CALIFORNIA PUBLIC UTILITIES COMMISSION

LS POWER GRID CALIFORNIA, LLC
ROUND MOUNTAIN 500 kV DYNAMIC REACTIVE SUPPORT PROJECT

Draft Initial Study/Mitigated Negative Declaration

May 2023

A.22-04-004
State Clearinghouse No. TBD

Prepared for:
California Public Utilities Commission

Prepared by:
Environmental Science Associates

ESA

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

To: **State Clearinghouse, Responsible and Trustee Agencies, Property Owners & Interested Parties**

From: **Mr. Boris Sanchez, CPUC Project Manager**

Subject: **NOTICE OF INTENT TO ADOPT AN INITIAL STUDY/MITIGATED NEGATIVE DECLARATION (IS/MND)**
Round Mountain 500 kV Dynamic Reactive Support Project (A-22-04-004)

Date: **May 26, 2023**

The California Public Utilities Commission (CPUC) has prepared a Draft Initial Study/Mitigated Negative Declaration (Draft IS/MND) under the California Environmental Quality Act (CEQA) for consideration of LS Power Grid California, LLC's (LSPGC's) application (A-22-04-004) to construct, operate, and maintain the Round Mountain 500 kV Dynamic Reactive Support Project (the Project). The Draft IS/MND details the Project; evaluates and describes the potential environmental impacts associated with the Project's construction, operation, and maintenance; identifies impacts that could be significant; and presents mitigation measures that, if adopted by the CPUC, would avoid or minimize these impacts.

Description of the Project

The Project would be located in unincorporated eastern Shasta County upon and surrounded by agricultural lands with existing transmission infrastructure.

The Project would involve construction of the Fern Road Substation containing two static synchronous compensator (STATCOM) units (devices used to regulate voltages for transmission networks and assist in ensuring reliable operation of transmissions systems in proximity to a substation) and ancillary components adjacent and independently connected to Pacific Gas and Electric Company's (PG&E) regional electric transmission system via the Round Mountain – Table Mountain #1 and #2 500 kV transmission lines. The Project would support the regional transmission system by providing voltage support and grid stability, which would facilitate the reliable operation of the extra high voltage transmission system proximal to the PG&E Round Mountain and Table Mountain substations. The purpose of the Project is to provide dynamic reactive support at the PG&E Round Mountain Substation, a 500 kV level regional substation. Connection to the PG&E Round Mountain Substation would require PG&E to reconfigure approximately 1,000 feet of both the Round Mountain – Table Mountain #1 and #2 500 kV transmission lines for an overhead connection to the Fern Road Substation.

LSPGC requests CPUC authorization to:

- Construct, operate, and maintain the Project including the Fern Road Substation and ancillary facilities, and connect such facilities to the PG&E-owned Round Mountain Substation.

Project components include:

- Two equally sized STATCOM units and ancillary components that would be connected to the Fern Road Substation via the reconfiguration of approximately 1,000 feet of both the Round Mountain – Table Mountain #1 and #2 500 kV transmission lines for an overhead connection.
- Two approximately 6,000 square-foot STATCOM insulated gas bipolar transistors (IGBT)

- valve/control enclosures that would contain IGBT converters, protective relaying and control equipment, supervisory control and data acquisition (SCADA) equipment, cooling equipment, AC/DC auxiliary power equipment, and maintenance storage;
- Chain link and barb wire security fencing approximately nine feet in height with secure gates accessible only by LSPGC staff, PG&E staff, and emergency services personnel;
- Signage and shielded, motion-detection lighting;
- New and/or improved access road construction; and
- Transformer oil containment system designed to contain the oil volume of the transformers plus the stormwater volume from a 25-year, 24-hour storm.

Public Comment on the Draft IS/MND.

The Draft IS/MND is available for a 30-day public comment period: **May 26, 2023 through June 26, 2023** The public may submit written comments and concerns regarding the proposed Project and the adequacy of the Draft IS/MND. Comments on the Draft IS/MND must be postmarked or received by e-mail no later than **June 26, 2023** at 5:00 pm. Please include your name, address, and telephone number in your correspondence.

Written comments on the Draft IS/MND should be sent to:

CPUC c/o ESA, Attn. Round Mountain/Michael Manka
1425 N. McDowell Blvd., Suite 200
Petaluma, CA 94954
RndMnt@esassoc.com

Availability of Draft IS/MND.

Copies of the Draft IS/MND will be available for public review on the CPUC's Project website:

https://ia.cpuc.ca.gov/environment/info/esa/round_mountain/index.html
This website will be used to post all public documents during the environmental review process. Printed copies of the Draft IS/MND may be requested by e-mail at RndMnt@esassoc.com.

Printed copies of the Draft IS/MND are available for public review at the following libraries in the Project area.

Oak Run Community Library
27480 Oak Run to Fern Rd
Oak Run, CA 96069
Phone: (530) 472-1211

Shasta Public Libraries - Redding Library
1100 Parkview Ave
Redding, CA 96001
Phone: (530) 245-7250

REMINDER: Draft IS/MND comments will be accepted by e-mail, or mail postmarked through June 26, 2023. Please include your name, address, and telephone number. Note that comments become public record.

