, and the workmanship of the structures.

The intensity of ground shaking depends on the distance from the earthquake epicenter to the site, the magnitude of the earthquake, site soil conditions, and the characteristics of the source. Ground motions from seismic activity can be estimated by probabilistic method at specified hazard levels and by site-specific design calculations using a computer model. The CGS

Probabilistic Seismic Hazards Assessment Model indicates a minimum horizontal acceleration of 0.1g for firm rock, 0.109g for soft rock, and 0.145g for alluvial conditions (where g is the percentage of gravity) in the vicinity of Shingle Springs Substation, with a 10 percent probability of earthquake occurrence in a 50-year timeframe for use in earthquake-resistant design (CGS 2012). Stated another way, these calculations indicate there is a 1-in-10 probability that an earthquake will occur within 50 years that will result in a peak horizontal ground acceleration exceeding 0.1 to 0.145g. The model output is provided for Shingle Springs Substation because it is the portion of the project alignment that is the closest to faults in the Tahoe Basin that have been active during Holocene time.

The 2010 California Building Code (CBC) specifies more stringent design guidelines for projects located adjacent to a Class A or B fault, as designated by California Probabilistic Seismic Hazard Maps. The A and B fault classifications also are used by CGS and USGS in characterizing the level of certainty associated with determining various seismologic parameters. As shown in Table 3.6-2: Regional Faults with Evidence of Activity during Holocene Time, the project alignment is located approximately 45 miles from the nearest Class A or B fault.

Ground Failure/Liquefaction

Soil liquefaction occurs when ground shaking from an earthquake causes a sediment layer that is saturated with groundwater to lose strength and take on the characteristics of a fluid, thus becoming similar to quicksand. Factors determining liquefaction potential are soil type, the level and duration of seismic ground motions, the type and consistency of soils, and the depth to groundwater. Loose sands and peat deposits are susceptible to liquefaction, while clayey silts, silty clays, and clays deposited in freshwater environments generally are stable under the influence of seismic ground shaking.

Liquefaction poses a hazard to engineered structures. The loss of soil strength can result in a bearing capacity insufficient to support foundation loads, increased lateral pressure on retaining or basement walls, and slope instability. Based on a review of NRCS soil data and published geologic maps, it unlikely that soils in the project area will be subject to liquefaction in the event of an earthquake, because the area has stable soils underlain at shallow depths by bedrock, the known active seismic sources are a relatively long distance away, and the groundwater table is a minimum of 100 feet below the ground surface.

Subsidence, Settlement, and Soil Bearing Capacity

Subsidence of the land surface can be induced by both natural and human phenomena. Natural phenomena that can cause subsidence can result from tectonic deformations and seismically induced settlements; from consolidation, hydrocompaction, or rapid sedimentation; from oxidation or dewatering of organic-rich soils; and from subsurface cavities. Subsidence related to human activity can result from withdrawal of subsurface fluids or sediment. Pumping of water for residential, commercial, and agricultural uses from subsurface water tables causes more than 80 percent of the identified subsidence in the United States (Galloway et al. 1999). Lateral spreading is the horizontal movement or spreading of soil toward an open face, such as a streambank, the open side of fill embankments, or the sides of levees. The potential for failure from subsidence and lateral spreading is highest in areas where the groundwater table is high, where relatively soft and recent alluvial deposits exist, and where creek banks are relatively high. Soil bearing capacity is the ability of soil to support the loads applied to the ground; where the bearing capacity is too low to support proposed structures, subsidence and settlement may occur.

Based on a review of NRCS soil survey data and published geologic maps, soils in the project area are not subjected to hazards from subsidence or settlement because the groundwater table is a minimum of 100 feet below the surface, and because the soils generally consist of stable materials underlain at shallow depths by older bedrock materials of adequate bearing strength.

3.6.3.3 **Slope Stability**

A landslide is the downhill movement of masses of earth material under the force of gravity. The factors contributing to landslide potential are steep slopes, unstable terrain, high rainfall amounts, and proximity to earthquake faults. This process typically includes the surface soil and an upper portion of the underlying bedrock. Movement may be very rapid, or so slow that a change of position can be noted only over a period of weeks or years (creep). The size of a landslide can range from several square feet to several square miles.

Landslide hazard maps have not been created for El Dorado County. Based on the El Dorado County Multi-Jurisdiction Hazard Mitigation Plan (2004), landslide hazards generally are associated with areas where slopes are greater than 30 percent, or in areas underlain by serpentine/adjacent to faults. Portions of the proposed alignment consist of moderate slopes; however, these slopes are well below 30 percent. Several of the proposed tubular steel pole replacements are in locations that may contain serpentine (see Section 3.11, Mineral Resources) and/or are adjacent to known faults (see Figure 3.6-2: Regional Faults).

3.6.3.4 **Soils**

Subsurface Conditions

Table 3.6-3: Soil Characteristics summarizes the generalized soil characteristics and Figure 3.6-3: Soil Types shows the locations of the soil types associated with the project alignment. Based on a review of NRCS (2012) soil survey data, the project alignment and substations are underlain by near-surface soils that consist primarily of sandy and rocky loams, and are underlain at shallow depths by soft or firm bedrock.

Naturally Occurring Asbestos

Asbestos is a term applied to several types of naturally occurring fibrous materials found in rock formations throughout California. Exposure and disturbance of rock and soil that contains asbestos can result in the release of fibers to the air and consequent exposure to the public. All types of asbestos are considered hazardous and pose public health risks. Asbestos commonly is found in ultramafic rock, including serpentine. Two forms of asbestos are associated with serpentinite: chrysotile asbestos and tremolite/actinolite asbestos. The following discussion describes the potential for asbestos in rock formations in El Dorado County, followed by a description of the potential for naturally occurring asbestos in Sacramento County. Figure 3.6-4: Naturally Occurring Asbestos shows NOA in the project area.

<u>*El Dorado County*</u>

The rocks exposed in western El Dorado County are predominantly metamorphic rocks, formed at high temperatures and pressures at depth by recrystallization of sedimentary rocks (e.g., shales, carbonates, and sandstones), and igneous rocks derived from partial melts of preexisting rocks. Metamorphism of any of several high magnesium and high iron igneous rock types, collectively called ultramafic rocks, may result in the formation of serpentinite (Churchill et al. 2000).

CGS published a report, Areas More Likely to Contain Natural Occurrences of Asbestos in Western El Dorado County, California (Churchill et al. 2000), following environmental concerns raised about potential exposure to airborne asbestos near areas where serpentinite was being disturbed by construction in El Dorado County. The map contained in Open-File Report 2000-002 indicates that the project alignment falls into three different categories—Areas More Likely to Contain Asbestos, Areas Where the Presence of Asbestos is Possible but Unlikely, and Areas that Probably Do Not Contain Asbestos—and they are described in detail in the paragraphs that follow.

Areas More Likely to Contain Asbestos. These areas consist primarily of serpentinite and related ultramafic rocks and soils, and therefore are the most likely places for asbestos to occur. However, not all locations within these broadly-mapped areas actually contain asbestos; a geologic investigation is required to determine the presence or absence of asbestos at site-specific locations. Figure 3.6-4: Naturally Occurring Asbestos shows the project alignment overlaid on a map displaying areas that are more likely to contain asbestos. The project alignment is located in mapped “areas more likely to contain asbestos” in the locality north of U.S. 50 and east of Tierra del Dios Road, and along the easternmost portion of the alignment in the vicinity of South Shingle Road (i.e., east of Shingle Springs Substation).

Areas Where the Presence of Asbestos Is Possible but Unlikely. As shown in Figure 3.6-4: Naturally Occurring Asbestos, a portion of the project alignment is located in the Pine Hill Intrusive Complex. As stated by Churchill et al. (2000), “Metamorphic processes have altered some of the igneous rocks of the Pine Hill Intrusive Complex. In portions of these altered igneous rocks, called altered gabbro, tremolite/actinolite amphibole has been found. The tremolite/actinolite reported in these altered areas has been described in a previous study [citation omitted] as having crystals acicular (needle-like) in form. … Acicular, colorless to pale green tremolite/actinolite is one of the water-bearing and silicate-bearing minerals often present in this altered gabbro, usually in amounts ranging between 0 and 3 percent. … The possibility exists that a small amount of this tremolite/actinolite may actually be fibrous (asbestos)... The potential for tremolite/actinolite asbestos is believed to be much lower in the Pine Hill Intrusive Complex altered gabbro than in serpentinite areas.”

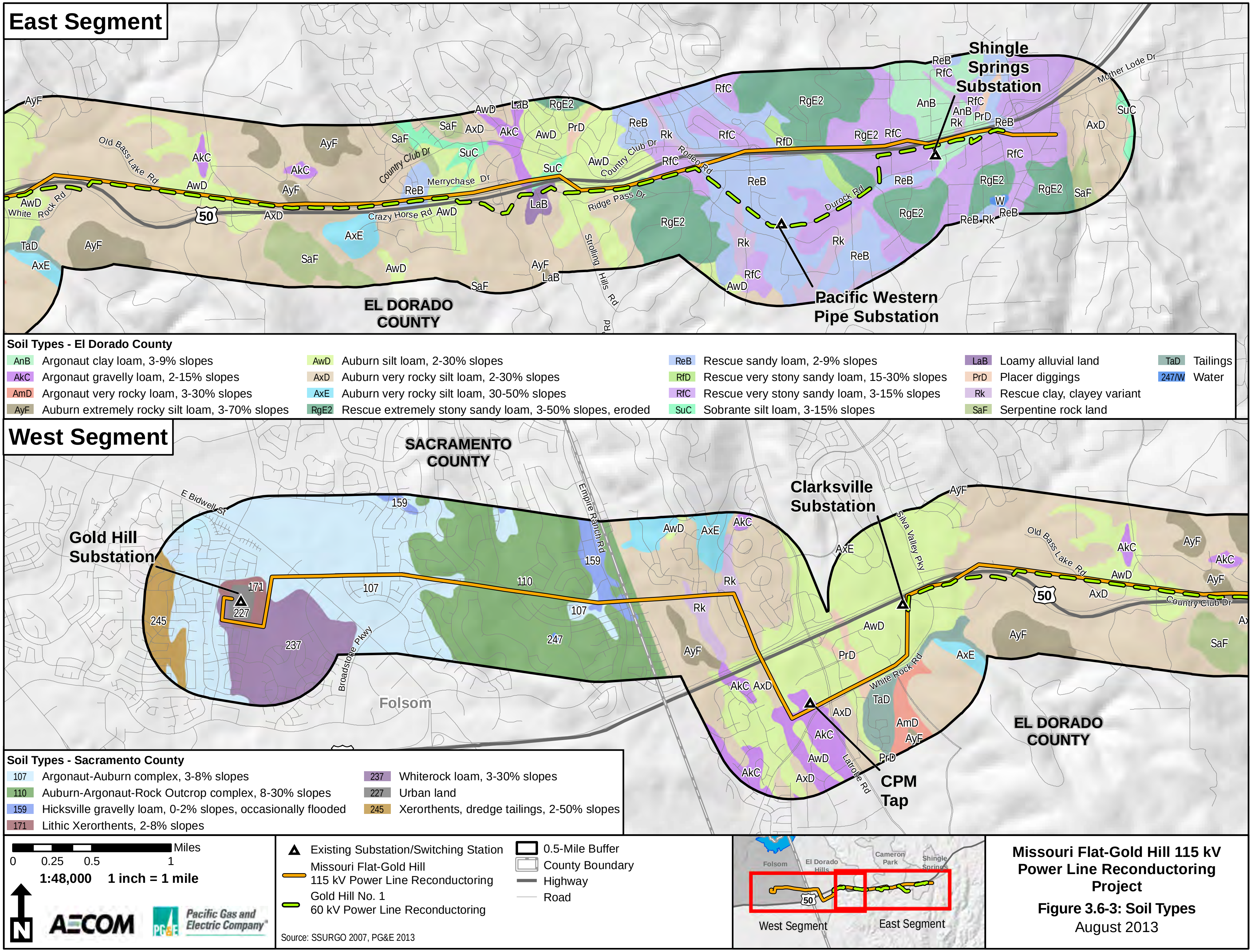
The project alignment is located in areas of this altered gabbro, west of Cameron Park Drive on the south side of U.S. 50 and west of South Shingle Road (i.e., east of Shingle Springs Substation). Figure 3.6-4: Naturally Occurring Asbestos illustrates the location of the project alignment and areas where the presence of asbestos is possible but unlikely.

Table 3.6-3: Soil Characteristics

Soil Map Unit Name	Shrink-Swell Potential[1]	Permeability[2]	Water Erosion Hazard[3]	Wind Erosion Hazard[4]	Drainage	Concrete Corrosivity	Limitations
Sacramento County Soils							
Argonaut-Auburn complex, 3 to 8 percent slopes	Moderate	Moderately high	Moderate	5	Well drained	Low	Shallow depth to bedrock; unstable excavation walls; high clay content;
Auburn-Argonaut-Rock outcrop complex, 8 to 30 percent slopes	Low	High	Moderate	5	Well drained	Low	Shallow depth to bedrock; unstable excavation walls; high clay content; slopes greater than 15 percent
Hicksville gravelly loam, 0 to 2 percent slopes, occasionally flooded	Moderate	Moderately high	Low	7	Moderately well drained	Low	Soil saturation at shallow depth; flooding
Lithic Xerorthents, 2 to 8 percent slopes	N/A	N/A	N/A	N/A	Excessively drained	N/A	N/A
Whiterock loam, 3 to 30 percent slopes	Low	High	Moderate	5	Somewhat excessively drained	Moderate	Shallow depth to bedrock; slopes greater than 15 percent
El Dorado County Soils							
Argonaut clay loam, 3 to 9 percent slopes	High	Moderately low	Moderate	6	Well drained	Low	High clay percentage; unstable excavation walls
Argonaut gravelly loam, 2 to 15 percent slopes	Moderate	Moderately high	Low	6	Well drained	Low	High clay percentage; unstable excavation walls; shallow depth to bedrock
Auburn extremely rocky silt loam, 3 to 70 percent slopes	Low	Moderately high	High	5	Well drained	Low	Shallow depth to bedrock; slopes greater than 15 percent
Auburn silt loam, 2 to 30 percent slopes	Low	Moderately high	High	5	Well drained	Low	Shallow depth to bedrock; slopes greater than 15 percent
Auburn very rocky silt loam, 2 to 30 percent slopes	Low	Moderately high	High	5	Well drained	Low	Shallow depth to bedrock; slopes greater than 15 percent

Soil Map Unit Name	Shrink-Swell Potential[1]	Permeability[2]	Water Erosion Hazard[3]	Wind Erosion Hazard[4]	Drainage	Concrete Corrosivity	Limitations
Loamy alluvial land	Low	Moderately high	Moderate	7	Moderately well drained	N/A	Saturation at shallow depth; flooding; unstable excavation walls
Placer diggings	Low	High	Low	6	N/A	N/A	More than 50 percent of soil contains cobbles greater than 3-inch diameter; slopes greater than 15 percent
Rescue clay, clayey variant	High	Moderately low	Low	4	Poorly drained	Low	Saturation at shallow depth; high clay percentage; unstable excavation walls
Rescue extremely stony sandy loam, 3 to 50 percent slopes, eroded	Low	Moderately high	Low	5	Well drained	Low	Slopes greater than 15 percent; unstable excavation walls
Rescue sandy loam, 2 to 9 percent slopes	Low	Moderately high	Moderate	3	Well drained	Low	Unstable excavation walls
Rescue very stony sandy loam, 15 to 30 percent slopes	Low	Moderately high	Low	5	Well drained	Low	Slopes greater than 15 percent; unstable excavation walls
Rescue very stony sandy loam, 3 to 15 percent slopes	Low	Moderately high	Low	5	Well drained	Low	Unstable excavation walls
Sobrante silt loam, 3 to 15 percent slopes	Moderate	High	Moderate	5	Well drained	Low	Shallow depth to bedrock; unstable excavation walls

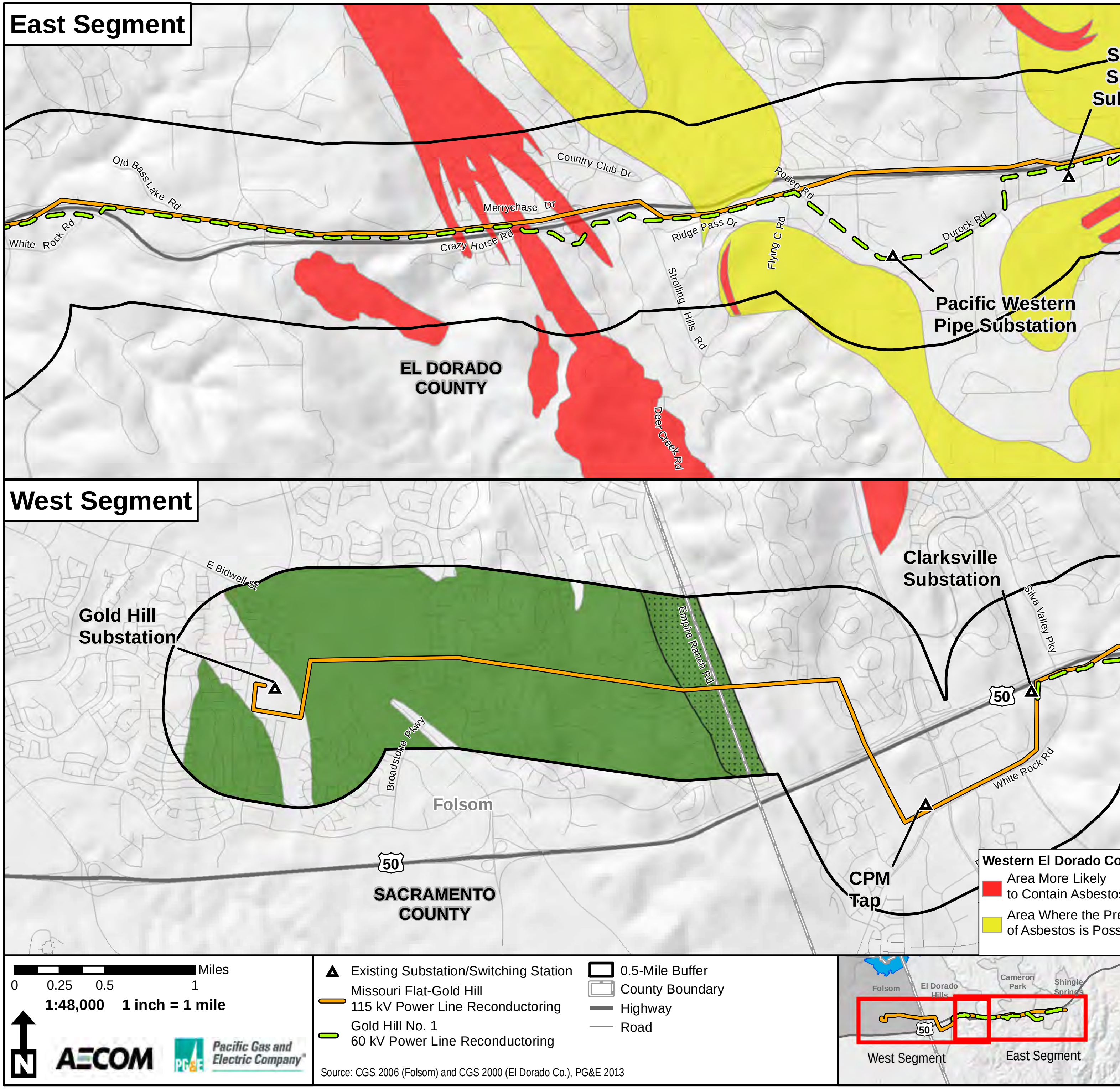
Notes:
1 Based on percentage of linear extensibility.
2 Based on standard saturated hydraulic conductivity (Ksat) class limits; Ksat refers to the ease with which pores in a saturated soil transmit water.
3 Based on the erosion factor “Kw whole soil,” which is a measurement of relative soil susceptibility to sheet and rill erosion by water.
4 The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible.
Source: NRCS 2012



Missouri Flat-Gold Hill 115 kV Power Line Reconductoring Project

Figure 3.6-3: Soil Types

August 2013



Missouri Flat-Gold Hill 115 kV Power Line Reconductoring Project

Figure 3.6-4: Naturally Occurring Asbestos

August 2013

Areas that Probably Do Not Contain Asbestos. Most of the project alignment in El Dorado County falls within this category. These areas generally have little or no serpentinite, ultramafic rocks, or related soils. Generally, asbestos rarely occurs in these areas except in or near fault zones. The project alignment crosses the West Bear Mountains Fault (at the foot of the Bass Lake grade), and the eastern end of the project area is located approximately 1,000 feet from the East Bear Mountain Fault (see Figure 3.6-1: Geologic Formations).

As stated by Churchill et al. (2000), "Most serpentinite occurs near faults or within fault zones (areas of highly fractured or crushed rock commonly hundreds of feet wide). Small slivers of serpentinite, too small to map at the scale of this map, may occur in some of these fault zones. These slivers may contain chrysotile or tremolite/actinolite asbestos. Tremolite/actinolite asbestos may also occur in a variety of non-serpentine metamorphic rocks in and near fault zones. Some faults and fault zones shown on the map may have no associated asbestos." A detailed geotechnical investigation is required to determine whether asbestos is present or absent in site-specific locations in proximity to fault zones.

Eastern Sacramento County

In 2004, after the Sacramento Metropolitan Air Quality Management District (SMAQMD) determined that NOA was present in the Folsom area, SMAQMD issued Advisory 04-05(2) and commissioned CGS to perform a study, published in 2006, Relative Likelihood for the Presence of Naturally Occurring Asbestos in Eastern Sacramento County, California (Special Report 192) (Higgins and Clinkenbeard 2006). The map contained in Special Report 192 indicates that the project area is located within the three categories discussed in detail in the following paragraphs.

Areas Moderately Likely to Contain Naturally Occurring Asbestos. The "areas moderately likely to contain NOA" designation is applied to rock types where NOA is known to be present, either in eastern Sacramento County or in similar rocks in nearby counties. The most likely settings for NOA in these rocks are in fault zones and shear zones that contain slivers of serpentinite and/or high concentrations of the minerals talc and chlorite. The areas mapped as "moderately likely to contain NOA" contain one or more of the following rock types: metamorphosed mafic volcanic rocks, metamorphosed intrusive rocks, and mafic intrusive rocks. A geologic investigation is required to determine the presence or absence of asbestos at site-specific locations. In eastern Sacramento County, the geologic units that are of greatest concern (i.e., those composed predominantly of metamorphosed mafic volcanic rocks) are the Copper Hill Volcanics and the Gopher Ridge Volcanics. Aside from Gold Hill Substation, all of the proposed alignment that lies within Sacramento County is located in the Copper Hill and Gopher Ridge Volcanics.

Based on Special Report 192, SMAQMD issued Advisory 06-03, declaring that "areas moderately likely to contain NOA" are subject to the requirements of California Code of Regulations (CCR) Section 93105 (Asbestos Airborne Toxic Control Measure [ATCM] for Construction, Grading, Quarrying, and Surface Mining Operations). NOA is regulated by the California Air Resources Board (CARB), and concentrations of NOA above 0.25 percent are considered by CARB as hazardous levels for residential development.

Areas of Faulting or Shearing. Fault and shear zones consist of linear belts of fractured and deformed rocks that may have an increased likelihood for the presence of NOA beyond that of the underlying area. The project alignment crosses the Mormon Island Fault Zone, which runs in a north-south orientation and is located close to the boundary between Sacramento and El Dorado counties. The Mormon Island Fault Zone was identified by Higgins and Clinkenbeard (2006) as an area where an increased likelihood exists for NOA to be present.

Areas Least Likely to Contain Naturally Occurring Asbestos. This category consists of areas that were not shown to contain NOA, based on the literature that was used to compile the map contained in Special Report 192. The mapped "areas least likely to contain NOA" consist of one or more of the following rock types: metamorphosed sedimentary rocks, granitic rocks, volcanic rocks, sedimentary rocks, unconsolidated alluvium, or dredge tailings associated with gold mining. Each of these rock types is associated with a specific formation. Along the project alignment, the only formation in Sacramento County that falls within an area designated as "least likely to contain NOA" is the Salt Springs Slate, which is composed of metamorphosed sedimentary rocks. Gold Hill Substation is located within the Salt Springs Slate.

Expansive Soils

Expansive soils are composed mainly of clays that greatly increase in volume when saturated with water and shrink when dried. Because of this effect, structural foundations may rise during the rainy season and fall during the dry season. If this expansive movement varies underneath different parts of a single structure, foundations may crack, and structural portions of the structure may be distorted. The potential for soil to undergo shrink and swell is greatly enhanced by the presence of a fluctuating, shallow groundwater table. Changes in the volume of expansive soils can result in the consolidation of soft clays after the lowering of the water table or the placement of fill.

As shown in Table 3.6-3: Soil Characteristics, two soil types underlying the project alignment—Argonaut clay loam, 3 to 9 percent slopes, and Rescue clay, clayey variant—have a high shrink-swell potential, meaning that they have a high clay content and, therefore, will be capable of exerting substantial expansion pressures on structural foundations and exterior flatwork. These soils are expected to undergo volume changes with increasing or decreasing soil moisture content. As shown in Figure 3.6-3: Soil Types, these soil types only occur in the vicinity of Shingle Springs Substation and near Rodeo Road. The remainder of the soil types along the project alignment and substations have moderate to low shrink-swell potentials (see Table 3.6-3: Soil Characteristics and Figure 3.6-3: Soil Types).

3.6.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for geology and soils impacts derived from Appendix G of the CEQA Guidelines, provide relevant APMs, and contain an assessment of potential project-related construction and operational impacts on geology and soils.

3.6.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential impacts to geology and soils were evaluated for each of the criteria listed in Table 3.6-1: CEQA Checklist for Geology and Soils, as discussed in Section 3.6.4.3, Potential Impacts.

3.6.4.2 Applicant-Proposed Measures

APMs provided in this section will meet existing regulations and/or requirements or standard practice to further minimize, avoid, or reduce potential less-than-significant impacts on geology and soils.

APM GEO-1: Minimization of Construction in Soft or Loose Soils

Where soft or loose soils are encountered during project construction, appropriate measures will be implemented to avoid, accommodate, replace, or improve such soils. Depending on site-specific conditions and permit requirements, these measures may include:

- 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 over access roads such as aggregate rock, steel plates, or timber mats; and
- treating soft or loose soils in place with binding or cementing agents.

APM GEO-2: Reduction of Slope Instability during Construction

Existing natural or temporarily constructed slopes affected by construction or operations will be evaluated for stability. In developing grading plans and construction procedures for access roads, the stability of both temporary and permanent cut, fill, and otherwise affected slopes will be analyzed. Construction slopes and grading plans will be designed to limit the potential for slope instability and minimize the potential for erosion and flooding during construction. During construction, slopes affected by construction activities will be monitored and maintained in a stable condition. Construction activities likely to result in slope instability will be suspended, as necessary, during and immediately following periods of heavy precipitation when unstable slopes are more susceptible to failure.

3.6.4.3 Potential Impacts

Potential project impacts on geology and soils were evaluated against the CEQA significance criteria and are discussed in further detail in the following paragraphs.

The upgraded power lines will require no change to existing operation and maintenance activities. As such, impacts on geology and soils that result from the project will not change from existing conditions and no operation-related impacts will occur. The impact analysis is limited to temporary and short-term impacts associated with project construction, which includes the following components:

- **Missouri Flat-Gold Hill Line Reconductoring**, which will include reconductoring approximately 12.5 miles of the existing line, replacing approximately 60 existing tubular steel poles (TSP), modifying approximately 13 existing lattice steel towers, and converting approximately 1,000 feet of existing overhead distribution line to underground;
- **Gold Hill No. 1 Line Reconductoring**, which will include reconductoring approximately 7 miles of the existing line, replacing approximately 80 existing wood poles with new wood or light-duty steel (LDS) poles and approximately one new TSP, installing approximately seven new interset wood poles, replacing approximately three distribution wood structures with approximately two new wood poles, and minor distribution line rewiring on two existing wood poles near Limestone Substation; and
- **Access Road Improvements and Construction,** which will include improvements to various temporary access roads that are planned for use during construction and the creation of an approximately 100-foot-long access road.

The impact analysis also evaluates impacts resulting from required site preparation and vegetation removal and trimming required to accommodate construction activities associated with these project components.

The project also includes modifications at Shingle Springs, Pacific Western Pipe, Limestone, Clarksville, and Gold Hill substations, and Missouri Flat Switching Station; however, all work at these facilities will be minor and within existing fence lines. Therefore, no geology and soils-related impacts will occur.

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***

The project alignment does not cross any faults zoned under the Alquist-Priolo Act, and none of the faults near the project alignment are considered active faults by CGS (see Figure 3.6-2: Regional Faults). Surface fault rupture is most likely to occur on active faults (i.e., faults showing evidence of displacement within the last 11,000 years). The project will include the upgrade of existing power lines and associated structures. The project alignment will not be located in active fault zones, and will not increase the risk of loss, injury, or death from rupture of known earthquake faults. Therefore, the impact will be less than significant.

ii) Strong seismic ground shaking? *Less than Significant*

The project alignment is not located in close proximity to any active faults. Earthquake hazards in the Sierra Nevada foothills are related primarily to faults in the Lake Tahoe area (approximately 45 miles to the east). The proposed TSP replacements and tower improvements along the Missouri Flat-Gold Hill 115 Kilovolt (kV) Power Line and wood or LDS pole replacements along the Gold Hill No. 1 kV Power Line will be engineered to meet loads generated by wind, ice, broken conductors, and other sources of shaking, and will not increase the risk of loss, injury, or death from strong seismic ground shaking. Therefore, the impact will be less than significant.

iii) Seismic-related ground failure, including liquefaction? *No Impact*

Based on a review of published geologic maps and NRCS soil survey data, the project alignment and substations are located in stable soils, underlain by bedrock at shallow depths; the average depth to the groundwater table is more than 100 feet below the surface, and known active faults are approximately 45 to 50 miles away. Therefore, no impact will occur.

iv) Landslides? *Less than Significant*

Based on a review of topographic maps and observations made during a field visit that was conducted on June 18, 2012, the project alignment is located on either level ground or slopes substantially less than 30 percent. No mapped landslide hazard areas exist within or adjacent to the project alignment. Therefore, the impact will be less than significant.

b) Would the project result in substantial soil erosion or the loss of topsoil? *Less than Significant*

Replacement of existing TSPs and wood poles will require excavation to accommodate the new wood or LDS poles, some of which will occur in soils on slopes that have a moderate to high wind and/or water erosion potential (see Figure 3.6-3: Soil Types and Table 3.6-3: Soil Characteristics). In addition, minimal grading and/or scraping and vegetation clearing may be required for TSP, wood pole, and/or LDS pole replacement, work area and helicopter landing zone establishment, improvements to proposed access routes, and creation of one new access road. Construction sites will be accessed using existing access roads, some of which are unpaved.

As stated in Chapter 2, Project Description, soil stockpiles created from TSP and wood or LDS pole excavations will be located away from and/or downgradient from waterways. Furthermore, other sediment control best management practices (BMPs) will be implemented to manage temporary stockpiles. Excess soil on-site will be feathered around construction areas (or will be handled in accordance with APM AQ-3 in areas where NOA has been detected), and a backhoe will be used to place gravel around TSP foundations after formwork has been removed and to groom the surrounding area, where appropriate. Construction debris, including removed TSPs and wood poles, will be taken on a line truck with a trailer to an area service center, as needed, for recycling or disposal. During clearing activities, vegetation will be mowed or grubbed, leaving root systems intact wherever possible, to encourage resprouting and minimize erosion. Because of the limited extent of earth-moving activities and the limited scope of construction activities, substantial erosion or loss of topsoil is not expected to occur. Therefore, the impact will be less than significant. Implementation of APM HYDRO-1 will further reduce any less-than-significant impact because a Stormwater Pollution Protection Plan (SWPPP) will be prepared for the project and BMPs that are designed to reduce erosion will be implemented.

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***

Based on a review of topographic maps and observations during a field visit that was conducted on June 18, 2012, the project alignment is located either on level ground or on slopes substantially less than 30 percent. No mapped landslide hazard areas exist, either within or adjacent to the project alignment. Based on a review of NRCS soil survey data, the project will be constructed in stable soils underlain by bedrock at shallow depths. Furthermore, the groundwater table is more than 100 feet below the surface. Finally, NRCS does not indicate that any soils of low bearing strength exist along the project alignment. Therefore, the impact will be less than significant. Implementation of APMs GEO-1 and GEO-2 will further reduce any less-than-significant impact. Because construction in localized areas of soft soils will occur only following the use of compacted fill material or binding agents, grading will be designed to limit the potential for slope instability, and slopes affected by construction activities will be monitored and maintained in a stable condition.

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***

Based on a review of NRCS soil survey data, the Rescue clay and Argonaut clay loam soil types are rated as highly expansive (see Table 3.6-3: Soil Characteristics). These soil types are located underneath Shingle Springs Substation, the portion of the alignment continuing east from the substation to the eastern terminus, and near the location where the project alignment crosses Rodeo Road (see Figure 3.6-3: Soil Types). Expansive soils expand during periods of heavy rainfall and contract when moisture evaporates; the resulting volume changes in the soil can result in damage to foundations. The project will not include the construction of any building foundations. Concrete foundations with a diameter of approximately 5 to 10 feet and depths of approximately 17 to 24 feet will be poured at the locations of TSP replacements. Therefore, the impact will 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 will not include a wastewater disposal or treatment component. Therefore, no impact will occur.

3.6.5 References

California Department of Water Resources (DWR). 1989. The August 1, 1975 Earthquake Investigation, Supplement to Bulletin 203-78.

California Geological Survey (CGS). 2010. Alquist-Priolo Earthquake Fault Zone Maps. Available: http://www.quake.ca.gov/gmaps/ap/ap_maps.htm. Accessed July 6, 2012.

———. 2011. Preliminary Geologic Map of the Sacramento 30 by 60 Quadrangle, California. Compilation and digital preparation by C. I. Gutierrez. Sacramento: California Department of Conservation, California Geological Survey. Available: http://www.conservation.ca.gov/cgs/rghm/rgm/ Pages/preliminary_geologic_maps.aspx. Accessed June 10, 2013.

———. 2012. Seismic Shaking Hazards in California. Available: http://redirect.conservation.ca.gov/cgs/rghm/pshamap/pshamain.html. Accessed July 10, 2012.

———. 2013. Northern California Cities and Counties Affected by SHMP Zones. Available: http://www.conservation.ca.gov/cgs/shzp/Pages/affected.aspx. Accessed March 11, 2013.

Cao, T., W. A. Bryant, B. Rowshandel, D. Branum, and C. J. Wills. 2003. The Revised 2002 California Probabilistic Seismic Hazard Maps. Available: http://www.consrv.ca.gov/cgs/rghm/psha/Pages/index.aspx. Accessed July 10, 2012.

Churchill, R. K., C. T. Higgins, and B. Hill. 2000. *Areas More Likely to Contain Natural Occurrences of Asbestos in Western El Dorado County, California*. California Division of Mines and Geology, Open-File Report 2000-002.

El Dorado County. 2004. *El Dorado County Multi-Jurisdiction Hazard Mitigation Plan*. Placerville, CA.

Galloway, D., D. R. Jones, and S. E. Ingebritsen. 1999. *Land Subsidence in the United States*. USGS Circular 1182. Reston, VA.

Higgins, C. T., and J. P. Clinkenbeard. 2006. *Relative Likelihood for the Presence of Naturally Occurring Asbestos in Eastern Sacramento County, California*. California Division of Mines and Geology, Special Report 192.

Ichinose, G. A., S. Kenji, J. G. Anderson, R. A. Schweickert, and M. M. Lahren. 2000 (April 15). The Potential Hazard from Tsunami and Seiche Waves Generated by Future Large Earthquakes within the Lake Tahoe Basin, California-Nevada. *Geophysical Research Letters*, Vol. 27, pgs. 1203–1206.

Jennings, C. W. 1994. Fault Activity Map of California and Adjacent Areas. California Division of Mines and Geology, Geologic Data Map No. 6. Sacramento, CA.

Kleinfelder West, Inc. 2011. *Geotechnical Investigation Report Pacific Gas and Electric Company Missouri Flat-Gold Hill 115 kV Transmission Line Reconductoring Project Sacramento and El Dorado Counties, California*.

Loyd, R. C. 1984. *Mineral Land Classification of the Folsom 15' Quadrangle, Sacramento, El Dorado, Placer, and Amador Counties, California*. California Division of Mines and Geology, Open-File Report 84-50SAC. Sacramento, CA.

Mayfield, J. D., and H. W. Day. 2000. Ultramafic Rocks in the Feather River Belt, Northern Sierra Nevada, California. In *Field Guide to the Geology and Tectonics of the Northern Sierra Nevada*, ed. E.R. Brooks and L.T. Dida, 1-15. National Association of Geoscience Teachers, Far-Western Section—Fall Conference. California Division of Mines and Geology Special Publication 122.

Natural Resources Conservation Service (NCRS). 2007. GIS soil data for Sacramento and El Dorado Counties in Soil Survey Geographic (SSURGO) format. Available: http://SoilDataMart.nrcs.usda.gov. Fort Worth, TX.

———. 2012. Web Soil Survey. Available: http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm. Accessed July 2, 2012.

Sawyer, T. L. 1999. Fault Number 1650, Incline Village Fault. In *Quaternary Fault and Fold Database of the United States*. U.S. Geological Survey, Earthquake Hazards Program.

Sawyer, T. L., and K.M. Haller. 2000. Fault Number 1649, North Tahoe Fault. In *Quaternary Fault and Fold Database of the United States*. U.S. Geological Survey, Earthquake Hazards Program.

Springer, R. K. 1989. Mineralogy of a layered gabbro deformed during magmatic crystallization, western Sierra Nevada foothills, California. *American Mineralogist* 74:101-112.

Wagner, D. L., C. W. Jennings, T. L. Bedrossian, and E. J. Bortugno. 1987. Geologic Map of the Sacramento Quadrangle. Regional Geologic Map Series, Map No. 1A. California Division of Mines and Geology. Sacramento, CA.

Wahl, R. E., M. E. Hynes, D. E. Yule, and D. J. Elton. 1989. *Seismic Stability Evaluation of Folsom Dam and Reservoir Project*. Report Number 6, Right and Left Wing Dams. Department of the Army Corps of Engineers, Technical Report GL-87-14. Vicksburg, MS.