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List of Acronyms

Alternating current	AC
Applicant Proposed Measures	APM
Assessor Parcel Number	APN
Best management practices	BMPs
California Code of Regulations	CCR
California Department of Forestry and Fire Protection	CAL FIRE
California Environmental Quality Act	CEQA
California Independent System Operator Corporation	CAISO
Critical Infrastructure Program	CIP
California Public Resources Code	PRC
California Public Utilities Commission	CPUC
Cubic Yards	CY
Department of Water Quality	DWQ
Direct Current	DC
Environmental Field Specialist	EFS
Federal Energy Regulation Commission	FERC
Gas insulated bus	GIB
Greenhouse gas	GHG
Hazardous Materials Communication Plan	HAZCOM
Hazardous Materials Management Plan	HMMP
Heating Ventilation and Air Cooling	HVAC
Interstate	I
Insulated gas bipolar transistor	IGBT
Kilovolt	kV
Light-emitting diode	LED
Local Area Network	LAN
Long Term Evolution	LTE
LS Power Grid California, LLC	LSPGC
Mega-watts	MW
Million volt-amperes (reactive)	MVAR
National Electrical Code	NEC
National Electric Safety Code	NESC
National Pollutant Discharge Elimination System	NPDES
North American Electric Reliability Corporation	NERC
NOx	Nitrogen Oxide
Occupational Safety and Health Administration	OSHA
Operation and maintenance	O&M
Pacific Gas and Electric Company	PG&E
Particulate matter	PM
Permit to Construct	PTC
Point of Change in Ownership	POCO
Polyvinyl chloride	PVC
Public Land Survey System	PLSS
Right-of-way	ROW
Safety Data Sheets	SDS
San Joaquin Valley Air Pollution Control District	SJVAPD
Spill Prevention, Control, and Countermeasure	SPCC
State Route	SR
Static Synchronous Compensator	STATCOM
State Water Resources Control Board	SWRCB

Storm Water Pollution Prevention Program	SWPPP
Supervisory Control and Data Acquisition	SCADA
Underground Service Alert	USA
Vehicle miles traveled	VMT
Wide Area Network	WAN
Yard	Yd

EXECUTIVE SUMMARY

ES.1 Introduction

On April 6, 2022, LS Power Grid California, LLC (LSPGC or the Applicant) submitted a Permit to Construct (PTC) Application (A.22-04-004) to the California Public Utilities Commission (CPUC) for the Round Mountain 500kV Dynamic Reactive Support Project (Project). The Applicant proposes to construct and operate the Fern Road Substation and connect to the existing PG&E regional electric transmission system via the Round Mountain – Table Mountain #1 and #2 500 kV transmission lines (adjacent to the proposed Project site) pursuant to CPUC General Order (GO) 131-D. Interconnections and upgrades the existing PG&E Round Mountain, Table Mountain, and Cascade substations are also proposed and considered as part of the Project. The PTC Application includes the Proponent's Environmental Assessment (PEA) prepared pursuant to Rule 2.4 of the CPUC's Rules of Practice and Procedure.

The Project is subject to the California Environmental Quality Act (CEQA) review. Pursuant to the requirements of CEQA, the CEQA Guidelines, and CPUC General Order (GO) 131-D, the CPUC prepared an initial study and Mitigated Negative Declaration (IS/MND) to evaluate potential environmental impacts of the Project and identify mitigation measures to reduce potentially significant impacts. Based on the analysis in the IS and the substantial evidence supporting the analysis, it has been determined that all significant environmental impacts of the Project would be avoided or reduced to below the level of significance with the incorporation of feasible mitigation measures agreed to by the Applicant. For this reason, adoption of an IS/MND satisfies the requirements of CEQA.

The Project for the purpose of this CEQA analysis includes both the Fern Road Substation Facilities, and the PG&E Interconnection Facilities described in this section. The Project was identified by the California Independent System Operator Corporation (CAISO) to ensure the reliability of the CAISO controlled grid. The CPUC will use the information in this CEQA document to inform their decision whether or not to approve the LSPGC application to construct and operate the Fern Road Substation only. The construction and operation of the PG&E Facilities, although analyzed in this CEQA document, are not considered part of the CPUC's LSPGC application decision.

ES.2 Project Description

If the PTC is approved, LSPGC would construct and operate the proposed Fern Road Substation. The substation would consist of a +/- 529-million-volt-ampere, reactive (MVAR) dynamic

reactive device installed in a minimum of two equally sized static synchronous compensator (STATCOM) units. The Fern Road Substation would include the two STATCOM units with a 500 kV switchyard and associated facilities, occupying a total of approximately 7.5 acres. Ancillary facilities, including an access road and parking, would require additional grading and disturbance of approximately 3 acres. The Fern Road Substation would be independently connected through the LSPGC–owned and operated 500 kV substation to Pacific Gas and Electric Company's (PG&E's) regional electric transmission system via the existing Round Mountain–Table Mountain #1 and #2 500 kV transmission lines that are located adjacent to the Fern Road Substation site.

The proposed Fern Road Substation would include the following components:

- Lightning shielding masts.
- Nine 500 kV sulfur hexafluoride (SF_6) gas-insulated circuit breakers and associated disconnect switches, current transformers, and voltage transformers.
- 500 kV disconnect switches.
- 500 kV voltage transformers.
- Medium-voltage station service transformers.
- 500 kV bussing.
- 500 kV surge arresters.
- One metal 55-foot-tall gas insulated substation (GIS) enclosure, approximately 10,000 square feet.
- One control enclosure.
- Four 500 kV take-off towers.
- Three 3-phase, 500 kV main power transformers (including an installed spare).
- Outdoor heating, ventilation, and air conditioning equipment and insulated gate bipolar transistor (IGBT)/converter cooling equipment.
- Outdoor air core reactors.
- Outdoor medium-voltage bussing.
- Outdoor medium-voltage instrument/auxiliary transformers.
- Outdoor medium-voltage surge arresters.
- Outdoor medium-voltage group-operated air break switches.
- Two approximately 6,000-square-foot STATCOM IGBT valve/control enclosures containing the following equipment:
  - IGBT converters.
  - Protective relaying and control equipment.
  - Supervisory control and data acquisition (SCADA) equipment.
  - Cooling equipment.
  - Alternating current/direct current auxiliary power equipment.
  - Spare parts and maintenance tool storage.
  - Miscellaneous support facilities.