Wills, C. J., R. J. Weldon, and W. A. Bryant. 2007. *Appendix A: California Fault Parameters for the National Seismic Hazard Maps and Working Group on California Earthquake Probabilities 2007*. USGS Open File Report 2007-1437A and CGS Special Report 203A.

TABLE OF CONTENTS

List of Tables

3.7 GREENHOUSE GAS EMISSIONS

3.7.1 INTRODUCTION

This section describes existing conditions and potential impacts related to greenhouse gas (GHG) emissions as a result of the project. GHG emissions were calculated and reported in carbon dioxide equivalents (CO_2e) for carbon dioxide (CO_2), nitrous oxide (N_2O), and methane (CH_4) emissions from on-road, off-road, and helicopter activities associated with project construction. The analysis concludes that impacts related to GHG will be less than significant. The Applicant-Proposed Measures (APMs) described in Section 3.7.4.2, Applicant-Proposed Measures, will further minimize potential less-than-significant impacts. The modeling outputs and assumptions will be provided separately to California Public Utilities Commission (CPUC) staff.

GHG emission calculations in this document were based on worst-case estimates of emissions to ensure presentation of a conservative environmental analysis. The project's potential effects on air quality were evaluated using the criteria set forth in Appendix G of the California Environmental Quality Act (CEQA) Guidelines. The conclusions are summarized in Table 3.7-1: CEQA Checklist for Greenhouse Gas Emissions.

Table 3.7-1: CEQA Checklist for Greenhouse Gas Emissions

Would the project:	Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			☒	
b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?			☒	

3.7.2 REGULATORY BACKGROUND AND METHODOLOGY

3.7.2.1 Regulatory Background

Federal

The U.S. Environmental Protection Agency (EPA) Mandatory Reporting Rule became effective on December 29, 2009, and sources required to report were to begin collecting data on January 1, 2010. In general, suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities with 25,000 metric tons (MT) or more per year of CO_2e emissions are required to submit annual reports to EPA. On June 28, 2010, reporting requirements for additional source categories (for example, industrial wastewater treatment) were finalized and the proposed confidentiality determination for reported data was signed.

On May 13, 2010, EPA issued a final rule that established an approach to addressing GHG emissions from stationary sources under the federal Clean Air Act (CAA) permitting programs. The final rule set thresholds for GHG emissions that define when permits under the New Source Review Prevention of Significant Deterioration and Title V Operating Permit programs are required for new and existing industrial facilities.

In addition, the Supreme Court decision in *Massachusetts et al. v. Environmental Protection Agency et al.* (Supreme Court Case 05-1120) found that EPA has the authority to list GHGs as pollutants and to regulate GHG emissions under the federal CAA. On April 17, 2009, EPA found that CO_2, CH_4, N_2O, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride (SF_6) may contribute to air pollution and may endanger public health and welfare. This finding may result in EPA regulating GHG emissions; however, to date, EPA has not proposed regulations based on this finding.

State

State Executive Order S-3-05 establishes GHG reductions targets for the State of California. The targets call for a reduction of GHG emissions to 1990 levels by 2020 and to 80 percent below 1990 levels by 2050. The California Environmental Protection Agency secretary will coordinate development and implementation of strategies to achieve the GHG reduction targets. No regulations have yet been adopted to implement this more aggressive statewide GHG target.

In 2006, the California Legislature signed the Global Warming Solutions Act of 2006 (Assembly Bill [AB] 32), which provides the framework for regulating GHG emissions in California. This law requires the California Air Resources Board (CARB) to design and implement emission limits, regulations, and other measures such that statewide GHG emissions are reduced in a technologically feasible and cost-effective manner to 1990 levels by 2020. The statewide 2020 emissions limit is 507 million metric tons (MMT) of CO_2e (CARB 2010a). Methane, N_2O, hydrofluorocarbons, perfluorocarbons, and SF_6 emissions account for the remainder of the statewide GHG emissions (CARB 2007). In addition to AB 32, former Governor Schwarzenegger signed Executive Order S-3-05, establishing a statewide goal for year 2050 GHG emissions to be 80 percent below 1990 statewide GHG emission levels. No regulations have yet been adopted to implement this more aggressive statewide GHG target.

Part of CARB's direction under AB 32 was to develop a scoping plan that contains the main strategies California will use to reduce GHG emissions that cause climate change. The scoping plan includes a range of GHG reduction actions, which include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms such as a cap-and-trade system, and an AB 32 cost of implementation fee regulation to fund the program (CARB 2008).

On December 2, 2007, CARB approved a Regulation for the Mandatory Reporting of Greenhouse Gas Emissions, which came into effect in January 2009. This reporting rule was one of CARB's responsibilities under AB 32. The rule specifies that cement plants, oil refineries, hydrogen plants, electric generating facilities, cogeneration facilities, electric retail providers, and other facilities emitting more than 25,000 MT per year of GHGs must submit annual reports to CARB.

On December 30, 2009, the California Resources Agency adopted amendments to the CEQA Guidelines for GHG emissions deferring significance thresholds to the lead agency. On February 16, 2010, the Office of Administrative Law approved the amendments and filed them with the Secretary of State for inclusion in the California Code of Regulations. The amendments became effective on March 18, 2010.

The California cap-and-trade program was adopted by CARB on October 20, 2011. Covered entities will have an obligation to hold GHG allowances beginning in 2013 (CARB 2011a). A Regulation for Reducing Sulfur Hexafluoride (SF_6) Emissions from Gas Insulated Switchgear was implemented as part of AB 32, mandating utility-wide reduction of SF_6 emissions to a 1 percent leak rate by 2020.

Regional

El Dorado County Air Quality Management District

The El Dorado County Air Quality Management District (EDCAQMD) regulates local air quality and air quality sources in the El Dorado County portion of the project area. EDCAQMD's jurisdiction includes all of El Dorado County except for Lake Tahoe. EDCAQMD has not yet developed GHG thresholds of significance as part of its Guide to Air Quality Assessment (EDCAQMD 2002).

Sacramento Metropolitan Air Quality Management District

The Sacramento Metropolitan Air Quality Management District (SMAQMD) regulates air quality and air quality sources in Sacramento County. SMAQMD's jurisdiction includes all of Sacramento County. In its most recent revision of the CEQA Guide to Air Quality Assessment, SMAQMD included a GHG chapter (Chapter 6) that discusses its approach to evaluating GHG emissions. SMAQMD states that GHG emissions should first be evaluated and addressed on a program level if possible. For project-level analyses, SMAQMD also includes a list of analysis expectations and methodologies for CEQA practitioners. Specifically for construction emissions, SMAQMD recommends that total construction emissions be amortized over the lifetime of the project to provide a reasonable annual emissions value. However, the guidance does not establish a numerical threshold, rather stating that any threshold used to evaluate GHG emissions should be linked to the AB 32 Scoping Plan, which is the plan for California to achieve its GHG emission reduction goals and the Greenhouse Gas Emissions section from CEQA Checklist Form (Appendix G). SMAQMD's CEQA guidance was used to perform the following GHG analysis.

Local

No local regulations related to GHG emissions are applicable to the project.

3.7.2.2 Methodology

Construction GHG emissions were modeled using the same methods described in Section 3.3, Air Quality. California Emission Estimator Model (CalEEMod) Version 2011.1.1 and EMFAC2011 provide emission factors for GHG emissions, in addition to criteria air pollutant emissions (SCAQMD 2011). However, all GHG emissions were calculated for annual emissions in units of MT CO_2e per year. For a conservative analysis, all construction activities are assumed to occur within 1 calendar year. Although it is possible that, due to delays, the construction schedule will exceed this time frame, this method conservatively assumes and evaluates the maximum amount of emissions that can occur within a year.

Operation and maintenance activities are not expected to change from existing conditions after construction; however, the project will permanently modify existing infrastructure at Gold Hill Substation by replacing two oil-insulated circuit breakers with two SF_6-insulated breakers. Although the insulation fluid is designed to be used within a closed system, on occasion or over time, small leaks can occur. This potential leak rate generally is negligible because regular maintenance and inspection are performed so that any leak occurrences are immediately repaired. In addition, the new circuit breakers will utilize the most currently available technology to limit and prevent leakage of insulating fluid. Nonetheless, the potential leakage of SF_6 from the new circuit breakers is analyzed as the project's net change in operational emissions beyond existing conditions. SF_6 emission estimates during operation were calculated based on typical operational conditions and scenarios for SF_6-insulated circuit breakers. Metrics used included the amount of SF_6 contained in each circuit breaker (i.e., pounds) and the guaranteed maximum annual leak rate of 0.5 percent. With the exception of potential SF_6 leakage from the two new circuit breakers, no other operational activities are expected to result in a net increase in GHG emissions beyond existing conditions.

3.7.3 ENVIRONMENTAL SETTING

3.7.3.1 Regional Setting

CO_2 emissions are byproducts of fossil-fuel combustion and are attributable in large part to human activities associated with the transportation industry, electricity generation, natural gas consumption, and agriculture (CARB 2010b). In California, the transportation sector is the largest emitter of GHGs (CARB 2010b).

El Dorado County

As previously described, El Dorado County has not yet developed a GHG emission inventory. However, on March 25, 2008, El Dorado County adopted Resolution No. 29-2008 (Environmental Vision for El Dorado County), which sets forth a goal of positive environmental changes to reduce its global impact through improvements to air quality, solid waste reduction, alternative energies, recycling, and sustainable practices (El Dorado County 2013).

City of Folsom

At the time of this analysis, the City of Folsom has not developed a GHG emissions inventory or climate action plan. However, the City of Folsom is currently developing its 2035 General Plan Update, which includes strategies, measures, and policies to address climate change.

3.7.3.2 Ambient Air Quality

Refer to Section 3.3, Air Quality, for a detailed description of ambient air quality conditions in the project area.

3.7.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for greenhouse gas emissions impacts derived from Appendix G of the CEQA Guidelines, provide relevant APMs, and contain an assessment of potential project-related construction and operational greenhouse gas impacts.

3.7.4.1 **Significance Criteria**

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of the project's GHG emissions were evaluated for each of the criteria listed in Table 3.7-1: CEQA Checklist for Greenhouse Gas Emissions, as discussed in Section 3.7.4.3, Potential Impacts.

CARB, EDCAQMD, and SMAQMD have not yet developed quantitative GHG emission thresholds for construction. However, on October 24, 2008, CARB released interim CEQA significance thresholds for GHGs. The guidance divides projects analyzed under CEQA into two categories—industrial and residential/commercial—and provides significance criteria for each. The project qualifies as an industrial project; thus, impacts will be considered less than significant if the project with mitigation will emit no more than approximately 7,000 metric tons of CO_2e per year from operation of non-transportation-related GHG sources.

3.7.4.2 **Applicant-Proposed Measures**

As described in Section 3.7.4.3, Potential Impacts, impacts on air quality and greenhouse gas emissions will be less than significant. The following APMs, in addition to APM AQ-2, will meet or incorporate existing regulations and/or requirements or standard practices to further avoid, minimize, or reduce potential less-than-significant impacts from GHG emissions.

APM GHG-1: Minimize GHG Emissions

- Maintain construction equipment in proper working conditions in accordance with PG&E standards.

- Minimize unnecessary construction vehicle idling time. 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.

- Minimize construction equipment exhaust by using low-emission or electric construction equipment where feasible. Portable diesel fueled construction equipment with engines 50 hp 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.

APM GHG-2: Minimize SF_6 Emissions

- Incorporate the new breakers at Gold Hill Substation into PG&E's system-wide SF_6 emission reduction program. CARB has adopted the Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear sections 95350 to 95359, title 17, California Code of Regulations, which requires that company-wide SF_6 emission rate not exceed 1 percent by 2020. Since 1998, PG&E has implemented a programmatic plan to inventory, track, and recycle SF_6 inputs, and inventory and monitor system-wide SF_6 leakage rates to facilitate timely replacement of leaking breakers. PG&E has improved its leak detection procedures and increased awareness of SF_6 issues within the company. X-ray technology is now used to inspect internal circuit breaker components to eliminate dismantling of breakers, reducing SF_6 handling and accidental releases. As an active member of EPA's SF_6 Emission Reduction Partnership for Electrical Power Systems, PG&E has focused on reducing SF_6 emissions from its transmission and distribution operations and has reduced the SF_6 leak rate by 89 percent and absolute SF_6 emissions by 83 percent.

- Require that breakers to be replaced at Gold Hill Substation have a manufacturer's guaranteed maximum leakage rate of 0.5 percent per year or less for SF_6.

- Maintain substation breakers in accordance with PG&E's maintenance standards.

- Comply with CARB Early Action Measures as these policies become effective.

3.7.4.3 **Potential Impacts**

Potential project impacts on GHG emissions were evaluated against the CEQA significance criteria and are discussed in further detail in the following paragraphs.

The upgraded power lines will require no change to existing operation and maintenance activities, with the exception of the replacement of existing oil-insulated circuit breakers with two SF_6-insulated breakers at Gold Hill Substation. No other new operational impacts will occur as a result of the project. As such, the impact analysis focuses primarily on temporary and short-term impacts associated with project construction, which includes the following components:

- **Missouri Flat-Gold Hill Line Reconductoring**, which will include reconductoring approximately 12.5 miles of the existing line, replacing approximately 60 existing tubular steel poles (TSP), modifying approximately 13 existing lattice steel towers, and converting approximately 1,000 feet of existing overhead distribution line to underground;

- **Gold Hill No. 1 Line Reconductoring**, which will include reconductoring approximately 7 miles of the existing line, replacing approximately 80 existing wood poles with new wood or light-duty steel poles and approximately one new TSP, installing approximately seven new interset wood poles, replacing approximately three distribution wood structures with approximately two new wood poles, and minor distribution line rewiring on approximately two existing wood poles near Limestone Substation;

- **Substation Modifications**, which will include minor modifications to equipment and facilities at Missouri Flat Switching Station and Shingle Springs, Pacific Western Pipe, Limestone, Clarksville, and Gold Hill substations; and

- **Access Road Improvements and Construction,** which will include improvements to various temporary access roads that are planned for use during construction and the creation of an approximately 100-foot-long access road.

The impact analysis also evaluates impacts resulting from required site preparation and vegetation removal and trimming required to accommodate construction activities associated with these project components.

a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? ***Less than Significant***

During construction, GHG emissions will be generated from a variety of sources, such as construction worker vehicles, heavy-duty construction equipment, haul trucks, construction vehicles, and helicopters. Following project completion, all construction emissions will cease. The project's total estimated GHG emissions associated with construction activities are shown in Table 3.7-2: Construction-Related Greenhouse Gas Emissions.

For the purposes of providing a conservative analysis, the duration of construction was reduced to 1 year, which will result in higher annual emissions calculations; however, construction activities are likely to exceed this time frame, lowering the actual annual emissions rate.

As shown in Table 3.7-2: Construction-Related Greenhouse Gas Emissions, total construction emissions are estimated to be approximately 717 MT CO_2e. Therefore, the total GHG emissions associated with construction activities will be substantially less than 7,000 metric tons of CO_{2e}/year, the CARB threshold of significance identified in Section 3.7.4.1, Significance Criteria. Furthermore, a conservative estimate (i.e., only quantifying some of the APMs' effect) of APM GHG-2 reductions also will reduce total construction emissions to approximately 676 MT CO_2e. After construction is completed, operation and maintenance will not result in a net increase in vehicle emissions. As a result, the project's construction-related GHG emissions will be less than significant and will result in a less than cumulatively considerable contribution to the significant cumulative impact of global climate change.

Table 3.7-2: Construction-Related Greenhouse Gas Emissions

Category	MT CO_2e/year [1]
EDCAQMD Jurisdiction Construction[1]	613
SMAQMD Jurisdiction Construction[1]	104
Total Construction Emissions	717
Total Construction Emissions with Implementation of APMs [2]	676

Notes:
EDCAQMD = El Dorado County Air Quality Management District; MT CO_2e/year = metric tons of carbon dioxide equivalent per year; SMAQMD = Sacramento Metropolitan Air Quality Management District.
1 Construction activities were assumed to be completed within one calendar year. Thus, the annual emissions shown above also represent the project's total construction emissions.
2 Reduction in GHG emissions assumes that implementation of APM GHG-1will achieve an approximate 5 percent reduction in construction equipment emissions as a result of minimizing idling, maintaining equipment in proper operating condition, and use of low emissions equipment when feasible.
Source: Data compiled by AECOM in 2013

Substation and switching station modifications required as part of the project will include the replacement of existing circuit breakers at Gold Hill Substation. Specifically, two existing oil-insulated breakers will be replaced with two SF_6-insulated breakers. SF_6 is used as an insulator and arc suppresser in circuit breakers. Under normal conditions, SF_6 is completely contained in the equipment and is not released to the atmosphere. SF_6 will be released only if a leak occurs in one of the joints in the circuit breaker tank, or if a crack occurs in the breaker. In either case, the loss of gas pressure/density will cause an alarm to be sent directly to the control center. This alarm will enable operators to minimize loss of SF_6 because any potential leaks will be detected automatically and actions (including, but not limited to APM GHG-2) will be implemented so that any SF_6 leaks are fixed immediately. In addition, the new SF_6 circuit breakers will have an annual guaranteed maximum leakage rate of 0.5 percent. As provided by PG&E, the two proposed 115-kilovolt circuit breakers will use approximately 80 pounds of SF_6 each. Therefore, the maximum annual MT CO_2e emissions that are anticipated to occur from the new SF_6-insulated circuit breakers will be approximately 9 MT CO_2e, which will be substantially less than the 7,000 MT CO_2e threshold of significance. Furthermore, APM GHG-2 and other future SF_6 control measures are anticipated to control and minimize potential future leaks. Aside from the potential effects from using SF_6 in the new breakers, no other operational impacts will occur as a result of substation and switching station modifications. Therefore, the project's operational GHG emissions will result in a less than cumulatively considerable contribution to the significant cumulative impact of global climate change

b) Would the project conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases? *Less than Significant*

Although project implementation will result in temporary construction-related GHG emissions, the intent, purpose, and function of the project aligns with the goals of the AB 32 Scoping Plan to reduce GHG emissions and protect against the detrimental effects of climate change. Electrification of day-to-day operations in land use development projects and industrial processes is a method that potentially can reduce fossil fuel combustion (e.g., gasoline, diesel) because of the use of a less carbon-intensive energy source (depending on the source of electricity production). With increases in the capacity of the electricity grid, additional customers and businesses will have access to sufficient electricity supply without the possibility of brownouts or blackouts. However, the ultimate reduction of GHG emissions will depend on the resources used to produce the electricity transferred through the reconductored lines and new poles/support structure. Nevertheless, by increasing the capacity of the power lines, more customers can have access to reliable electricity and potentially can electrify more of their operations.

In addition, the proposed investment in electric transmission infrastructure can be used to provide existing or future renewable electricity (e.g., wind, solar, hydro, and thermal) to residential, commercial, and industrial land uses, thereby contributing to the State's efforts to reduce GHG emissions. The AB 32 Scoping Plan-related measures, such as the Renewable Portfolio Standard and investments in renewable energy, will rely on this type of infrastructure to achieve the planned GHG reductions from renewable energy production and consumption. Therefore, although the project will not be linked directly to any renewable energy project, it will provide the necessary infrastructure to achieve large-scale reductions (i.e., electricity) through regular consumption, electrification of processes, and renewable energy sources. Therefore, the project will be consistent with the goals of the AB 32 Scoping Plan, which is the GHG reduction plan for California. The impact will be less than significant.

3.7.5 REFERENCES

Bay Area Air Quality Management District (BAAQMD). 2011 (May). *CEQA Air Quality Guidelines.* Issued in June 2010, updated in May 2011. San Francisco, CA. Available: http://baaqmd.gov/~/media/Files/Planning%20and%20Research/CEQA/BAAQMD%20CEQA%20Guidelines_May%202011_5_3_11.ashx. Accessed March 12, 2012.

California Air Resources Board (CARB). 2007 (December). California 1990 Greenhouse Gas Emissions Level and 2020 Limit. Available: http://www.arb.ca.gov/cc/inventory/1990level/1990level.htm. Accessed March 17, 2009.

———. 2008 (December). *Climate Change Scoping Plan*. Sacramento, CA. Available: http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm.

———. 2010a. Greenhouse Gas Inventory—2020 Emissions Forecast. Available: http://www.arb.ca.gov/cc/inventory/data/forecast.htm. Accessed May 21, 2013.

———. 2010b (May). California Greenhouse Gas Inventory for 2000–2008—by Category as Defined in the Scoping Plan. Available: http://www.arb.ca.gov/cc/inventory/data/tables/ghg_inventory_scopingplan_00-08_2010-05-12.pdf. Accessed March 10, 2010.

———. 2011a. Cap-and-Trade Program website. Available: http://arb.ca.gov/cc/capandtrade/capandtrade.htm. Accessed October 21, 2011.

———. 2011b (October). California Greenhouse Gas Inventory for 2000–2009. Available: http://www.arb.ca.gov/cc/inventory/data/tables/ghg_inventory_scopingplan_00-09_2011-10-26.pdf. Accessed February 25, 2013.

California Energy Commission (CEC). 2006. *Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2004.* Staff Final Report. Publication CEC-600-2006-013-SF. Sacramento, California. December 2006.

California Natural Resources Agency. 2009. 2009 *California Climate Adaptation Strategy Discussion Draft.* Sacramento, CA. Pages 48–55.

El Dorado County. 2013. Climate Change. Available: http://edcgov.us/Government/AirQualityManagement/Climate_Change.aspx. Accessed June 11, 2013.

El Dorado County Air Quality Management District (EDCAQMD). 2002 (February). *Guide to Air Quality Assessment: Determining Significance of Air Quality Impact under the California Environmental Quality Act (CEQA).* Available: https://www.edcgov.us/Government/AirQualityManagement/Guide_to_Air_Quality_Assessment.aspx. Accessed July 18, 2012.

Intergovernmental Panel on Climate Change (IPCC). 2007 (February). *Climate Change 2007: The Physical Science Basis.* Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Geneva, Switzerland.

Seinfeld, J. H., and S. N. Pandis. 1998. *Atmospheric Chemistry and Physics*. New York: John Wiley & Sons, Inc.

South Coast Air Quality Management District (SCAQMD). 2011. California Emission Estimator Model. Available: http://www.caleemod.com/. Accessed March 31, 2013.

U.S. Environmental Protection Agency (EPA). 2011. Basic Information. Available: http://www.epa.gov/climatechange/basicinfo.html. Accessed March 10, 2012.

TABLE OF CONTENTS

List of Tables

3.8 HAZARDS AND HAZARDOUS MATERIALS

3.8.1 INTRODUCTION

This section describes existing conditions and potential impacts related to hazards and hazardous materials as a result of the project. The analysis concludes that impacts related to hazards and hazardous materials will be less than significant or no impact will occur. The Applicant-Proposed Measures (APMs) described in Section 3.8.4.2, Applicant-Proposed Measures, will further reduce any less-than-significant impacts.

The project's potential effects related to hazards and hazardous materials were evaluated using the significance criteria set forth in Appendix G of the California Environmental Quality Act (CEQA) Guidelines, as shown in Table 3.8-1: CEQA Checklist for Hazards and Hazardous Materials. The conclusions are discussed in more detail in Section 3.8.4, Applicant-Proposed Measures and Potential Impacts.

Table 3.8-1: CEQA Checklist for Hazards and Hazardous Materials

Would the project:	Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
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 which 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?				☒

Would the project:	Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
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?			☒	

3.8.2 REGULATORY BACKGROUND AND METHODOLOGY

3.8.2.1 Regulatory Background

Federal

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) (Title 42, Sections 6901–6692 of the U.S. Code [42 USC 6901–6692]) is a federal statute that was passed in 1976. The goal of the RCRA is to protect human health and the environment, reduce waste, conserve energy and natural resources, and eliminate generation of hazardous waste as expeditiously as possible. The Hazardous and Solid Waste Amendments of 1984 substantially expanded the scope of the RCRA by adding new corrective action requirements, land disposal restrictions, and technical requirements. The corresponding regulations in Title 40 of the Code of Federal Regulations (CFR), Parts 260–268, 273, and 279 (40 CFR 260–268, 273, 279) address management of hazardous wastes, universal wastes (batteries, mercury-containing equipment, and lamps), and used oil.

Comprehensive Environmental Response, Compensation, and Liability Act

The Comprehensive Environmental Response, Compensation, and Liability Act, commonly known as Superfund, was enacted by Congress on December 11, 1980 (42 USC 9601 et seq.). This statute established authority and funding mechanisms for cleanup of uncontrolled or abandoned hazardous waste sites, as well as cleanup of accidents, spills, or emergency releases of pollutants and contaminants into the environment.

U.S. Department of Transportation Hazardous Materials Regulations

The U.S. Department of Transportation's Hazardous Materials Regulations (49 CFR 100–185) cover all aspects of hazardous materials packaging, handling, and transportation. This program applies to hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, and materials designated as hazardous in the Hazardous Materials Table (49 CFR 172.101). In addition, Parts 173 (Packaging Requirements), 177 (Highway Transportation), 178 (Packaging Specifications), and 180 (Packaging Maintenance) will apply to hazardous materials used during project implementation. State agencies with primary responsibility for enforcing federal and State regulations and responding to hazardous materials transportation emergencies are the California Highway Patrol and the California Department of Transportation. Together, these agencies determine the container types to be used and license hazardous-waste haulers for transportation of hazardous waste on public roads.

State

Worker Safety Requirements

The California Occupational Safety and Health Administration (Cal-OSHA) assumes primary responsibility for developing and enforcing workplace safety regulations in the State. Cal-OSHA regulations pertaining to the use of hazardous materials in the workplace (California Code of Regulations [CCR], Title 8) require employers to provide safety training and safety equipment, conduct accident and illness prevention programs, warn against hazardous-substance exposure, and prepare emergency action and fire prevention plans.

Cal-OSHA also enforces hazard communication program regulations that contain training and information requirements. These requirements include establishing procedures to identify and label hazardous substances, communicating information about hazardous substances and their handling, and preparing health and safety plans to protect workers and employees at hazardous-waste sites. Employers must make Material Safety Data Sheets available to employees and document employee information and training programs.

Hazardous Waste Control Act of 1972

The Hazardous Waste Control Act (California Health and Safety Code, Section 25100 et seq.) creates the framework for management of hazardous wastes in California. It requires the development of a statewide hazardous waste program to administer and implement the provisions of the federal RCRA program. It also designates California-only hazardous wastes and includes standards (regulations) that are equal to or, in some cases, more stringent than federal requirements. Chapter 6.5 of the Act lists allowable exemptions and requirements for recycled materials and for other materials, such as launderable rags.

The California Department of Toxic Substances Control (DTSC), part of the California Environmental Protection Agency (Cal/EPA), administers and implements the provisions of the Hazardous Waste Control Act at the State level, pursuant to authorization from the U.S. Environmental Protection Agency (EPA). Certified unified program agencies (CUPA) implement some elements of the Act at the local level. A CUPA typically is a local agency.

Environmental Health Standards for the Management of Hazardous Waste

These regulations (22 CCR Division 4.5) establish requirements for the management and disposal of hazardous waste, in accordance with the provisions of the Hazardous Waste Control Act and federal RCRA. Like the federal requirements, these State standards require waste generators to review specified characteristics or lists of wastes to determine whether their wastes are hazardous. Generators of hazardous waste must obtain identification numbers, manage wastes properly within their project areas, prepare manifests before transporting hazardous waste off-site, and use only permitted treatment, storage, and disposal facilities. The standards that hazardous waste generators must follow also include recordkeeping, reporting, packaging, and labeling requirements.

Unlike the federal government, the State of California requires that hazardous waste be transported by registered hazardous waste transporters. Title 22 regulations have been established and are enforced by DTSC. Some of the standards are enforced at the local level by a CUPA.

Emergency Response to Hazardous Materials Incidents

California has developed an emergency response plan to coordinate emergency services provided by federal, State, and local governments and private agencies. Response to hazardous material incidents is part of this plan. The plan is managed by the California Emergency Management Agency, which coordinates the responses of other agencies: Cal/EPA, California Highway Patrol, California Department of Fish and Wildlife, and Central Valley Regional Water Quality Control Board; the El Dorado County Sheriff's Department, and the El Dorado County Fire District; and the City of Folsom Police and Fire Departments.

Cortese List

The provisions of Section 65962.5 of the California Government Code are commonly referred to as the "Cortese List" (after the legislator who authored the legislation that enacted it). The Cortese List is a planning document used by State and local agencies to comply with CEQA requirements in providing information about the location of hazardous materials release sites. Section 65962.5 requires Cal/EPA to develop an updated Cortese List at least annually. DTSC is responsible for a portion of the information contained in the Cortese List. Other State and local government agencies must provide additional information about hazardous materials releases for the Cortese List.

California Fire Code 2010

The California Fire Code 2010 (24 CCR Part 9) is based on the International Fire Code established by the International Code Council. It contains consensus standards for establishing good practices to safeguard public health, safety, and general welfare from the hazards of fire, explosion, or dangerous conditions in new or existing buildings, structures, and premises.

Fire Prevention Standards for Electric Utilities

The California Code of Regulations (14 CCR Sections 1250–1258) provides clearance standards for electric poles and tower firebreaks and electric conductors to reduce the risk of fire.

California Public Utilities Commission Rules for Overhead Electric Line Construction

Under General Order 95, the California Public Utilities Commission (CPUC) has jurisdiction over all aspects of design, construction, operation, and maintenance of electric power lines and fire safety hazards.

Local

The project is not subject to local discretionary land-use regulations because the CPUC has exclusive jurisdiction over the siting, design, and construction of the project. However, PG&E has considered local plans and policies as part of the environmental review process.

El Dorado County Land Use Compatibility Plan: Georgetown Airport, Placerville Airport, Cameron Airpark Airport

The airport land use compatibility plan (ALUCP) for the Cameron Airpark Airport was adopted by the El Dorado County Airport Land Use Commission (ALUC) in June 2012. The ALUCP sets forth policies to promote compatibility between the Cameron Airpark Airport and future land uses in the surrounding area by establishing a set of compatibility criteria that is applicable to new development.

Although not directly applicable to the project, the ALUCP outlines airport area height restrictions necessary to ensure that objects will not impair flight safety or decrease the operational capability of the airport. The El Dorado County ALUC has adopted Federal Aviation Regulations Part 77 imaginary surfaces to determine height restrictions for natural and artificial objects. Penetration of these imaginary surfaces by permanent structures will endanger pilots and passengers of aircraft operating at the airport and will pose a hazard to persons occupying those structures.

El Dorado County airport land use compatibility is discussed further with regard to noise and land use standards in Section 3.12, Noise, and Section 3.10, Land Use and Planning.

Adopted Emergency Response Plans/Evacuation Plans

Emergency response/evacuation plans developed and adopted by local jurisdictions typically identify hazardous areas and assess the jurisdictions' vulnerabilities to natural disaster. These plans also can provide overall concepts for emergency management, including the management organization to respond to an emergency. Plan objectives are prepared to address any future emergency situations and set forth procedures for dealing with unforeseen disasters.
The El Dorado County Multi-Jurisdiction Hazard Mitigation Plan and the Sacramento County Multi-Hazard Mitigation Plan provide hazard mitigation and emergency response protocols in the project area.

El Dorado County Multi-Jurisdiction Hazard Mitigation Plan. The El Dorado County Multi-Jurisdiction Hazard Mitigation Plan was developed in 2004 through cooperation among various county departments, the Placerville and South Lake Tahoe fire and police departments, El Dorado Irrigation District, the U.S. Forest Service, and several community college districts, among other agencies. The plan identifies and analyzes existing hazards (such as earthquakes, fire, floods, and landslides), assesses community vulnerability and mitigation capabilities, and provides mitigation strategies, a mitigation action plan, and an implementation program (El Dorado County 2004).

Sacramento County Multi-Hazard Mitigation Plan. The Sacramento County Multi-Hazard Mitigation Plan was developed in 2004 to reduce or eliminate long-term risk to people and property from natural hazards and their effects. The plan identifies hazards and provides a risk assessment for all the potential natural hazards that could impact Sacramento County, and also includes a review of the county's current capabilities and recommended additional action items to reduce vulnerability to potential disasters. The multi-jurisdictional plan includes the County and City of Sacramento, and the incorporated municipalities of Citrus Heights, Elk Grove, Folsom, Galt, Isleton, and Rancho Cordova as well as 69 special districts that include the Sacramento Regional Flood Control Agency, the Sacramento Municipal Utility District, schools, recreation and park, water, and community service (Sacramento County 2004).

3.8.2.2 Methodology

Potential impacts on the environment related to hazards and hazardous materials were evaluated based on the type and location of anticipated project-related construction and operational activities. The evaluation was based on review of publicly available information about existing land uses, wildfire hazard zones, and known soil and/or groundwater contamination sites within and near the substations and the project alignment. Specifically, the impacts analysis used information from DTSC's EnviroStor Database (DTSC 2012), the State Water Resources Control Board (SWRCB), the California Department of Forestry and Fire Protection (CAL FIRE), the Federal Aviation Administration (FAA) Notice Criteria Tool, EPA, and various local planning documents.

3.8.3 ENVIRONMENTAL SETTING

The project area is located in El Dorado County and the City of Folsom in Sacramento County. The project alignment extends for approximately 12.5 miles in a general east-to-west direction beginning at the Shingle Springs Substation, located in the community of Shingle Springs, and terminating at the Gold Hill Substation in the City of Folsom.

3.8.3.1 Airports

One airport—Cameron Airpark Airport—is located near the project area. The airport, located in El Dorado County approximately 1.3 miles north of the project alignment, is open to the public and has one runway. A portion of the project alignment is within the designated Airport Influence Area (AIA), which extends approximately 1.8 miles from the ends of the runway. Specifically, this portion of the project alignment extends from Palmer Drive on the east to Cambridge Road on the west, and encompasses 12 TSPs along the Missouri Flat–Gold Hill Line and 21 wood poles along the Gold Hill No. 1 Line proposed for modification. These structures are located within the ALUCP-designated AIA, as well as "Review Area 2." Located within the AIA, Review Area 2 consists of locations where airspace protection, overflights, or both are compatibility concerns, but noise and safety are not of concern (El Dorado County ALUCP 2012).

3.8.3.2 Schools

The project alignment is located within 0.25 mile of four public schools, operated by the Buckeye Union School District in El Dorado County and the Folsom Cordova Unified School District in the City of Folsom, as well as one community college, one private preschool, and one private K–8 school. Table 3.8-2: Schools in the Project Vicinity lists these schools and their proximity to the project alignment.

Table 3.8-2: Schools in the Project Vicinity

School	Education Level	Address	Distance from Project Alignment (mile)
El Dorado County			
Blue Oak Elementary and Charter Montessori School	K–5	2391 Merrychase Drive, Cameron Park	0.07
Camerado Springs Middle School	6–8	2480 Merrychase Drive, Cameron Park	0.06
William Brooks Elementary School	K–5	3610 Park Drive, El Dorado Hills	0.02
Holy Trinity School	K–8	3115 Tierra del Dios Drive, El Dorado Hills	0.08
The Phoenix Schools Private Preschool	Pre-school	76 Clarksville Road, Folsom	0.19
City of Folsom			
Vista del Lago High School	9–12	1970 Broadstone Parkway, Folsom	0.06
Los Rios Community College District, Folsom Lake College	Community College	10 College Parkway, Folsom	0.03
Source: Data compiled by AECOM in 2012			

3.8.3.3 Existing Hazardous Materials/Sites

The GeoTracker database identified three active contamination sites with leaking underground tanks located within 0.25 mile of the project alignment, as summarized in Table 3.8-3: State Water Resources Control Board Contamination Sites.

The Hazardous Waste and Substances Site List (i.e., the EnviroStor database) indicated that DTSC has two records of hazardous waste sites within 0.25 mile of the project alignment (DTSC 2012). These records are associated with ongoing monitoring of naturally occurring asbestos at two schools in the City of Folsom, Vista del Lago High School (1970 Broadstone Parkway) and Russell Ranch Elementary School (375 Dry Creek Road).

Table 3.8-3: State Water Resources Control Board Contamination Sites

Site	Designation	Address	Distance from Project Alignment (mile)	Cleanup Status
ARCO service station (now Valero)	LUST	3969 Cameron Park Drive, Cameron Park	0.05	Open—verification monitoring
Shell service station	LUST	3405 Coach Lane, Cameron Park	0.08	Open—verification monitoring
Former Exxon service station	LUST	4051 Cameron Park Drive, Cameron Park	0.13	Open—verification monitoring

Note:
LUST = leaking underground storage tank; MTBE = Methyl tertiary-butyl ether; TBA = tertiary butyl alcohol
Sources: SWRCB 2012, data compiled by AECOM in 2012

A search of EPA's EnviroMapper database (EPA 2012a) indicated that the following small-quantity hazardous waste generators are located within 0.25 mile of the project alignment:

- The Home Depot, 2675 East Bidwell Street, Folsom
- HD Supply Facilities Inc., 3050 Ramos Drive, Folsom
- Raley's, 3965 Park Drive, El Dorado Hills
- Shell service station, 1021 Saratoga Way, El Dorado Hills
- Target Stores, 4400 Town Center Boulevard, El Dorado Hills
- Shell service station, 3405 Coach Lane, Cameron Park
- Longs Drugs (now CVS/Pharmacy), 3500 Palmer Drive, Cameron Park
- Shingle Springs Honda, 4070 Mother Lode Drive, Shingle Springs

No large-quantity hazardous waste generators or Superfund sites are located within 0.25 mile of the project alignment.

3.8.3.4 **Wildland Fire Hazards**

El Dorado County

As defined by CAL FIRE, all of the project area from the El Dorado County line to the eastern terminus of the project alignment is located within a State Responsibility Area (SRA)[1], with the following two exceptions:

- The portion of the alignment north of U.S. Highway 50 (U.S. 50) from Tierra del Dios Drive to Cambridge Road is located in a Local Responsibility Area (LRA), which is not designated as a very high fire hazard zone (CAL FIRE 2009).

[1] SRAs are the areas where the State of California is financially responsible for preventing and suppressing wildfires. SRAs do not include lands within city boundaries or in federal ownership.

- The portion of the alignment north of U.S. 50 within Pine Hill is located in a Federal Responsibility Area.