The Project also includes several upgrades that would be conducted by PG&E, collectively referred to in this document as the *PG&E Facilities*. The PG&E Facilities include substation upgrades at the PG&E Round Mountain and Table Mountain substations. The upgrades to the PG&E Facilities would also include installation of microwave towers or monopoles at its existing PG&E Redding Service Center and Cascade Substation located in Redding, and distribution modifications along Fern Road and adjacent to the Fern Road Substation site. Additional details are provided in Chapter 2, *Project Description*.

ES.3 Environmental Determination

This IS/MND has been prepared to identify the potential environmental effects resulting from implementation of the Project, evaluate the level of significance of these effects, and identify the revisions in the Project (i.e., mitigations) that would avoid the effects or reduce them below established thresholds of significance. This IS/MND relies on information from LSPGC's Application for a PTC, the accompanying PEA, Project site reconnaissance, LSPGC and PG&E's responses to data requests by the CPUC, and the environmental expertise of the CPUC's consultant, who has prepared this IS/MND.

In its PEA, LSPGC identified a number of Applicant Proposed Measures (APMs) intended to avoid or reduce potential impacts associated with the Project. In some instances, those APMs have been superseded by CPUC-recommended mitigation measures, as described in this IS/MND. Those APMs that have not been superseded are considered part of the Project for the purpose of this IS/MND and, upon adoption of the Final MND, would become part of the Mitigation Monitoring, Compliance, and Reporting Program to assure that implementation of and compliance with the measures would be monitored and enforced by the CPUC. PG&E has also proposed Avoidance and Minimization Measures (AMMs) and Best Management Practices (BMPs) to reduce effects associated with the PG&E Interconnection Facilities. Based on the analysis documented in this IS/MND, in addition to implementation of APMs, AMMs, and BMPs, mitigation measures are recommended for the following resource areas to reduce potentially significant impacts of the Project to a less-than-significant level:

- Air Quality
- Biological Resources
- Noise

The mitigation measures either supplement or supersede the APMs proposed by the Applicant or PG&E construction measures. LSPGC has agreed to implement all of the recommended mitigation measures as part of the Project. Upon adoption of the Final MND, the recommended mitigation measures would become part of the Project Mitigation Monitoring, Compliance, and Reporting Program.

Environmental impacts, applicable APMs, and mitigation measures for the Project are provided in Chapter 3 of this IS/MND. **Table ES-1** at the end of this Executive Summary identifies the potentially significant environmental impacts of the Project and applicable APMs and recommended mitigation measures that reduce those impacts to a less-than-significant level. The draft Mitigation Monitoring, Compliance, and Reporting Program included in Chapter 5 of this IS/MND will be updated if needed to reflect the CPUC's decision on the Project, including any revisions to the mitigation measures that must be implemented if the Project is approved.

TABLE ES-1
ENVIRONMENTAL IMPACTS WITH IMPLEMENTATION OF
APPLICANT PROPOSED MEASURES, PG&E CONSTRUCTION MEASURES AND MITIGATION MEASURES

Resource Area	Applicant Proposed Measures (APMs) PG&E Construction Measures Avoidance Minimization Measures (AMMs) and Best Management Practices (BMPs) and Mitigation Measures (MMs) Identified in the IS/MND	Significance with Measures Implemented
Applicant Proposed Measures		
Aesthetics	**APM AES-1**: All proposed Fern Road Substation Facilities sites would be maintained in a clean and orderly state. Nighttime lighting would be directed away from residential areas and have shields to prevent light spillover effects. Upon completion of project construction, project staging and temporary work areas would be returned to pre-project conditions, including re-grading of the site and re-vegetation or re-paving of disturbed areas to match pre-existing contours and conditions.	Less than significant
Aesthetics	**APM AES-2:** Structures and equipment at the proposed Fern Road Substation would be a non-reflective finish and neutral gray color.	Less than significant
Air Quality	**APM AQ-1*:*** The Proposed Project would implement the following Shasta County Standard Mitigation Measures (SMMs:) • **AQ SMM-1:** Maintain all construction equipment in proper tune according to manufacturer's specifications. • **AQ-SMM-2:** Fuel all off-road and portable diesel-powered equipment with ARB-certified motor vehicle diesel fuel (non-taxed version suitable for use off-road). • **AQ-SMM-3:** Use diesel construction equipment meeting ARB's Tier 2 certified engines or cleaner off-road heavy-duty diesel engines and comply with the State Off-Road Regulation. • **AQ-SMM-4:** Use on-road heavy-duty trucks that meet the ARB's 2007 or cleaner certification standard for on-road heavy-duty diesel engines and comply with the State On-Road Regulation. • **AQ-SMM-5:** All on and off-road diesel equipment shall not idle for more than five minutes. Signs shall be posted in the designated queuing areas and or job sites to remind drivers and operators of the five-minute idling limit. • **AQ-SMM-6:** Diesel idling within 1,000 feet of sensitive receptors is not permitted. • **AQ-SMM-7:** Staging and queuing areas shall not be located within 1,000 feet of sensitive receptors. • **AQ-SMM-8:** Electrify equipment when feasible. • **AQ-SMM-9:** Substitute gasoline-powered in place of diesel-powered equipment, where feasible; and use alternatively fueled construction equipment on-site where feasible, such as compressed natural gas (CNG), liquefied natural gas (LNG), propane or biodiesel.	Less than significant
Air Quality	**APM AQ-2:** During construction the following Dust Control Plan measures shall be implemented to control fugitive dust and particulate emissions in compliance with SCAQMD SMMs: • Reduce the amount of the disturbed area where possible; • Use water trucks or sprinkler systems in sufficient quantities to prevent airborne dust from leaving the site. Increased watering frequency would be required whenever wind speeds exceed 15 mph. Reclaimed (non-potable) water should be used whenever possible; • All dirt stock-pile areas should be sprayed daily as needed; • All roadways, driveways, sidewalks, etc. to be paved should be completed as soon as possible, and building pads should be laid as soon as possible after grading unless seeding or soil binders are used; • All relevant fugitive dust mitigation measures contained in APM AQ-2 shall be shown or otherwise noted on grading and building plans.	Less than significant

TABLE ES-1 (CONTINUED)
ENVIRONMENTAL IMPACTS WITH IMPLEMENTATION OF
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Resource Area	Applicant Proposed Measures (APMs) PG&E Construction Measures Avoidance Minimization Measures (AMMs) and Best Management Practices (BMPs) and Mitigation Measures (MMs) Identified in the IS/MND	Significance with Measures Implemented
Biological Resources	**APM BIO-1:** Speed of vehicles driving along proposed access roads and on the Proposed Project site during construction and operation would be limited to 15 miles per hour. In addition, construction and maintenance employees would be required to stay on established and clearly marked and existing roads and within the limits of disturbance except when not feasible due to physical or safety constraints and would be advised that care should be exercised when commuting to and from the Proposed Project area to reduce accidents and animal road mortality.	Less than significant
Biological Resources	**APM BIO-2:** Conductors and ground wires would be spaced sufficiently apart so that raptors cannot contact two conductors or one conductor and a ground wire to cause electrocution (APLIC, 2006).	Less than significant
Biological Resources	**APM BIO-3:** Appropriate methods to reduce the risks of avian collisions would be incorporated into the Project's design (APLIC, 2012).	Less than significant
Biological Resources	**APM BIO-4:** If feasible, the Applicant would avoid construction during the migratory bird nesting or breeding season (February 15 to August 31). When it is not feasible to avoid construction during the nesting or breeding season, the Applicant would perform a survey in the area where the work is to occur. This survey would be performed to determine the presence or absence of nesting birds. If an active nest (i.e., containing eggs or young) is identified, a suitable construction buffer would be implemented to ensure that the nesting or breeding activities are not substantially adversely affected. If the nesting or breeding activities are being conducted by a federal- or state-listed species, the Applicant would consult with the USFWS and CDFW as necessary. Monitoring of the nest would continue until the birds have fledged or construction is no longer occurring on the site. If an inactive nest is identified, careful nest removal under the supervision and direction of qualified biologists could occur wherever necessary.	Less than significant
Biological Resources	**APM BIO-5:** If a raptor nest is observed during pre-construction surveys, a qualified biologist would determine if it is active. If the nest is determined to be active, the biological monitor would monitor the nest to ensure that nesting or breeding activities are not substantially adversely affected. If the biological monitor determines that activities associated with the Proposed Project are disturbing or disrupting nesting or breeding activities, the monitor would make recommendations to reduce noise or disturbance in the vicinity of the nest, such as temporarily suspending work in the area. If the nest is determined to be inactive, the nest would be removed under direct supervision of the qualified biologist.	Less than significant
Biological Resources	**APM BIO-6:** All excavated holes or trenches that are not be filled at the end of a workday would be covered, or a wildlife escape ramp would be installed to prevent the inadvertent entrapment of wildlife species.	Less than significant
Biological Resources	**APM BIO-7:** The use of outdoor lighting during construction and O&M of the proposed Fern Road Substation would be minimized whenever practicable. Photocell controlled lighting (motion detection) would be provided at a level sufficient to provide safe entry and exit to the proposed Fern Road Substation and control building. All lighting would be selectively placed, shielded, and directed downward to the maximum extent practicable. Night work would be avoided to the maximum extent.	Less than significant
Biological Resources	**APM BIO-8:** A Workers Environmental Awareness Program (WEAP) would be implemented to educate all construction and O&M workers on site-specific biological and non-biological resources and proper work practices to avoid harming wildlife during construction or O&M activities.	Less than significant
Biological Resources	**APM BIO-9:** Prior to initial vegetation clearance and ground-disturbing activities, a qualified biologist would conduct pre-construction sweeps of the Proposed Project work area for special-status wildlife and plants. In the event of the discovery of a previously unknown special-status plant, the area would be marked as a sensitive area and would be avoided to the maximum extent practicable. If avoidance of species listed under the Federal or California Endangered Species Act is not possible, USFWS and/or CDFW would be consulted. Any other	Less than significant

TABLE ES-1 (CONTINUED)
ENVIRONMENTAL IMPACTS WITH IMPLEMENTATION OF
APPLICANT PROPOSED MEASURES, PG&E CONSTRUCTION MEASURES AND MITIGATION MEASURES