Within the SRA, the project area is located in the following fire hazard severity zones (CAL FIRE 2007):

- *Moderate*: from the El Dorado County line to the eastern edge of the LRA at Tierra del Dios Drive
- *High*: from Cambridge Road to Cameron Park Drive
- *Very High*: from Cameron Park Drive to the eastern edge of the Federal Responsibility Area at Pine Hill, and the remaining portion of the alignment south of U.S. 50 to its eastern terminus (including Shingle Springs Substation)

Fire protection services and equipment near the project alignment are discussed in detail in Section 3.14, Public Services.

City of Folsom

The portion of the project area within the Folsom city limits is located within an LRA, and that LRA is not designated as a very high fire hazard severity zone (CAL FIRE 2008).

3.8.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for hazards and hazardous materials impacts derived from Appendix G of the CEQA Guidelines, provide relevant APMs, and contain an assessment of potential project-related construction and operational hazards and hazardous materials impacts.

3.8.4.1 **Significance Criteria**

According to Section 15002(g) of the CEQA Guidelines, “a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project.” As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts related to hazards and hazardous materials were evaluated for each of the criteria listed in Table 3.8-1: CEQA Checklist for Hazards and Hazardous Materials, as discussed in Section 3.8.4.3, Potential Impacts.

3.8.4.2 **Applicant-Proposed Measures**

As described in Section 3.8.4.3, Potential Impacts, impacts related to hazards and hazardous materials will be less than significant or no impact will occur. PG&E will implement the following APMs to further minimize, avoid, or reduce potential less-than-significant impacts related to hazards and hazardous materials:

APM HAZ-1: Hazardous-Substance Control and Emergency Response

PG&E will implement a Hazardous Substance Control and Emergency Response Plan, which will identify methods and techniques to minimize exposure of the public and construction workers to potentially hazardous materials during all phases of project implementation. The procedures require PG&E to provide worker training in hazardous-substance control and emergency response that is appropriate to the workers' roles. The procedures also require implementation of appropriate control methods and approved containment and spill-control practices for construction and materials stored in the project area. If it is necessary to store chemicals, the chemicals will be managed in accordance with all applicable regulations. Material safety data sheets will be maintained and kept available in the project area, as applicable.

Project construction may require blading/leveling of the soil surface and excavation or auguring to a depth of approximately 24 feet. However, if soils suspected of contamination (based on visual, olfactory, or other evidence) are removed during grading or excavation/auguring activities, the excavated soil will be tested. If they are contaminated above hazardous-waste levels, those soils will be contained and disposed of at a licensed waste facility. Any known or suspected contaminated soil will undergo testing and investigation procedures, supervised by a qualified person as appropriate, to meet the requirements of 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 will include but will not be limited to the following measures:

- proper disposal of potentially contaminated soils;
- establishment of project area–specific buffers for construction vehicles and equipment located near sensitive resources; and
- implementation of emergency-response and reporting procedures to address spills of hazardous materials.

APM HAZ-2: Smoking and Fire Rules

Smoking will be permitted only in designated smoking areas or within the cabs of vehicles or equipment.

APM HAZ-3: Fire Risk Management

Project personnel will be directed to park away from dry vegetation. During fire season in designated SRAs, 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.

3.8.4.3 Potential Impacts

Potential project impacts related to hazards and hazardous materials were evaluated against the CEQA significance criteria and are discussed in further detail in the following paragraphs.

The upgraded power lines will require no change to existing operation and maintenance activities. As such, impacts related to hazards and hazardous materials that result from the project will not change from existing conditions and no operation-related impacts will occur. The impact analysis is limited to temporary and short-term impacts associated with project construction, which includes the following components:

- **Missouri Flat-Gold Hill Line Reconductoring**, which will include reconductoring approximately 12.5 miles of the existing line, replacing approximately 60 existing tubular steel poles (TSP), modifying approximately 13 existing lattice steel towers, and converting approximately 1,000 feet of existing overhead distribution line to underground;
- **Gold Hill No. 1 Line Reconductoring**, which will include reconductoring approximately 7 miles of the existing line, replacing approximately 80 existing wood poles with new wood or light-duty steel poles and approximately one new TSP, installing approximately seven new interset wood poles, replacing approximately three distribution wood structures with approximately two new wood poles, and minor distribution line rewiring on approximately two existing wood poles near Limestone Substation; and
- **Access Road Improvements and Construction,** which will include improvements to various temporary access roads that are planned for use during construction and the creation of an approximately 100-foot-long access road.

The impact analysis also evaluates impacts resulting from required site preparation and vegetation removal and trimming required to accommodate construction activities associated with these project components.

The project also includes modifications at Shingle Springs, Pacific Western Pipe, Limestone, Clarksville, and Gold Hill substations, and Missouri Flat Switching Station; however, all work at these facilities will be minor and within existing fence lines. Therefore, no impacts related to hazards and hazardous materials will occur.

a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? *Less than Significant*

The project will not create a hazard to the public or the physical environment through the routine transport, use, or disposal of hazardous materials. Other than substances associated with construction vehicles and equipment, no hazardous materials will be associated with project construction. With implementation of APM HAZ-1, PG&E will further reduce the small risk of minor exposures of the environment, the public, or project workers to potentially imported hazardous materials during project construction. Therefore, the impact will be less than significant.

The existing substations include transformers and breakers, which use mineral oils and sulfur hexafluoride (SF_6), respectively. The project will not include any changes to existing substations or the addition of new transformers or breakers at any substations, with the exception of Gold Hill Substation, where two existing oil-insulated breakers will be replaced with two SF_6-insulated breakers. SF_6 is used as an insulator and arc suppresser in circuit breakers. Under normal conditions, it is completely contained in the equipment. Although SF_6 is relatively inert and non-toxic, it is considered a greenhouse gas. SF_6 is released only if a leak occurs in one of the joints in the circuit breaker tank, or if a crack occurs in the breaker. In either case, the loss of gas pressure/density will cause an alarm to be sent directly to the control center. This alarm will enable operators to minimize loss of SF_6; therefore, the impact will be less than significant. PG&E also will incorporate the APMs from Section 3.3, Greenhouse Gas, to further reduce potential release of SF_6. Aside from the effects of using SF_6 in the new breakers, no additional or new impacts will occur as a result of substation and switching station modifications.

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*

Project construction will require the use of motorized heavy equipment, such as cranes, crew trucks, and helicopters. During construction activities, an increased potential will exist for an accidental release of fluids from a vehicle or motorized piece of equipment. However, the effects will not be substantial because of the limited amounts and types of hazardous materials proposed for use during construction. With implementation of APM HAZ-1, PG&E will further reduce the less-than-significant impact level.

Various project activities will require ground disturbance, including site preparation for work areas and access roads; installation of concrete-pier and micropile foundations; and excavation for placing the overhead distribution underground. As discussed in Chapter 3.6, Geology and Soils, and Section 3.3, Air Quality, portions of the project alignment are located in areas designated as “areas more likely to contain asbestos,” “areas where the presence of asbestos is possible but unlikely,” and “areas moderately likely to contain asbestos.” Site preparation activities and foundation installations potentially can occur in areas where asbestos is present, resulting in the potential to encounter naturally occurring asbestos (NOA). The project’s compliance with APM AQ-3, which requires a geological evaluation to test for the presence of NOA before any earth-disturbing activities occur in these areas, will identify NOA in planned disturbance areas. If NOA is found to be present in the planned disturbance area, meeting all the requirements listed in APM-AQ-3 will be necessary during construction in that area. Furthermore, to avoid and minimize NOA impacts on sensitive receptors, before any ground-disturbing activities occurring within 500 feet of sensitive receptors, a geological evaluation to test for the presence of NOA also will be required. Therefore, all areas of earth disturbance with the potential to encounter NOA or located in proximity of sensitive receptors will be evaluated for NOA by a registered geologist before beginning any construction activities. If encountered, all required NOA abatement measures will be performed as necessary. In the event NOA is encountered, any NOA-contaminated soils excavated during construction will be hauled off site and disposed of at a State-approved Class II or III asbestos disposal facility that meets the requirements of Public Resources Code Section 44820 and California Health and Safety Code Section 25173.7. Therefore, the impact will 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*

As described previously in Section 3.8.3, Environmental Setting, seven schools are located within 0.25 mile of the project alignment. Project construction will not include using large quantities of volatile hazardous materials on-site, with the exception of the fuel truck that will be required during helicopter use.

Lattice steel tower modifications and TSP replacements/installations will require the use of minor amounts of hazardous materials (e.g., fuels, oils, lubricants). These hazardous materials will be handled within 0.25 mile of three schools in the City of Folsom and four schools in unincorporated El Dorado County, listed in Table 3.8-2: Schools in the Project Vicinity. One helicopter landing zone will be located approximately 0.15 mile from William Brooks Elementary School. If hazardous materials are released or encountered during construction, they will be contained and managed through implementation of the best management practices provided in the Stormwater Pollution Prevention Plan, which are further described in Section 3.9, Hydrology.

Various construction activities will result in ground disturbance, which will have the potential to encounter NOA. Six schools that are listed in Table 3.8-2: Schools in the Project Vicinity are located within 500 feet of the project alignment. Therefore, six schools in the project vicinity are located within 0.25 miles of areas that are at least moderately likely to contain asbestos. The seventh school is located outside the 500-foot-wide buffer.

With implementation of APM HAZ-1 and APM HAZ-3, PG&E will reduce potential impacts on schools in the project area. In addition, the project will comply with applicable air quality emissions regulations, as discussed in Section 3.3, Air Quality. Because of the temporary and short-term nature of project construction, the relatively small quantity of hazardous materials to be used during construction, and the distance between schools and the project alignment, schools are not likely to be affected by emissions of hazardous substances. Therefore, the impact will be less than significant.

d) Would the project be located on a site which 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*

A review of information gathered from the databases maintained by the SWRCB (GeoTracker), DTSC (EnviroStor), and EPA (EnviroMapper) (SWRCB 2012; DTSC 2012; EPA 2012b), in accordance with California Government Code Section 65962.5, indicates that the project will not be located on a known hazardous material site. Groundwater is not expected to be encountered during excavation activities because it is located more than 100 feet below the ground surface; therefore, contact with previously unknown areas of groundwater contamination is not considered a potential hazard. Therefore, no impact will occur.

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? ***Less than Significant***

Cameron Airpark Airport is located approximately 1.3 miles north of the project alignment. The portion of the project alignment located in El Dorado County from Palmer Drive on the east to Cambridge Road on the west is within the AIA of the Cameron Airpark ALUCP. As described in Chapter 2, Project Description, the project will include:

- modifying approximately 13 lattice steel towers;
- replacing approximately 36 TSPs with TSPs that will be approximately 3 to 20 feet taller;
- replacing approximately 80 wood poles with wood or LDS poles and a TSP that will be up to approximately 25 feet taller; and
- installing approximately seven new interset poles.

Some of these raised or replaced structures may exceed the Notice Criteria specified in FAA Regulations and Title 14 CFR, Section 77.9. Prior to construction, PG&E will submit the required Notice of Proposed Construction and Alteration Application to the FAA for any towers being raised or any poles being replaced that exceed the Notice Criteria. Although not applicable, PG&E's structures will not conflict with El Dorado ALUCP standards. Furthermore, PG&E will coordinate with local airports regarding helicopter operations and flight plans during project construction. Therefore, the impact will 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? ***No Impact***

The project alignment is not located within 2 miles of a private airstrip. Therefore, no impact will occur.

g) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? ***No Impact***

Project construction may necessitate some road closures; however, closures will proceed in accordance with California Department of Transportation requirements and local jurisdictional regulations. Project construction is not anticipated to interfere with an adopted emergency response or evacuation plan. Furthermore, APM TRA-2 will be implemented to avoid any risk of interference with such plans. Therefore, no impact will occur.

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***

In unincorporated El Dorado County, the project will require use of construction equipment with the potential to generate sparks that could cause a wildland fire. Most areas of El Dorado County near the project alignment are rural and the amount of brush that could serve as fire fuel is considered moderate to very high. Furthermore, the majority of the proposed construction in unincorporated El Dorado County will occur within a SRA that varies between moderate, high, and very high fire hazard severity zones (CAL FIRE 2007). The portion of the project alignment located in the City of Folsom is not in a very high fire hazard severity zone (CAL FIRE 2007). Furthermore, this portion of the project alignment is urban and the amount of brush that could serve as fire fuel is low. Although portions of the project alignment encompass areas with moderate to very high fire hazard severity, with implementation of APM HAZ-2 and APM HAZ-3, PG&E will reduce the potential hazards related to wildland fires. Therefore, the impact will be less than significant.

3.8.5 References

California Department of Forestry and Fire Protection (CAL FIRE). 2007. Fire Hazard Severity Zones in SRA, El Dorado County.

———. 2008. Very High Fire Hazard Severity Zones in LRA as Recommended by CAL FIRE, Sacramento County.

———. 2009. Very High Fire Hazard Severity Zones in LRA as Recommended by CAL FIRE, El Dorado County.

California Department of Toxic Substances Control (DTSC). 2012. EnviroStor. Available: http://www.envirostor.dtsc.ca.gov/public/. Accessed July 12, 2012.

City of Folsom. 1993 (January). *City of Folsom General Plan*. Folsom, CA.

El Dorado County. 2004. El Dorado County Multi-Jurisdiction Hazard Mitigation Plan. Placerville, CA.

El Dorado County Airport Land Use Commission (ALUC). 2012. *Cameron Airpark Airport Land Use Compatibility Plan.* Adopted June 28, 2012. Placerville, CA. Prepared by Mead & Hunt, Santa Rosa, CA.

Sacramento County. 2004. *Sacramento County Multi-Hazard Mitigation Plan*. Adopted December 2004. Available: http://hazardmitigation.calema.ca.gov/docs/lhmp/Sacramento_County_LHMP.pdf. Accessed June 13, 2013.

State Water Resources Control Board (SWRCB). 2012. GeoTracker. Available: http://www.waterboards.ca.gov/ust/electronic_submittal/about.shtml. Accessed July 12, 2012.

U.S. Environmental Protection Agency (EPA). 2012a. EnviroMapper for Envirofacts. Available: http://www.epa.gov/emefdata/em4ef.home. Accessed July 12, 2012.

———. 2012b. Superfund Site Overview, Aerojet General Corporation. Available: http://yosemite.epa.gov/r9/sfund/r9sfdocw.nsf/7508188dd3c99a2a8825742600743735/60508b9cae7346f088257007005e9436!OpenDocument. Accessed July 12, 2012.

TABLE OF CONTENTS

List of Tables

3.9 HYDROLOGY AND WATER QUALITY

3.9.1 INTRODUCTION

This section describes existing conditions and potential impacts on hydrologic resources and water quality as a result of the project. The analysis concludes that impacts on hydrologic resources and water quality will be less than significant or no impact will occur. The Applicant-Proposed Measures (APMs) described in Section 3.9.4.2, Applicant-Proposed Measures, will further reduce any less-than-significant impacts.

The project's potential effects on hydrologic resources and water quality were evaluated using the significance criteria set forth in Appendix G of the California Environmental Quality Act (CEQA) Guidelines, as shown in Table 3.9-1: CEQA Checklist for Hydrology and Water Quality. The conclusions are discussed in more detail in Section 3.9.4, Applicant-Proposed Measures and Potential Impacts.

Table 3.9-1: CEQA Checklist for Hydrology and Water Quality

Would the project:	Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
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?				☒

Would the project:	Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
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?				☒

3.9.2 REGULATORY BACKGROUND AND METHODOLOGY

3.9.2.1 Regulatory Background

Federal

Clean Water Act Section 402

Under the Clean Water Act Section 402, the National Pollutant Discharge Elimination System (NPDES) controls water pollution by regulating point sources of pollution to waters of the United States. The State Water Resources Control Board (SWRCB) administers the NPDES permit program in California.

Projects that disturb one or more acres of soil must obtain coverage under the State's NPDES General Permit for Discharges of Storm Water Associated with Construction Activity. A stormwater pollution prevention plan (SWPPP) must be developed and implemented for each project covered by the general permit. The SWPPP must include best management practices that are designed to reduce potential impacts on surface water quality during project implementation. The project will disturb more than one acre of soil; therefore, it will require an NPDES permit.

National Flood Insurance Program

The Federal Emergency Management Agency (FEMA) determines flood elevations and floodplain boundaries based on U.S. Army Corps of Engineers studies. FEMA also distributes the flood insurance rate maps used in the National Flood Insurance Program. These maps identify the locations of special flood hazard areas, including 100-year floodplains.

Federal regulations governing development in a floodplain are set forth in Title 44, Part 60 of the Code of Federal Regulations. Those regulations enable FEMA to require municipalities participating in the National Flood Insurance Program to adopt certain flood hazard reduction standards for construction and development in 100-year floodplains.

State

California Fish and Game Code Section 1602

Section 1602 of the California Fish and Game Code protects the natural flow, bed, channel, and bank of any river, stream, or lake under the jurisdiction of the California Department of Fish and Wildlife (CDFW). Project plans that are sufficient to indicate the nature of a project for construction must be submitted to CDFW if the project will:

- substantially divert, obstruct, or change a streambed;
- use material from the streambeds; or
- result in the disposal or deposition of debris, waste, or other material containing crumbled, flaked, or ground pavement that can flow into a stream.

For projects affecting the bed, bank, or flow of water under CDFW jurisdiction, applicants must submit a notification of lake or streambed alteration to CDFW. The department may issue an agreement if its staff members determine that the activity may substantially adversely affect fish and wildlife resources.

Porter-Cologne Water Quality Control Act

Under the Porter-Cologne Water Quality Control Act, the SWRCB has authority over waters of the State and water quality. The Regional Water Quality Control Boards (RWQCBs) have local and regional authority. The Central Valley RWQCB has authority in the project area. The RWQCBs prepare and periodically update basin plans (water quality control plans), which establish:

- beneficial uses of water designated for each protected water body,
- water quality standards for both surface water and groundwater, and
- actions necessary to maintain these water quality standards.

The proponent of any project that will discharge waste to waters of the State must file a report of waste discharge with the appropriate RWQCB. The RWQCB will issue waste discharge requirements or a waiver of the waste discharge requirements for the project (California Wetlands Information System 2002).

Local

Because the California Public Utilities Commission (CPUC) has exclusive jurisdiction over the siting, design, and construction of the project, the project is not subject to local discretionary regulations. However, PG&E has considered local plans and policies as part of the environmental review process. This section includes a summary of local standards or ordinances related to hydrologic resources and water quality for informational purposes and to assist with the CEQA review process.

The El Dorado County Building and Safety Services Department issues grading permits for work to regulate and oversee activities that could, among other things, degrade water quality within the local environment. Similarly, the City of Folsom's Public Works Department oversees all stormwater management issues within its jurisdiction, from storm drainage design and construction, to operation and maintenance, and to pollution prevention from urban runoff.

Although PG&E is not subject to local discretionary permitting, ministerial permits will be secured as required.

3.9.2.2 **Methodology**

Information about surface water and groundwater in the project area was obtained from published studies prepared by State, county, and local water agencies and districts. Potential impacts on surface water and groundwater were evaluated by considering the initial project construction activities and the continued operation and maintenance. PG&E will comply with all applicable federal, State, and local regulatory requirements that protect surface water and groundwater.

3.9.3 ENVIRONMENTAL SETTING

The project area is located within the foothills of the Sierra Nevada and ranges from approximately 350 to 1,500 feet in elevation. The area experiences a Mediterranean climate, with cool, wet winters and hot, dry summers. The majority of the approximately 20 inches of annual precipitation typically falls between October and May (DWR 2003; WRCC 2013). Because of their proximity to the Sierra Nevada, the area's major rivers experience a heavy seasonal runoff from snowmelt at higher elevations during the spring and summer months. These rivers include the Cosumnes River, which collects water from many creeks and drainages located along the eastern portions of the project alignment, and the American River, which collects water from drainages in the western portion of the project area.

3.9.3.1 **Surface Water Hydrology**

The project alignment crosses through three major hydrologic units—Middle Sierra, North Valley Floor, and Valley-American (DWR 2003). The Middle Sierra and North Valley Floor hydrologic units are part of the larger San Joaquin River hydrologic area. Surface water in the Middle Sierra hydrologic unit, which includes approximately 4.8 miles of the project alignment from Shingle Springs Substation to approximately Tierra De Dios Drive in Cameron Park as well as Limestone Substation, generally flows south or southwest, forming the upper headwaters to Deer Creek (DWR 2013). Surface waters in the North Valley Floor hydrologic unit, which include approximately 4.6 miles of the project alignment, from approximately Tierra De Dios Drive in the community of Cameron Park to Santa Cruz Court in the community of El Dorado Hills, drain to Deer Creek and the Cosumnes River.

Surface water in the Valley-American hydrologic unit, which includes approximately 2.6 miles of the project alignment, from approximately Santa Cruz Court in the community of El Dorado Hills to Gold Hill Substation in the City of Folsom, generally flows west to the Sacramento River. This section is part of the larger Sacramento River hydrologic region, which collects surface water from the Sacramento Valley and surrounding mountains, drains to the Sacramento–San Joaquin Delta and lastly the San Francisco Bay.

Numerous aquatic features are present throughout the project area, ranging from larger creeks and streams to ponds and wetlands. Drainages in the project area consist of Carson Creek, Deer Creek, as well as many other unnamed tributaries. Numerous seasonal wetlands, vernal pools, and other surface water features are also located throughout the length of the project alignment.

3.9.3.2 Groundwater

The project area is located within two groundwater subbasins, the Cosumnes Subbasin and South American Subbasin. The Cosumnes Subbasin is located beneath approximately 8.9 miles of the project alignment, from Shingle Springs Substation to approximately Santa Cruz Court in El Dorado Hills, as well as beneath Limestone Substation. This subbasin is part of the larger San Joaquin Valley Groundwater Basin, which underlies much of the San Joaquin Valley. The Cosumnes Subbasin is recharged primarily by three drainage systems: the Cosumnes River, Dry Creek, and the Mokelumne River. Groundwater levels in the basin recorded since the mid-1960s have been relatively stable, with periods of drought showing decreases and periods of heavy rain showing substantial recharge (DWR 2003).

The South American Subbasin is located beneath approximately 2.3 miles of the project alignment, from approximately Santa Cruz Court in El Dorado Hills to Gold Hill Substation. This subbasin is part of the larger Sacramento Valley Groundwater Basin, which underlies much of the Sacramento Valley. The South American Subbasin is recharged primarily by the American River; however, interactions within the Cosumnes and Mokelumne rivers may affect groundwater at lower depths. Groundwater levels in the basin recorded since the mid-1960s have been relatively stable, with periods of drought showing decreases and periods of heavy rain showing substantial recharge (DWR 2003).

Drinking water in the project area is supplied almost entirely by surface water reservoirs containing snowmelt from the Sierra Nevada. Groundwater is not a substantial contributor to municipal water in the project area (EID 2013; City of Folsom 2013).

3.9.3.3 Flood Potential

The project area is not located within a flood hazard zone as designated by FEMA. The nearest flood hazard areas to the project area are low-lying portions of Cameron Park located approximately 0.2 mile north of Archwood Road in Cameron Park (FEMA 2013).

3.9.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for hydrology and water quality impacts derived from Appendix G of the CEQA Guidelines, provide relevant APMs, and contain an assessment of potential project-related construction and operational impacts on hydrology and water quality.

3.9.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines,

the potential significance of project-related impacts on hydrologic resources and water quality was evaluated for each of the criteria listed in Table 3.9-1: CEQA Checklist for Hydrology and Water Quality, as discussed in Section 3.9.4.3, Potential Impacts.

3.9.4.2 Applicant-Proposed Measures

As described in Section 3.9.4.3, Potential Impacts, impacts on hydrologic resources and water quality will be less than significant or no impact will occur. PG&E will implement the following APM to further minimize potential less-than-significant project impacts on hydrologic resources and water quality:

APM HYDRO-1: Stormwater Pollution Prevention Plan

PG&E will file a Notice of Intent with the SWRCB for coverage under the General Construction Storm Water Permit and will prepare and implement an SWPPP in accordance with General Order No. 2009-0009-DWQ, which typically includes measures such as placement of straw wattles or silt fencing, flagging, mulching, seeding and other means to help stabilize disturbed areas and reduce erosion and sedimentation.

APM HYDRO-2: Water Feature Protection Requirements

Where access through hydrologic resources are required, PG&E will install temporary bridges or plates over drainages (spanning the ordinary high water mark) and install fiberglass or wood matting in wetland features to reduce water quality impacts to these features.

3.9.4.3 Potential Impacts

Potential project impacts on hydrologic resources and water quality were evaluated against the CEQA significance criteria and are discussed in further detail in the following paragraphs.

The upgraded power lines will require no change to existing operation and maintenance activities. As such, impacts on hydrologic resources and water quality that result from the project will not change from existing conditions and no operation-related impacts will occur. The impact analysis is limited to temporary and short-term impacts associated with project construction, which includes the following components:

- **Missouri Flat-Gold Hill Line Reconductoring**, which will include reconductoring approximately 12.5 miles of the existing line, replacing approximately 60 existing tubular steel poles (TSP), modifying approximately 13 existing lattice steel towers, and converting approximately 1,000 feet of existing overhead distribution line to underground;

- **Gold Hill No. 1 Line Reconductoring**, which will include reconductoring approximately 7 miles of the existing line, replacing approximately 80 existing wood poles with new wood or light-duty steel poles and approximately one new TSP, installing approximately seven new interset wood poles, and replacing approximately three distribution wood structures with approximately two new wood poles, and minor distribution line rewiring on approximately two existing wood poles near Limestone Substation; and

- **Access Road Improvements and Construction,** which will include improvements to various temporary access roads that are planned for use during construction and the creation of an approximately 100-foot-long access road.

The impact analysis also evaluates impacts resulting from required site preparation and vegetation removal and trimming required to accommodate construction activities associated with these project components.

The project also includes modifications at Shingle Springs, Pacific Western Pipe, Limestone, Clarksville, and Gold Hill substations, and Missouri Flat Switching Station; however, all work at these facilities will be minor and within existing fence lines. Therefore, no hydrologic resources and water quality impacts will occur.

a) Would the project violate any water quality standards or waste discharge requirements?
Less than Significant

Construction-related impacts on water quality have the potential to result from several different sources. Among these sources is contamination from fuels or other hazardous materials, and increased erosion caused by grading or vegetation clearing that leads to increased sedimentation. Vegetation may need to be cleared or mowed to improve existing access roads or establish overland access routes, work areas, pull sites, or landing zones for construction. In some instances, minor grading also may be needed to improve tower work areas or existing access roads. The project has the potential to temporarily adversely affect water quality as a result of erosion and subsequent sedimentation that can result from the increased use of off-road vehicles or earth-disturbing activities. One tower located approximately 800 feet northwest of the intersection of Broadstone Parkway and Empire Ranch Road is located in a seasonal pond and is anticipated to be accessed using a helicopter; however, depending on site-specific conditions at the time of construction, other construction methods may be employed, including accessing the tower on foot and using pulley equipment staged outside of the pond or completing tower work only during the dry season and staging construction equipment on temporary matting. Furthermore, a number of seasonal drainages and one seasonal wetland also will need to be crossed to access project work areas; however, these types of project activities will be small in scale and distributed along the entire length of the project alignment. Therefore, the impact will be less than significant.

PG&E will assess the risk to water quality—based on site-specific soil characteristics, slope, and the construction schedule—and will develop a SWPPP that addresses potential water quality concerns, as described in APM HYDRO-1. The SWPPP will specify measures for each activity that has the potential to degrade surrounding water quality through erosion, sediment runoff, and the presence of other pollutants. These measures will be implemented and monitored throughout the project by a qualified stormwater pollution prevention plan practitioner (QSP). With implementation of APM HYDRO-1 and APM HYDRO-2, PG&E will further reduce the temporary and short-term construction-related effects on water quality. Therefore, the impact will be less than significant.

Accidental releases of hazardous materials that are used during construction, such as diesel fuel, hydraulic fluid, or oils and grease, will have the potential to occur. This potential impact and associated APMs are discussed in Section 3.8, Hazards and Hazardous Materials.

b) Will 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)? *No Impact*

A water truck, typically with a capacity of 4,000 gallons, will be available to support project construction activities and dust suppression. The water is expected to be obtained from local municipal sources, which are typically supplied through surface water reservoirs. The project also will not result in an increase in impervious surfaces or other areas that could substantially interfere with groundwater recharge. The project's negligible water use during construction will not deplete or interfere with groundwater supply or recharge. Therefore, no impact will occur.

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*

The project has been designed to minimize impacts on waterways, as well as avoid substantially altering the drainage patterns of the project work areas or altering the course of a stream or river. Furthermore, because major grading or contouring is not required, the project will not result in the substantial alteration of existing drainage patterns. Minor temporary grading may be needed in select locations to improve project access or establish work areas to accommodate equipment; however, this grading will be limited in scope and will not substantially alter site drainage or result in substantially increased erosion or siltation. Therefore, the impact will be less than significant.

To further reduce this impact, appropriate measures will be implemented, per the SWPPP and under the guidance of a QSP, as described in APM HYDRO-01. After project construction is completed, disturbed areas will be returned to approximately pre-project conditions, unless otherwise requested by the landowner. Through project design and implementation of the SWPPP and APM HYDRO-2, the temporary and short-term effects of erosion or siltation from site runoff will be addressed. Therefore, the impact will 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*

The project does not include creation of impervious surfaces or other modification of surface conditions that could increase surface water runoff rates. In addition, the project will not require the substantial modification of any upland sites to an extent that it could alter drainage patterns in a way that will increase the potential for on- or off-site flooding. Therefore, the impact will 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***

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 along U.S. Highway 50 and other local roads. Portions of the project alignment crossing through parking lots and residential development generally have more developed stormwater systems already in place. The project will not increase the amount of impervious surfaces, nor will it substantially modify the grade within the project area; therefore, the project will not create or contribute additional runoff that could exceed the capacity of existing stormwater systems. Therefore, the impact will be less than significant.

As discussed previously, the project has the potential to result in less-than-significant water quality impacts, typically through the flow of sediment-laden runoff or the accidental discharge of hazardous materials. As described in APM HYDRO-1, these types of polluted runoff will be controlled further through implementation of an SWPPP. Therefore, the impact will be less than significant.

f) Would the project otherwise substantially degrade water quality? ***No Impact***

No additional impacts on water quality beyond those described previously are anticipated. Thus, the project will not otherwise substantially degrade water quality. Therefore, no impact will 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 include construction of any new housing. Therefore, no impact will occur.

h) Would the project place within a 100-year flood hazard area structures which would impede or redirect flood flows? ***No Impact***

The project is not located within a 100-year flood hazard area. Thus, the project will not result in impediments or redirections of flood waters. Therefore, no impact will occur.

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? ***No Impact***

The project will not affect 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. The project will not include work that could jeopardize the function or safety of existing dams, levees, or other flood control devices. Therefore, no impact will occur.

j) Would the project cause inundation by seiche, tsunami, or mudflow? ***No Impact***

The project will not affect the susceptibility of the project area to increased risk of inundation resulting from seiche, tsunami, or mudflow. Therefore, no impact will occur.

3.9.5 REFERENCES

California Department of Conservation (DOC). 2013. Watershed Browser. Available: http://www.conservation.ca.gov/dlrp/watershedportal/WatershedBrowser/Pages/WatershedBrowser.aspx. Accessed March 18, 2013.

California Department of Water Resources (DWR). 2003. California's Groundwater Bulletin 118 Update. Sacramento, CA.

California Wetlands Information System. 2003. Summary of the Porter-Cologne Water Quality Control Act. Available: http://ceres.ca.gov/wetlands/permitting/Porter_summary.html. Last updated February 5, 2002. Accessed March 18, 2013.

City of Folsom. 2013. Water Facts. Available: http://www.folsom.ca.us/depts/environmental_n_water_resources_(formerly_utilities)/water/water_facts.asp. Accessed March 19, 2013.

El Dorado Irrigation District (EID). 2013. District Information. Available: http://www.eid.org/index.aspx. Accessed March 19, 2013.

Federal Emergency Management Agency (FEMA). 2013. Mapping Information Platform. Available: https://hazards.fema.gov/femaportal/wps/portal/NFHLWMSkmzdownload. Accessed March 18, 2013.

Western Regional Climate Center (WRCC). 2013. Periods of Record Monthly Climate Summary. Available: http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca3111. Accessed March 18, 2013.

TABLE OF CONTENTS

List of Figures

List of Tables

3.10 LAND USE AND PLANNING

3.10.1 INTRODUCTION

This section describes existing conditions and potential impacts on land use and planning as a result of the project. The analysis concludes that no impacts on land use and planning will occur.

The project's potential effects on land use and planning were evaluated using the significance criteria set forth in Appendix G of the California Environmental Quality Act (CEQA) Guidelines, as shown in Table 3.10-1: CEQA Checklist for Land Use and Planning. The conclusions are discussed in more detail in Section 3.10.4, Applicant-Proposed Measures and Potential Impacts.

Table 3.10-1: CEQA Checklist for Land Use and Planning

Would the project:	Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
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?				☒

3.10.2 REGULATORY BACKGROUND AND METHODOLOGY

3.10.2.1 Regulatory Background

Federal

No federal regulations related to land use and planning are applicable to this project.

State

The California Public Utilities Commission (CPUC) has exclusive jurisdiction over the design, siting, installation, operation, maintenance, and repair of electric transmission facilities, pursuant to Article XII, Section 8 of the California Constitution. The CPUC is the lead agency for CEQA review for this project and has authority for discretionary project approval.

Local

The project is not subject to local discretionary land use regulations because the CPUC has exclusive jurisdiction over the siting, design, and construction of the project. However, PG&E

has considered local plans and policies as a part of the environmental review process. The following analysis of local regulations relating to land use and planning is provided for informational purposes and to assist with CEQA review.

The project alignment crosses through El Dorado County and the City of Folsom. Adopted local plans and ordinances include the following:

- El Dorado County General Plan, adopted on July 19, 2004. El Dorado County implements its general plan by adopting ordinances and resolutions and approving and adopting programs (El Dorado County 2009).
- El Dorado County Zoning Ordinance, last updated in November 2010. The Zoning Ordinance is used as a tool to implement to county's general plan and provide specific land use and development requirements and standards, as well as zoning regulations (El Dorado County 2010).
- City of Folsom General Plan, adopted in 1988 and updated in 1993 (City of Folsom 1993). The City's 2035 General Plan is currently in development and will address issues not included in the 1993 update such as greenhouse gas emissions, climate change, flood safety planning, and complete streets.
- City of Folsom Municipal Code, adopted on March 6, 1990 (City of Folsom 2013). Title 17 of this code covers zoning regulations for the city.
- El Dorado County Airport Land Use Compatibility Plan (ALUCP), developed in 1986 for the Cameron Airpark Airport and updated and adopted by the El Dorado County Airport Land Use Commission on June 28, 2012 (El Dorado County ALUC 2012). The basic function of the ALUCP is to promote compatibility between the airport and future land use development in the surrounding area. The plan establishes compatibility criteria that all new developments must follow. However, neither the ALUCP nor the airport land use commission has authority over the existing land uses surrounding the airport, or over airport operations. The ALUCP and airport land use commission also lack jurisdiction over power line construction by public utilities. For the regulatory setting and discussion of airports related to hazards, including structure height, see Section 3.8, Hazards and Hazardous Materials.

Habitat Conservation Plans and Natural Community Conservation Plans

No adopted habitat conservation plans or natural community conservation plans are applicable to the project; however, one non-applicable plan—the El Dorado County Integrated Natural Resources Management Plan (INRMP)—is in development in the project vicinity by El Dorado County (SACOG 2013). The El Dorado County INRMP, which is currently in the first phase of planning studies, will develop strategies to conserve and restore habitat connectivity to offset the effects of habitat loss from land development in western El Dorado County. As a private utility, PG&E is not a member agency or a voluntary participant and, as such, would not be governed by the INRMP.

3.10.2.2 **Methodology**

To evaluate potential effects on land use and planning, aerial photographs were reviewed and field visits to the project area were conducted. Data and maps developed by El Dorado County and the City of Folsom, along with local general plans, zoning codes, and land use documents were reviewed.

Project-related construction and operational activities were evaluated within the context of the agency documents and data, and information was obtained from the aerial photographs and field reviews.

3.10.3 ENVIRONMENTAL SETTING

3.10.3.1 **Regional**

Overview

The project area is located in predominantly residential areas with some light-industrial development in the communities of Shingle Springs, Cameron Park, and El Dorado Hills and the City of Folsom. Between these communities, undeveloped rolling grasslands and oak woodlands dominate the areas surrounding the project alignment. The project alignment begins at Shingle Springs Substation in the community of Shingle Springs, and then travels west to Clarksville Substation in the community of El Dorado Hills before terminating at Gold Hill Substation in the City of Folsom. The major transportation route in the area is U.S. Highway 50, which the project alignment generally parallels for approximately 6.4 miles. The project alignment also crosses a U.S. Bureau of Land Management parcel—Pine Hill Preserve—for approximately 0.4 mile northwest of Shingle Springs Substation.

El Dorado County

El Dorado County is characterized by rolling hills and mountainous terrain, with Eldorado National Forest making up approximately 57 percent of the county's land base. The eastern boundary of the county is also the California/Nevada state line, and the county's western edge contains part of Folsom Lake. The county has two cities—South Lake Tahoe and Placerville—and several unincorporated communities, including Shingle Springs, Cameron Park, and El Dorado Hills, which are crossed by the project alignment.

El Dorado County Airport Land Use Compatibility Plan

Cameron Airpark Airport is located approximately 1.8 miles north of the project alignment, just northwest of the Cameron Park Drive and Meder Road intersection. The project alignment is located outside of the airport's 55-decibel airport noise contour and outside of the noise compatibility restrictions on land use identified in the El Dorado County ALUCP.

City of Folsom

The City of Folsom is characterized primarily by residential land uses interspersed with light-industrial development. The city is bordered by Folsom Lake to the north, Lake Natoma to the west, and U.S. Highway 50 to the south. The city has experienced steady and rapid population growth since its incorporation in 1946, in part because of employment opportunities, residential areas, and recreation amenities. The city is located approximately 20 miles from Sacramento and approximately halfway between Lake Tahoe and San Francisco.

3.10.3.2 Local

Figure 3.10-1: Land Use Designations and Figure 3.10-2: Zoning Designations provide information about the land use designations and zoning designations within El Dorado County and the City of Folsom for areas located within 0.5 mile of the existing project alignment.

3.10.4 Applicant-Proposed Measures and Potential Impacts

The following sections describe significance criteria for land use impacts derived from Appendix G of the CEQA Guidelines, provide relevant Applicant-Proposed Measures (APMs), and contain an assessment of potential project-related construction and operational impacts on land use.

3.10.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts on land use and planning was evaluated for each of the criteria listed in Table 3.10-1: CEQA Checklist for Land Use and Planning, as discussed in Section 3.10.4.3, Potential Impacts.

3.10.4.2 Applicant-Proposed Measures

No APMs are included because no impact on land use and planning will occur as a result of project implementation.

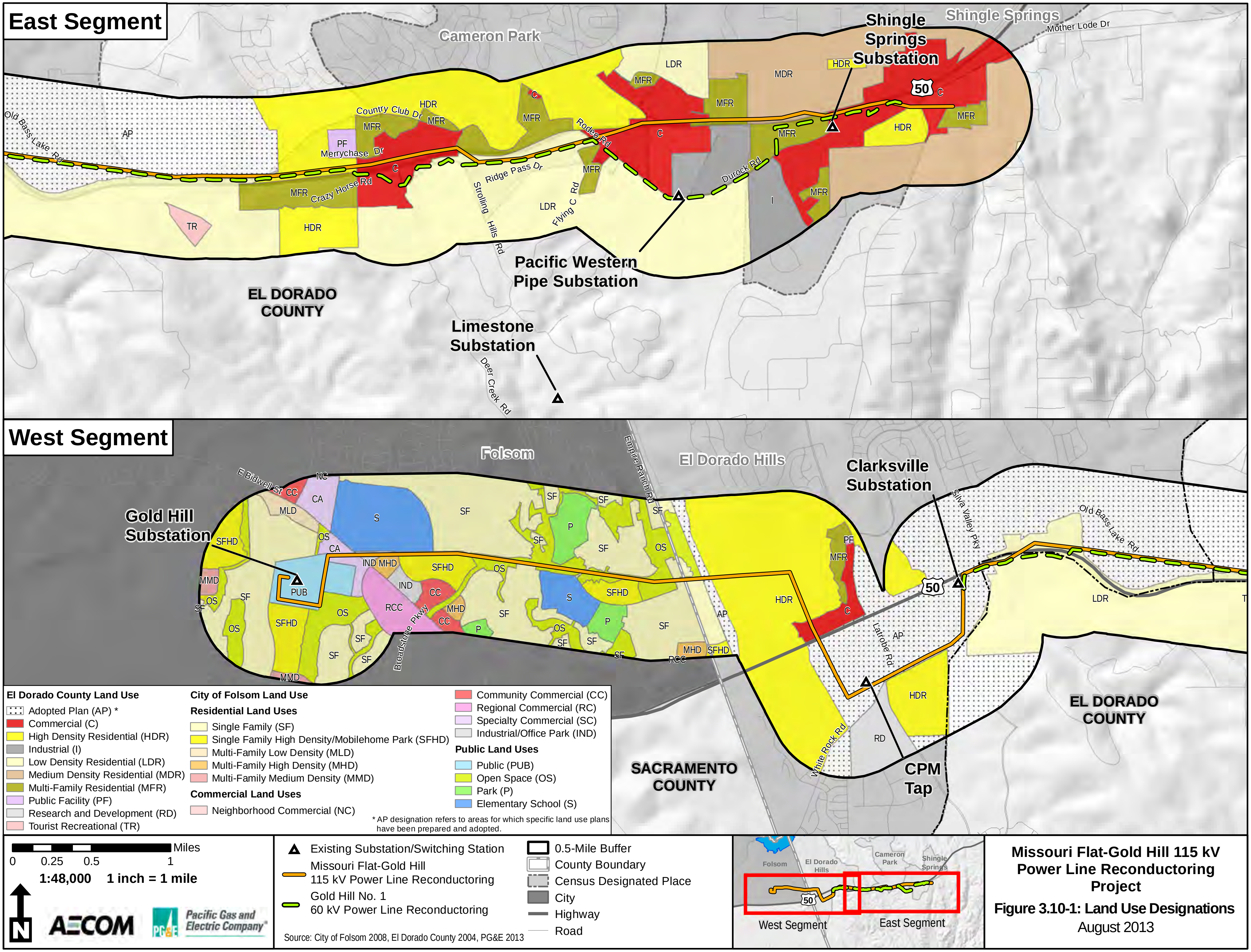
3.10.4.3 Potential Impacts

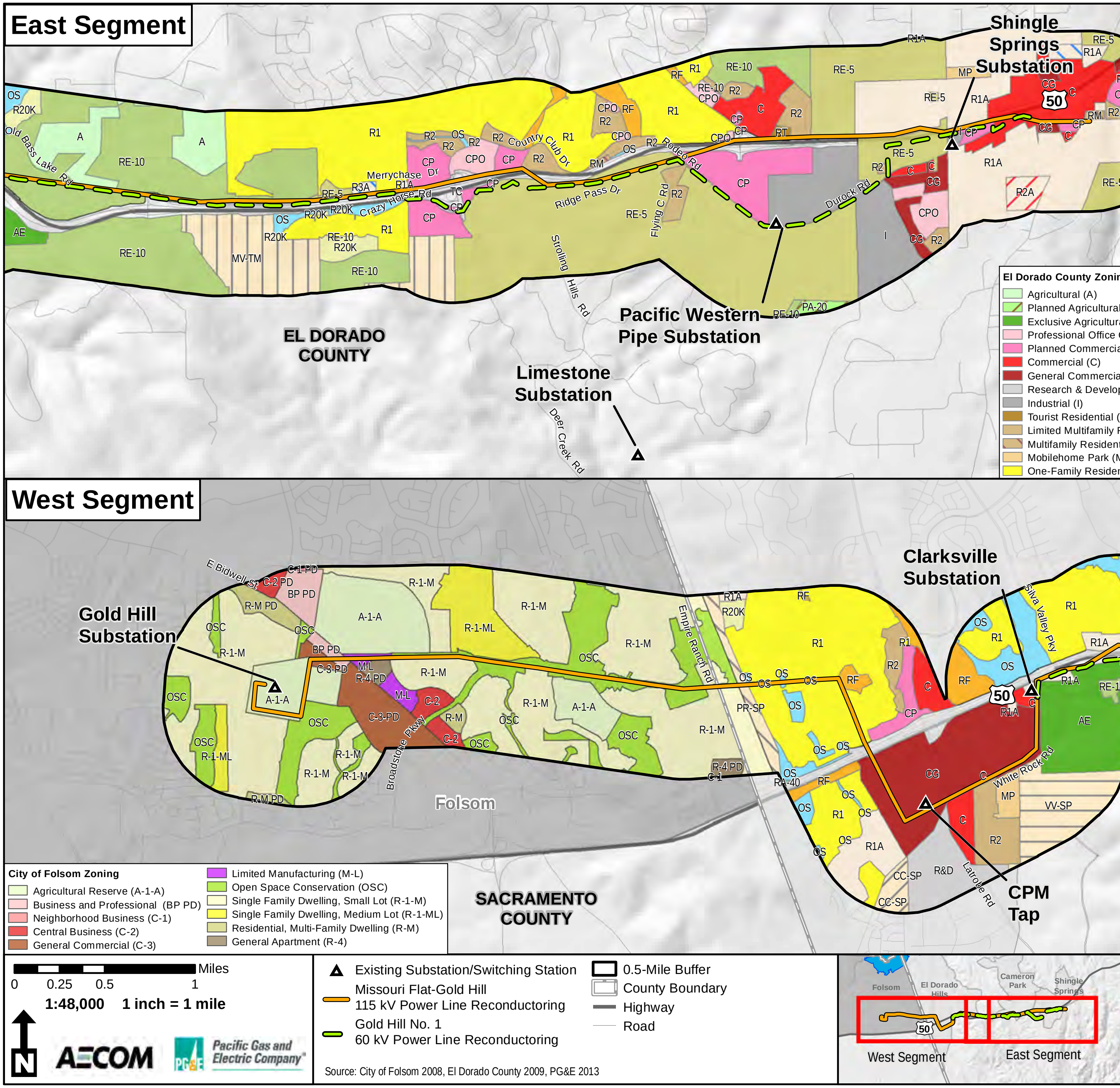
Potential project impacts on land use and planning were evaluated against the CEQA significance criteria and are discussed in further detail in the following paragraphs.

The upgraded power lines will require no change to existing operation and maintenance activities. As such, impacts on land use and planning that result from the project will not change from existing conditions and no operation-related impacts will occur.

The impact analysis is limited to temporary and short-term impacts associated with project construction, which includes the following components:

- **Missouri Flat-Gold Hill Line Reconductoring**, which will include reconductoring approximately 12.5 miles of the existing line, replacing approximately 60 existing tubular steel poles (TSP), modifying approximately 13 existing lattice steel towers, and converting approximately 1,000 feet of existing overhead distribution line to underground;


East Segment
Cameron Park
Shingle Springs
Shingle Springs Substation
Mother Lode Dr
LDR
MDR
HDR
MFR
C
50
Old Bass Lake Rd
AP
Country Club Dr
Merrychase Dr
PF
Crazy Horse Rd
Ridge Pass Dr
Strolling Hills Rd
Rodeo Rd
Flying C Rd
Durock Rd
I
TR
Pacific Western Pipe Substation
EL DORADO COUNTY
Limestone Substation
Deer Creek Rd
West Segment
Folsom
El Dorado Hills
Clarksville Substation
Gold Hill Substation
E Bidwell St
Empire Ranch Rd
Silva Valley Pkwy
Old Bass Lake Rd
Broadstone Pkwy
Latrobe Rd
White Rock Rd
NC
CC
CA
MLD
S
SF
SFHD
OS
P
PUB
IND
MHD
RCC
MMD
HDR
PF
MFR
C
AP
RD
LDR
SACRAMENTO COUNTY
EL DORADO COUNTY
CPM Tap
El Dorado County Land Use
Adopted Plan (AP) *
Commercial (C)
High Density Residential (HDR)
Industrial (I)
Low Density Residential (LDR)
Medium Density Residential (MDR)
Multi-Family Residential (MFR)
Public Facility (PF)
Research and Development (RD)
Tourist Recreational (TR)
City of Folsom Land Use
Residential Land Uses
Single Family (SF)
Single Family High Density/Mobilehome Park (SFHD)
Multi-Family Low Density (MLD)
Multi-Family High Density (MHD)
Multi-Family Medium Density (MMD)
Commercial Land Uses
Neighborhood Commercial (NC)
Community Commercial (CC)
Regional Commercial (RC)
Specialty Commercial (SC)
Industrial/Office Park (IND)
Public Land Uses
Public (PUB)
Open Space (OS)
Park (P)
Elementary School (S)
* AP designation refers to areas for which specific land use plans have been prepared and adopted.
Miles
0 0.25 0.5 1
1:48,000 1 inch = 1 mile
N
AECOM
Pacific Gas and Electric Company
Existing Substation/Switching Station
Missouri Flat-Gold Hill 115 kV Power Line Reconductoring
Gold Hill No. 1 60 kV Power Line Reconductoring
Source: City of Folsom 2008, El Dorado County 2004, PG&E 2013
0.5-Mile Buffer
County Boundary
Census Designated Place
City
Highway
Road
Folsom
El Dorado Hills
Cameron Park
Shingle Springs
West Segment
East Segment
Missouri Flat-Gold Hill 115 kV Power Line Reconductoring Project
Figure 3.10-1: Land Use Designations
August 2013



Missouri Flat-Gold Hill 115 kV Power Line Reconductoring Project

Figure 3.10-2: Zoning Designations

August 2013

- **Gold Hill No. 1 Line Reconductoring**, which will include reconductoring approximately 7 miles of the existing line, replacing approximately 80 existing wood poles with new wood or light-duty steel poles and approximately one new TSP, installing approximately seven new interset wood poles, and replacing approximately three distribution wood structures with approximately two new wood poles, and minor distribution line rewiring on two existing wood poles near Limestone Substation; and

- **Access Road Improvements and Construction,** which will include improvements to various temporary access roads that are planned for use during construction and the creation of an approximately 100-foot-long access road.

The impact analysis also evaluates impacts resulting from required site preparation and vegetation removal and trimming required to accommodate construction activities associated with these project components.

The project also includes modifications at Shingle Springs, Pacific Western Pipe, Limestone, Clarksville, and Gold Hill substations, and Missouri Flat Switching Station; however, all work at these facilities will be minor and within existing fence lines. Therefore, no land use and planning impacts will occur.

a) Would the project physically divide an established community? *No Impact*

The project will upgrade existing power lines in an established utility corridor; thus, project construction will not create a physical barrier (division) between any existing communities or neighborhoods, nor will it result in new development that will physically divide an existing neighborhood. Therefore, no impact will occur.

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*

The project alignment crosses a variety of land uses in El Dorado County and the City of Folsom, namely agricultural, industrial, commercial, and residential uses. Construction activities will occur primarily adjacent to the existing power line structures within existing alignments; therefore, the project will not result in substantial changes to land uses in the project area.

Operations and maintenance activities conducted within PG&E's existing rights-of-way, which include both easements and areas in franchise, are pre-existing, conforming uses and will not change as a result of the project. The CPUC has sole and exclusive jurisdiction over the siting and design of the project and, as such, the project is exempt from local land use and zoning regulations and permitting. Nevertheless, continued operation and maintenance of the power line will be consistent with local land use and zoning regulations. The project will not result in changes to land uses; therefore, no impact on or conflict with established adopted land use plans, policies, ordinances, or regulations will occur.

Because local airport land use committees do not have discretionary authority over existing land uses or PG&E utility projects, the requirement to review new land uses does not apply to this project. The approximately 60 existing TSPs along the Missouri Flat-Gold Hill Line and approximately 80 existing wood poles along the Gold Hill No. 1 Line will be replaced at approximately the same locations as the current poles. In addition, approximately seven new interset poles to be installed along the Gold Hill No. 1 Line will be located within the existing PG&E easement. Any construction-related activities will be temporary and short term and will not change the character of existing private and public land uses.

The project will include structural modifications to approximately 13 lattice steel towers, some of which may be completed using a helicopter. Helicopter use during construction is subject to certain airspace or safety regulations. For an impact assessment and discussion of airports relating to hazards, including structure height, see Section 3.8, Hazards and Hazardous Materials.

As further discussed in Section 3.4, Biological Resources, the project will require the removal of up to approximately 125 oak trees in various locations along the project alignment within El Dorado County that meet the criteria for the county's oak removal permit. Although the project is regulated by the CPUC and is not subject to local discretionary land use regulations, PG&E will implement APM BIO-1, which will minimize impacts related to oak tree removal.

The project may require encroachment permits from El Dorado County and the City of Folsom and highway encroachment permits from the California Department of Transportation for temporary construction activities over highways. The appropriate ministerial encroachment permits and temporary construction easements will be obtained before construction. Therefore, no impact will occur.

c) Would the project conflict with any applicable habitat conservation plan or natural community conservation plan? *No Impact*

There are no adopted applicable habitat conservation plans or natural community conservation plans in the project area. Therefore, no impact will occur.

3.10.5 REFERENCES

City of Folsom. 1993. *City of Folsom General Plan*. Folsom, CA.

———. 2011. *City of Folsom Plan Area Specific Plan.* Adopted by the City of Folsom, Resolution No. 8863, June 28, 2011. Folsom, CA.

———. 2013. City of Folsom Municipal Code. Adopted March 6, 1990; current through Ordinance 1173, passed January 22, 2013. Folsom, CA. Available: http://www.codepublishing.com/CA/Folsom/. Accessed March 10, 2013.

El Dorado County. 2009. *El Dorado County General Plan Land Use Element.* Adopted July 2004, amended December 2009. Placerville, CA.

———. 2010. El Dorado County Zoning Ordinance: Title 17, El Dorado County Code. Last revised November 2010. Placerville, CA.

El Dorado County Airport Land Use Commission (ALUC). 2012. *El Dorado County Airport Land Use Compatibility Plan.* Adopted June 28, 2012. Placerville, CA. Prepared by Mead & Hunt, Santa Rosa, CA.

Sacramento Area Council of Governments (SACOG). 2013. Habitat Conservation Plans. Available: http://www.sacog.org/rucs/habitat-conservation-plans.cfm. Accessed March 10, 2013.

TABLE OF CONTENTS

List of Tables

3.11 MINERAL RESOURCES

3.11.1 INTRODUCTION

This section describes existing conditions and potential impacts on mineral resources as a result of the project. The analysis concludes that impacts on mineral resources will be less than significant or no impact will occur.

The project's potential effects on mineral resources were evaluated using the significance criteria set forth in Appendix G of the California Environmental Quality Act (CEQA) Guidelines, as shown in Table 3.11-1: CEQA Checklist for Mineral Resources. The conclusions are discussed in more detail in Section 3.11.4, Applicant-Proposed Measures and Potential Impacts.

Table 3.11-1: CEQA Checklist for Mineral Resources

Would the project:	Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
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?				☒

3.11.2 REGULATORY BACKGROUND AND METHODOLOGY

3.11.2.1 Regulatory Background

Federal

No federal regulations related to mineral resources are applicable to the project.

State

The Surface Mining and Reclamation Act (SMARA) requires all jurisdictions to incorporate mapped mineral resource designations, approved by the California Mining and Geology Board, in their general plans. SMARA was enacted to limit new development in areas with significant mineral deposits. The California Department of Conservation's Office of Mine Reclamation and the California Mining and Geology Board are jointly charged with ensuring proper administration of SMARA requirements (OMR 2012).

To assist the California Mining and Geology Board in adopting and designating lands needed for their mineral content, a Mineral Land Classification system was established to ensure consideration of statewide or regionally significant mineral deposits by local governments in planning and development administration. These mineral designations are intended to prevent incompatible land use development in areas determined to have significant mineral resource deposits. Permitted uses in a mineral resource zone include mining, uses that support mining (such as smelting and storage of materials), or uses that will not hinder future mining (such as grazing, agriculture, large-lot rural development, recreation, and open space). Based on mapping completed by Loyd (1984) and Dupras (1999), the project alignment does not cross mineral resource zone (MRZ) areas with known mineral deposits.

Local

The project is not subject to local discretionary land use regulations because the California Public Utilities Commission has exclusive jurisdiction over the siting, design, and construction of the project. However, PG&E has considered local plans and policies as part of the environmental review process. No locally designated mineral resource areas are relevant to the project (El Dorado County 2004; City of Folsom 1993).

3.11.2.2 **Methodology**

Information on mineral resources was compiled from published literature, maps, and review of aerial photographs. Geologic units and structural features were obtained from maps published by the California Geological Survey (CGS). Mineral resources impacts that can result from project construction and operational activities were evaluated qualitatively based on site conditions; expected construction practices; materials, locations, and duration of project construction and operational activities; and a field visit conducted on June 18, 2012.

3.11.3 ENVIRONMENTAL SETTING

The project alignment traverses MRZs described in CGS Open-File Reports 99-09 and 84-50 (Dupras 1999; Loyd 1984). Table 3.11-2: Mineral Land Classification System presents the California Division of Mines and Geology (now CGS) Mineral Land Classification System. This system is used to denote both the location and significance of key extractive resources.

The most important zone with respect to the presence of mineral resources is MRZ-2, which is defined as "areas where adequate information indicates that significant mineral (aggregate) deposits are present or where it is judged that there is a high likelihood for their presence." This zone is applied to known mineral deposits or to areas where well-developed lines of reasoning, based on economic geologic principles and adequate data, demonstrate that the likelihood for occurrence of significant mineral deposits is high. Based on a review of the mineral land classification maps prepared by Dupras (1999) and Loyd (1984), the project alignment does not traverse any areas designated as MRZ-2 (areas of known mineral deposits) for mineral resources.

However, from Loyd's indications (Loyd 1984), the project area is located within areas that have been classified as MRZ-3a or MRZ-3b for copper, gold, and zinc. Loyd states that deposits of chromite are associated with a belt of ultramafic rocks, marking the trace of the Bear Mountains fault zone, and within the Pine Hill gabbro complex. These areas of potential chromite deposits have been classified as MRZ-3a. Chromite is the source of the metal chromium, used as an alloy in stainless steel and for chemical purposes.

Table 3.11-2: Mineral Land Classification System

Classification	Description
MRZ-1	Areas where adequate information indicates that no significant mineral deposits are present or where it is judged that little likelihood exists for their presence
MRZ-2	Areas where adequate information indicates that significant mineral deposits are present or where it is judged that a high likelihood for their presence exists
MRZ-3	Areas containing mineral deposits, the significance of which cannot be evaluated from existing data
- MRZ-3a	Areas where undiscovered mineral deposits, similar to known deposits in the same producing district or region, may be reasonably expected to exist (hypothetical resources)
- MRZ-3b	Areas that may contain undiscovered mineral resources in favorable geologic settings where mineral discoveries have not been made, or in types of deposits as yet unrecognized for their economic potential (speculative resources)
MRZ-4	Areas where available data are inadequate for placement in any other mineral resource zone
Note: MRZ = Mineral Resource Zone Sources: Dupras 1999 ; Loyd 1984	

Known chromite deposits in the project vicinity are small, irregular lenses (pods) of chromite, exposed at the surface. The Dickson and Cowell chromite mines/prospects are mapped less than 1,000 feet north of the project alignment, near the Country Club Drive and Trinidad Drive intersection. However, these mines/prospects were worked during World Wars I and II and have been inactive since that time. Furthermore, the locations of these two mines/prospects have been developed and are occupied by several schools and churches.

3.11.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for mineral resources derived from Appendix G of the CEQA Guidelines, provide relevant Applicant-Proposed Measures (APMs), and contain an assessment of potential project-related construction and operational impacts on mineral resources.

3.11.4.1 Significance Criteria

According to CCR Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in CCR Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential impacts on mineral resources were evaluated for each of the criteria listed in Table 3.11-1: CEQA Checklist for Mineral Resources, as discussed in Section 3.11.4.3, Potential Impacts.

3.11.4.2 Applicant-Proposed Measures

No APMs are included because project construction, operation, and maintenance will have a less-than-significant impact or no impact on mineral resources.

3.11.4.3 Potential Impacts

Potential project impacts on mineral resources were evaluated against the CEQA significance criteria and are discussed in further detail in the following paragraphs.

The upgraded power lines will require no change to existing operation and maintenance activities. As such, impacts on mineral resources that result from the project will not change from existing conditions and no operation-related impacts will occur. The impact analysis is limited to temporary and short-term impacts associated with project construction, which includes the following components:

- **Missouri Flat-Gold Hill Line Reconductoring**, which will include reconductoring approximately 12.5 miles of the existing line, replacing approximately 60 existing tubular steel poles (TSP), modifying approximately 13 existing lattice steel towers, and converting approximately 1,000 feet of existing overhead distribution line to underground;
- **Gold Hill No. 1 Line Reconductoring**, which will include reconductoring approximately 7 miles of the existing line, replacing approximately 80 existing wood poles with new wood or light-duty steel poles and approximately one new TSP, installing approximately seven new interset wood poles, replacing approximately three distribution wood structures with approximately two new wood poles, and minor distribution line rewiring on approximately two existing wood poles near Limestone Substation; and
- **Access Road Improvements and Construction,** which will include improvements to various temporary access roads that are planned for use during construction and the creation of an approximately 100-foot-long access road.

The impact analysis also evaluates impacts resulting from required site preparation and vegetation removal and trimming required to accommodate construction activities associated with these project components.

The project also includes modifications at Shingle Springs, Pacific Western Pipe, Limestone, Clarksville, and Gold Hill substations, and Missouri Flat Switching Station; however, all work at these facilities will be minor and within existing fence lines. Therefore, no impacts to mineral resources will occur.

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? ***No Impact***

The project will not be located within any area classified as MRZ-2 (areas with known mineral resources). Although a portion of the project alignment in El Dorado County is adjacent to areas where chromite has been mined and/or prospected, those activities occurred during World Wars I and II, and the sites have since been developed with urban uses. Project-related construction activities in areas classified as MRZ-3a and MRZ-3b (potential mineral resources) will be temporary; such activities will include a minimal amount of ground disturbance associated with placement of new TSPs or wood poles within existing easements. These activities will not inhibit the ability to recover mineral resources in the future, if such resources are determined to be present. Furthermore, the majority of the project alignment has been developed with urban uses, which generally preclude mining activities. Therefore, no impact will occur.

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? *No Impact*

From Gold Hill Substation to the El Dorado County line, the project alignment is within the boundaries of the City of Folsom. This portion of the alignment is located within a developed, urbanized area. In 2003, the City of Folsom determined that because it did not have any active mining operations and none were expected in the future, it did not update its SMARA ordinance. Based on a review of the City of Folsom (1993) and El Dorado County (2004) general plans, the project area is not located within an area of known mineral resources. Therefore, no impact will occur.

3.11.5 REFERENCES

City of Folsom. 1993 (January). *City of Folsom General Plan*. Folsom, CA.

County of Sacramento. 2011 (November 9). *Sacramento County General Plan of 2005–2030*. Sacramento, CA: Community Planning & Development Department.

Dupras, D. 1999. *Mineral Land Classification: Portland Cement Concrete-Grade Aggregate and Kaolin Clay Resources in Sacramento County, California*. California Division of Mines and Geology. Open-File Report 99-09.

El Dorado County. 2004. *2004 El Dorado County General Plan, A Plan For Managed Growth And Open Roads; A Plan For Quality Neighborhoods And Traffic Relief. Conservation and Open Space Element*. Adopted by the Board of Supervisors July 19, 2004, Resolution Number 235-2004. Placerville, CA.

Loyd, R. C. 1984. Generalized Geology of the Folsom 15-Minute Quadrangle. In *Mineral Land Classification of the Folsom 15-Minute Quadrangle, Sacramento, El Dorado, Placer, and Amador Counties, California*. Plate 1. California Division of Mines and Geology. Open-File Report 84-50.

Office of Mine Reclamation (OMR). 2012. *Surface Mining and Reclamation Act and Associated Regulations.* Sacramento: California Department of Conservation.

TABLE OF CONTENTS

List of Tables

3.12 NOISE

3.12.1 INTRODUCTION

This section describes existing conditions and potential noise impacts as a result of the project. The analysis concludes that any noise impacts will be less than significant or that no impact will occur. The Applicant-Proposed Measures (APMs) described in Section 3.12.4.2, Applicant-Proposed Measures, will further reduce any less-than-significant impacts.

The project's potential effects related to noise were evaluated using the significance criteria set forth in Appendix G of the California Environmental Quality Act (CEQA) Guidelines, as shown in Table 3.12-1: CEQA Checklist for Noise. The conclusions are discussed in more detail in Section 3.12.4, Applicant-Proposed Measures and Potential Impacts.

Table 3.12-1: CEQA Checklist for Noise

Would the project:	Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) 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?			☒	
b) Result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?			☒	
c) Result in 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?				☒

3.12.1.1 Fundamentals of Acoustics

Noise

Noise is generally defined as unwanted sound. Airborne sound is the fluctuation of air pressure above and below atmospheric pressure. There are several ways to measure sound, depending on the source, receiver, and reason for the measurement.

Community sound levels are generally presented in terms of A-weighted decibels (dB). The A-weighting network measures and filters sound in a fashion similar to the way in which a person perceives or hears sound, thus achieving a strong correlation with people's perception of acceptable and unacceptable sound levels. Table 3.12-2: Typical Sound Levels Measured in the Environment and Industry presents A-weighted sound levels and the general subjective responses associated with common sources of noise in the physical environment.

Table 3.12-2: Typical Sound Levels Measured in the Environment and Industry

Noise Source at a Given Distance	Sound Level in A-weighted Decibels (dB)	Qualitative Description
Carrier deck jet operation	140	
Civil defense siren (100 feet)	130	Pain threshold
Jet takeoff (200 feet)	120	
Auto horn (3 feet)	110	Maximum vocal effort
Jet takeoff (1,000 feet) Shout (0.5 foot)	100	Very loud
New York subway station Heavy truck (50 feet)	90	Very annoying; hearing damage (8-hour, continuous exposure)
Pneumatic drill (50 feet)	80	Annoying
Freight train (50 feet) Freeway traffic (50 feet)	70 to 80 70	Intrusive (telephone use difficult)
Air conditioning unit (20 feet)	60	
Light auto traffic (50 feet)	50	Quiet
Living room Bedroom	40	
Library Soft whisper (5 feet)	30	Very quiet
Broadcasting/recording studio	20	
	10	Just audible
Source: NY DEC 2001		

A-weighted sound levels are typically measured or presented as the equivalent sound pressure level (L_{eq}), defined as the average noise level on an equal-energy basis for a stated period of time and commonly used to measure steady-state sound that is usually dominant. Statistical methods are used to capture the dynamics of a changing acoustical environment. Statistical measurements are typically denoted by L_n, where "n" represents the percentile of time that the sound level is exceeded. Therefore, L_{90} represents the noise level that is exceeded during 90 percent of the measurement period. Similarly, L_{10} represents the noise level exceeded for 10 percent of the measurement period.

Another metric used in determining the impact of environmental noise is the differences in response that people have to daytime and nighttime noise levels. During the evening and at night, exterior background noises generally are lower than daytime levels. At night, however, most household noise also decreases and exterior noise becomes more noticeable. Furthermore, most people sleep at night and are sensitive to intrusive noise. To account for human sensitivity to evening and nighttime noise levels, the day-night sound level (L_{dn}) (also referred to as DNL) and the community noise equivalent level (CNEL) were developed. The L_{dn} is a noise metric that accounts for the greater annoyance of noise during the nighttime hours (10 p.m. to 7 a.m.). The CNEL is a noise index that accounts for the greater annoyance of noise during both the evening hours (7 p.m. to 10 p.m.) and nighttime hours.

L_{dn} values are calculated by averaging hourly L_{eq} sound levels for a continuous 24-hour period on an energy basis, applying a weighting factor of 10 dB to the nighttime values. CNEL values are calculated similarly, except that a 5-dB weighting factor is added to evening L_{eq} values. The applicable adjustments, which reflect the increased sensitivity to noise during evening and nighttime hours, are applied to each hourly L_{eq} sound level for the calculation of L_{dn} and CNEL. For the purposes of assessing noise, the 24-hour day is divided into three time periods, with the following adjustments:

- Daytime hours: 7 a.m. to 7 p.m. (12 hours), adjustment of 0 dB
- Evening hours (for CNEL only): 7 p.m. to 10 p.m. (3 hours), adjustment of +5 dB
- Nighttime hours (for both CNEL and L_{dn}): 10 p.m. to 7 a.m. (9 hours), adjustment of +10 dB

The hourly adjusted time-period noise levels are then averaged (on an energy basis) to compute the overall L_{dn} or CNEL value. For a continuous noise source, the L_{dn} value can be computed by adding 6.4 dB to the overall 24-hour noise level (L_{eq}). For example, if the expected continuous noise level from a noise source is 60.0 dB, the resulting L_{dn} from the source will be 66.4 dB. Similarly, the CNEL for a continuous noise source is computed by adding 6.7 dB to the overall 24-hour L_{eq}.

The general human response to changes in noise levels that are similar in frequency content (such as comparing increases in continuous [L_{eq}] traffic noise levels) is summarized as follows:

- A 3-dB change in sound level is considered to be barely noticeable.
- A 5-dB change in sound level typically is noticeable.
- A 10-dB increase is considered to be a doubling in loudness.

Vibration

Vibration, which is generally energy transmitted in waves through the ground, is an oscillatory motion that can be described in terms of the displacement, velocity, or acceleration. Vibration is typically described by its peak amplitude and its root-mean-square (RMS) amplitude. The RMS value can be considered an average value over a given time interval. The peak vibration velocity is the same as the peak particle velocity (PPV), generally presented in units of inches per second. Peak particle velocity is defined as the maximum instantaneous positive or negative peak of the vibration signal, and PPV is generally used to assess the potential for damage to buildings and structures. The RMS amplitude is typically used for assessing human annoyance about vibration. Because energy is lost during the transfer of energy from one particle to another, vibratory energy is reduced with increasing distance from the source. Generally speaking, surface vibration amplitude attenuates at a rate of approximately 30 percent for each doubling of distance from the source. This considers only the attenuation caused by geometric spreading (Caltrans 2004:9–10). Because additional factors reduce vibration over distance (e.g., damping from soil condition), this approach tends to provide for a conservative assessment of vibration level at the receiver.

3.12.2 REGULATORY BACKGROUND AND METHODOLOGY

3.12.2.1 **Regulatory Background**

Federal

No federal regulations related to noise are applicable to the project.

State

No State regulations related to noise are applicable to the project.

Local

The project is not subject to local discretionary noise regulations because the California Public Utilities Commission has exclusive jurisdiction over the siting, design, and construction of the project. However, PG&E has considered local plans and policies as part of the environmental review process. This section includes a summary of local noise standards or ordinances for informational purposes and to assist with the CEQA review process. Airport land use compatibility plans for airports relevant to the project, including the Cameron Airpark Airport, are discussed in Section 3.10, Land Use and Planning.

El Dorado County

The El Dorado County General Plan’s Public Health, Safety, and Noise Element (El Dorado County 2009) contains policies that define acceptable noise levels for land use categories, noise standards for new uses affected by transportation noise sources, and noise performance standards for non-transportation noise sources. For an hourly noise metric, the maximum allowable exterior noise levels for residential land uses are 75 dB (maximum noise emission level [L_{max}]) during daytime hours (7 a.m. to 7 p.m.), and 65 dB (L_{max}) during nighttime hours (7 p.m. to 10 p.m.). No noise limits specifically address temporary construction noise.

The El Dorado County Municipal Code does not contain temporary construction noise standards.

City of Folsom

The City of Folsom General Plan's Noise Element contains policies that define maximum allowable exterior noise exposures for non-transportation noise sources. For an hourly noise metric, the maximum allowable exterior noise levels are 70 dB (L_{max}) during daytime hours (7 a.m. to 10 p.m.), and 65 dB (L_{max}) during nighttime hours (10 p.m. to 7 a.m.).

Although the City of Folsom General Plan does not contain temporary construction noise standards, the City of Folsom Municipal Code Section 8.42 contains exterior noise level standards that are consistent with the Noise Element standards. Although exterior noise standards are specified, Section 8.42.060 of the City of Folsom Municipal Code provides an exemption from these standards for construction activities that meet the following criteria (City of Folsom 2013):

> C. Noise sources associated with construction, provided such activities do not take place before 7 a.m. or after 6 p.m. on any day except Saturday or Sunday, or before 8 a.m. or after 5 p.m. on Saturday or Sunday.

3.12.2.2 Methodology

To evaluate potential project-related noise impacts, relevant county and city noise standards were reviewed, the noise environment was characterized, and noise levels and related impacts during project implementation were predicted.

3.12.3 ENVIRONMENTAL SETTING

The project area is located primarily between the community of Shingle Springs in western El Dorado County and the City of Folsom in northeastern Sacramento County. Land use along the project alignment consists primarily of residential areas interspersed with light-industrial development in Shingle Springs, Cameron Park, El Dorado Hills, and Folsom. Undeveloped rolling grasslands and oak woodlands dominate the portions of the alignment between these populated communities.

3.12.3.1 Noise-Sensitive Receptors

Noise-sensitive receptors generally are defined as locations where people reside or where the presence of unwanted sound (noise) may adversely affect the designed use of the land. Typically, noise-sensitive land uses include residences, hospitals, places of worship, libraries, and schools, as well as nature and wildlife preserves, recreational areas, and parks.

As summarized in Table 3.12-3: Approximate Number of Sensitive Receptors near the Project Alignment, numerous sensitive receptors are located within 500 feet of the project alignment and work areas.

Table 3.12-3: Approximate Number of Sensitive Receptors near the Project Alignment

Sensitive Receptor Type	Approximate Distance from Project Alignment		
	50 feet	200 feet	500 feet
Residence	97	462	895
Churches/Places of Worship	6	7	8
Schools	1	5	7
Parks/Recreational Facilities	2	4	7

3.12.3.2 Airport Locations

Cameron Airpark Airport is located approximately 1.8 miles north of the project alignment, just northwest of the Cameron Park Drive/Meder Road intersection. The project alignment is outside of the 55-dB airport noise contour and outside of the noise compatibility restrictions on land use.

3.12.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for noise impacts from Appendix G of the CEQA Guidelines, provide relevant APMs, and contain an assessment of potential project-related construction and operational noise impacts.

3.12.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project-related noise impacts was evaluated for each of the criteria listed in Table 3.12-1: CEQA Checklist for Noise, as discussed in Section 3.12.4.3, Potential Impacts.

3.12.4.2 Applicant-Proposed Measures

As described in Section 3.12.4.3, Potential Impacts, noise impacts will be less than significant or no impact will occur. The following APMs will meet existing regulations and/or requirements or standard practices to further avoid, minimize, or reduce potential less-than-significant impacts related to temporary and short-term construction noise.

APM NO-1: 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.

APM NO-2: Minimize Noise with Portable Barriers

Compressors and other small stationary equipment used during project construction will be shielded with portable barriers if the equipment is located near noise-sensitive receptors.

3.12.4.3 Potential Impacts

Potential project impacts related to noise were evaluated against the CEQA significance criteria and are discussed in further detail in the following paragraphs.

The upgraded power lines will require no change to existing operation and maintenance activities. As such, noise impacts that result from the project will not change from existing conditions and no operation-related impacts will occur. The impact analysis is limited to temporary and short-term impacts associated with project construction, which includes the following components:

- **Missouri Flat-Gold Hill Line Reconductoring**, which will include reconductoring approximately 12.5 miles of the existing line, replacing approximately 60 existing tubular steel poles (TSP), modifying approximately 13 existing lattice steel towers, and converting approximately 1,000 feet of existing overhead distribution line to underground;

- **Gold Hill No. 1 Line Reconductoring**, which will include reconductoring approximately 7 miles of the existing line, replacing approximately 80 existing wood poles with new wood or light-duty steel poles and approximately one new TSP, installing approximately seven new interset wood poles, replacing approximately three distribution wood structures with approximately two new wood poles, and minor distribution line rewiring on approximately two existing wood poles near Limestone Substation;

- **Substation Modifications**, which will include minor modifications to equipment and facilities at Missouri Flat Switching Station and Shingle Springs, Pacific Western Pipe, Limestone, Clarksville, and Gold Hill substations; and

- **Access Road Improvements and Construction,** which will include improvements to various temporary access roads that are planned for use during construction and the creation of an approximately 100-foot-long access road.