Resource Area	Applicant Proposed Measures (APMs) PG&E Construction Measures Avoidance Minimization Measures (AMMs) and Best Management Practices (BMPs) and Mitigation Measures (MMs) Identified in the IS/MND	Significance with Measures Implemented
	construction activities that may impact sensitive biological resources including movement of construction equipment and other activities outside of the fenced/paved areas within wildlife habitat would be monitored by a qualified biologist. The monitor/inspector would have the authority to stop work activities upon the discovery of sensitive biological resources and allow construction to proceed after the identification and implementation of steps required to avoid or minimize impacts to sensitive resources.	
Biological Resources	**APM BIO-10:** All sensitive biological areas (including the populations of silvery false lupine and ephemeral and intermittent streams and seasonal wetlands) within the Proposed Project work area would be clearly marked prior to construction commencing to restrict construction activities and equipment from entering these areas. At least a 5-foot buffer from all construction activities would be established around these areas. These buffers would be inspected regularly to ensure that they remain in place.	Less than significant
Biological Resources	**APM BIO-11:** Vegetation and tree removal would be avoided to the maximum extent feasible to allow construction to proceed.	Less than significant
Biological Resources	**APM BIO-12:** All areas that are temporarily disturbed by the Proposed Project activities would be restored to approximate pre-construction conditions. Areas that are disturbed by grading, auguring, or equipment movement would be restored to their original contours and drainage patterns. Work areas would be decompacted, and salvaged topsoil materials would be re-spread following recontouring to aid in restoration of temporary disturbed areas. A project-specific Restoration and Revegetation Plan (Restoration Plan) would be prepared for the Proposed Project and submitted to the CPUC for approval prior to construction activities commencing. The Restoration Plan would include procedures for restoration activities, including plant species to be planted, procedures to reduce weed encroachment, and expected timeframes for restoration and revegetation. Revegetation activities would be conducted in accordance with the Proposed Project SWPPP and APMs. Restoration could include recontouring, reseeding, and planting replacement vegetation, as appropriate. Temporarily disturbed areas would be revegetated with appropriate weed-free native seed mixes or species that are characteristic of the plant community that was disturbed.	Less than significant
Biological Resources	**APM BIO-13:** All vehicles would be cleaned prior to arrival on the Proposed Project site to avoid spread of noxious weeds and non-native invasive plant species.	Less than significant
Cultural and Tribal Cultural Resources	**APM CUL-1:** LSPGC would design and implement a Worker Environmental Awareness Program (WEAP) that would be provided to all Project personnel who may encounter and/or alter historical resources or unique archaeological properties, including construction supervisors and field personnel. The WEAP would be submitted and approved by the CPUC prior to construction. No construction worker would be involved in ground disturbing activities without having participated in the WEAP. The WEAP would include, at a minimum: • Training on how to identify potential cultural resources and human remains during the construction process; • A review of applicable local, state and federal ordinances, laws and regulations pertaining to historic preservation; • A discussion of procedures to be followed in the event that unanticipated cultural resources are discovered during implementation of the Proposed Project; • A discussion of disciplinary and other actions that could be taken against persons violating historic preservation laws and LSPGC policies; and • A statement by the construction company or applicable employer agreeing to abide by the WEAP, LSPGC policies and other applicable laws and regulations. The WEAP may be conducted in concert with other environmental or safety awareness and education programs for the Proposed Project, provided that the program elements pertaining to cultural resources are provided by a Qualified Archaeologist, defined as an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for Archaeology (36 CFR Part 61).	Less than significant

TABLE ES-1 (CONTINUED)
ENVIRONMENTAL IMPACTS WITH IMPLEMENTATION OF
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Resource Area	Applicant Proposed Measures (APMs) PG&E Construction Measures Avoidance Minimization Measures (AMMs) and Best Management Practices (BMPs) and Mitigation Measures (MMs) Identified in the IS/MND	Significance with Measures Implemented
Cultural and Tribal Cultural Resources	**APM CUL-2:** If proposed facilities and ground-disturbing activities move outside the previously surveyed acreage, the new areas would be subjected to a cultural resources inventory report that includes archaeological, unique archaeological, and built-environment resources within all areas that could be affected by the Proposed Project. Impacts to any historical resources or unique archaeological resources identified as a result of the inventory report would be avoided by project redesign, capping, or other appropriate treatment.	Less than significant
Cultural and Tribal Cultural Resources	**APM CUL-3:** In the event that previously unidentified cultural resources are uncovered during implementation of the Proposed Project, all work within 100 feet (30 meters) of the discovery would be halted and redirected to another location. LSPGC's qualified archaeologist would inspect the discovery and determine whether further investigation is required. If the discovery can be avoided and no further impacts would occur, the resource would be documented on California Department of Parks and Recreation cultural resource records and no further effort would be required. If the resource cannot be avoided and may be subject to further impact, LSPGC would evaluate the significance and CRHR eligibility of the resources and, in consultation with the CPUC, determine appropriate treatment measures. Preservation in place shall be the preferred means to avoid impacts to significant historical resources. Consistent with CEQA Section 15126.4(b)(3), if it is demonstrated that resources cannot feasibly be avoided, LSPGC's qualified archaeologist, in consultation with the CPUC and, if the unearthed resource is prehistoric or Native American in nature, the Native American monitor shall develop additional treatment measures, such as data recovery consistent with CEQA Guidelines 15126.4(b)(3)(C)- (D). Archaeological materials recovered during any investigation shall be curated at an accredited curation facility or transferred to the appropriate tribal organization.	Less than significant
Cultural and Tribal Cultural Resources	**APM CUL-4:** Avoidance and protection of inadvertent discoveries that contain human remains shall be the preferred protection strategy where feasible and otherwise managed pursuant to the standards of CEQA Guidelines 15064.5(d) and (e). If human remains are discovered during construction or O&M activities, all work shall be diverted from the area of the discovery, and the CPUC shall be informed immediately. The Applicant shall contact the county coroner to determine whether or not the remains are Native American. If the remains are determined to be Native American, the coroner would contact the NAHC. The NAHC would then identify the person or persons it believes to be the most likely descendant of the deceased Native American, who in turn would make recommendations for the appropriate means of treating the human remains and any associated funerary objects. No part of the Proposed Project is located on federal land and no federal monies are involved; therefore, the Proposed Project is not subject to the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA).	Less than significant
Geology and Soils	**APM GEO-1:** The following measures would be implemented during construction to minimize impacts from geological hazards and disturbance to soils • Keep vehicle and construction equipment within the limits of the Project and in approved construction work areas to reduce disturbance to topsoil; • Prior to grading, salvage topsoil to a depth of six inches or to actual depth if shallower (as identified in site-specific geotechnical investigation report) to avoid mixing of soil horizons; • Avoid construction in areas with saturated soils, whenever practical, to reduce impacts to soil structure and allow safe access. Similarly, avoid topsoil salvage in saturated soils to maintain soil structure; • Keep topsoil material on-site in the immediate vicinity of the temporary disturbance or at a nearby approved work area to be used in restoration of temporary disturbed areas. Temporary disturbance areas would be re-contoured following construction to match pre-construction grades. Areas would be allowed to re-vegetate naturally or would be reseeded with a native seed mix from a local source if necessary. On-site material storage would be sited and managed in accordance with all required permits and approvals; and	Less than significant

TABLE ES-1 (CONTINUED)
ENVIRONMENTAL IMPACTS WITH IMPLEMENTATION OF
APPLICANT PROPOSED MEASURES, PG&E CONSTRUCTION MEASURES AND MITIGATION MEASURES

Resource Area	Applicant Proposed Measures (APMs) PG&E Construction Measures Avoidance Minimization Measures (AMMs) and Best Management Practices (BMPs) and Mitigation Measures (MMs) Identified in the IS/MND	Significance with Measures Implemented
	• Keep vegetation removal and soil disturbance to a minimum and limited to only the areas needed for construction. Removed vegetation would be disposed of off-site to an appropriate licensed facility or can be chipped on-site to be used as mulch during restoration.	
Geology and Soils	**APM GEO-2:** The structural requirements of the CBC are applicable to certain structural components of the Project, including the control enclosures. LSPGC and/or its contractors would design such structures to comply with such CBC standards and shall adhere to and implement all design recommendations and parameters established in the Project's Supplemental Geotechnical Engineering Report to be prepared and submitted to the CPUC upon completion.	Less than significant
Paleontology	**APM PALEO-1:** Prior to the issuance of grading permits, a qualified paleontologist shall be retained to prepare and oversee the PRMMP for the Proposed Project. The PRMMP shall contain monitoring procedures, define areas and types of earthwork to be monitored, and provide methods for determining the significance of fossil discoveries. The PRMMP shall direct that a qualified paleontological monitor (working under the supervision of the qualified paleontologist) shall monitor all excavations or grading at depths exceeding two feet bgs in sedimentary deposits of the Montgomery Creek Formation and the sedimentary portions of the Tuscan Formation. Determination of whether or not the Tuscan Formation on the Proposed Project site contains sedimentary deposits would be made based either on results of any new geotechnical information or on observations of fresh exposures during initial earthwork in the northern portion of the Proposed Project site. The duration and timing of paleontological monitoring shall be determined by the qualified paleontologist based on the grading plans and construction schedule and may be modified based on the initial results of monitoring. The PRMMP shall state that any fossils that are collected shall be prepared to the point of curation, identified to the lowest reasonable taxonomic level, and curated into a recognized professional repository (e.g., SDNHM, UCMP), along with associated field notes, photographs, and compiled fossil locality data. Donation of the fossils shall be accompanied by financial support for initial specimen curation and storage. Following the completion of the above tasks, the qualified paleontologist shall prepare a final mitigation report that outlines the results of the mitigation program. This report shall include discussions of the methods used, stratigraphic section(s) exposed, fossils collected, and significance of recovered fossils. The report shall be submitted to appropriate agencies, as well as to the designated repository.	Less than significant
Paleontology	**APM PALEO-2:** If paleontological resources are encountered during ground disturbing activities when the qualified paleontologist (or paleontological monitor) is not on site (an inadvertent discovery), earthwork within the vicinity of the discovery shall immediately halt, and the qualified paleontologist shall evaluate the significance of the fossil discovery. If the fossil discovery is deemed significant, the fossil shall be recovered using appropriate recovery techniques based on the type, size, and mode of preservation of the unearthed fossil. Earthwork may resume in the area of the fossil discovery once the fossil has been recovered and the qualified paleontologist deems the site has been mitigated to the extent necessary.	Less than significant
GHG	**APM GHG-1:** The following measures shall be implemented to minimize greenhouse gas emissions from all construction sites: • If suitable park-and-ride facilities are available in the Project vicinity, construction workers shall be encouraged to carpool to the job site. • Demolition debris shall be recycled for reuse to the extent feasible. • The contractor shall use line power instead of diesel generators at all construction sites where line power is available. • The contractor shall maintain construction equipment per manufacturing specifications.	Less than significant