The impact analysis also evaluates impacts resulting from required site preparation and vegetation removal and trimming required to accommodate construction activities associated with these project components.

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? ***Less than Significant***

Equipment used in project construction will generate temporary construction noise. Typical noise levels generated by construction equipment, listed in Section 2.0, Project Description, have been calculated and previously published in various reference documents. One of the most recent comprehensive assessments of construction equipment noise is the Roadway Construction

Noise Model User's Guide (FHWA 2006). The expected equipment noise levels listed in the Roadway Construction Noise Model User's Guide were used for this evaluation. Table 3.12-4: Typical Noise Levels of Project Construction Equipment summarizes the average (L_{eq}) noise levels of equipment operations at several setback distances.

Review of the typical noise levels shown in Table 3.12-4: Typical Noise Levels of Project Construction Equipment indicates that the loudest equipment generally will produce a noise level of 85 dB L_{max} at a distance of 50 feet. Assuming a usage factor of 40–50 percent (typical), and assuming standard spherical spreading loss (-6 dB per doubling of distance), the loudest assumed construction equipment will produce an hourly-average noise level of approximately 75 dB (hourly L_{eq}) at a distance of 100 feet. Noise at any specific receptor will be dominated by the closest and loudest equipment. The types and numbers of construction equipment near any specific receptor location will vary over time.

Table 3.12-4: Typical Noise Levels of Project Construction Equipment

Equipment	Acoustical Usage Factor (%)	Specified L_{max} at 50 Feet (dB)	Calculated L_{eq} (dB)			
			At 100 Feet	At 1,000 Feet	At 2,000 Feet	At 4,000 Feet
Auger drill rig	20	85	72	52	46	40
Backhoe	40	80	70	50	44	38
Chain saw	20	85	72	52	46	40
Compactor (ground)	20	80	67	47	41	35
Compressor (air)	40	80	70	50	44	38
Concrete mixer truck	40	85	75	55	49	43
Concrete pump truck	20	82	69	49	43	37
Crane	16	85	71	51	45	39
Dump truck	40	84	74	54	48	42
Excavator	40	85	75	55	49	43
Flatbed truck	40	84	74	54	48	42
Front-end loader	40	80	70	50	44	38
Generator	50	82	73	53	47	41
Grader	40	85	75	55	49	43
Jackhammer	20	85	72	52	46	40
Pickup truck	40	55	45	25	19	13

Notes: dB = decibels; L_{eq} = equivalent sound pressure level; L_{max} = maximum noise emission level

Equation to calculated L_{max} at 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 distance Do (dB)

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)

Source: FHWA 2006

The following scenario for ground-level construction was used to assess worst-case construction noise exposure generated by the project:[1]

- one piece of equipment 50 feet away,
- two pieces of equipment 100 feet away, and
- two pieces of equipment 200 feet away.

Each piece of construction equipment produces a reference noise level of 85 dB L_{max} at a distance of 50 feet and will be used 40 percent of the time. Table 3.12-5: Expected Worst-Case Noise Levels from Construction Equipment summarizes the estimated ground-level construction noise at various distances based on this scenario.

Table 3.12-5: Expected Worst-Case Noise Levels from Construction Equipment

Distance from Construction Activities (feet)	Noise Level Hourly L_{eq} (dB)
50	83
100	79
200	74
400	69
800	63
1,600	58
3,200	52
6,400	46

Notes: dB = decibels; L_{eq} = equivalent sound pressure level
Source: Data compiled by AECOM in 2013

Helicopter use is anticipated to be limited to one tower, located approximately 800 feet northwest of the intersection of Broadstone Parkway and Empire Ranch Road. Noise from the helicopter will be audible at the tower location, in helicopter landing zones, and along flight paths. Helicopter noise levels during takeoff, approach, and level flyover will be a maximum (L_{max}) of 85 dB, 88 dB, and 86 dB, respectively, with a lateral offset of approximately 492 feet (approximately 150 meters) and a helicopter altitude of approximately 394 feet above ground level (approximately 120 meters)[2] (True and Letty 1977).

[1] Noise exposure was calculated for the combination of five operating heavy-construction tools: one at 50 feet from the receptor, two at 100 feet from the receptor, and two more at 200 feet from the receptor. Each piece of equipment was assumed to produce a reference noise level of 85 dB L_{max} at 50 feet away, and to operate 40 percent of the time.

[2] Takeoff and landing noise level data were collected at 492 feet from the side of the approach and departure centerline, assuming a 6-degree approach and departure flight paths and an altitude of 394 feet above ground level. The helicopter represented by these data is the Bell 212.

Construction activities in each work area will be temporary and short term (approximately 2 to 3 weeks per pull site), and will normally be limited to daytime hours. If nighttime construction is necessary to continue work until a safe stopping point is reached, or if planned electrical outages (clearances) are scheduled at night, activities will be infrequent, temporary, and short term; therefore, impacts will be less than significant. APM NO-1 and APM NO-2 will further reduce less-than-significant impacts.

Neither El Dorado County nor the City of Folsom has established noise limits for temporary construction noise. Furthermore, the City of Folsom exempts noise from construction activities that take place between 7 a.m. and 6 p.m. Monday through Friday or 8 a.m. and 5 p.m. Saturday and Sunday. Except in rare instances when PG&E may need to work at night for safety or clearance reasons, all construction activities will occur within the exempted hours. Moreover, construction noise impacts will be temporary, short term, and will move along the length of the project alignment. As a result, impacts will be less than significant. APM NO-2 will further minimize less-than-significant impacts.

b) Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels? *Less than Significant*

Construction activities will involve some ground-disturbing activities, including potential grading and movement of heavy construction equipment that may generate localized groundborne vibration and noise. However, the groundborne vibration or groundborne noise generated by these temporary and short-term activities is not anticipated to be excessive or to be discernible outside of construction work areas. Construction activities resulting in minor groundborne vibration and noise are expected to occur only during daylight hours, mostly more than 80 feet from residences. If nighttime work is necessary, APM NO-1 will be implemented to further reduce any potential temporary and short-term less-than-significant impacts. This impact will be 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*

Noise impacts resulting from the project will not change from existing conditions. Only project construction will create temporary and short-term noise-related impacts. Construction noise will cease at the end of construction and will not result in a permanent increase in noise relative to ambient noise levels in the project area. After construction is completed, project operation will not result in a permanent increase in noise levels relative to the ambient noise levels in the project vicinity. Therefore, no impact will 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*

Construction activities will result in temporary, short-term, and intermittent increases in noise levels relative to ambient conditions in the project vicinity. Nighttime construction is not anticipated; however, if necessary, APM NO-1 will be implemented to notify any residents in the project vicinity of potential nighttime construction activities. Implementation of APM NO-2 will further reduce the less-than-significant impacts related to noise level increases. This impact will be less than significant.

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 expose people residing or working in the project area to excessive noise levels? *No Impact*

One public use airport, Cameron Airpark Airport, is located approximately 1.3 miles north of the project alignment. The El Dorado County Airport Land Use Compatibility Plan, though not applicable to PG&E's utility projects, establishes a noise contour map for the Cameron Airpark Airport that represents the projected noise exposure of the area. The 55-dB contour is the outermost noise boundary, representing the area surrounding the airport with the lowest noise levels. The project alignment is outside of the 55-dB airport noise contour and outside of the noise compatibility restrictions on land use. Thus, all project activities will be located outside of the El Dorado County Airport Land Use Compatibility Plan area and the project will not affect any airport operations. The project will not expose people residing or working in the project area to excessive noise levels. No impact will occur.

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? *No Impact*

No private-use airports or airstrips are located within 2 miles of the project alignment, and the project will not affect any airstrip operations. Therefore, the project will not expose people residing or working in the project areas to excessive noise levels. No impact will occur.

3.12.5 REFERENCES

California Department of Transportation (Caltrans). 2004 (June). *Transportation- and Construction-Induced Vibration Guidance Manual*. Sacramento, CA.

City of Folsom. 1993 (January). *City of Folsom General Plan*. Folsom, CA.

———. 2013. Folsom Municipal Code, Chapter 8.42, Noise Control. Available: http://www.codepublishing.com/CA/Folsom/. Accessed March 18, 2013.

El Dorado County. 2009. *El Dorado County General Plan Public Health, Safety, and Noise Element.* Adopted July 2004, amended December 2009. Placerville, CA.

Federal Highway Administration (FHWA). 2006. *FHWA Roadway Construction Noise Model User's Guide*. Washington, DC: U.S. Department of Transportation.

New York Department of Environmental Conservation (NY DEC). 2001 (February 2). *Assessing and Mitigation Noise Impacts.* Division of Environmental Permits. Available: http://www.dec.ny.gov/docs/permits_ej_operations_pdf/noise2000.pdf. Accessed March 18, 2013.

True, H. C., and R. M. Letty. 1977 (April). *Helicopter Noise Measurements Data Report*. Report No. FAA-RD-77-57, two volumes. Washington, DC: Federal Aviation Administration, Systems Research and Development Service.

TABLE OF CONTENTS

List of Tables

3.13 POPULATION AND HOUSING

3.13.1 INTRODUCTION

This section describes existing conditions and potential impacts on population and housing as a result of the project. The analysis concludes that no impacts on population and housing will occur.

The project's potential effects on population and housing were evaluated using the significance criteria set forth in Appendix G of the California Environmental Quality Act (CEQA) Guidelines, as shown in Table 3.13-1: CEQA Checklist for Population and Housing. The conclusions are discussed in more detail in Section 3.13.4, Applicant-Proposed Measures and Potential Impacts.

Table 3.13-1: CEQA Checklist for Population and Housing

Would the project:	Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
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?				☒

3.13.2 REGULATORY BACKGROUND AND METHODOLOGY

3.13.2.1 Regulatory Background

Federal

No federal regulations related to population and housing are applicable to this project.

State

No State regulations related to population and housing are applicable to this project.

Local

No local regulations related to population and housing are applicable to this project.

3.13.2.2 Methodology

To evaluate the potential effects of the project on population and housing, U.S. Census data and the general plans for El Dorado County and the City of Folsom were reviewed.

3.13.3 ENVIRONMENTAL SETTING

3.13.3.1 Regional

The project area is located in predominantly residential areas with some light-industrial development in the communities of Shingle Springs, Cameron Park, and El Dorado Hills and the City of Folsom. Between these communities, undeveloped rolling grasslands and oak woodlands dominate the areas surrounding the project alignment.

The primary population centers in the project area are the communities of Shingle Springs, Cameron Park, and El Dorado Hills in El Dorado County and the City of Folsom in Sacramento County. The U.S. Census Bureau has established Census Designated Places (CDPs) and Census County Divisions (CCDs) to further define its data. CCDs are subdivisions of counties used to define areas that do not have "well-defined and stable minor civil divisions that serve as local governments." CDPs identify concentrations of populations that are identifiable by name but are not legally incorporated (U.S. Census Bureau 2012, 2013a). The project area includes three CDPs—El Dorado Hills CDP, Cameron Park CDP, and Shingle Springs CDP. The project alignment begins at Missouri Flat Switching Station, then continues west to Shingle Springs Substation in the community of Shingle Springs, then to Limestone Substation, and then to Clarksville Substation in the community of El Dorado Hills before ending at Gold Hill Substation in the southeast portion of the City of Folsom.

As summarized in Table 3.13-2: Population Statistics for Communities in the Project Area, the populations of all of the El Dorado County communities crossed by the project alignment and the City of Folsom increased by 15.8 to 133.7 percent between 2000 and 2010 (U.S. Census Bureau 2013b, 2013c). As summarized in Table 3.13-3: Housing Statistics for Communities in the Project Area (2011), communities in the project area had an average homeowner vacancy rate of 1.8 percent in 2011.

Table 3.13-2: Population Statistics for Communities in the Project Area

Jurisdiction	2000 Population	2010 Population	Percent Change in Population	Land Area (square miles)
El Dorado County	156,299	181,058	15.8	1,707.9
Shingle Springs	2,643	4,432	67.7	5.2
Cameron Park	14,549	18,228	25.3	11.1
El Dorado Hills	18,016	42,108	133.7	48.5
City of Folsom	51,884	72,203	39.2	21.95
Sources: U.S. Census Bureau 2013b, 2013c				

Table 3.13-3: Housing Statistics for Communities in the Project Area (2011)

Jurisdiction	Total Housing Units	Total Occupied Housing Units	Vacancy Rate[1] (Percentage)
El Dorado County	88,159	70,23	2.4
Shingle Springs	1,718	1,627	1.2
Cameron Park	7,610	6,993	2.0
El Dorado Hills	14,994	14,368	1.7
City of Folsom	26,109	24,951	1.9
Average Vacancy Rate (all communities)			1.8
[1]Vacancy rate refers to the homeowner vacancy rate. Source: U.S. Census Bureau 2013c			

3.13.3.2 Local

El Dorado County

El Dorado County adopted its general plan on July 19, 2004, and amended the Housing Element of the general plan on April 21, 2009. The Housing Element forecasts that the population of El Dorado County's West Slope, home to the communities of Shingle Springs, Cameron Park, and El Dorado Hills, could increase by 75,000 persons by 2025. Between 2000 and 2007, 12,488 units were added to the housing stock, representing a 23.5 percent increase. A large part of El Dorado County is within Eldorado National Forest and a portion of the Tahoe Basin; therefore, many housing units in the county are used for seasonal, recreational, or occasional use. These types of housing units are challenging for the county, especially those located in the Tahoe Basin, which has the county's greatest concentration of unavailable units and greatest need for affordable housing (El Dorado County 2009).

City of Folsom

The City of Folsom General Plan was adopted on October 31, 1988, and updated in January 1993 (City of Folsom 1993). The city's 2006–2013 Housing Element, adopted on July 14, 2009, is now a part of the City of Folsom General Plan. The City of Folsom has been growing rapidly since the 1950s, with a population growth rate more than twice the rate of growth experienced by Sacramento County and more than three times that of California. Between 2000 and 2007, the city's population increased at a rate of 36 percent (City of Folsom 2009). The City of Folsom also has a relatively high rate of homeownership, with a rate of 76.3 percent in 2000, compared to 56.9 percent in California. The inmates at Folsom State Prison make up a small percentage of the city's population.

3.13.4 Applicant-Proposed Measures and Potential Impacts

The following sections describe significance criteria for population and housing impacts derived from Appendix G of the CEQA Guidelines, provide relevant Applicant-Proposed Measures (APMs), and contain an assessment of potential project-related construction and operational impacts on population and housing.

3.13.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts on population and housing was evaluated for each of the criteria listed in Table 3.13-1: CEQA Checklist for Population and Housing, as discussed in Section 3.13.4.3, Potential Impacts.

3.13.4.2 Applicant-Proposed Measures

No APMs are included because project construction, operation, and maintenance will have no impact on population and housing.

3.13.4.3 Potential Impacts

Potential project impacts on population and housing were evaluated against the CEQA significance criteria and are discussed in further detail in the following paragraphs.

The upgraded power lines will require no change to existing operation and maintenance activities. As such, impacts on population and housing that result from the project will not change from existing conditions and no operation-related impacts will occur. The impact analysis is limited to temporary and short-term impacts associated with project construction, which includes the following components:

- **Missouri Flat-Gold Hill Line Reconductoring**, which will include reconductoring approximately 12.5 miles of the existing line, replacing approximately 60 existing tubular steel poles (TSP), modifying approximately 13 existing lattice steel towers, and converting approximately 1,000 feet of existing overhead distribution line to underground;

- **Gold Hill No. 1 Line Reconductoring**, which will include reconductoring approximately 7 miles of the existing line, replacing approximately 80 existing wood poles with new wood or light-duty steel poles and approximately one new TSP, installing approximately seven new interset wood poles, replacing approximately three distribution wood structures with approximately two new wood poles, and minor distribution line rewiring on approximately two existing wood poles near Limestone Substation;

- **Substation Modifications**, which will include minor modifications to equipment and facilities at Missouri Flat Switching Station and Shingle Springs, Pacific Western Pipe, Limestone, Clarksville, and Gold Hill substations; and

- **Access Road Improvements and Construction,** which will include improvements to various temporary access roads that are planned for use during construction and the creation of an approximately 100-foot-long access road.

The impact analysis also evaluates impacts resulting from required site preparation and vegetation removal and trimming required to accommodate construction activities associated with these project components.

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)? ***No Impact***

The objective of the project is to improve existing electric service and provide necessary additional transmission capacity to serve electricity customers in Sacramento and El Dorado counties. The project will add 250 megawatts of electrical capacity to the area to meet projected energy demand for the region and to ensure that the region's system can accommodate peak summer load demands. However, power availability and reliability are not constraints to population growth in the area, and the project is not growth inducing and will not generate new development. The project will not extend new power lines or other infrastructure into areas not already served or underserved. The project will not involve constructing new homes or businesses, nor will the project increase capacity such that it will lead to population growth in the region. Project construction will require a maximum of 40 construction personnel. The majority of construction personnel reside in the local area or will commute from nearby cities. Project construction will be temporary and short term (approximately 18 months); therefore, construction activities will not permanently add any new direct or indirect population to the area. Adequate accommodations are located in the vicinity for any workers who may temporarily reside in the project area during construction. Therefore, no impact will occur.

b) Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere? ***No Impact***

Project construction will not affect housing, either by displacing existing housing or by requiring that replacement housing be built. Therefore, no impact will occur.

c) Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere? ***No Impact***

Project construction will not displace people or require that replacement housing be built. Therefore, no impact will occur.

3.13.5 REFERENCES

City of Folsom. 1993 (January). *City of Folsom General Plan.* Folsom, CA.

———. 2009. *City of Folsom Housing Element*. Adopted July 14, 2009. Folsom, CA. Prepared by Mintier Harnish.

El Dorado County. 2009. *El Dorado County 2008 Housing Element*. Adopted August 2008, amended April 21, 2009 (Resolution 03-2009). Placerville, CA.

U.S. Census Bureau. 2012. Geographic Terms and Concepts—Place. Available: http://www.census.gov/geo/reference/gtc/gtc_place.html. Accessed March 14, 2013.

———. 2013a. Frequently Asked Questions Web page—Definition: Census County Division (CCD). Available: https://ask.census.gov/faq.php?id=5000&faqId=6447. Accessed March 4, 2013.

———. 2013b. United States Census 2000 Demographic Profiles. Search terms: State = California; area names = Shingle Springs, Cameron Park, El Dorado Hills, El Dorado County, City of Folsom. Available: http://censtats.census.gov/pub/Profiles.shtml. Accessed March 4, 2013.

———. 2013c. Community Facts. Search terms: Shingle Springs, Cameron Park, El Dorado Hills, El Dorado County, City of Folsom. Available: http://factfinder2.census.gov/faces/nav/jsf/pages/community_facts.xhtml#none. Accessed March 4, 2013.

TABLE OF CONTENTS

List of Figures

List of Tables

3.14 PUBLIC SERVICES

3.14.1 INTRODUCTION

This section describes existing conditions and potential impacts on public services, namely fire and emergency protection, law enforcement, and maintenance of public facilities (e.g., schools and parks), as a result of the project. The analysis concludes that any impact on public services will be less than significant or no impacts will occur.

The project's potential effects on public services were evaluated using the significance criteria set forth in Appendix G of the California Environmental Quality Act (CEQA) Guidelines, as shown in Table 3.14-1: CEQA Checklist for Public Services. The conclusions are discussed in more detail in 3.14.4, Applicant-Proposed Measures and Potential Impacts.

Emergency access is discussed in Section 3.16, Transportation and Traffic. Temporary and short-term construction impacts on schools and parks, such as impacts related to noise, dust, and hazards and hazardous materials, are discussed in Section 3.12, Noise; Section 3.3, Air Quality; and Section 3.8, Hazards and Hazardous Materials, respectively.

Table 3.14-1: CEQA Checklist for Public Services

Would the project:	Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
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:				
i) Fire protection?				☒
ii) Police protection?				☒
iii) Schools?				☒
iv) Parks?			☒	
v) Other public facilities?				☒

3.14.2 REGULATORY BACKGROUND AND METHODOLOGY

3.14.2.1 **Regulatory Background**

Federal

No federal regulations related to public services are applicable to the project.

State

No State regulations related to public services are applicable to the project.

Local

No local regulations related to public services are applicable to the project.

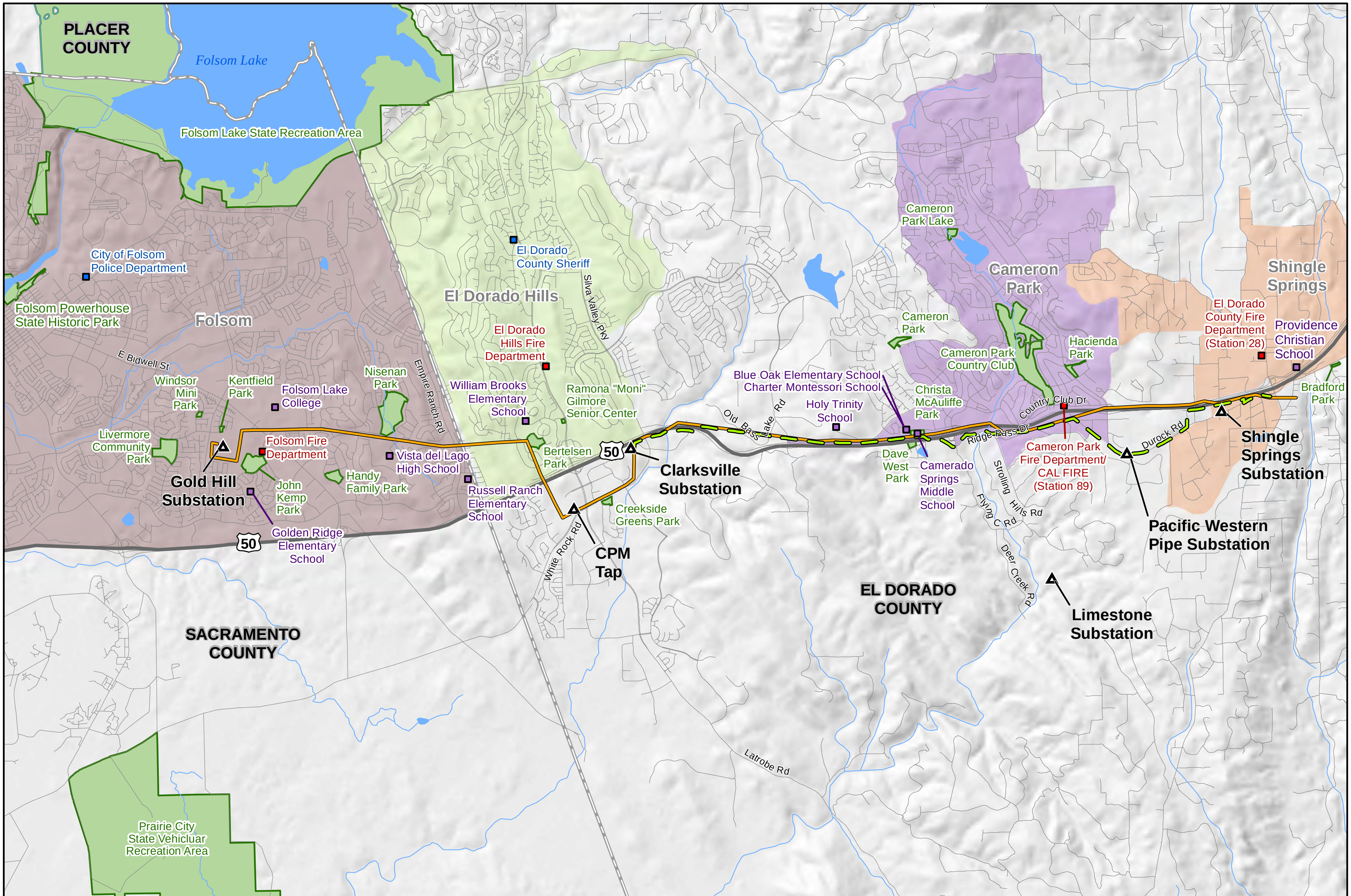
3.14.2.2 **Methodology**

To evaluate potential impacts on public services, general plans and websites describing public services provided in the project area were reviewed. The general plans reviewed were the El Dorado County General Plan, amended in 2009, and the City of Folsom General Plan, updated in 1993. The websites of the following city and county governments and public service districts were also reviewed:

- California Department of Forestry and Fire Protection (CAL FIRE) Amador–El Dorado Unit
- El Dorado County Fire District
- El Dorado Hills Fire Department
- El Dorado County
- Buckeye Union School District
- El Dorado Union High School District
- Cameron Park Community Services District
- El Dorado Hills Community Services District
- City of Folsom
- Los Rios Community College District
- Folsom Cordova Unified School District

3.14.3 ENVIRONMENTAL SETTING

The project alignment crosses through the unincorporated communities of Shingle Springs, Cameron Park, and El Dorado Hills in El Dorado County and the City of Folsom in Sacramento County. This area is served by a variety of public service districts, as described by local jurisdiction in the following sections. Figure 3.14-1: Public Services and Recreation Facilities Map provides the location of local public services and recreational facilities within 0.5 mile of the project alignment.



Miles

0 0.5 1 2

1:84,000 1 inch = 1 mile

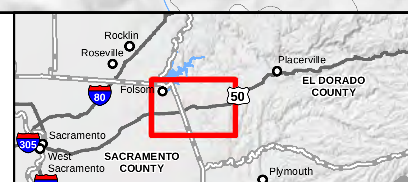
N

AECOM

Pacific Gas and Electric Company

- Existing Substation/Switching Station
- Missouri Flat-Gold Hill 115 kV Power Line Reconductoring
- Gold Hill No. 1 60 kV Power Line Reconductoring
- Fire and Emergency Response
- Law Enforcement Services
- Schools
- Parks and Recreation

Source: PG&E 2013



Missouri Flat-Gold Hill 115 kV Power Line Reconductoring Project
Figure 3.14-1: Public Services and Recreation Facilities Map
August 2013

3.14.3.1 Fire Protection

El Dorado County Fire Protection Departments

The portion of the project area located in El Dorado County is served by four fire protection departments:

- *CAL FIRE Station 43–El Dorado.* The El Dorado Fire Station was built in 1942 between the communities of El Dorado and Shingle Springs. The El Dorado Fire Station is the headquarters for Battalion 1 and houses the battalion chief, two frontline engines, and a frontline dozer transport. The unit automotive shop is also located there. The fire station sits at approximately 1,500 feet and faces daily challenges in a densely populated wildland/urban interface area. The El Dorado Fire Station also works closely with many fire agencies through automatic aid agreements for all-risk emergency services (CAL FIRE 2013).

- *El Dorado County Fire District.* The El Dorado County Fire District serves approximately 74,000 residents in an area of more than 281 square miles. The district serves several communities, including Shingle Springs (El Dorado County Fire District 2013). Station 28 is located just north of U.S. Highway 50 (U.S. 50) within 0.5 mile of the project alignment.

- *Cameron Park Fire Department/CAL FIRE.* The Cameron Park Fire Department, run through a cooperative agreement with CAL FIRE, provides a wide array of fire and emergency services to community residents and others who pass through for business and leisure activities. The fire department serves the community from two full-time staffed fire stations situated at the north and south ends of the district; it has a total of up to 54 employees (Cameron Park Community Services District 2013). Station 89 is located just north of U.S. 50 near the project alignment.

- *El Dorado Hills Fire Department.* Fire protection and emergency services in the community of El Dorado Hills are provided by the El Dorado Hills Fire Department (EDHFire). EDHFire has three stations and an administrative headquarters, with Station 84, "Marina Station," and Station 87, "Golden Foothill Station," located closest to the project alignment. EDHFire is a full-service, all-risk fire department that provides advanced life support; emergency medical services; residential, commercial, and wildland fire suppression; hazardous materials safety services; fire prevention code enforcement; public education; and community service (El Dorado Hills Fire Department 2013).

Folsom Fire Department

Fire protection and emergency services in the City of Folsom are provided by the Folsom Fire Department. The department has a staff of 65 and provides fire suppression, rescue, prevention, public education, hazardous materials response, and emergency medical services to the community from four fire stations. Station 37, located at 70 Clarksville Road (near the intersection of East Bidwell Street and Clarksville Road), is the closest station to the project alignment, as it is located just east of Gold Hill Substation. The department is responsible for providing service to a population of approximately 70,000 in an area of eastern Sacramento County covering 24 square miles (City of Folsom 2013a).

3.14.3.2 Police Protection

El Dorado County Sheriff's Office

The El Dorado County Sheriff's Office administers law enforcement over all unincorporated areas of El Dorado County, including the communities of Shingle Springs, Cameron Park, and El Dorado Hills. The Sheriff's Office has offices in South Lake Tahoe and El Dorado Hills, along with its headquarters in Placerville (El Dorado County 2013).

City of Folsom Police Department

The City of Folsom Police Department serves approximately 70,000 residents in the City of Folsom. The department's headquarters is located at 46 Natoma Street in Folsom (City of Folsom 2013b).

3.14.3.3 Schools

Four public school districts and two private schools are located in the project area.

El Dorado County

The following two school districts and two private schools are located in El Dorado County:

- *Buckeye Union School District.* Buckeye Union School District serves students in kindergarten through grade 8 in the communities of Shingle Springs, southern Cameron Park, and El Dorado Hills. It has five elementary schools, two middle schools, and one charter school (Buckeye Union School District 2013). Four schools operated by this district—William Brooks Elementary School, Blue Oak Elementary School, Charter Montessori School, and Camerado Springs Middle School—are located within 0.5 mile of the project alignment.

- *El Dorado Union High School District.* El Dorado Union High School District serves approximately 6,600 students (grades 9–12) from numerous communities, including Shingle Springs, Cameron Park, and El Dorado Hills. This district operates four high schools and eight alternative programs and schools (El Dorado Union High School District 2013). No schools from El Dorado Union High School District are found within 0.5 mile of the project alignment.

- *Providence Christian School.* Providence Christian School serves approximately 200 students (kindergarten through grade 8) and is a privately owned facility (Providence Christian School 2013). This school is located in the community of Shingle Springs on North Shingle Road.

- *Holy Trinity School Ministry.* Holy Trinity School serves approximately 300 students (kindergarten through grade 8) and is a privately owned facility (Holy Trinity School Ministry 2013). This school is located in the community of El Dorado Hills on Tierra de Dios Drive.

City of Folsom

The following two school districts are located in the City of Folsom:

- *Los Rios Community College District.* Los Rios Community College District is a public college district serving the greater Sacramento region with an enrollment of more than 90,000 students. This district operates four 2-year community colleges (Los Rios Community College District 2013). One of these colleges is Folsom Lake College, which is located within 0.5 mile of the project alignment.

- *Folsom Cordova Unified School District.* Folsom Cordova Unified School District serves approximately 12,500 students (kindergarten through grade 12) from the Cities of Folsom and Rancho Cordova. It has 19 elementary schools, four middle schools, two high schools, five alternative schools, and one charter school (Folsom Cordova Unified School District 2013). Three schools operated by this district—Golden Ridge Elementary School, Russell Ranch Elementary School, and Vista del Lago High School—are located within 0.5 mile of the project alignment.

3.14.3.4 **Parks**

Four parks departments or districts manage public parks in the project area. Additional information about impacts on recreational resources is provided in Section 3.15, Recreation.

El Dorado County

The following three public parks departments or districts located in El Dorado County:

- *County of El Dorado Parks and Recreation Department.* The County of El Dorado Parks and Recreation Department oversees parks located in areas of El Dorado County, such as Shingle Springs, that are outside the jurisdiction of other planning agencies. This department oversees six recreational facilities, and plans to add four new parks, including Bass Lake Regional Park in the community of El Dorado Hills. There are no County of El Dorado parks within 0.5 mile of the project alignment (El Dorado County 2012).

- *Cameron Park Community Services District.* The Cameron Park Community Services District maintains six parks and recreation facilities (Cameron Park Community Services District 2012).[1] Christa McAuliffe Park, Dave West Park, and Hacienda Park are all located within 0.5 mile of the project alignment.

- *El Dorado Hills Community Services District.* The El Dorado Hills Community Services District maintains 50 acres of developed parkland and approximately 96 acres of undeveloped and open space areas (El Dorado Hills Community Services District 2012). Bertelsen Park and Creekside Greens Park are both located within 0.5 mile of the project alignment.

---

[1] In addition to these public parks, a private golf club—Cameron Park Golf Course and Country Club—is located within the community of Cameron Park, approximately 0.25 mile north of the project alignment. However, because it is a private facility, it is not included as part of public services analysis. Additional information is provided in Section 3.15, Recreation.

City of Folsom

The following public parks department is located in the City of Folsom:

- *City of Folsom Parks and Recreation Department.* The City of Folsom Parks and Recreation Department oversees 55 parks and recreational facilities (City of Folsom 2012). John Kemp Community Park, Nisenan Community Park, Handy Family Park, Kentfield Mini Park, Livermore Community Park, and Windsor Mini Park are all located within 0.5 mile of the project alignment.

3.14.3.5 **Other Public Facilities**

El Dorado County owns and maintains the Ramona "Moni" Gilmore Senior Center, located at 990 Lassen Lane, approximately 0.5 mile north of the project alignment.

3.14.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for public services impacts derived from Appendix G of the CEQA Guidelines, provide relevant Applicant-Proposed Measures (APMs), and contain an assessment of potential project-related construction and operational impacts on public services.

3.14.4.1 **Significance Criteria**

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential impacts on public services were evaluated for each of the criteria listed in Table 3.14-1: CEQA Checklist for Public Services, as discussed in Section 3.14.4.3, Potential Impacts.

3.14.4.2 **Applicant-Proposed Measures**

No APMs are included for fire, police, schools, parks, or other public facilities because project construction, operation, and maintenance will have minimal to no impact on public services.

3.14.4.3 **Potential Impacts**

Potential project impacts on public services were evaluated against the CEQA significance criteria and are discussed in further detail in the following paragraphs.

Although the upgraded power lines will require no change to existing operation and maintenance activities, the project will require the relocation of one tubular steel pole (TSP) within a public park. Therefore, the evaluation of impacts is limited to the TSP relocation. The remainder of the impact analysis focuses on temporary and short-term impacts associated with project construction, which will include the following components:

- **Missouri Flat-Gold Hill Line Reconductoring**, which will include reconductoring approximately 12.5 miles of the existing line, replacing approximately 60 existing TSPs, modifying approximately 13 existing lattice steel towers, and converting approximately 1,000 feet of existing overhead distribution line to underground;

- **Gold Hill No. 1 Line Reconductoring**, which will include reconductoring approximately 7 miles of the existing line, replacing approximately 80 existing wood poles with new wood or light-duty steel poles and approximately one new TSP, installing approximately seven new interset wood poles, and replacing approximately three distribution wood structures with approximately two new wood poles; and
- **Access Road Improvements and Construction,** which will include improvements to various temporary access roads that are planned for use during construction and the creation of an approximately 100-foot-long access road.

The impact analysis also evaluates impacts resulting from required site preparation and vegetation removal and trimming required to accommodate construction activities associated with these project components.

The project also includes modifications at Shingle Springs, Pacific Western Pipe, Limestone, Clarksville, and Gold Hill substations, and Missouri Flat Switching Station; however, all work at these facilities will be minor and within existing fence lines. Therefore, no impacts on public services will occur.

An analysis of impacts on adjacent parks during construction and operation of the project, including potential short-term and temporary closures, is included in Section 3.15, Recreation.

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? ***Less than Significant (Parks); No Impact (Fire and Police Protection, Schools, and Other Public Facilities)***

Project construction will result in a temporary, short-term increase of up to a maximum of approximately 40 construction workers. Construction workers traveling to the project area may use existing public services or amenities, but this potential increase in demand will be negligible and temporary. One TSP will be relocated, resulting in a minor reduction of publicly accessible areas within a park facility. The project will not involve developing new residential units that will directly or indirectly increase population; therefore, no increase in the demand for public services in the area will occur. Furthermore, no new or altered public facilities are needed.

An analysis of construction impacts on parks in the project area, including potential short-term and temporary closures, is provided in Section 3.15, Recreation.

Fire and Police Protection

As described in Section 3.16, Transportation and Traffic, PG&E will coordinate with the El Dorado County Sheriff's Office and City of Folsom Police Department regarding any road closures during construction so that response times will not be affected. No impact will occur.

Schools

The project is within 0.5 mile of eight public schools: four operated by the Buckeye Union School District (William Brooks Elementary School, Blue Oak Elementary School, Charter Montessori School, and Camerado Springs Middle School); three operated by the Folsom Cordova Unified School District (Golden Ridge Elementary School, Russell Ranch Elementary School, and Vista del Lago High School); one operated by the Los Rios Community College District (Folsom Lake College); and two privately owned schools (Providence Christian School and Holy Trinity School Ministry).

The project will not involve developing new residential units or services that will generate a new residential population in the area. Therefore, the project will not cause an increase in the demand on existing schools that would affect school enrollment or performance objectives. No impact will occur.

Parks

Eleven public parks are located within 0.5 mile of the project alignment, two of which—Bertelsen Park and Christa McAuliffe Park—are located directly adjacent to the project alignment, as shown in Figure 3.14-1: Public Services and Recreation Facilities Map. The project will not involve developing new residential units or services that will generate a new daytime or residential population in the area that will increase the demand on parks. Construction workers traveling to the area may use existing public services or amenities such as parks; however, this potential increase in demand will be minimal and temporary and will not exacerbate the need for or deterioration of the park facilities or result in the need for new facilities.

One existing TSP is located just outside of Bertelsen Park in the community of El Dorado Hills in close proximity to an adjacent double-circuit transmission line and a creek. The TSP will be relocated to a landscaped grass lawn within Bertelsen Park boundaries to avoid conductor clearance concerns with adjacent lines and accommodate construction activities. In addition, a chain-link fence along the park boundary may partially be relocated around the new TSP for public safety purposes. The area to be removed from public park access will be less than approximately 1,000 square feet, which represents less than 1 percent of the total park area available to the public for use. Furthermore, the primary recreational facilities of Bertelsen Park, including two baseball fields, a gazebo, and a barbeque area, will not be encroached upon or otherwise affected. Therefore, impacts will be less than significant.

Construction activities may result in short-term, temporary closures where necessary at adjacent parks and recreation facilities. Construction- and operation-related impacts on parks in the project area are evaluated in Section 3.15, Recreation.

Other Public Facilities

The project is designed to improve existing and projected electrical capacity in the area, and will not directly or indirectly induce growth or create need for additional public services. Therefore, no impact will occur.

3.14.5 REFERENCES

Buckeye Union School District. 2013. Schools. Available: http://www.buckeyeusd.org/schools. Accessed March 11, 2013.

California Department of Forestry and Fire Protection (CAL FIRE). 2013. CAL FIRE Amador–El Dorado Unit Operations. Available: http://www.calfire.ca.gov/AEU/Battalions.php. Accessed March 11, 2013.

Cameron Park Community Services District. 2012. Parks and Facilities. Available: http://www.cameronpark.org/parks_and_facilities.html. Accessed July 19, 2012.

———. 2013. Fire and Emergency Services: Cameron Park Fire Department/CAL FIRE. Available: http://www.cameronpark.org/fire_and_emergency_services.html. Accessed March 11, 2013.

City of Folsom. 2012. Facilities/Rental Information. Available: http://www.folsom.ca.us/depts/parks_n_recreation/rental/default.asp. Accessed July 19, 2012.

———. 2013a. Folsom Fire Department Home Page. Available: http://www.folsom.ca.us/depts/fire/default.asp. Accessed March 11, 2013.

———. 2013b. City of Folsom Police Department. Available: http://www.folsom.ca.us/depts/police/default.asp. Accessed March 11, 2013.

El Dorado County. 2012. Bradford Park. Available: https://www.edcgov.us/Government/Parks/Bradford_Park.aspx. Accessed July 19, 2012.

———. 2013. El Dorado County Sheriff's Office. Available: http://www.edcgov.us/Sheriff/. Accessed March 11, 2013.

El Dorado County Fire District. 2013. About the District. Available: http://www.eldoradocountyfire.com/district/aboutus.html. Accessed March 11, 2013.

El Dorado Hills Community Services District. 2012. Park Amenities. Available: http://www.edhcsd.org/park_amenities.html. Accessed July 19, 2012.

El Dorado Hills Fire Department. 2013. El Dorado Hills Fire Department Home Page. Available: http://www.edhfire.com/. Accessed March 11, 2013.

El Dorado Union High School District. 2013. Our District High Schools & Programs. Available: http://www.eduhsd.k12.ca.us/EDUHSD%20Schools.htm. Accessed March 11, 2013.

Folsom Cordova Unified School District. 2013. About Us. Available: http://www.fcusd.org/domain/739. Accessed March 11, 2013.

Holy Trinity School Ministry. 2013. Homepage. Available: http://www.holytrinityparish.org/school/. Accessed March 15, 2013.

Los Rios Community College District. 2013. About Los Rios. Available: http://www.losrios.edu/lrc/lrc_about.php. Accessed March 13, 2013.

Providence Christian School. 2013. About Us. Available: http://providence-christian.org/wordpress_1027305399/?page_id=18. Accessed March 15, 2013.

TABLE OF CONTENTS

List of Tables

3.15 RECREATION

3.15.1 INTRODUCTION

This section describes existing conditions and potential impacts on recreational facilities and uses, including public and private recreational facilities, public open space, and public trails, as a result of the project. The analysis concludes that impacts on recreational facilities and uses will be less than significant or no impacts will occur. The Applicant-Proposed Measure (APM) described in Section 3.15.4.2, Applicant-Proposed Measures, will further reduce any less-than-significant impacts.

The project's potential effects on recreational facilities and uses were evaluated using the significance criteria set forth in Appendix G of the California Environmental Quality Act (CEQA) Guidelines, as shown in Table 3.15-1: CEQA Checklist for Recreation. The conclusions are discussed in more detail in Section 3.15.4, Applicant-Proposed Measures and Potential Impacts. Impacts on bicycle and pedestrian plans and facilities are addressed in Section 3.16, Transportation and Traffic.

Table 3.15-1: CEQA Checklist for Recreation

Would the project:	Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) 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) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				☒

3.15.2 REGULATORY BACKGROUND AND METHODOLOGY

3.15.2.1 Regulatory Background

Federal

No federal regulations related to recreational facilities and uses are applicable to this project.

State

No State regulations related to recreational facilities and uses are applicable to this project.

Local

No local regulations related to recreational facilities and uses are applicable to this project.

3.15.2.2 Methodology

Existing conditions related to recreational facilities and uses were determined from a review of published adopted local plans and other literature, as well as review of aerial imagery and photographs. Project activities during construction and operation were evaluated within the context of surrounding recreational facilities and uses to determine whether the project may result in changes that will directly or indirectly affect those facilities or uses.

3.15.3 ENVIRONMENTAL SETTING

From east to west, the project alignment traverses western El Dorado County, passing through the communities of Shingle Springs, Cameron Park, and El Dorado Hills. The alignment continues west into the City of Folsom, located in Sacramento County.

3.15.3.1 Regional

Three State park facilities are located in the vicinity of the project, two of which are within the City of Folsom. Folsom Powerhouse State Historic Park is located in the City of Folsom, approximately 2.5 miles northwest of the project area, where the public can view the historic powerhouse's vintage turbines and marble control switch board, as well as the forebays and canal system that brought water from Folsom Dam (CDPR 2012a). Folsom Lake State Recreation Area, located approximately 2.5 miles north of the project area, offers 75 miles of shoreline at the base of Sierra Nevada Gold Country as well as recreational activities such as boating, fishing, swimming, camping, picnicking, horseback riding, hiking, and mountain biking (CDPR 2012b).

Approximately 3 miles south of U.S. Highway 50 (U.S. 50), within Sacramento County, is Prairie City State Vehicular Recreation Area (SVRA). The SVRA covers approximately 850 acres and offers opportunities for motorcycles, all-terrain vehicles, and four-wheel drive vehicles; it has shaded picnic sites (CDPR 2012c).

Cameron Park Lake, managed by the Cameron Park Community Services District, is located approximately 1.5 miles north of the project area. It has tennis courts, playground, walking and jogging trails, fishing, boat rentals, swim area, and picnic areas. Bradford Park is a 5-acre park that has a playground, small sports field, and large covered picnic areas, located approximately 0.7 mile east of the eastern project terminus at the intersection of North Star Drive and Mother Lode Drive in Shingle Springs (El Dorado County 2012).

3.15.3.2 Local

As shown in Figure 3.14-1: Public Services and Recreation Facilities Map, 13 parks and recreational facilities are located within approximately 0.5 mile of the project area, including 11 public parks, one public recreational facility (senior center), and one private golf course recreational facility. Amenities at these parks and recreational facilities are described next, by county and city jurisdiction.

El Dorado County

No parks or recreational facilities managed by El Dorado County are located within approximately 0.5 mile of the project area.

Within the community of Cameron Park, three public parks and one private golf course are located within approximately 0.5 mile of the project alignment:

- *Christa McAuliffe Park:* Located at 2400 Merrychase Drive in Cameron Park, this park is directly adjacent and north of the project area. The park has a soccer field, playground, picnic area, and a skate park.

- *Dave West Park:* This park is located approximately 275 feet south of the project area, south of U.S. 50 on Crazy Horse Drive. A Little League ball field, soccer field, and picnic area are available for use at the park.

- *Hacienda Park:* Located approximately 0.5 mile north of the project area, this is a neighborhood park with picnic areas and trails (Cameron Park Community Services District 2012).

- *Cameron Park Golf Course and Country Club:* This private golf club is located at 3201 Royal Drive, approximately 0.25 mile north of the project area.

Various parks and recreational facilities are located within the community of El Dorado Hills; however, only three are located within approximately 0.5 mile of the project area:

- *Bertelsen Park:* This park, located at 831 Redwood Lane, is directly northeast of the project area. It has a lighted baseball field, children's play structure, covered picnic pavilion, barbecue grills, and horseshoe pits on 10.7 acres.

- *Ramona "Moni" Gilmore Senior Center:* This senior center is located approximately 0.5 mile north of the project area, at 990 Lassen Lane. The center is owned and maintained by El Dorado County, which collaborates with the El Dorado Hills Community Service District to provide recreational programs.

- *Creekside Greens Parks:* This park is located approximately 200 feet south of the project area along Concordia Drive. It has a children's play area, barbecue grills, and picnic tables (El Dorado Hills Community Services District 2012).

In addition, three unnamed, passive open space parcels are located adjacent to the project area; however, these parcels do not contain publicly accessible trails or recreational facilities. These parcels are located in El Dorado Hills—between Porter Road and Platt Circle, south of U.S. 50 between White Rock Road and Vine Street, and north of Tong Road.

City of Folsom

Within the City of Folsom, various neighborhood and community parks, as well as passive open space, provide recreational opportunities for residents. Six city parks are within approximately 0.5 mile of the project area:

- *John Kemp Community Park:* This park is located on 1322 Bundrick Drive. It has a volleyball court, two soccer fields, and picnic pavilion area with barbecue grills. The edge of the park is approximately 350 feet southeast of Gold Hill Substation (City of Folsom 2012).
- *Nisenan Community Park:* This park is located on Golf Links Drive, approximately 250 feet north of the project area, and adjacent to the north side of Broadstone Parkway. The park has a lighted ball field, a shaded picnic area, and an open turf field (City of Folsom 2011).
- *Handy Family Park:* This park is located on Cavitt Drive, approximately 1 mile east of Gold Hill Substation and 0.5 mile south of the project area. It has a soccer field, a basketball court, a picnic pavilion, a sand play area, and a play structure (Discover Folsom 2012).
- *Kentfield Mini Park:* This park, located on Kennerly Way, is approximately 200 feet north of Gold Hill Substation, and it has a play structure and grass field.
- *Livermore Community Park:* This park, located approximately 0.4 miles west of Gold Hill Substation, has baseball fields, a football field, and a sand volleyball field.
- *Windsor Mini Park:* This park, located off Heaton Way, is approximately 1,400 feet northwest of Gold Hill Station. It has a tennis court and play structure.

3.15.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for recreation impacts derived from Appendix G of the CEQA Guidelines, provide relevant APMs, and contain an assessment of potential project-related construction and operational impacts on recreational facilities and uses.

3.15.4.1 **Significance Criteria**

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts on recreational facilities and uses were evaluated for each of the criteria listed in Table 3.15-1: CEQA Checklist for Recreation, as discussed in Section 3.15.4.3, Potential Impacts.

3.15.4.2 **Applicant-Proposed Measures**

The APM provided in this section includes existing regulations and/or requirements or standard practices that will further minimize, avoid, or reduce potential less-than-significant impacts on recreational facilities and uses.

APM REC-1: Coordination with Park and Open Space Management and Signage

PG&E will coordinate closely with park and open space management for temporary public land closures during project construction activities. If traditional access is temporarily unavailable, signs advising recreational facility users of construction activities, including directions to alternative trails and/or bikeways, will be posted at entrance gates to park and open space areas. Signage will be posted at least 1 week in advance of construction, near parks and open space areas.

3.15.4.3 **Potential Impacts**

Potential project impacts on recreational facilities and uses were evaluated against the CEQA significance criteria and are discussed in further detail in the following paragraphs.

The upgraded power lines will require no change to existing operation and maintenance activities. As such, impacts on recreational facilities and uses that result from the project will not change from existing conditions and no operation-related impacts will occur. The impact analysis is limited to impacts associated with one tubular steel pole (TSP) relocation within a public park, and temporary and short-term impacts associated with other project construction, which will include the following components:

- **Missouri Flat-Gold Hill Line Reconductoring**, which will include reconductoring approximately 12.5 miles of the existing line, replacing approximately 60 TSPs, modifying approximately 13 lattice steel towers, and converting approximately 1,000 feet of overhead distribution line to underground;

- **Gold Hill No. 1 Line Reconductoring**, which will include reconductoring approximately 7 miles of the existing line, replacing approximately 80 existing wood poles with new wood or light-duty steel poles and approximately one new TSP, installing approximately seven new interset wood poles, and replacing approximately three distribution wood structures with approximately two new wood poles; and

- **Access Road Improvements and Construction,** which will include improvements to various temporary access roads that are planned for use during construction and the creation of an approximately 100-foot-long access road.

The impact analysis also evaluates impacts resulting from required site preparation and vegetation removal and trimming required to accommodate construction activities associated with these project components.

The project also includes modifications at Shingle Springs, Pacific Western Pipe, Limestone, Clarksville, and Gold Hill substations, and Missouri Flat Switching Station; however, all work at these facilities will be minor and within the existing fence lines. Therefore, no impacts on recreational facilities will occur.

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***

Increases in overall permanent demand for recreational facilities typically are associated with substantial increases in population, either by the construction of new residences or the creation of a major job generator that will indirectly increase the number of residents in an area. Implementation of the project will not result in a substantial increased demand for recreational facilities or adversely affect the existing recreational resources in a permanent manner. Construction workers may use local parks and recreational facilities, but a majority of workers already live in the area and already use these facilities; the limited number of workers from outside the area needed for the project will not result in a substantial increase in demand on such facilities, causing their accelerated physical deterioration.

One existing TSP is located just outside of Bertelsen Park in the community of El Dorado Hills in close proximity to an adjacent double-circuit transmission line and a creek. The TSP will be relocated to a landscaped grass lawn within Bertelsen Park boundaries to avoid conductor clearance concerns with adjacent lines and accommodate construction activities. In addition, a chain link fence along the park boundary may be partially relocated around the new TSP for public safety purposes. Less than 1,000 square feet of public park access will be removed as a result of relocation of the TSP. This represents less than 1 percent of the total park area available to the public for use. Furthermore, the primary recreational facilities of Bertelsen Park, including two baseball fields, a gazebo, and a barbeque area, will not be encroached upon or otherwise affected. Therefore, the project will not have any substantial effects on recreational facilities and uses and existing recreational uses will not be permanently altered, and the impact will be less than significant.

Although the project will not result in physical deterioration of any parks, construction activities may result in short-term, temporary closure of two public parks—Bertelsen Park and Christa McAuliffe Park—due to their proximity to the project alignment. Temporary impacts on the use of Bertelsen Park and Christa McAuliffe Park may occur during project activities. Any closures of Bertelsen Park and Christa McAuliffe Park that are required for public safety during project construction will be temporary and short-term (typically 15 days or less). Therefore, the impact on these facilities will be less than significant. In addition, implementation of APM REC-1 will further reduce the less-than-significant impact on parks and recreational facilities. Detailed analyses of visual and noise impacts resulting from project construction are provided in Section 3.1, Aesthetics, and Section 3.12, Noise, respectively.

The project alignment will not cross or be adjacent to any of the other 11 parks or recreational facilities located within approximately 0.5 mile, and public use of those facilities will not be affected by the project. No impact will occur.

Three unnamed, passive open space parcels in El Dorado Hills also may be affected by project construction. These include the following open space parcels and associated project area locations and access roads:

- **Open Space Area between Porter Road and Platt Circle.** A pull site and landing zone are located within this open space area, adjacent to the Wilson Boulevard southern terminus. In addition, access roads crossing this open space area extend from Porter Road to Wilson Boulevard, leading to four towers.

- **Open Space Area between White Rock Road and Vine Street.** A pull site is located within this open space area approximately 350 feet east of the White Rock Road and Valley View Parkway intersection. In addition, access roads to and from nearby towers are located in this area.

- **Open Space Area near Bass Lake Road.** A pull site is located within this open space area approximately 300 feet north of Old Bass Lake Road between Mustang Way and Bass Lake Road. In addition, access roads to and from nearby towers are located in this area.

These three parcels do not contain publicly accessible trails or recreational facilities; therefore, noise and dust caused by use of the access roads and work areas from construction vehicles and equipment will not affect trail users or recreational visitors. No impact will occur.

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 project will not involve or require the construction or expansion of recreational facilities. No impact will occur.

3.15.5 REFERENCES

California Department of Parks and Recreation (CDPR). 2012a. Folsom Powerhouse SHP. Available: http://www.parks.ca.gov/?page_id=501. Accessed July 19, 2012.

———. 2012b. Folsom Lake SRA. Available: http://www.parks.ca.gov/?page_id=500. Accessed July 19, 2012.

———. 2012c. Prairie City SVRA. Available: http://www.parks.ca.gov/?page_id=411. Accessed July 19, 2012.

Cameron Park Community Services District. 2012. Parks and Facilities. Available: www.cameronpark.org/parks_and_facilities.html. Accessed July 19, 2012

City of Folsom. 2011. September 2011 Newsletter. Available: http://www.folsom.ca.us/civica/filebank/blobdload.asp?BlobID=15925. Accessed July 19, 2012.

———. 2012. Facilities/Rental Information. Available: www.folsom.ca.us/depts/parks_n_recreation/rental/default.asp. Accessed July 19, 2012.

Discover Folsom. 2012. Recreation: Folsom Parks. Available: http://www.discoverfolsom.com/recreation/folsom-parks/. Accessed July 19, 2012.

El Dorado County. 2012. Bradford Park. Available: https://www.edcgov.us/Government/Parks/Bradford_Park.aspx. Accessed July 19, 2012.

El Dorado Hills Community Services District. 2012. Park Amenities. Available: http://www.edhcsd.org/park_amenities.html. Accessed July 19, 2012.

GreenInfo Network. 2013. CPAD: California Protected Areas Database. Available: http://www.calands.org/. Accessed March 5, 2013.

TABLE OF CONTENTS

List of Tables

3.16 TRANSPORTATION AND TRAFFIC

3.16.1 INTRODUCTION

This section describes existing conditions and potential impacts on transportation and traffic as a result of the project. The analysis concludes that impacts on transportation and traffic will be less than significant. Furthermore, the Applicant-Proposed Measures (APMs) described in Section 3.16.4.2, Applicant-Proposed Measures, will further reduce the project's less-than-significant impacts on transportation and traffic.

The project's potential effects on transportation and traffic were evaluated using the significance criteria set forth in Appendix G of the California Environmental Quality Act (CEQA) Guidelines, as shown in Table 3.16-1: CEQA Checklist for Transportation and Traffic. The conclusions are discussed in more detail in Section 3.16.4, Applicant-Proposed Measures and Potential Impacts. Impacts related to helicopter use are addressed in Section 3.8, Hazards and Hazardous Materials.

Table 3.16-1: CEQA Checklist for Transportation and Traffic

Would the project:	Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
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?			☒	

Would the project:	Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
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?				☒

3.16.2 REGULATORY BACKGROUND AND METHODOLOGY

3.16.2.1 Regulatory Background

Federal

The U.S. Department of Transportation (DOT) and California Department of Transportation (Caltrans) are the administering agencies for the following regulations:

- Title 49 Code of Federal Regulations (CFR) Sections 171 through 177 (49 CFR 171–177), which govern the transportation of hazardous materials, the types of materials defined as hazardous, and the marking of transportation vehicles.
- Title 49 CFR 350–399 and Appendices A through G, Federal Motor Carrier Safety Regulations, which address safety considerations for the transport of goods, materials, and substances over public highways.
- Title 49 CFR 397.9, the Hazardous Materials Transportation Act of 1974, which directs DOT to establish criteria and regulations for the safe transportation of hazardous materials.

State

Caltrans owns the rights-of-way for State Routes (SR), including any on- and off-ramps that provide access to the project area. Any project-related work within SR rights-of-way requires a ministerial Encroachment Permit from Caltrans.

Caltrans is also the administrating agency for regulations related to traffic safety, including the licensing of drivers, weight and load limitations, transportation of hazardous and combustible materials, and the safe operation of vehicles.

Local

The project is not subject to local discretionary land use regulations because the California Public Utilities Commission has exclusive jurisdiction over the siting, design, and construction of the project. However, PG&E has considered local plans and policies as part of the environmental review process.

El Dorado County

The El Dorado County Regional Transportation Plan identifies level of service (LOS) standards for the county system. The El Dorado County standard for peak hour LOS thresholds is LOS E in Community Regions, defined in the General Plan as areas which are appropriate for the highest intensity of self-sustaining compact urban-type development or suburban type development within the county, and LOS D everywhere else (EDCTC 2010a).

The El Dorado County Bicycle Transportation Plan includes development of a bicycle transportation system that provides a network of on- and off-street bikeways throughout western El Dorado County. The plan also supports alternative modes of transportation aside from driving, and it allows bike commuters to bypass vehicle congestion (EDCTC 2010b). The Park-and-Ride Facilities Master Plan for El Dorado County identifies the policies, actions, and financing needed to guarantee adequate parking capacity to support the El Dorado County Transit Authority's (EDCTA) commuter bus service, carpooling, vanpooling and other forms of shared-rides (EDCTC 2007).

City of Folsom

The City of Folsom General Plan identifies a goal of achieving at least an LOS C throughout the city and seeks to maintain this goal by regularly updating the Folsom Area Traffic Study and Traffic Monitoring Program (City of Folsom 1993). The City of Folsom supports alternative transportation through the City of Folsom Bikeway Master Plan.

3.16.2.2 **Methodology**

Traffic data and other transportation system information were obtained from maps, literature searches, aerial photographs, and personal communications with State and local government officials. The information was used to evaluate the project, using the CEQA checklist to determine potential impacts. Project activities during construction and operation were evaluated within the context of surrounding transportation and traffic facilities and resources, to determine whether the project may result in changes that will directly or indirectly affect those facilities or resources.

3.16.3 ENVIRONMENTAL SETTING

The backbone of the regional transportation system in the project vicinity is U.S. Highway 50 (U.S. 50). U.S. 50 is a major east-west route of the U.S Highway System that bisects the country, beginning in Ocean City, Maryland, and terminating in West Sacramento, California, west of the project area. This roadway will be used to access the project area during construction and operation.

The local transportation system in the project vicinity includes county-maintained and city-maintained roadways. Table 3.16-2: Summary of Study Area Roadway Characteristics summarizes the characteristics of the relevant regional and local roadways in the project area.

Table 3.16-2: Summary of Study Area Roadway Characteristics

Roadway	Jurisdiction	Classification	Lanes	Annual Average Daily Traffic Volume[1] (vehicles)	Peak Hour Traffic Volume (vehicles)	Physical Relationship to Power Line
U.S. 50 (at Scott Road)	Caltrans	Interstate	6	91,000	8,600	Access Road
U.S. 50 (at Latrobe Road)	Caltrans	Interstate	7	91,000	8,600	Access Road
U.S. 50 (at Bass Lake Road)	Caltrans	Interstate	5	70,000	7,000	Access Road
U.S. 50 (at Cambridge Road)	Caltrans	Interstate	4	61,000	5,700	Access Road
U.S. 50 (at Cameron Park Drive)	Caltrans	Interstate	4	61,000	5,600	Overhead Crossing
U.S. 50 (at South Shingle Springs Road)	Caltrans	Interstate	4	61,000	5,600	Access Road
East Bidwell Street	City of Folsom	N/A	4	N/A	N/A	Overhead Crossing
Broadstone Parkway	City of Folsom	N/A	4	N/A	N/A	Overhead Crossing
Empire Ranch Road	City of Folsom	N/A	4	N/A	N/A	Overhead Crossing
Bass Lake Road	El Dorado County	Rural Minor Arterial Urban Collector	2	N/A	N/A	Overhead Crossing
Cambridge Road	El Dorado County	Rural Minor Arterial Urban Collector	2	N/A	N/A	Overhead Crossing
Cameron Park Road	El Dorado County	Urban Minor Arterial	2	N/A	N/A	Overhead Crossing
South Shingle Springs Road	El Dorado County	Urban Minor Arterial	2	N/A	N/A	Access Road
Durock Road	El Dorado County	Rural Minor Arterial Urban Collector	2	N/A	N/A	Overhead Crossing

[1] Caltrans provides "back" peak-hour and annual average daily traffic (AADT) and "ahead" peak hour and AADT traffic volumes. "Back" represents traffic south or west of the count location and "ahead" represents traffic north or east of the count location. For the purposes of this analysis, the highest peak hour and AADT traffic volumes, regardless if they are "back" or "ahead," are represented in this table.

Source: Caltrans 2011

3.16.3.1 Existing Traffic Volumes and Level of Service

To evaluate the operational characteristics of a roadway segment, a simple grading system is used to compare the traffic volume carried by a road with the capacity of that road. The volume/capacity ratio is an indicator of traffic conditions, speeds, and driver maneuverability. Table 3.16-3: Definitions of Study Area Roadway Characteristics presents roadway traffic flow characteristics for LOS.

Table 3.16-3: Definitions of Study Area Roadway Characteristics

LOS	V/C[1] Ratio	Traffic Flow Characteristics
A	0.00 – 0.60	Free flow; insignificant delays
B	0.61 – 0.70	Stable operations; minimal delays
C	0.71 – 0.80	Stable operation, acceptable delays
D	0.81 – 0.90	Approaching unstable flow; queues develop rapidly but no excessive delays
E	0.91 – 1.00	Unstable operation; significant delays
F	>1.00	Forced flow; jammed conditions

Note: LOC = Level of Service

[1] V/C is volume/capacity ratio, which is an indicator of traffic conditions, speeds, and driver maneuverability.

Source: Transportation Research Board 2000

Table 3.16-4: Existing Traffic Operations summarizes the operational information for U.S. 50. Caltrans considers LOS D or better on State highway segments to be acceptable for planning purposes. No segments of U.S. 50 within the project area are operating at an unacceptable LOS.

Table 3.16-4: Existing Traffic Operations

Roadway	Peak-Hour Existing Volume (vehicles)	Peak-Hour Design Capacity (vehicles)	Peak Hour V/C1 Ratio	LOS
U.S. 50 (at Scott Road)	8,600	11,400	0.75	D
U.S. 50 (at Latrobe Road)	8,600	13,300	0.65	C
U.S. 50 (at Bass Lake Road)	7,000	9,500	0.74	D
U.S. 50 (at Cambridge Road)	5,700	7,600	0.75	D
U.S. 50 (at Cameron Park Drive)	5,600	7,600	0.74	D
U.S. 50 (at Shingle Springs Road)	5,600	7,600	0.74	D

Note: LOS = Level of Service; U.S. 50 = U.S. Highway 50

[1] V/C is volume/capacity ratio, which is an indicator of traffic conditions, speeds, and driver maneuverability.

Source: Caltrans 2011

3.16.3.2 Bicycle Facilities

El Dorado County

The El Dorado County Bicycle Transportation Plan (EDCTC 2010b) describes the bikeways in unincorporated El Dorado County. Several bikeways are in the project vicinity, including two Class II routes in unincorporated El Dorado County that cross the project alignment. Class II bikeways are defined as on-street routes intended to provide continuity to bikeway systems.

City of Folsom

The City of Folsom Bikeway Master Plan describes the existing bikeways in the City of Folsom. Several bikeways are in the project vicinity, including five Class I routes, five Class II routes, and one Class III route that either cross or are directly adjacent to the project alignment (City of Folsom 2013a). Class I bikeways provide a completely separate transportation facility, designed specifically for bicycle and pedestrian use only, with minimal cross-flow by motor vehicles. Class III bikeways provide for shared use with the pedestrian and motor vehicle traffic.

3.16.3.3 Air Traffic

Only one airport—Cameron Airpark, owned by the Cameron Park Airport District—is located in the project vicinity, approximately 1.5 miles north of the project area.

3.16.3.4 Transit and Rail Services

El Dorado Transit operates four local bus routes, serving western El Dorado County. The Cameron Park Route crosses the project alignment and uses some of the project area access roads, including U.S. 50 and Cameron Park Drive. El Dorado Transit also provides commuter service from El Dorado County to downtown Sacramento. Six park-and-ride locations are within El Dorado County, along the commuter bus route (El Dorado Transit 2013).

The Folsom Stage Line is a fixed line bus service that runs Monday through Friday in the City of Folsom. Routes 10 and 20 cross the project alignment and use various project area access roads, including East Bidwell Street and Broadstone Parkway (City of Folsom 2012). The City of Folsom also offers light rail service to the City of Sacramento, from Historic Folsom Light Rail Station to Sacramento Valley Station (City of Folsom 2013b).

3.16.4 Applicant-Proposed Measures and Potential Impacts

The following sections describe significance criteria for transportation and traffic impacts derived from Appendix G of the CEQA Guidelines, provide relevant APMs, and contain an assessment of potential project-related construction and operational impacts on transportation and traffic.

3.16.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines,

the potential impacts on transportation and traffic were evaluated for each of the criteria listed in Table 3.16-1: CEQA Checklist for Transportation and Traffic, as discussed in Section 3.16.4.3, Potential Impacts.

3.16.4.2 Applicant-Proposed Measures

As described in Section 3.16.4.3, Potential Impacts, impacts to transportation and traffic will be less than significant. The APMs provided in this section include existing regulations and/or requirements or standard practices that will further minimize, avoid, or reduce potential less-than-significant traffic and transportation impacts.

APM TRA-1: Air Transit Coordination

PG&E will implement the following protocols that pertain to helicopter use during construction and air traffic:

- PG&E will comply with all applicable FAA regulations regarding air traffic within 2 miles of the project alignment.
- PG&E's helicopter operator will coordinate all project helicopter operations with the local airport before and during project construction.
- PG&E does not anticipate that residents will be required to temporarily vacate their homes or businesses. In the unlikely event that final construction plans require otherwise, PG&E will coordinate with potentially affected residents or businesses to minimize the duration of the necessary work and any resultant inconvenience.

APM TRA-2: Temporary Traffic Controls

PG&E will obtain any necessary transportation and/or encroachment permits, including those for the U.S. 50 crossings and transport of oversized loads and certain materials, and will comply with permit requirements designed to prevent excessive congestion or traffic hazards during lane closures. PG&E will 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 will follow best management practices and/or local jurisdictional encroachment permit requirements, to minimize impacts to traffic and transportation in the project area.

3.16.4.3 Potential Impacts

Potential project impacts on transportation and traffic were evaluated against the CEQA significance criteria and are discussed in further detail in the following paragraphs.

The upgraded power lines will require no change to existing operation and maintenance activities. As such, impacts on transportation and traffic that result from the project will not change from existing conditions and no operation-related impacts will occur. The impact analysis is limited to temporary and short-term impacts associated with project construction, which will include the following components:

- **Missouri Flat-Gold Hill Line Reconductoring**, which will include reconductoring approximately 12.5 miles of the existing line, replacing approximately 60 tubular steel poles (TSP), modifying approximately 13 lattice steel towers, and converting approximately 1,000 feet of overhead distribution line to underground;

- **Gold Hill No. 1 Line Reconductoring**, which will include reconductoring approximately 7 miles of the existing line, replacing approximately 80 existing wood poles with new wood poles and one new TSP, installing approximately seven new interset wood poles, and replacing approximately three distribution wood structures with two new wood poles; and

- **Access Road Improvements and Construction,** which will include improvements to various temporary access roads that are planned for use during construction and the creation of an approximately 100-foot-long access road.

The impact analysis also evaluates impacts resulting from required site preparation and vegetation removal and trimming required to accommodate construction activities associated with these project components.

The project also includes modifications at Shingle Springs, Pacific Western Pipe, Limestone, Clarksville, and Gold Hill substations, and Missouri Flat Switching Station; however, all work at these facilities will be minor and within existing fence lines. Therefore, no impacts to transportation and traffic will occur.

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? *No Impact*

Most construction activities will occur within PG&E's existing transmission rights-of-way and will not be performed in regional or local roadways. Crossing structures will be installed where the project alignment crosses over major roads, such as U.S. 50, to allow traffic to safely use the road while PG&E removes the existing conductor and pulls the new conductor into place. Temporary road closures also will be required at various locations to ensure public safety. Operation of Class I and Class II bike routes and mass transit routes in the project area may be temporarily affected when sections of the line are being reconductored at road overhead crossings, as listed in Table 3.16-2: Summary of Study Area Roadway Characteristics.

The anticipated temporary and short-term construction-related traffic impacts will be related to truck routes and project area access routes, shown in Detailed Route Maps to be provided separately to CPUC staffs. The roadways that potentially can be affected by construction-related traffic are listed in Table 3.16-2: Summary of Study Area Roadway Characteristics. Section 2.7.10, Construction Workforce and Equipment, describes the typical construction crew size and required construction equipment during each phase of project construction. Because construction is anticipated to require approximately 18 months to complete and equipment will not travel daily once it is staged in the project work area (including the project alignment and substations), construction-related traffic will not conflict with any traffic plans, ordinances, or policies that establish measures of effectiveness for the performance of the circulation system. Therefore, no impact will occur.

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***

Although construction activities may generate slight increases in traffic on interstate highways, SRs, and local roads, the effects will be minimal, short term, and periodic. Therefore, the impact will be less than significant. In addition, APM TRA-2 will ensure that traffic controls and other traffic safety measures are in place to maintain proper traffic flow during temporary construction activities, further minimizing the less-than-significant impact.

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***

One existing lattice steel tower, located approximately 800 feet northwest of the intersection of Broadstone Parkway and Empire Ranch Road, is located in a seasonal pond that contains standing water for much of the year. To avoid impacts to this aquatic resource, this tower is anticipated to be accessed using a helicopter to complete tower reinforcement work and transport personnel and materials. To accommodate a helicopter, two helicopter landing zones have been preliminarily identified—one approximately 560 feet southeast of the intersection of Montridge Way and Wilson Boulevard in an undeveloped area of El Dorado County and one on Buljan Court where the paved road terminates in the City of Folsom. However, the exact locations and footprints will depend on conditions on the ground and will not be determined until just prior to construction. In accordance with APM TRA-1, PG&E's helicopter operator will follow protocols regarding air traffic and will coordinate with the local airport during all construction-related helicopter operations.

The majority of construction activities that will involve the use of a helicopter will be located within a PG&E right-of-way, where no residences are located; therefore, the flight path of the helicopters from the landing zones poses relatively few safety risks outside of the project alignment. Helicopters that are carrying equipment or construction materials will not pass over major highways, and they will pass near, but not directly over, a limited area containing habitable structures. Therefore, the impact will 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)? ***No Impact***

Project construction will not alter any public roadways or intersections, including access roads to power lines, towers or poles, and substations, nor will it introduce incompatible uses to the project area. Some existing access roads may be reestablished as part of the construction activities, as necessary; however, these roads have been previously used for maintenance activities for the existing power lines. One new spur road, which will be graded and graveled, will be established to access one pole north of the intersection of Finders Way and Saratoga Way in El Dorado Hills. Any road closures that will occur on private and county roads will be temporary and short term, consistent with applicable regulations, and will be coordinated with the County or property owner(s). Therefore, the project will not increase hazards due to design features of roadways. No impact will occur. In addition, where the installation of crossing guard structures are required, APM TRA-2 will further ensure that impacts are avoided.

e) Would the project result in inadequate emergency access? *Less than Significant*

Emergency access routes will be maintained throughout project construction and operation. The Detailed Route Maps to be provided separately to CPUC staff provide the anticipated emergency access routes. Construction vehicles and equipment are anticipated to access project construction areas for towers and poles by using existing paved, dirt, and/or gravel roads and overland travel routes. In addition, a helicopter will be used to access one tower. Construction vehicles and equipment needed at the pull sites are expected to be staged or parked within project area rights-of-way, approved temporary construction easements, or alongside access roads. Any road closures will be temporary and short-term, and these closures will be coordinated with Caltrans and/or local jurisdictions to reduce the effects of potential temporary and short-term emergency access. Therefore, the impact will be less than significant. APM TRA-2 will further minimize any less-than-significant impact on traffic congestion.

f) Would the project conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)? *No Impact*

Project construction will not conflict with any policies, plans, or programs that support alternative transportation (e.g., bus turnouts or bicycle racks) because the majority of construction-related activities will occur within PG&E's existing easements and rights-of-way. No impact will occur.

3.16.5 References

California Department of Transportation (Caltrans). 2003. *Manual of Traffic Controls for Maintenance and Work Zones*. Available: http://www.dot.ca.gov/hq/traffops/signtech/signdel/trafficmanual-current.htm. Accessed December 18, 2012.

———. 2004. *Traffic Manual*. Available: http://www.dot.ca.gov/hq/traffops/signtech/signdel/trafficmanual-current.htm. Accessed December 18, 2012.

———. 2006. *Flagging Instruction Handbook*. California manual on uniform traffic control devices for streets and highways (FHWA's MUTCD 2003 edition, as amended for use in California). Division of Traffic Operations. Available: http://www.dot.ca.gov/hq/traffops/signtech/mutcdsupp/pdf/camutcd/CAMUTCD-TTC.pdf. Accessed December 18, 2012.

———. 2007. *Flagging Instruction Handbook*. Available: http://www.dot.ca.gov/hq/construc/flagging/flaggerhandbook2007.pdf. Accessed December 18, 2012.

———. 2011. Traffic Volumes on the California State Highway System. Available: http://traffic-counts.dot.ca.gov/2011TrafficVolumesAug2012.pdf. Accessed October 2, 2012.

———. 2012a. California Manual on Uniform Traffic Control Devices. Available: http://www.dot.ca.gov/hq/traffops/signtech/mutcdsupp/pdf/camutcd2012/CAMUTCD2012.pdf. Accessed March 27, 2013.

———. 2012b. *Construction Manual*. Available: http://www.dot.ca.gov/hq/construc/constmanual/. Accessed December 18, 2012.

City of Folsom. 1993 (January). *City of Folsom General Plan*. Folsom, CA.

———. 2012. Folsom Stage Line Transit System and Map. Available: http://www.folsom.ca.us/civicax/filebank/blobdload.aspx?blobid=18133. Accessed March 13, 2013.

———. 2013a. Folsom Trails Map. Available: http://www.folsom.ca.us/depts/parks_n_recreation/bike_trails/bike_map.asp. Accessed March 13, 2013.

———. 2013b. City of Folsom Transit Division. Available: http://www.folsom.ca.us/depts/public_works/transit_division.asp#Light Rail. Accessed March 13, 2013.

El Dorado County Transportation Commission (EDCTC). 2007. *El Dorado County Park-and-Ride Facilities Master Plan and Transit Design Manual*. Available: http://www.edctc.org/EDCTC-3/3/ParknRideFacilitiesMstrPlan.html. Accessed March 12, 2013.

———. 2010a. *El Dorado County Regional Transportation Plan 2010–2030*. Available: http://www.edctc.org/EDCTC-3/3/RTP2010-30.html. Accessed March 12, 2013.

———. 2010b. *El Dorado County Bicycle Transportation Plan*. Available: http://www.edctc.org/EDCTC-3/3/CountyBikePlan2010.html. Accessed March 12, 2013.

El Dorado Transit. 2013. El Dorado Transit. Available: http://www.eldoradotransit.com/index.html. Accessed March 13, 2013.

Transportation Research Board. 2000. Highway Capacity Manual.