TABLE ES-1 (CONTINUED)
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Resource Area	Applicant Proposed Measures (APMs) PG&E Construction Measures Avoidance Minimization Measures (AMMs) and Best Management Practices (BMPs) and Mitigation Measures (MMs) Identified in the IS/MND	Significance with Measures Implemented
Hazardous Materials	**APM HAZ-1:** A site-specific SPCCP would be prepared prior to the initiation of construction. In the event of an accidental spill, the Project would be equipped with secondary containment that meets SPCCP Guidelines. The secondary containment would be sufficiently sized to accommodate accidental spills.	Less than significant
Hazardous Materials	**APM HAZ-2:** A HMMP would be prepared and implemented for the Project. The plan would be prepared in accordance with relevant state and federal guidelines and regulations (e.g., Cal/OSHA). The plan would include the following information related to hazardous materials and waste, as applicable: • A list of hazardous materials present on-site during construction and O&M to be updated as needed along with product Safety Data Sheets and other information regarding storage, application, transportation, and disposal requirements; • A Hazardous Materials Communication (i.e., HAZCOM) Plan; • Assignments and responsibilities of Project health and safety roles; • Standards for any secondary containment and countermeasures required for hazardous materials; • Spill response procedures based on product and quantity. The procedures would include materials to be used, location of such materials within the Proposed Project area, and disposal protocols; and • Protocols for the management, testing, reporting, and disposal of potentially contaminated soils or groundwater observed or discovered during construction. This would include termination of work within the area of suspected contamination sampling by an OSHA trained individual and testing at a certified laboratory. The Project would also be equipped with lead-acid batteries to provide backup power for monitoring, alarm, protective relaying, instrumentation and control, and emergency lighting during power outages. Secondary containment would be constructed around and under the battery racks, and the HMMP would address containment from a battery leak. The plan would be provided to the CPUC prior to construction for recordkeeping. Plan updates would be made and submitted as needed if construction activities change whereas the existing plan does not adequately address the Project.	Less than significant
Hazardous Materials	**APM HAZ-3:** In the event that soils suspected of being contaminated (on the basis of visual, olfactory, or other evidence) are removed during site grading activities or excavation activities, the excavated soil shall be tested, and if contaminated above hazardous waste levels, shall be contained and disposed of at a licensed waste facility. The presence of known or suspected contaminated soil shall require testing and investigation procedures to be supervised by a qualified person, as appropriate, to meet state and federal regulations.	Less than significant
Hazardous Materials	**APM HAZ-4:** LSPGC shall implement ongoing fire patrols during the fire season as defined each year by local, state, and federal fire agencies. These dates vary from year to year, generally occurring from late spring through dry winter periods. During Red Flag Warning events, as issued daily by the National Weather Service, all construction/maintenance activities shall cease, with an exception for transmission line testing, repairs, unfinished work, or other specific activities which may be allowed if the facility/equipment poses a greater fire risk if left in its current state. The Proposed Project area is located within an area designated as a Very High or High Fire Hazard Severity Zone; thus, LSPGC will prepare a Construction Fire Prevention Plan prior to construction. All construction/maintenance crews and inspectors shall be provided with radio and cellular telephone access that is operational in all work areas and access routes to allow for immediate reporting of fires. Communication pathways and equipment shall be tested and confirmed operational each day prior to initiating construction/maintenance activities at each work site. All fires shall be reported to the fire agencies with jurisdiction in the area immediately upon discovery of the ignition. All construction/maintenance personnel shall be trained in fire-safe actions, initial attack firefighting, and fire reporting. All construction/maintenance personnel shall be trained and equipped to extinguish small fires in order to	Less than significant

TABLE ES-1 (CONTINUED)
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	prevent them from growing into more serious threats. All construction/maintenance personnel shall carry at all times a laminated card and be provided a hard hat sticker that list pertinent telephone numbers for reporting fires and defining immediate steps to take if a fire starts. Information on laminated contact cards and hard hat stickers shall be updated and redistributed to all construction/maintenance personnel and outdated cards and hard hat stickers shall be destroyed prior to the initiation of construction/maintenance activities on the day the information change goes into effect. Construction/maintenance personnel shall have fire suppression equipment on all construction vehicles. Construction/maintenance personnel shall be required to park vehicles away from dry vegetation. Water tanks, fire extinguishers, and/or water trucks shall be sited or available at active project sites for fire protection during construction. The Applicant shall coordinate with applicable local fire departments prior to construction/maintenance activities to determine the appropriate amounts of fire equipment to be carried on vehicles and, should a fire occur, to coordinate fire suppression activities.	
Hydrology and Water Quality	**APM WQ-1:** Because the Project involves more than an acre of soil disturbance, a SWPPP would be prepared as required by the state NPDES General Permit for Discharges of Stormwater Associated with Construction Activity. This plan would be prepared in accordance with the Water Board guidelines and other applicable erosion and sediment control BMPs. Implementation of the plan would help stabilize disturbed areas and would reduce erosion and sedimentation. The SWPPP would designate BMPs that would be followed during and after construction of the Project, examples of which may include the following erosion-minimizing measures: • Using drainage control structures (e.g., straw wattles or silt fencing) to direct surface runoff away from disturbed areas; • Strictly controlling vehicular traffic; • Implementing a dust-control program during construction; • Restricting access to sensitive areas; • Using vehicle mats in wet areas; or • Revegetating disturbed areas, where applicable, following construction. In areas where soils are to be temporarily stockpiled, soils would be placed in a controlled area and would be managed with similar erosion control techniques. Where construction activities occur near a surface waterbody or drainage channel and drainage from these areas flows towards a waterbody or wetland, stockpiles would be placed at least 100 feet from the waterbody or would be properly contained (such as berming or covering to minimize risk of sediment transport to the drainage). Mulching or other suitable stabilization measures would be used to protect exposed areas during and after construction activities. Erosion-control measures would be installed, as necessary, before any clearing during the wet season and before the onset of winter rains. Temporary measures, such as silt fences or wattles intended to minimize erosion from temporarily disturbed areas, would remain in place until disturbed areas have stabilized.	Less than significant
Hydrology and Water Quality	**APM WQ-2:** Groundwater encountered during construction would be handled and discharged in accordance with all state and federal regulations including the following: • Recovered groundwater would be contained on site and tested prior to discharge; • If testing determines water is suitable for land application, discharge may be applied to flat, vegetated, upland areas, used for dust control, or used in other suitable construction operations (e.g., concrete mixing); • Land application would be made in a manner that discharge does not result in substantial erosion and would not be made directly to receiving waters or storm drains; • Water unsuitable for land application would be disposed of at an appropriately permitted facility; and	Less than significant