TABLE OF CONTENTS

List of Tables

3.17 UTILITIES AND SERVICE SYSTEMS

3.17.1 INTRODUCTION

This section describes existing conditions and potential impacts on utilities and service systems as a result of the project. The analysis concludes that no impacts on utilities and service systems will occur.

The project's potential effects on utilities and service systems were evaluated using the significance criteria set forth in Appendix G of the California Environmental Quality Act (CEQA) Guidelines, as shown in Table 3.17-1: CEQA Checklist for Utilities and Service Systems. The conclusions are discussed in more detail in Section 3.17.4, Applicant-Proposed Measures and Potential Impacts.

Table 3.17-1: CEQA Checklist for Utilities and Service Systems

Would the project:	Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
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?				☒

3.17.2 REGULATORY BACKGROUND AND METHODOLOGY

3.17.2.1 Regulatory Background

Federal

No federal regulations related to utilities and service systems are applicable to the project.

State

Section 4216 of the California Government Code governs protection of underground structures during excavation. Under this law, excavators are required to contact a regional notification center at least 2 days before excavating any subsurface installations. In the project area, Underground Service Alert (USA) is the regional notification center. USA will notify any utility providers with buried lines located within 1,000 feet, and those providers must mark the specific locations of their facilities before excavation. The code also requires excavators to probe and expose underground facilities by hand before using power equipment.

Local

The project is not subject to local discretionary land use regulations because the California Public Utilities Commission has exclusive jurisdiction over the siting, design, and construction of the project. However, PG&E has considered local plans and policies as part of the environmental review process.

City of Folsom

The City of Folsom General Plan contains the following policy regarding solid waste disposal (City of Folsom 1993):

Policy 28.6 The City shall encourage community wide recycling in an effort to conserve natural resources and reduce solid waste disposal. This may be established through the development of recycling programs promoted and sponsored by the City with non-profit groups. These programs could include but not be limited to curbside recycling programs, siting of a recycling center or drop off collection centers.

3.17.2.2 Methodology

General plans and official websites for wastewater collection and treatment, water supply, stormwater drainage, solid waste disposal, electricity and natural gas, and communications service providers for the project area were reviewed. These providers included El Dorado Irrigation District (EID), El Dorado Disposal, and the City of Folsom.

3.17.3 ENVIRONMENTAL SETTING

3.17.3.1 Wastewater Collection and Treatment Services

El Dorado County

Wastewater collection and treatment services for western El Dorado County, which includes the City of Placerville and the communities of Diamond Springs, Shingle Springs, Cameron Park, and El Dorado Hills in the project area, is provided by El Dorado Irrigation District (EID). EID operates five wastewater plants and two recycled-water plants. These recycled-water plants produce more than 1 billion gallons of recycled water each year for approximately 4,000 customers and businesses in the community of El Dorado Hills (EID 2012).

City of Folsom

The Wastewater Division of the City of Folsom Utilities Department inspects, cleans, repairs, and maintains 267 miles of pipeline and nine lift stations citywide. The city is responsible for managing and maintaining the wastewater collection system, which discharges into the Sacramento Regional Wastewater Treatment Plant, located at 8521 Laguna Station Road in the City of Elk Grove (City of Folsom 2012a).

3.17.3.2 **Water Supply**

El Dorado County

EID is the water supplier for western El Dorado County, including the project area (EID 2012). EID is responsible for 75,000 acre-feet of water from various sources in the Sierra Nevada foothills (EID 2011). Jenkinson Lake provides nearly one-half of western El Dorado County's water supply. The other half is provided by ditchwater rights to Weber, Slab, and Hangtown creeks; water rights at Weber Reservoir; and a water right under Permit 21112 for Project 184 water. These water sources feed into Folsom Lake, which EID accesses through a contract with the U.S. Bureau of Reclamation at Folsom Lake (EID 2011).

El Dorado County Water Agency (EDCWA) performs water planning, secures water rights, and promotes conservation in El Dorado County. EDCWA also operates the El Dorado Water and Power Authority, a joint-powers authority made up of EDCWA, El Dorado County, and EID (EDCWA 2008). EDCWA does not provide or maintain water. The suppliers of potable water in El Dorado County are EID, Georgetown Divide Public Utility District, Grizzly Flats Community Services District, South Lake Tahoe Public Utility District, and Tahoe City Public Utility District.

City of Folsom

The City of Folsom Utilities Department provides potable water for the municipality (City of Folsom 2012b).

3.17.3.3 **Stormwater Drainage**

El Dorado County

EID also manages the stormwater system and associated facilities for El Dorado County. The system contains more than 1,200 miles of pipeline, 27 miles of ditches, five treatment plants, 34 storage reservoirs, and 38 pumping stations (EID 2013).

City of Folsom

The City of Folsom Public Works Department manages stormwater drainage in the municipality. The city operates and maintains 190 miles of pipeline, 230 miles of natural drainage channels, 30 flood control and/or water quality detention basins, and more than 200 outfalls to creeks and rivers (City of Folsom 2012c).

3.17.3.4 Solid Waste Disposal

El Dorado County

El Dorado Disposal provides solid waste collection, transfer, disposal, and recycling services to unincorporated El Dorado County, including the communities of Diamond Springs, Shingle Springs, Cameron Park, and El Dorado Hills (El Dorado Disposal 2012) in the project area. El Dorado Disposal contracts with Waste Connections, Inc., to collect solid waste in the area. Solid waste is taken to the Western El Dorado Recovery Systems Materials Recovery Facility for material separation and reuse. This facility, located on approximately 10.1 acres approximately 7 miles east of the project area at 4100 Throwita Way in the City of Placerville, permits up to 400 tons of solid waste per day (CalRecycle 2013). Non-recyclable solid waste is separated from recyclable materials and taken to the Kiefer Landfill, operated by the County of Sacramento Public Works Department at 127101 Kiefer Boulevard in Sloughhouse (Holloway, pers. comm., 2013). As of September 2005, the landfill had a remaining capacity of 112,900,000 cubic yards, with an estimated closure date of 2064 (CalRecycle 2012).

City of Folsom

The City of Folsom's Solid Waste Division provides solid waste, recycling, and hazardous waste collections services for the City of Folsom (City of Folsom 2012d). The City of Folsom also disposes solid waste at the Kiefer Landfill.

3.17.3.5 Electricity and Natural Gas

PG&E provides electrical power and natural gas to El Dorado County, which includes the communities of Diamond Springs, Shingle Springs, Cameron Park, and El Dorado Hills. The City of Folsom receives electricity from Sacramento Municipal Utility District and natural gas from PG&E.

3.17.3.6 Communications

AT&T provides local and long-distance telephone service to the communities of Diamond Springs, Shingle Springs, Cameron Park, and El Dorado Hills and the City of Folsom. SureWest also provides limited local and long-distance telephone service to the City of Folsom on a case-by-case basis. A variety of wireless companies—AT&T, Comcast, U.S. Cellular, Verizon, and others—provide wireless phone and Internet service to the project area. Cable television and Internet service are provided by Comcast in the project area; SureWest provides limited cable television and Internet services to the City of Folsom on a case-by-case basis.

Table 3.17-2: Utility and Service System Providers in the Project Area summarizes providers and the locations within the project area that they cover.

Table 3.17-2: Utility and Service System Providers in the Project Area

Service Provider	Area Covered
Wastewater Collection and Treatment	
El Dorado Irrigation District	El Dorado County (City of Placerville and communities of Diamond Springs, Shingle Springs, Cameron Park, and El Dorado Hills)
City of Folsom Utilities Department	City of Folsom (portions of Sacramento County)
Water Supply	
El Dorado Irrigation District	El Dorado County (City of Placerville and communities of Diamond Springs, Shingle Springs, Cameron Park, and El Dorado Hills)
City of Folsom Utilities Department	City of Folsom (portions of Sacramento County)
Stormwater Drainage	
City of Folsom Public Works Department	City of Folsom
El Dorado Irrigation District	El Dorado County
Solid Waste Disposal	
El Dorado Disposal	El Dorado County (City of Placerville and communities of Diamond Springs, Shingle Springs, Cameron Park, and El Dorado Hills)
City of Folsom Solid Waste Division	City of Folsom
Electricity and Natural Gas	
PG&E	El Dorado County and City of Folsom (natural gas only)
Sacramento Municipal Utility District	Electricity to City of Folsom
Communications (local and long-distance telephone service)	
AT&T	El Dorado County (City of Placerville and communities of Diamond Springs, Shingle Springs, Cameron Park, and El Dorado Hills) and City of Folsom
SureWest	City of Folsom (limited service)
Communications (specialized services)	
AT&T, Comcast, Verizon, U.S. Cellular, and others (wireless phone and Internet)	El Dorado County (City of Placerville and communities of Diamond Springs, Shingle Springs, Cameron Park, and El Dorado Hills) and City of Folsom
Comcast (cable television and Internet)	El Dorado County (City of Placerville and communities of Diamond Springs, Shingle Springs, Cameron Park, and El Dorado Hills) and City of Folsom
SureWest (cable television and Internet)	City of Folsom (limited service)
Sources: City of Folsom 2012a, 2012c, 2012d; EDCWA 2008; El Dorado Disposal 2012; EID 2012	

3.17.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for utilities and service system impacts derived from Appendix G of the CEQA Guidelines, provide relevant Applicant-Proposed Measures (APMs), and contain an assessment of potential project-related construction and operational impacts on utilities and service systems.

3.17.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts on utilities and service systems was evaluated for each of the criteria listed in Table 3.17-1: CEQA Checklist for Utilities and Service Systems, as discussed in Section 3.17.4.3, Potential Impacts.

3.17.4.2 Applicant-Proposed Measures

No APMs are included because project construction, operation, and maintenance will have no impact on utilities and service systems.

3.17.4.3 Potential Impacts

Potential project impacts on utilities and service systems were evaluated against the CEQA significance criteria and are discussed in further detail in the following paragraphs.

The upgraded power lines will require no change to existing operation and maintenance activities. As such, impacts on utilities and service systems that result from the project will not change from existing conditions and no operation-related impacts will occur. The impact analysis is limited to temporary and short-term impacts associated with project construction, which will include the following components:

- **Missouri Flat-Gold Hill Line Reconductoring**, which will include reconductoring approximately 12.5 miles of the existing line, replacing approximately 60 tubular steel poles (TSP), modifying approximately 13 lattice steel towers, and converting approximately 1,000 feet of overhead distribution line to underground;

- **Gold Hill No. 1 Line Reconductoring**, which will include reconductoring approximately 7 miles of the existing line, replacing approximately 80 existing wood poles with new wood or light-duty steel poles and approximately one new TSP, installing approximately seven new interset wood poles, and replacing approximately three distribution wood structures with approximately two new wood poles; and

- **Access Road Improvements and Construction,** which will include improvements to various temporary access roads that are planned for use during construction and the creation of an approximately 100-foot-long access road.

The impact analysis also evaluates impacts resulting from required site preparation and vegetation removal and trimming required to accommodate construction activities associated with these project components.

The project also includes modifications at Shingle Springs, Pacific Western Pipe, Limestone, Clarksville, and Gold Hill substations, and Missouri Flat Switching Station; however, all work at these facilities will be minor and within existing fence lines. Therefore, no impacts on utilities and service systems will occur.

a) Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? *No Impact*

A minimal amount of effluent will be generated temporarily by up to approximately 40 workers during project construction. Because the construction workforce is relatively small, the amount of wastewater generated will be negligible and wastewater treatment requirements will not be exceeded. Therefore, no impact will 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*

Although project construction will require the use of water and wastewater facilities by construction workers, this use will be temporary and short-term. Furthermore, the construction workforce will be relatively small (up to approximately 40 workers), and minimal water use and wastewater generation will occur. Wastewater service will be provided by portable toilets, and waste will be disposed at appropriately licensed off-site facilities. The project will use a negligible amount of water for dust control and worker needs, and it will generate a minimal amount of wastewater effluent on a temporary basis during construction. The project will not require new or expanded water or wastewater treatment facilities, and existing water and wastewater facilities are sufficient to serve project needs. Therefore, no impact will 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*

The project will not require construction of new stormwater drainage facilities or expansion of existing facilities. The project will involve reconductoring of existing power lines, which will not require stormwater drainage facilities, and it will involve only minor modifications to existing substations. The project will not result in changes to existing stormwater facilities or require the construction of new facilities; therefore, no impact will 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*

Potable water will be supplied to construction workers for drinking and will be delivered to project work areas by construction vehicles and equipment. Existing off-site water entitlements and resources will be sufficient to accommodate the project's minor temporary and short-term water needs and relatively small number of construction workers. No impact will 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***

Portable toilets will be provided for construction workers during construction. Sanitary waste will be disposed at appropriately licensed facilities in the project area that have adequate capacity to accommodate project needs. Therefore, no impact will occur.

f) Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs? ***No Impact***

Construction debris, including removed TSPs and wood poles, will be taken on a line truck with a trailer to an area service center for recycling or disposal. Other construction debris will be picked up from substation construction areas and stored in approved containers on-site, and will be hauled away for recycling or disposal periodically during construction. PG&E will conduct a final survey to determine whether cleanup activities have been successfully completed as required. The project will generate minimal solid waste beyond the food, glass, paper, plastic, and packing materials consumed by the up to approximately 40 construction workers who will be on-site at peak construction periods. Existing landfills in the project area have adequate capacity to accommodate this negligible amount of solid waste. No impact will occur.

g) Would the project comply with federal, state, and local statutes and regulations related to solid waste? ***No Impact***

All construction debris will be collected and hauled off-site for recycling or disposal during construction. PG&E will comply with all federal, State, and local statutes and regulations related to solid waste. As discussed in Section 3.3, Air Quality, Section 3.6, Geology and Soils, and Section 3.8, Hazards and Hazardous Materials, project construction has the potential to encounter naturally occurring asbestos (NOA) during earth-disturbing activities. In the event NOA is encountered, any NOA-contaminated soils excavated during construction will be hauled off site and disposed of at a State-approved Class II or III asbestos disposal facility that meets the requirements of Public Resources Code Section 44820 and California Health and Safety Code Section 25173.7. Therefore, no impact will occur.

3.17.5 REFERENCES

CalRecycle. 2012. Facility/Site Summary Details: Sacramento County Landfill (Kiefer) (34-AA-0001). Available: www1.calrecycle.ca.gov/SWFacilities/Directory/34-AA-0001/Detail. Accessed July 17, 2012.

———. 2013. Facility/Site Summary Details: Western El Dorado Recovery Systems Materials Recovery Facility. Available: http://www1.calrecycle.ca.gov/SWFacilities/Directory/09-AA-0004/Detail/. Accessed March 13, 2013.

City of Folsom. 1993 (January). *City of Folsom General Plan*. Folsom, CA.

———. 2012a. Wastewater Collection. Available: http://www.folsom.ca.us/depts/utilities/waste_water_collection/default.asp. Accessed July 17, 2012.

———. 2012b. Water Meters. Available: http://www.folsom.ca.us/depts/utilities/water/watermeterretrofit.asp. Accessed July 17, 2012.

———. 2012c. Stormwater Management. Available: http://www.folsom.ca.us/depts/public_works_and_utilities/public_works/stormwater/default.asp. Accessed July 17, 2012.

———. 2012d. Green Waste and Recycling Collection Schedules. Available: www.folsom.ca.us/depts/utilities/solid_waste_division/recycling/collection_schedule.asp. Accessed July 17, 2012.

El Dorado County. 2004 (July 19). *El Dorado County General Plan*. Available: http://www.edcgov.us/Government/Planning/Adopted_General_Plan.aspx. Accessed March 13, 2013.

El Dorado County Water Agency (EDCWA). 2008. El Dorado County Water Agency home page. Available: http://www.edcgov.us/Water/index.html. Accessed July 23, 2012.

El Dorado Disposal. 2012. Available: http://www.eldoradodisposal.com/. Accessed July 17, 2012.

El Dorado Irrigation District (EID). 2011. *Annual Water Quality Report*. Available: http://www.eid.org/modules/showdocument.aspx?documentid=2148. Accessed March 13, 2013.

———. 2012. Recycled Water. Available: http://www.eid.org/index.aspx?page=117. Accessed July 17, 2012.

———. 2013. Water. Available: http://www.eid.org/index.aspx?page=82. Accessed March 13, 2013.

Holloway, Paul. Environmental Health Services, County of Placer Department of Health and Human Services, Auburn, CA. March 14, 2013—telephone conversation with Elliott Schwimmer of AECOM.

TABLE OF CONTENTS

List of Tables

4 MANDATORY FINDINGS OF SIGNIFICANCE AND CUMULATIVE AND GROWTH-INDUCING ANALYSIS

This chapter discusses pending development projects in the vicinity of the Missouri Flat-Gold Hill 115 kV Power Line Reconductoring Project (Missouri Flat-Gold Hill Project), addresses the mandatory findings of significance, and discusses potential cumulative and growth-inducing impacts. Table 4-1: CEQA Checklist for Mandatory Findings of Significance and Cumulative and Growth-Inducing Analysis summarizes the significance criteria, as set forth in Section 15065 and Appendix G of the California Environmental Quality Act (CEQA) Guidelines. The analysis concludes that impacts will be less than significant or that no impacts will occur.

Table 4-1: CEQA Checklist for Mandatory Findings of Significance and Cumulative and Growth-Inducing Analysis

Would the project:	Potentially Significant Impact	Less than Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Have the potential to substantially 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; substantially reduce the number or restrict the range of an endangered, rare or threatened species; or eliminate important examples of the major periods of California history or prehistory?			☒	
b) Have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals?				☒
c) Have possible environmental effects that are individually limited but cumulatively considerable? Cumulatively considerable means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.			☒	
d) Have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?			☒	

4.1 PENDING DEVELOPMENT PROJECTS IN THE PROJECT VICINITY

Projects included in the cumulative impact assessment were identified by using a list approach (CEQA Guidelines Section 15130[b][1][A]), including all pending development projects within an approximately 2-mile radius of the Missouri Flat-Gold Hill Project area. This area includes western El Dorado County and the City of Folsom. Table 4-2: Cumulative Projects in the Project Vicinity (presented at the end of this chapter) summarizes these pending development projects.

Of the projects in Table 4-2: Cumulative Projects in the Project Vicinity, the following projects are located immediately adjacent to a component of the Missouri Flat-Gold Hill Project and may overlap with its construction timeline. Therefore, additional information is provided on the timeline and status of these projects.

4.1.1 EL DORADO COUNTY

4.1.1.1 PG&E Clarksville-Shingle Springs Distribution Planning Area Capacity Increase Project

This project proposes transmission capacity improvements to increase service reliability within PG&E's Clarksville-Shingle Springs 21 kV Distribution Planning Area (DPA), which serves a large portion of El Dorado County, including the communities of El Dorado Hills, Cameron Park, Shingle Springs, and Rescue. Major customers in this area include DST/Cable Data, El Dorado Irrigation District (EID), and Red Hawk Indian Casino. In 2008, work began on installing a new substation—Pine Hill Substation—within the DPA. Installation of the Pine Hill substation has been delayed because of the decline of housing construction in the area and the slow economic recovery; however, the new substation is still planned for construction within the next 10 years. The project currently under review for feasibility may include construction of a new transmission line from the proposed new Pine Hill Substation to the existing Clarksville Substation and modifications to both substations to increase capacity. The Shingle Springs Distribution DPA Increase Project area is located within and adjacent to the Missouri Flat-Gold Hill Project area.

4.1.1.2 San Stino Residential Project

This project proposes a new 1,041-unit detached residential subdivision, with two larger lots set aside for future school, park, or residential uses and 270 acres of open space, including active and passive parks, trails, landscaped lots, and native open space (El Dorado County 2013a). A notice of preparation of a draft environmental impact report (EIR) was submitted on February 22, 2013; however, it is unlikely that construction of this project will coincide with the Missouri Flat-Gold Hill Project. The San Stino Residential Project area is located approximately 1 mile from the Missouri Flat-Gold Hill Project area.

Table 4-2: Cumulative Projects in the Project Vicinity

Project Name	Project Location	Approximate Proximity to Development (miles)	Type of Development	Project Description	Project Status and Estimated Date of Completion
El Dorado County					
PG&E Clarksville-Shingle Springs Distribution Planning Area Capacity Increase Project	Communities of El Dorado Hills, Cameron Park, Shingle Springs, and Rescue	Adjacent	Utility	Transmission capacity improvements and substation upgrades	June 2017
San Stino Residential Project	4661 French Creek Road	0.99	Residential	1,041-unit detached residential subdivision on 645 acres	Notice of preparation of a draft EIR submitted on 2/22/2013
Lime Rock Valley Specific Plan	Deer Creek Road and Marble Valley Road	1.4	Residential	800 units on 740 acres	Notice of preparation of draft EIR submitted on 2/20/2013
Central El Dorado Hills Specific Plan	El Dorado Hills Boulevard and Serrano Parkway	0.05	Residential	1,028 units on 256 acres	Notice of preparation of draft EIR submitted on 2/20/2013
Village of Marble Valley Specific Plan	1,000 feet southeast of the U.S. Highway 50/ Bass Lake Road interchange	0.19	Residential/ commercial	3,236 units on 2,342 acres	Notice of preparation of draft EIR submitted on 2/20/2013
Tilden Park Project	4108 Wild Chaparral Drive, Shingle Springs	0.06	Residential/ commercial	14 residential lots, two commercial lots, and two open space lots on 12 acres	Notice of preparation of draft EIR submitted on 12/19/2012
Dixon Ranch Residential Project	Green Valley Road and Malcolm Dixon Road	3.2	Residential	605 units on 280 acres	Notice of preparation of draft EIR submitted on 12/14/2012
PG&E Road and Public Utility Easement Acquisition & Temporary Use	Sunset Lane and Becken Lane	0.27	Road and utility easement	1-acre site that would allow construction of a 28-foot-wide road approximately 460 feet long	Negative declaration and initial study submitted on 11/1/2012

Project Name	Project Location	Approximate Proximity to Development (miles)	Type of Development	Project Description	Project Status and Estimated Date of Completion
City of Folsom					
Oakmont of Folsom	Southwest corner of the intersection of East Bidwell Street and Creekside Drive	0.94	Senior residential care facility	Development of a 60,000-square foot senior residential care facility	Application for Planned Development and Conditional Use Permit Submitted (Winter 2014)
Source: Data compiled by AECOM in 2013					

4.1.1.3 Lime Rock Valley Specific Plan

This project proposes a comprehensive planned residential community totaling 740 acres, consisting of up to 800 residential units on approximately 377 acres, a 15-acre neighborhood park with recreational amenities, and approximately 314 acres of public and private open space (El Dorado County 2013b). A notice of preparation of a draft EIR was submitted on February 20, 2013; however, it is unlikely that construction of this project will coincide with the Missouri Flat-Gold Hill Project. The Lime Rock Valley Specific Plan area is located approximately 1.4 miles from the Missouri Flat-Gold Hill Project area.

4.1.1.4 Central El Dorado Hills Specific Plan

This project proposes up to 1,028 dwelling units, 11 acres of public facility/recreational use, 15 acres of public village park, and 85 acres of public parks and open space in the center of the El Dorado Hills Community (El Dorado County 2013c). A notice of preparation of a draft EIR was submitted on February 20, 2013; however, construction of this project is unlikely to coincide with the Missouri Flat-Gold Hill Project. The Central El Dorado Hills Specific Plan area is located approximately 0.05 mile from the Missouri Flat-Gold Hill Project area.

4.1.1.5 Village of Marble Valley Specific Plan

This project proposes developing an approximately 2,342-acre area that includes 3,236 dwelling units, 475,000 square feet of commercial use, 87 acres of public facilities/recreational use, 1,282 acres of open space, 42 acres of agricultural use, and 73 acres of new road impact areas and future right-of-way (El Dorado County 2013d). A notice of preparation of a draft EIR was submitted on February 20, 2013; however, construction of this project is unlikely to coincide with the Missouri Flat-Gold Hill Project. The Village of Marble Valley Specific Plan area is located approximately 0.2 mile from the Missouri Flat-Gold Hill Project area.

4.1.1.6 Tilden Park Project

This project includes a mix of residential and commercial uses. The residential lots range in size from 5,151 to 9,590 square feet, totaling 2.97 acres, and include two 0.82-acre open space lots, landscaping, a lift station, and future right-of-way. The commercial lots total 8.22 acres and are proposed for the development of an 80-room hotel, 120-seat restaurant, food mart, and 6,500 square feet of office space (El Dorado County 2013e). The Tilden Park Project area is located 0.06 mile from the Missouri Flat-Gold Hill Project area.

4.1.1.7 Dixon Ranch Residential Project

This project subdivides 280 acres into 605 single-family detached residential units and includes 84 acres (30 percent) of open space and on-site and off-site infrastructure to serve the development. Buildout is anticipated to occur over many years; however, the construction period will be dictated by market demands (El Dorado County 2013f). The Dixon Ranch Residential Project area is located 3.2 miles from the Missouri Flat-Gold Hill Project area.

4.1.1.8 **PG&E Road and Public Utility Easement Acquisition and Temporary Use**

A negative declaration was submitted on November 14, 2012, for this project, a 28-foot-wide, 460-foot-long road on a 10,959-square foot parcel. The road will provide secondary access to the 40-unit Mercy Housing project approved by El Dorado County on March 21, 2011 (El Dorado County 2011). The project area for this project is located 0.3 mile from the Missouri Flat-Gold Hill Project area. CITY OF FOLSOM

One pending development project—Oakmont of Folsom—is located within the City of Folsom. This project is a planned senior residential care facility. The Oakmont of Folsom project area is located approximately 0.94 mile from the Missouri Flat-Gold Hill Project area.

4.2 CUMULATIVE IMPACT ANALYSIS

Potential cumulative impacts were evaluated against the CEQA significance criteria and are discussed in further detail in the following paragraphs.

The upgraded power lines will require no change to existing operation and maintenance activities, with the exception of the replacement of existing oil-insulated circuit breakers with two SF_6-insulated breakers at Gold Hill Substation. No other new operational impacts will occur as a result of the project. As such, the impact analysis focuses primarily on temporary and short-term impacts associated with project construction, which includes the following components:

- **Missouri Flat-Gold Hill Line Reconductoring**, which will include reconductoring approximately 12.5 miles of the existing line, replacing approximately 60 existing tubular steel poles (TSP), modifying approximately 13 existing lattice steel towers, and converting approximately 1,000 feet of existing overhead distribution line to underground;

- **Gold Hill No. 1 Line Reconductoring**, which will include reconductoring approximately 7 miles of the existing line, replacing approximately 80 existing wood poles with new wood or light-duty steel poles and approximately one new TSP, installing approximately seven new interset wood poles, replacing approximately three distribution wood structures with approximately two new wood poles, and minor distribution line rewiring on approximately two existing wood poles near Limestone Substation;

- **Substation Modifications**, which will include minor modifications to equipment and facilities at Missouri Flat Switching Station and Shingle Springs, Pacific Western Pipe, Limestone, Clarksville, and Gold Hill substations; and

- **Access Road Improvements and Construction,** which will include improvements to various temporary access roads that are planned for use during construction and the creation of an approximately 100-foot-long access road.

The impact analysis also evaluates impacts resulting from required site preparation and vegetation removal and trimming required to accommodate construction activities associated with these project components.

4.2.1 SIGNIFICANCE CRITERIA

According to the revised Section 15130 of the CEQA Guidelines, a project may have a significant cumulative impact if a cumulatively considerable change in the environment results from the incremental effects of the proposed project when viewed in connection with the effects of other closely related past, present, and probable future projects. Cumulative impacts can result from individually minor but collectively significant effects occurring over a period of time. Per Appendix G of the CEQA Guidelines, the potential cumulative impacts were evaluated for each of the criteria listed in Table 4-1: CEQA Checklist for Mandatory Findings of Significance and Cumulative and Growth-Inducing Analysis and they are discussed as follows.

4.2.2 IMPACT ANALYSIS

a) Would the project have the potential to substantially 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; substantially reduce the number or restrict the range of an endangered, rare or threatened species; or eliminate important examples of the major periods of California history or prehistory? ***Less than Significant***

Construction activities may have minor, short-term impacts on species habitat, populations, or communities, resulting in less-than-significant impacts. Seventeen special-status wildlife species have low, moderate, or high potential to occur in the Missouri Flat-Gold Hill Project area (as summarized in Table 3.4 3: Special-Status Wildlife Species with Potential to Occur in the Project Area). Nineteen special-status plant species initially were considered to have potential to occur in the project area (as summarized in Table 3.4-4: Special-Status Plant Species with Potential to Occur in the Project Area); however, comprehensive surveys for special-status plants were conducted and only five special-status plant species were documented. As a result, the majority of the 19 species were determined to have only very low potential to occur in the project area. Based on the amount of suitable habitat present for each species along the project alignment, impact avoidance strategies are likely to be easily implemented for all of these species. PG&E will implement Applicant-Proposed Measures (APMs) BIO-1 through APM BIO-7; therefore, the impact will be less than significant.

Cultural resources surveys and records searches identified two historical districts, one historical resource, and 27 other cultural resources along the Missouri Flat-Gold Hill Project alignment that have not yet been formally evaluated for listing in the National Register of Historic Places (NRHP) or California Register of Historical Resources (CRHR). Of these 27 resources, two have been recommended not eligible for listing on the NRHP or CRHR. The historical resource and all of the unevaluated sites, which are assumed to be historical resources for management purposes, will be avoided by construction. In the unlikely event that historical resources are discovered during construction activities, APM CUL-2 will be implemented so that the Missouri Flat-Gold Hill Project will not eliminate important examples of major periods of California history or prehistory. The impact will be less than significant.

b) Would the project have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals? ***No Impact***

The Missouri Flat-Gold Hill Project will not achieve short-term environmental goals to the disadvantage of long-term environmental goals and will result in either no impact or less-than-significant impacts in both the short and long term. The Missouri Flat-Gold Hill Project will be compatible with local environmental goals and will not conflict with federal or State environmental policies and regulations. Therefore, no impact will occur.

c) Would the project have possible environmental effects that are individually limited, but cumulatively considerable? Cumulatively considerable means that the incremental effects of an individual project are significant 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***

A cumulative impact analysis for each resource area is presented in Section 4.2.3, Cumulative Impacts Analysis by Resource Area. The Missouri Flat-Gold Hill Project will contribute incrementally to cumulative impacts in the project area related to air quality, greenhouse gas (GHG) emissions, hazardous materials, traffic, water quality, and biological resources; however, the project will not contribute substantially to those cumulative impacts. Thus, the Missouri Flat-Gold Hill Project will not have environmental effects that are individually limited but cumulatively considerable. Therefore, the impact will be less than significant.

d) Would the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? ***Less than Significant***

The Missouri Flat-Gold Hill Project will not adversely affect human beings, either directly or indirectly. Potential construction impacts associated with human health include the presence of hazards, hazardous materials use, potential for wildland fires, and temporary air quality impacts. As discussed previously, construction impacts associated with air quality and with hazards and hazardous materials will be less than significant. APMs will further reduce the potential for adverse effects. The Missouri Flat-Gold Hill Project will have a beneficial effect on human beings in the project area by increasing electrical service reliability and ultimately reducing GHG emissions. Therefore, the impact will be less than significant.

4.2.3 CUMULATIVE IMPACTS ANALYSIS BY RESOURCE AREA

Power line construction projects generally do not contribute to a cumulatively considerable impact. The intent of a power line project is to improve service and reliability for existing users, not to expand service or facilities, and long-term effects will be minor. Implementation of APMs will further minimize the less-than-significant, short-term construction-related impacts. A discussion regarding each resource area is provided next.

4.2.3.1 Aesthetics

Project changes will not substantially degrade the existing visual character or quality of the landscape setting. The Missouri Flat-Gold Hill Project will not be located near any Designated State Scenic Highways. Installing a leg extension at one existing lattice steel tower, replacing approximately 60 existing TSPs along the Missouri Flat-Gold Hill power line and replacing approximately 80 existing wood poles along the Gold Hill No. 1 power line will permanently increase the height of these structures by up to approximately 25 feet. The project will result in a minor, incremental visual change to existing scenic vistas; however, it will not substantially affect scenic viewpoints, and the impact will be less than significant.

The Missouri Flat-Gold Hill Project, with other area projects, will not make a considerable contribution to the modification of the viewshed because of the following factors: (1) the distance of the Missouri Flat-Gold Hill Project area from the projects listed in Table 4-2: Cumulative Projects in the Project Vicinity; (2) the presence of existing, similar overhead electric utility lines in the vicinity; and (3) the fact that only a small portion of the Missouri Flat-Gold Hill transmission line will be visible from any single viewing location in common with the other planned development projects. No cumulative impact will occur.

4.2.3.2 Agriculture and Forestry Resources

The majority of the project alignment is located on Grazing Lands and Urban and Built-Up Land, as designated by the California Department of Conservation's Farmland Mapping and Monitoring Program. The upgraded power lines will require no change to existing operation and maintenance activities. For any temporary construction work that will encroach onto agricultural land, PG&E will coordinate with the landowners prior to construction to minimize any temporary impact on agricultural lands, such as removal of vegetation or trees. All construction activities will be temporary and will not permanently convert land to non-agricultural use, and no land will be removed from a Williamson Act contract. No forest land, timberland, or timberland zoned Timberland Production is located within or along the project alignment. As such, impacts on agriculture or forestry resources that result from the project will not change from existing conditions, and no direct or cumulative impacts will occur.

4.2.3.3 Air Quality

Construction emissions will be generated from a variety of sources, such as heavy-duty construction equipment, material delivery trucks, a helicopter, construction worker vehicles, and earth-moving activities. Impacts will be less than significant. APM AQ-2 will further ensure that impacts will be less than significant levels under the El Dorado County Air Quality Management District (EDCAQMD) and Sacramento Metropolitan Air Quality Management District (SMAQMD) thresholds of significance. Furthermore, implementation of the applicable fugitive particulate matter (PM) dust control measures for both air districts, along with additional APM AQ-1, will further reduce PM_{10} construction emissions. Therefore, the impact will be less than significant.

The Missouri Flat-Gold Hill Project also will generate temporary and short-term emissions of odor and toxic air contaminants (TAC); however, given the short exposure period , the low level of existing TAC sources near the project area, and the highly diffusive properties of diesel exhaust, the Missouri Flat-Gold Hill Project will not generate TAC emissions that will make a cumulatively considerable contribution to localized TAC impacts and nearby receptors will not be affected by diesel exhaust odors associated with project construction.

The project alignment is located in areas that may contain naturally occurring asbestos (NOA); "areas more likely to contain asbestos" and "areas moderately likely to contain naturally occurring asbestos" are crossed by the project alignment in both El Dorado County and the City of Folsom. As a result, any project construction activity that will include earth disturbance has the potential to generate NOA emissions. As detailed in APM AQ-3, PG&E will develop a preemptive Asbestos Dust Mitigation Plan, compliant with the requirements of the California Air Resources Board, EDCAQMD, and SMAQMD applicable to the project, to identify all necessary best management practices and NOA abatement measures that will be implemented if NOA is encountered at any time during construction. Therefore, the cumulative impact will be less than significant.

4.2.3.4 **Biological Resources**

Temporary construction-related activities (such as grading, elevated noise, human activity, and ground vibrations) will be short term and will have a less-than-significant impact on biological resources. Potential construction impacts will be minimized further by implementing pre-construction surveys and establishing the limits of work areas or biological resource buffers, as needed. Nearby planned projects are located primarily on developed land. Potential adverse cumulative impacts on biological resources during construction-related activities will be short term, reduced to less-than-significant levels with implementation of APM BIO-1 through APM BIO-7, and are not cumulatively considerable. Therefore, the cumulative impact will be less than significant.

4.2.3.5 **Cultural Resources**

The cultural resources analysis indicates that two historical districts, one historical resource, and 25 other cultural resources along the Missouri Flat-Gold Hill Project alignment that have not yet been formally evaluated for listing in the NRHP or CRHR. PG&E has designed the Missouri Flat-Gold Hill Project to avoid impacts on all known cultural resources, and no historic properties in the project area are listed in the NRHP or CRHR. APM CUL-2 and APM CUL-3 will require that work stop and be redirected if any unknown cultural resources are discovered. No other projects that may affect cultural resources are known in the region; therefore, no significant cumulative impact will occur.

4.2.3.6 **Geology and Soils**

The project alignment does not cross any faults zoned under the Alquist-Priolo Earthquake Fault Zoning Act, and none of the faults near the project alignment are considered active faults. Based on a review of published geologic maps and U.S. Natural Resources Conservation Service soil survey data, the project alignment and substations are located in stable soils, underlain by bedrock at shallow depths; the average depth to the groundwater table is more than 100 feet below the surface, and known active faults are approximately 45 to 50 miles away. Based on a review of topographic maps and observations during a field visit that was conducted on June 18, 2012, the Missouri Flat-Gold Hill Project alignment is located either on level ground or on slopes substantially less than 30 percent. No mapped landslide hazard areas exist, either within or adjacent to the project alignment. Therefore, the cumulative impact will be less than significant.

4.2.3.7 **Greenhouse Gas Emissions**

Implementation of the Missouri Flat-Gold Hill Project will generate short-term construction GHG emissions. These emissions will be considered minor relative to EDCAQMD and SMAQMD significance thresholds for construction (see Table 3.7-2: Construction-Related Greenhouse Gas Emissions, in Section 3.7, Greenhouse Gas Emissions). Construction emissions associated with the Missouri Flat-Gold Hill Project will be further reduced by APM AQ-2 and will cease after the 18-month construction period. As a result, the Missouri Flat-Gold Hill Project will not contribute significantly to the emissions associated with the construction of other projects planned in the area, and thus it will not be cumulatively considerable.

Although implementation of the Missouri Flat-Gold Hill Project will cause temporary construction-related GHG emissions, the intent, purpose, and function of the project aligns with the goals of California Assembly Bill 32's Scoping Plan to reduce GHG emissions and protect against the detrimental effects of climate change. The Missouri Flat-Gold Hill Project will provide the necessary infrastructure to achieve large-scale reductions (i.e., electricity) through regular consumption, electrification of processes, and use of renewable energy sources.

Substation and switching station modifications required as part of the project will include the replacement of two existing oil-insulated breakers with two sulfur hexafluoride (SF_6)-insulated breakers at Gold Hill Substation. Therefore, although SF_6 is typically completely contained in the equipment and not released into the atmosphere, there is the potential for leaks to occur during maintenance or operation of the Missouri Flat-Gold Hill Project. Under this scenario, the loss of gas pressure/density will cause an alarm to be sent directly to the control center, enabling PG&E personnel to immediately address any SF_6 leaks. In addition, the new SF_6 circuit breakers will have an annual guaranteed maximum leakage rate of 0.5 percent. No cumulative impact will occur.

4.2.3.8 **Hazards and Hazardous Materials**

During construction activities for the Missouri Flat-Gold Hill Project, the potential for an accidental release of fluids from a vehicle or motorized piece of equipment may increase; however, the project will not create a significant hazard to the public or the environment through the transport, use, or disposal of hazardous materials. Implementing PG&E's standard hazardous substance control, emergency response, and health and safety procedures in APM HAZ-1 will further minimize potential impacts. The Missouri Flat-Gold Hill Project will make a negligible contribution to any potential cumulative impact associated with other project activities, and the cumulative impact will be less than significant.

4.2.3.9 Hydrologic Resources and Water Quality

Construction-related impacts on water quality have the potential to result from several different sources. Among these sources are contamination from fuels or other hazardous materials and an increase in erosion caused by grading or vegetation clearing that leads to increased sedimentation. Vegetation may be cleared or mowed to improve existing access roads or establish overland access routes, work areas, pull sites, or helicopter landing zones for construction. In some instances, minor grading also may be needed to improve tower work areas or existing access roads. The project has the potential to adversely affect water quality temporarily because of erosion and subsequent sedimentation that can occur when off-road vehicle use or earth-disturbing activities increase. Because these types of project activities will be small in scale and will be distributed along the entire length of the project alignment, they will result in a less-than-significant direct and cumulative impact on water quality. APM HYDRO-1 and APM HYDRO-2 will further reduce the less-than-significant impact. Therefore, the cumulative impact will be less than significant.

4.2.3.10 Land Use and Planning

PG&E utility construction projects are solely under the discretion of the California Public Utilities Commission and are not subject to discretionary approval from local jurisdictions or authorities. Because the Missouri Flat-Gold Hill Project will include upgrading existing power lines within an established corridor, it will not divide any existing established communities. PG&E's current easements and areas in franchise are well-established uses that will not be modified substantially. No new land use or change in land use will occur as a result of the Missouri Flat-Gold Hill Project; therefore, the project will not conflict with any applicable land use policy, plan, or regulation. No adopted applicable habitat conservation plans or natural community conservation plans exist near the Missouri Flat-Gold Hill Project area. Therefore, the Missouri Flat-Gold Hill Project will not contribute to a direct or cumulative land use impact.

4.2.3.11 Mineral Resources

The Missouri Flat-Gold Hill Project will have no impact on mineral resources, and therefore it will not contribute to a direct or cumulative impact. No cumulative impact will occur.

4.2.3.12 Noise

The Missouri Flat-Gold Hill Project will not contribute to a long-term cumulative impact related to ambient noise levels. Short-term noise impacts will occur simultaneously at work locations along the Missouri Flat-Gold Hill Project alignment, and they are anticipated to be limited primarily to daytime hours and to be compatible with local noise ordinances. Unplanned nighttime work, if needed, will be infrequent, occur in limited locations, and be short term. If other projects proposed in the vicinity are constructed concurrently, noise from the Missouri Flat-Gold Hill Project will attenuate and will not combine with the noise from the other projects.

Potential cumulative noise impacts during construction will be less than significant because of the location of the Missouri Flat-Gold Hill Project area relative to other projects and the locations of sensitive receptors. Implementation of APM NO-1 and APM NO-2 will further reduce less-than-significant impacts. Therefore, the Missouri Flat-Gold Hill Project will not make a considerable contribution to a cumulative impact.

4.2.3.13 Population and Housing

The Missouri Flat-Gold Hill Project will have no impact on population and housing; therefore, it will not contribute to a direct or cumulative impact. No cumulative impact will occur.

4.2.3.14 Public Services

The Missouri Flat-Gold Hill Project will have no impact on public services; therefore, it will not contribute to a direct or cumulative impact. No cumulative impact will occur.

4.2.3.15 Recreation

Implementation of the Missouri Flat-Gold Hill Project will not result in substantial physical deterioration of recreational facilities, nor will it increase the demand for recreational facilities in a permanent manner. Construction activities may result in the short-term closure of two public parks—Bertelsen Park and Christa McAuliffe Park—because of their proximity to the project alignment. Any closures of Bertelsen Park and Christa McAuliffe Park that are required for public safety during project construction will be temporary and typically 10 days or less, and will be scheduled at different times during construction. Therefore, impacts on these facilities will be less than significant. APM REC-1 will further reduce the less-than-significant impacts on parks and recreational facilities. Therefore, the Missouri Flat-Gold Hill Project will not considerably contribute to a cumulative impact.

4.2.3.16 Transportation and Traffic

Most construction activities will occur within PG&E's existing utility rights-of-way and will not be performed in regional or local roadways. Guard structures will be installed where the project alignment crosses over major roads, such as U.S. 50, to allow traffic to safely use the road while PG&E removes the existing conductor and pulls the new conductor into place. Temporary road closures also will be required at various locations to ensure public safety. Although construction activities may generate increases in traffic on interstate highways, State routes, and local roads, the effects will be temporary, short term, and periodic; therefore, the impact will be less than significant. APM TRA-2, which will require traffic controls and other traffic safety measures to maintain proper traffic flow during temporary construction activities, will further reduce the less-than-significant impact.

At one existing lattice steel tower, located approximately 800 feet northwest of the intersection of Broadstone Parkway and Empire Ranch Road, ground access is not feasible because the tower is located in a seasonal pond that contains standing water at various times throughout the year. At this location, a helicopter will be used to transport and install a cage-top extension, and to transport personnel and materials. Helicopter landing zones will be established at up to two locations near the project alignment. Because of the limited use of a helicopter to facilitate construction activities, impacts will be less than significant. APM TRA-1 will require PG&E's helicopter operator to follow protocols regarding air traffic during all construction-related helicopter operations, and to coordinate with the local airport, thereby further reducing the less-than-significant impact on air traffic safety. The cumulative impact will be less than significant.

4.2.3.17 Utilities and Service Systems

Similar to other construction projects in the area, the Missouri Flat-Gold Hill Project will use water for dust control and other construction purposes; however, this minor, temporary use will not constitute a considerable contribution to cumulative impacts. No other impacts on utilities or service systems will result from the Missouri Flat-Gold Hill Project. Therefore, the cumulative impact will be less than significant.

4.3 REFERENCES

El Dorado County. 2011. Notice of Availability of a Draft Negative Declaration For SA09-1231 PG&E Road and P.U.E. Acquisition & Temporary Use. Prepared by Roger Trout. Available: https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CDEQFjAA&url=http%3A%2F%2Fedcgov.us%2FGovernment%2FPlanning%2FPCagendas%2F2012%2FSA09-1231AvailabilityNotice.aspx&ei=wGmAUaX6FuSDjAK0h4DgBg&usg=AFQjCNEea6Ryo9-ZgzEkVgVytn8XHINsUA&sig2=TQ2PI3sQX3WjxSeYV22ilg&bvm=bv.45921128,d.cGE. Accessed April 30, 2013.

———. 2013a. San Stino Residential Project Notice of Preparation. Prepared by Pierre Rivas. Available: http://edcapps.edcgov.us/Planning/ProjectDocuments/San%20Stino%20NOP.pdf. Accessed April 9, 2013.

———. 2013b. Lime Rock Valley Specific Plan Notice of Preparation of a Draft EIR. Prepared by Rommel (Mel) Pabalinas. Available: http://www.edcgov.us/Planning/. Accessed April 9, 2013.

———. 2013c. Central El Dorado Hills Specific Plan Notice of Preparation of a Draft EIR. Prepared by Rommel (Mel) Pabalinas. Available: http://www.edcgov.us/Planning/. Accessed April 9, 2013.

———. 2013d. Village of Marble Valley Specific Plan Notice of Preparation of a Draft EIR. Prepared by Rommel (Mel) Pabalinas. Available: http://www.edcgov.us/Planning/. Accessed April 9, 2013.

———. 2013e. Tilden Park Project Notice of Preparation of a Draft EIR. Prepared by Pierre Rivas. Available:

http://edcapps.edcgov.us/Planning/ProjectDocuments/Tilden%20Park%20NOP_121812%20(1).pdf. Accessed April 30, 2013.

———. 2013f. Dixon Ranch Notice of Preparation of a Draft EIR. Prepared by Pierre Rivas. Available: http://edcapps.edcgov.us/Planning/ProjectDocuments/NOP(2).pdf. Accessed April 30, 2013.

APPENDIX A: ELECTRIC AND MAGNETIC FIELDS DISCUSSION

ELECTRIC AND MAGNETIC FIELDS DISCUSSION

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

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

ELECTRIC FIELDS

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

MAGNETIC FIELDS

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

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

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

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

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

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

POSSIBLE HEALTH EFFECTS

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

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

CALIFORNIA PUBLIC UTILITIES COMMISSION DECISION SUMMARY

BACKGROUND

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

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

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

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

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

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

REVIEWS OF EMF STUDIES

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

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

NATIONAL INSTITUTE OF ENVIRONMENTAL HEALTH SCIENCES

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

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

The NIEHS report also included the following conclusions:

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

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

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

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

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

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

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

The following specific recommendations are made by the committee:

1. The committee recommends that no further special research program focused on possible health effects of power-frequency magnetic fields be funded. Basic research on the effects of power-frequency magnetic fields on cells and animals should continue but investigators should compete for funding through traditional research funding mechanisms.

2. If, however, Congress determines that another time-limited, focused research program on the health effects of power-frequency magnetic fields is warranted, the committee recommends that emphasis be placed on replications of studies that have yielded scientifically promising claims of effects and that have been reported in peer-reviewed journals. Such a program would benefit from the use of a contract-funding mechanism with a requirement for complete reports and/or peer-reviewed publications at program's end.

3. The engineering studies were initiated without the guidance of a clearly established biologic effect. The committee recommends that no further engineering studies be funded unless a biologic effect that can be used to plan the engineering studies has been determined.

4. Much of the information from the EMF-RAPID biology program has not been published in peer-reviewed journals. NIEHS should collect all future peer-reviewed information resulting from the EMF-RAPID biology projects and publish a summary report of such information periodically on the NIEHS Web site.

5. The communication effort initiated by EMF-RAPID is reasonable. The two booklets and the telephone information line are useful, as is the EMF-RAPID Internet site. There are two limitations to the effort. First, it is largely passive, responding to inquiries and providing information, rather than being active. Second, much of the information produced is in a scientific format not readily understandable by the public. The committee recommends that further material produced to disseminate information on power-frequency magnetic fields be written for the general public in a clear fashion. The Web site should be made more user-friendly. The booklet *Questions and Answers about EMF* should be updated periodically and made available to the public.

WORLD HEALTH ORGANIZATION

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

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

> *"New human, animal and in vitro studies, published since the 2002 IARC monograph, do not change the overall classification of ELF magnetic fields as a possible human carcinogen."*
>
> *"A number of other diseases have been investigated for possible association with ELF magnetic field exposure. These include cancers in both children and adults, depression, suicide, reproductive dysfunction, developmental disorders, immunological modifications and neurological disease. The scientific evidence supporting a linkage between ELF magnetic fields and any of these diseases is much weaker than for childhood leukaemia and in some cases (for example, for cardiovascular disease or breast cancer) the evidence is sufficient to give confidence that magnetic fields do not cause the disease."*
>
> *"the epidemiological evidence is weakened by methodological problems, such as potential selection bias. In addition, there are no accepted biophysical mechanisms that would suggest that low-level exposures are involved in cancer development. Thus, if there were any effects from exposures to these low-level fields, it would have to be through a biological mechanism that is as yet unknown. Additionally, animal studies have been*

largely negative. Thus, on balance, the evidence related to childhood leukaemia is not strong enough to be considered causal."

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

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

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

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

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

INTERNATIONAL AGENCY FOR RESEARCH ON CANCER

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

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

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

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

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

DO ELF FIELDS CAUSE CANCER?

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

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

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

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

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

> *less than 1% of populations using 240 volt power supplies are exposed to these levels, although this may be higher in countries using 120 volt supplies.*
>
> *The IARC review addresses the issue of whether it is feasible that ELF-EMF pose a cancer risk. The next step in the process is to estimate the likelihood of cancers in the general population from the usual exposures and to evaluate evidence for other (non-cancer) diseases. This part of the risk assessment should be finished by WHO in the next 18 months.*

AMERICAN CANCER SOCIETY

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

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

AMERICAN MEDICAL ASSOCIATION

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

- Although no scientifically documented health risk has been associated with the usually occurring levels of electromagnetic fields, the AMA should continue to monitor developments and issues related to the subject.

- The AMA should encourage research efforts sponsored by agencies such as the National Institutes of Health, the U.S. Department of Energy, and the National Science Foundation. Continuing research should include study of exposures to EMF and its effects, average public exposures, occupational exposures, and the effects of field surges and harmonics.

- The AMA should support the meeting of an authoritative, multidisciplinary committee under the auspices of the National Academy of Sciences or the National Council on Radiation Protection and Measurements to make recommendations about exposure levels of the public and workers to EMF and radiation.

REFERENCES

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

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

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

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

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

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

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

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

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

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

APPENDIX B: REPRESENTATIVE VISUAL CONDITIONS AND PUBLIC VIEWS IN THE PROJECT AREA

Photograph 1: View from Durock Road near Shingle Lime Mine Road looking southwest (KOP 1).

Photograph 2: View from U.S. Highway 50 near Rodeo Road looking east (KOP 2).

Photograph 3: View from Country Club Drive near Archwood Road looking southwest KOP (3).


Photograph 4: View from Cambridge Road near U.S. Highway 50 looking east (KOP 4).


Photograph 5: View from Christa McAuliffe Park looking southeast (KOP 5).

Photograph 6: View from Tierra de Dios Road near Country Club Drive looking east (KOP 6). (Selected for visual simulation; see Figures 3.1-2 and 3.1-3 .)

Photograph 7: View from Tong Road near U.S. Highway 50 looking southeast (KOP 7). This photograph is representative of existing project features visible from the Bass Lake Grade scenic viewpoint extending from White Rock Road to Bass Lake Road.

Photograph 8: View from Creekside Greens Park near Concordia Drive looking north (KOP 8).

Photograph 9: View from Saratoga Way near Finders Way looking southeast toward White Rock Road (KOP 9). This photograph is representative of existing project features visible from the Latrobe Road scenic viewshed from White Rock Road to the southern county line. (Selected for visual simulation; see Figures 3.1-4 and 3.1-5 .)

Photograph 10: View from Bertelsen Park near Redwood Lane looking west (KOP 10). (Selected for visual simulation; see Figures 3.1-6 and 3.1-7.)

Photograph 11: View from Del Monte Court looking southeast (KOP 11).

Photograph 12: View from Montridge Way near Crestine Circle looking south (KOP 12).

Photograph 13: View from Empire Ranch Road near Broadstone Parkway and bike path looking east (KOP 13).

Photograph 14: View from Nisenan Park near Golf Links Drive and Broadstone Parkway looking southeast (KOP 14).

Photograph 15: View from Scholar Way near Glen-Mady Way looking west (KOP 15).

Photograph 16: View from East Bidwell Street near Nesmith Court looking southeast (KOP 16).

Photograph 17: View from Kemp Community Park looking northwest toward Gold Hill Substation (KOP 17) The Missouri-Flat-Gold-Hill Tower Line includes the steel lattice tower second from the right. Several other tower lines are also visible, including tower lines owned by the Sacramento Municipal Utilities District (SMUD) as well as a SMUD substation.

APPENDIX C: NATIVE AMERICAN HERITAGE COMMISSION CORRESPONDENCE

Native American Consultation Log

Missouri Flat - Gold Hill 115kV Reconductoring

Organization	Contact	Letter	Email	Other	Comments
Native American Heritage Commission	Katy Sanchez	3/30/2009	-	-	Sacred Lands File failed to indicate the presence of sacred sites in the project area. Provided a list of local Native American contacts.
Buena Vista Rancheria	Chairperson Morningstar Pope	2/6/2012	4/12/2012	-	No response received to date.
N/A	Briana Creekmore	2/6/2012	-	-	No response received to date.
Shingle Springs Band of Miwok Indians	John Tayaba, Vice Chairperson	3/30/2009; 9/8/2009; 2/6/2012	-	2/23/2012	Recived a call from Ms. Angela Rivera from the Shingle Springs Cultural Committee (2.23.12). The Tribe would like a copy of the report upon completion.
Shingle Springs Band of Miwok Indians	Nicholas Fonseca, Chairperson	3/30/2009; 9/8/2009; 2/6/2012	-	3/6/2012	Received a letter from Mr. Daniel Fonseca, Director of Cultural Resources for the Shingle Springs Rancheria. The letter requested updates on the project status, as well as copies of the records search and survey reports completed for the project.
El Dorado Miwok Tribe	N/A	3/30/2009; 9/8/2009; 2/6/2012	4/12/2012	-	No response received to date.
Ione Band of Miwok Indians	Chairperson Yvonne Miller	2/6/2012	-	4/12/2012*	*fax
Ione Band of Miwok Indians Cultural Committee	Ms. Billie Blue	2/6/2012	4/12/2012	-	No response received to date.
N/A	April Wallace Moore	2/6/2012	-	-	No phone, email or fax provided. No response received to date.
Nashville – El Dorado Miwok	N/A	3/30/2009; 9/8/2009; 2/6/2012	4/12/2012	-	No response received to date.

United Auburn Indian Community of the Auburn Rancheria	Gregory Baker, Tribal Administrator	2/6/2012	-	3/3/2012	Received a letter from Mr. Baker stating that UAIC would like to receive copies of archaeological reports and environmental documents prepared for the project. Additionally, the Tribe requested to be notified of if Native American resources are found within the project area. Tribal Administrator referred future correspondence to Marcos Guerrero.
United Auburn Indian Community of the Auburn Rancheria	Marcos Guerrero, THPO	2/6/2012	-	-	See response from G. Baker above.
United Auburn Indian Community of the Auburn Rancheria	David Keyser, Chairperson	2/6/2012	-	-	See response from G. Baker above.
N/A	Randy Yonemura	2/6/2012	4/12/2012	-	No response received to date.
N/A	Kenneth Counsil	3/30/2009; 9/8/09; 4/12/12	4/12/2012	-	No response received to date. Letter dated 4/12/12 returned with no forwarding address.

March 20th, 2009

Ms. Debbie Plias-Treadway
Native American Heritage Commission
915 Capitol Mall, Room #364
Sacramento, CA 95814

RE: PG&E Missouri Flat-Gold Hill Reconductoring Project, El Dorado County, California

Dear Cultural Resource Representative,

North Coast Resource Management (NCRM) has been retained by Pacific Gas and Electric Company (PG&E) to complete an investigation of Missouri Flat-Gold Hill Reconductoring Project located near the cities of Clarksville and Shingle Springs in El Dorado County, California. The project is located on the 7.5 minute USGS Folsom quadrangle, T9N; R8E; Section 5 and 6; 7.5 minute USGS Clarksville, T9N; R8E: Section 1, 2, 3, 4, 5 10, 11; T9N; R8E; Section 4, 6, 7, 8 and 9; and on the 7.5 minute USGS Shingle Springs quadrangle T9N; R9E; Section 1, 2, 3, and 4. The attached project location maps indicate the Missouri Flat-Gold Hill Reconductoring Project area

We are requesting that you check the Sacred Lands Files for this area to see if any sites are located within the project area or in the immediate vicinity. In addition, please provide a complete list of Native American contacts for this area, so we may consult with them regarding this project.

We would be happy to provide additional information concerning the project as necessary. Thank you in advance for your efforts.

Sincerely,

Alex DeGeorgey, M.A., RPA
North Coast Resource Management
125 Junior Street
Santa Rosa, CA 95404
(707) 542 6591 voice
(707) 546 2135 fax

Enclosures: (4) Project Location Maps

STATE OF CALIFORNIA Arnold Schwarzenegger, Governor

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-4082
Fax (916) 657-5390

March 30, 2009

Alex DeGeorgey, M.A., RPA
North Coast Resource Management
125 Junior Street
Santa Rosa, CA 95404

Sent by Fax: 707-546-2135
Number of Pages: 3

Re: Proposed PG&E Missouri Flat-Gold Hill Reconductoring project, El Dorado County.

Dear Mr. DeGeorgey:

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

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

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

Sincerely,

Katy Sanchez

Katy Sanchez
Program Analyst

Native American Contact
El Dorado County
March 27, 2009

Shingle Springs Band of Miwok Indians
John Tayaba, Vice Chairperson
P.O. Box 1340 Miwok
Shingle Springs , CA 95682 Maidu
(530) 676-8010
(530) 676-8033 Fax

El Dorado Miwok Tribe
Brian Padilla
PO Box 2437 Miwok
Marysville , CA 95901

El Dorado County Indian Council
P.O. Box 564 Miwok
El Dorado , CA 95623 Maidu

El Dorado Miwok Tribe
Wesly Yielding
3266 Cimmarron Road, Apt 38 Miwok
Cameron Park , CA 95682
530-672-9819

Randy Yonemura
4305 - 39th Avenue Miwok
Sacramento , CA 95824
honortraditions@mail.com
(916) 421-1600

Shingle Springs Band of Miwok Indians
Nicholas Fonseca, Chairperson
P.O. Box 1340 Miwok
Shingle Springs , CA 95682 Maidu
nfonseca@ssband.org
(530) 676-8010
(530) 676-8033 Fax

El Dorado Miwok Tribe
Cuauhtemoc Gonzalez, Chairperson
PO Box 711 Miwok
El Dorado , CA 95623
eldoradomiwok@sbcglobal.net
916-996-0384

Nashville-El Dorado Miwok
Cosme Valdez, Interim Chief Executive Officer
PO Box 580986 Miwok
Elk Grove , CA 95758
916-429-8047 voice
916-429-8047 fax

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

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

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed PG & E Missouri Flat-Gold Hill Reconductoring Project; El Dorado County.

Native American Contact
El Dorado County
March 27, 2009

Kenneth Counsil
4209 V Street #5
Sacramento , CA 95817
mrken@sonic.net
916-457-7144 - Home
916-213-3934 - cell

Miwok
Maidu

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

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

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed PG & E Missouri Flat-Gold Hill Reconductoring Project; El Dorado County.

SAMPLE

March 30th, 2009

XXX

RE: PG&E Missouri Flat-Gold Hill Reconductoring Project, El Dorado County, California

Dear Cultural Resource Representative,

North Coast Resource Management (NCRM) has been retained by Pacific Gas and Electric Company (PG&E) to complete an investigation of Missouri Flat-Gold Hill Reconductoring Project located near the cities of Clarksville and Shingle Springs in El Dorado County, California. The project is located on the 7.5 minute USGS Folsom quadrangle, T9N; R8E; Section 5 and 6; 7.5 minute USGS Clarksville, T9N; R8E: Section 1, 2, 3, 4, 5 10, 11; T9N; R8E; Section 4, 6, 7, 8 and 9; and on the 7.5 minute USGS Shingle Springs quadrangle T9N; R9E; Section 1, 2, 3, and 4. The attached project location maps indicate the Missouri Flat-Gold Hill Reconductoring Project area

We are sending you this letter to inform you of the proposed project and to solicit any concerns about he undertaking. We would be happy to provide additional information concerning the project as necessary. Thank you in advance for your efforts.

Sincerely,

Alex DeGeorgey, M.A., RPA
North Coast Resource Management
125 Junior Street
Santa Rosa, CA 95404
(707) 542 6591 voice
(707) 546 2135 fax

Enclosures: (4) Project Location Maps

SAMPLE

September 8th, 2009

XXX

RE: PG&E Missouri Flat-Gold Hill Reconductoring Project, El Dorado County, California

Dear Cultural Resource Representative,

North Coast Resource Management (NCRM) has been retained by Pacific Gas and Electric Company (PG&E) to complete an investigation of Missouri Flat-Gold Hill Reconductoring Project located near the cities of Clarksville and Shingle Springs in El Dorado County, California. The project is located on the 7.5 minute USGS Folsom quadrangle, T9N; R8E; Section 5 and 6; 7.5 minute USGS Clarksville, T9N; R8E: Section 1, 2, 3, 4, 5 10, 11; T9N; R8E; Section 4, 6, 7, 8 and 9; and on the 7.5 minute USGS Shingle Springs quadrangle T9N; R9E; Section 1, 2, 3, and 4. The attached project location maps indicate the Missouri Flat-Gold Hill Reconductoring Project area

We are sending you this letter to inform you of the proposed project and to solicit any concerns about he undertaking. We would be happy to provide additional information concerning the project as necessary. Thank you in advance for your efforts.

Sincerely,

Alex DeGeorgey, M.A., RPA
North Coast Resource Management
125 Junior Street
Santa Rosa, CA 95404
(707) 542 6591 voice
(707) 546 2135 fax

Enclosures: (4) Project Location Maps

STATE OF CALIFORNIA Arnold Schwarzenegger, Governor

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-4082
Fax (916) 657-5390

August 9, 2011

Mike Taggart
PG&E
5555 Florin Perkins Road
Sacramento, CA 95826

RE: Native American Contact List
Amador, Alpine, Calaveras, El Dorado, Placer, Stanislaus, San Joaquin, and Tuolumne Counties

SENT VIA FAX: 916-386-5388
# of Pages: 13

Dear Mr. Taggart:

Attached is the Native American contact list of tribes with traditional lands or cultural places located for the above counties per your request.

If you receive notification of change of addresses and phone numbers from any these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at (916) 653-4038.

Sincerely,

Debbie Pilas-Treadway
Environmental Specialist III

Native American Contacts
El Dorado County
August 9, 2011

Randy Yonemura
4305 - 39th Avenue
Sacramento , CA 95824
honortraditions@mail.
(916) 421-1600

April Wallace Moore
19630 Placer Hills Road
Colfax , CA 95713
530-637-4279

Briana Creekmore
PO Box 84
Wilseyville , CA 95257
209-298-7158

Buena Vista Rancheria
Rhonda Morningstar Pope, Chairperson
PO Box 162283
Sacramento , CA 95816
honda@buenavistatribe.
916 491-0011
916 491-0012 - fax

El Dorado Miwok Tribe
PO Box 711
El Dorado , CA 95623
16-996-0384

Ione Band of Miwok Indians
Yvonne Miller, Chairperson
PO Box 699
Plymouth , CA 95669
(209) 274-6753
(209) 274-6636 Fax

Ione Band of Miwok Indians Cultural Committee
Ms Billie Blue, Chairperson
604 Pringle Ave, #42
Galt , CA 95632
bebluesky@softcom.net
(209) 745-7112

Nashville-El Dorado Miwok
Cosme Valdez, Interim Chief Executive
PO Box 580986
Elk Grove , CA 95758
valdezcom@comcast.net
916-429-8047 voice
916-429-8047 fax

Shingle Springs Band of Miwok Indians
John Tayaba, Vice Chairperson
P.O. Box 1340
Shingle Springs , CA 95682
(530) 676-8010
(530) 676-8033 Fax

Shingle Springs Band of Miwok Indians
Nicholas Fonseca, Chairperson
P.O. Box 1340
Shingle Springs , CA 95682
nfonseca@ssband.org
(530) 676-8010
(530) 676-8033 Fax

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

istribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code,

Native American Contacts
El Dorado County
August 9, 2011

Shingle Springs Band of Miwok Indians
Daniel Fonseca
P.O. Box 1340
Shingle Springs , CA 95682

(530) 676-8010
(530) 676-8033 Fax

T si-Akim Maidu
Eileen Moon,Vice Chairperson
760 So. Auburn St. Ste 2-C
Grass Valley , CA 95945

530) 477-0711

United Auburn Indian Community of the Auburn Rancheria
David Keyser, Chairperson
10720 Indian Hill Road
Auburn , CA 95603

530-883-2390
530-883-2380 - Fax

United Auburn Indian Community of the Auburn Rancheria
Marcos Guerrero, Tribal Preservation
10720 Indian Hill Road
Auburn , CA 95603

mguerrero@auburnra
530-883-2364
530-883-2320 - Fax

United Auburn Indian Community of the Auburn Rancheria
Gregory S. Baker, Tribal Administrator
10720 Indian Hill Road
Auburn , CA 95603

gbaker@auburnrancheri
530-883-2390
530-883-2380 - Fax

Washoe Tribe of Nevada and California
Waldo Walker, Chairperson
919 Highway 395 South
Gardnerville , CA 89410

waldo.
775-265-4191
775-265-6240 Fax

Washoe Tribe of Nevada and California THPO
Darrel Cruz, Cultural Resources
919 Highway 395 South
Gardnerville , CA 89410

darrel.
(775) 265-4191 ext 1212
(775) 546-3421 - cell
(775) 265-2254 FAX

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

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

Pacific Gas and Electric Company

Mike Taggart, RPA
Sr. Cultural Resources Specialist
Environmental Planning and Permitting

Mailing Address
2730 Gateway Oaks Dr., #220
Sacramento, CA 95833
Tel: 916.923.7093
Email: M1TI@pge.com

SAMPLE

February 6, 2012

Nicholas Fonseca, Chairperson
Shingle Springs Band of Miwok Indians
PO Box 1340
Shingle Springs, CA 95682

RE: Missouri Flat – Gold Hill 115kV Reconductoring Project, El Dorado County, California

Dear Chairperson Fonseca,

Pacific Gas and Electric Company (PG&E) is initiating an environmental and cultural resource review for the above referenced project located near the communities of Clarksville and Shingle Springs in El Dorado County, California. PG&E proposes to reconductor the Missouri Flat - Gold Hill 115 kV No. 1 and 2 Lines between Gold Hill and Shingle Springs substations with higher capacity conductors. The lines currently have 71 structures, 57 Tubular Steel Poles (TSPs) and 17 lattice towers. PG&E anticipates that all of the TSPs will be replaced, with refinements to the lattice towers.

The project is located on the 7.5 minute *Folsom, CA* USGS quadrangle, T9N, R8E: Sections 5 and 6; the 7.5 minute *Clarksville, CA* USGS T9N, R8E: Section 1, 2, 3, 4, 5 10, 11; T9N, R8E; Sections 4, 6, 7, 8 and 9; and on the 7.5 minute *Shingle Springs, CA* USGS quadrangle T9N, R9E: Sections 1, 2, 3, and 4. The attached project location maps depict the linear alignment of the project.

As part of PG&E's efforts to protect cultural resources that may be located in proximity to the proposed work area, we respectfully request any information you may have on the location and character of Native American cultural resources in the area. If you have any questions or concerns regarding this project please feel free to call me at the number provided above.

Mike Taggart, RPA
Sr. Cultural Resource Specialist

Enclosure (maps)

SHINGLE SPRINGS RANCHERIA
P.O. BOX 1340; SHINGLE SPRINGS, CA 95682
(530) 676-8010; FAX (530) 676-3582

February 28, 2012

Pacific Gas and Electric Company
2730 Gateway Oaks DR., STE. 220
Sacramento, CA 95833

RE: Missouri Flat – Gold Hill 115kV Reconductoring Project, El Dorado County, California

Dear Mike Taggart

Thank you for your letter dated February 6, 2012 seeking information regarding the proposed Missouri Flat – Gold Hill 115kV Reconductoring Project located in El Dorado County. Based on the information provided, the Shingle Springs Band of Miwok Indians is not aware of any known cultural resources on this site. However, SSR would like to have continued consultation through updates, as the project progresses this will foster a greater communication between the Tribe and your agency.

SSR would also like to request any and all completed record searches and or surveys that were done in or around the project area up to and including environmental, archaeological and cultural reports.

If during the progress of the project new information or human remains are found we would like to be able to go over our process with you that we currently have in place to protect such important and sacred artifacts (especially near rivers and streams).

Please contact the following individuals if such finds are made:

Mr. Daniel Fonseca, Director and Most Likely Descendant (MLD)
Office: (530) 676-8010, dfonseca@ssband.org

And copy all communications to:
Crystal Dilworth, Office Coordinator cadilworth@ssband.org Office (530) 698-1471

Thank you for providing us with this notice and opportunity to comment.

Sincerely,

Daniel Fonseca
Cultural Resources Director

MIWOK MAIDU
United Auburn Indian Community
of the Auburn Rancheria

David Keyser
Chairman
Kimberly DuBach
Vice Chair
Gene Whitehouse
Secretary
Brenda Conway
Treasurer
Calvin Moman
Council Member

March 6, 2012

Mike Taggart
Pacific Gas and Electric Company
2730 Gateway Oaks Dr., #230
Sacramento, CA 95833

Subject: Missouri Flat – Gold Hill 115kV Reconnecting Project, El Dorado County, California

Dear Mr. Taggart,

Thank you for requesting information regarding the above referenced project. The United Auburn Indian Community (UAIC) of the Auburn Rancheria is comprised of Miwok and Southern Maidu (Nisenan) people whose tribal lands are within Placer County and ancestral territory spans into El Dorado, Nevada, Sacramento, Sutter, and Yuba counties. The UAIC is concerned about development within its aboriginal territory that has potential to impact the lifeways, cultural sites, and landscapes that may be of sacred or ceremonial significance. We appreciate the opportunity to comment on this and other projects in your jurisdiction.

In order to ascertain whether or not the project could affect cultural resources that may be of importance to the UAIC, we would like to receive copies of any archaeological reports that have been, or will be, completed for the project. We also request copies of future environmental documents for the proposed project so that we have the opportunity to comment on potential impacts and proposed mitigation measures related to cultural resources. The information gathered will provide us with a better understanding of the project and cultural resources on site and is invaluable for consultation purposes. Please contact us if any Native American cultural resources are in, or found to be within, your project area.

Thank you again for taking these matters into consideration, and for involving the UAIC early in the planning process. We look forward to reviewing the aforementioned documents as requested. Please contact Marcos Guerrero, Tribal Historic Preservation Officer, at (530) 883-2364 or email at mguerrero@auburnrancheria.com if you have any questions.

Sincerely,

Gregory S. Baker,
Tribal Administrator

CC: Marcos Guerrero, THPO

Tribal Office 10720 Indian Hill Road Auburn, CA 95603 (530) 883-2390 FAX (530) 883-2380

APPENDIX D: LIST OF PREPARERS

APPENDIX D – LIST OF PREPARERS (AECOM AND SUBCONTRACTORS)

Section	Primary Consultant(s)[1]	Qualifications
3.1 – Aesthetics	Juliana Lehnen	• Environmental Planner at AECOM • B.S., Environmental Management and Protection, California Polytechnic State University, San Luis Obispo
3.2 – Agricultural and Forestry Resources	Kristin Tremain	• Biologist/Environmental Planner at AECOM • B.A., Integrative Biology, University of California, Berkeley • M.A., Conservation Biology, Columbia University
3.3 – Air Quality	George Lu	• Air Quality Analyst at AECOM • B.S., Environment Resources and Science, University of California, Davis
	Pete Choi	• Managing Environmental Planner at AECOM • B.S., Environmental Studies, University of Vermont • M.S., Environmental Science and Management, University of California, Santa Barbara
3.4 – Biological Resources	Zooey Diggory	• Senior Ecologist at Stillwater Sciences • B.S., Environmental Science, University of Southern California • M.S., Biology, California State University, San Francisco
	Holly Burger	• Wildlife Biologist at Stillwater Sciences • B.S., Biology, Baldwin Wallace College
	Nicole Jurjavcic	• Botanist at Stillwater Sciences • B.A., Biological Sciences, University of California, Davis • M.S., Ecology, University of California, Davis
3.5 – Cultural Resources	Mary Clark Baloian	• Senior Archaeologist at Applied EarthWorks, Inc. • Ph.D., Anthropology, Southern Methodist University • M.A., Anthropology, Southern Methodist University • B.A., Anthropology, University of California, Davis
	Matthew Armstrong	• Associate Archaeologist at Applied EarthWorks, Inc. • M.A., Anthropology, University of California, Santa Barbara • B.A., Anthropology, University of California, Santa Cruz

[1]Note that additional consultants and numerous Pacific Gas and Electric Company employees contributed to the preparation of the Proponent's Environmental Assessment.

Section	Primary Consultant(s)[1]	Qualifications
3.6 – Geology and Mineral Resources	Drew Sutton	• Urban and Environmental Planner at AECOM • B.S., Geosciences, Williams College, Williamstown, Massachusetts • M.A., City and Regional Planner, University of Texas, Arlington
3.7 – Greenhouse Gas	George Lu	• Air Quality Analyst at AECOM • B.S., Environment Resources and Science, University of California, Davis
	Pete Choi	• Managing Environmental Planner at AECOM • B.S., Environmental Studies, University of Vermont • M.S., Environmental Science and Management, University of California, Santa Barbara
3.8 – Hazards and Hazardous Materials	Elliott Schwimmer	• Environmental Planner at AECOM • B.S., Conservation and Resource Studies, University of California, Berkley
3.9 – Hydrology and Water Quality	Daniel (DJ) Allison	• Managing Biologist at AECOM • B.S., Ecology, California Polytechnic State University, San Luis Obispo
3.10 – Land Use	Whitney Broeking	• Environmental Planner at AECOM • B.S., Global Studies, University of California, Santa Barbara
3.11 – Minerals	Drew Sutton	• Urban and Environmental Planner at AECOM • B.S., Geosciences, Williams College, Williamstown, Massachusetts • M.A., City and Regional Planner, University of Texas, Arlington
3.12 – Noise	Pete Choi	• Managing Environmental Planner at AECOM • B.S., Environmental Studies, University of Vermont • M.S., Environmental Science and Management, University of California, Santa Barbara
3.13 – Population and Housing	Whitney Broeking	• Environmental Planner at AECOM • B.S., Global Studies, University of California, Santa Barbara
3.14 – Public Services	Juliana Lehnen	• Environmental Planner at AECOM • B.S., Environmental Management and Protection, California Polytechnic State University, San Luis Obispo
3.15 – Recreation	Juliana Lehnen	• Environmental Planner at AECOM • B.S., Environmental Management and Protection, California Polytechnic State University, San Luis Obispo

Section	Primary Consultant(s)[1]	Qualifications
3.16 – Transportation and Traffic	Whitney Broeking	• Environmental Planner at AECOM • B.S., Global Studies, University of California, Santa Barbara
3.17 – Utilities and Service Systems	Elliott Schwimmer	• Environmental Planner at AECOM • B.S., Conservation and Resource Studies, University of California, Berkley