TABLE ES-1 (CONTINUED)
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	Discharge to surface waters or storm drains may occur only if permitted by the agency(ies) with jurisdiction over the resource (e.g., USACE, RWQCB, and/or CDFW, as applicable).	
Public Services	**APM PS-1:** LSPGC would coordinate construction activities with local law enforcement and fire protection agencies. Emergency service providers would be notified of the timing, location, and duration of construction activities.	Less than significant
Traffic and Transportation	**APM TRA-1:** LSPGC would prepare a Traffic Control Plan to describe measures to be taken to guide traffic (such as signs and workers directing traffic), safeguard construction workers, provide safe passage, and minimize traffic impacts. LSPGC would follow its standard safety practices as needed, including installing appropriate barriers between work zones and transportation facilities, posting adequate signs, and using proper construction techniques. LSPGC would follow the recommendations in this manual regarding basic standards for the safe movement of traffic on highways and streets in accordance with Section 21400 of the California Vehicle Code. If required for obtaining a local encroachment permit, LSPGC would establish a Traffic Management Plan (TMP) to address haul routes, timing of heavy equipment and building material deliveries, potential street and/or lane closures, signing, lighting, and traffic control device placement. Construction activities would be coordinated with local law enforcement and fire protection agencies. Emergency service providers would be notified as required by the local permit of the timing, location, and duration of construction activities.	Less than significant
Public Utilities	**APM UTIL-1:** The Applicant shall notify all utility companies with utilities located within or crossing the proposed Fern Road Substation Facilities' Rights-of-Way (ROW) to locate and mark existing underground utilities along the entire length of the proposed Fern Road Substation Facilities at least 14 days prior to construction. No subsurface work shall be conducted that would conflict with (i.e., directly impact or compromise the integrity of) a buried utility. In the event of a conflict, areas of subsurface excavation or pole installation shall be realigned vertically and/or horizontally, as appropriate, to avoid other utilities and provide adequate operational and safety buffering. In instances where separation between third-party utilities and underground excavations is less than 5 feet, the Applicant shall submit the intended construction methodology to the owner of the third-party utility for review and approval at least 30 days prior to construction. Construction methods shall be adjusted as necessary to assure that the integrity of existing utility lines is not compromised.	Less than significant
Wildfire	**APM FIRE-1: Construction Fire Prevention Plan** • The purpose and applicability of the Plan • Responsibilities and duties • Preparedness training and drills • Procedures for fire reporting, response, and prevention that include: – Identification of daily site-specific risk conditions – The tools and equipment needed on vehicles and to be on hand at sites – Reiteration of fire prevention and safety considerations during tailboard meetings – Daily monitoring of the red-flag warning system with appropriate restrictions on types and levels of permissible • Coordination procedures with federal and local fire officials • Crew training, including fire safety practices and restrictions • Method(s) for verifying that all Plan protocols and requirements are being followed A project fire marshal or similar qualified role shall be established to enforce all provisions of the Construction Fire Prevention Plan as well as perform other duties related to fire detection, prevention, and suppression for the Proposed Project. Construction activities shall be monitored to ensure implementation and effectiveness of the Plan. **Fire Prevention Practices (Construction and Maintenance)** The Applicant shall implement ongoing fire patrols during the fire season as defined each year by local, state, and federal fire agencies. These dates vary	Less than significant

TABLE ES-1 (CONTINUED)
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	from year to year, generally occurring from late spring through dry winter periods. During Red Flag Warning events, as issued daily by the National Weather Service, all construction/maintenance activities shall cease, with an exception for transmission line testing, repairs, unfinished work, or other specific activities which may be allowed if the facility/equipment poses a greater fire risk if left in its current state. All construction/maintenance crews and inspectors shall be equipped with radio or cellular telephone access that is operational in all work areas and access routes to allow for immediate reporting of fires. Communication pathways and equipment shall be tested and confirmed operational each day prior to initiating construction/maintenance activities at each work site. All fires shall be reported to the fire agencies with jurisdiction in the area immediately upon discovery of the ignition. All construction/maintenance personnel shall be trained in fire-safe actions, initial attack firefighting, and fire reporting. All construction/maintenance personnel shall be trained and equipped to extinguish small fires in order to prevent them from growing into more serious threats. All construction/maintenance personnel shall carry at all times a laminated card and be provided a hard hat sticker that list pertinent telephone numbers for reporting fires and defining immediate steps to take if a fire starts. Information on laminated contact cards and hard hat stickers shall be updated and redistributed to all construction/maintenance personnel, and outdated cards and hard hat stickers shall be destroyed prior to the initiation of construction/maintenance activities on the day the information change goes into effect. Construction/maintenance personnel shall have fire suppression equipment on all construction vehicles. Construction/maintenance personnel shall be required to park vehicles away from dry vegetation. Water tanks and/or water trucks shall be sited or available at active project sites for fire protection during construction. The Applicant shall coordinate with applicable local fire departments prior to construction/maintenance activities to determine the appropriate amounts of fire equipment to be carried on vehicles and, should a fire occur, to coordinate fire suppression activities.	
Wildfire	**APM FIRE-2:** Fires shall be prevented or minimized by exercising care when operating utility vehicles within the right-of-way and access roads and by parking vehicles away from dry vegetation where hot catalytic converters could present the potential to ignite a fire. Fire protective mats or shields would be used during grinding or welding to prevent or minimize the potential for fire. In addition, the following fire prevention measures would be implemented: • Because of the isolated nature of this site, the Proposed Project would develop on-site emergency water storage for fire suppression. The water storage system would include an aboveground metallic tank with no less than 1,000 gallons of storage capacity, as well as a pump and hose to dispense water in an emergency situation. • Livestock grazing, that would be allowed to continue on the property and surround area, prevents fires by reducing flammable fuels in the Proposed Project vicinity. As practicable, livestock grazing programs should be designed and implemented so as to remove grass and forb vegetation immediately adjacent to the Proposed Project site prior to the commencement of fire season (March to September). • Vegetation that is capable of generating flame lengths greater than 12 feet would be evaluated annually and removed from the surface of the transmission line corridor as appropriate. This would include all woody vegetation types whose maximum average canopy exceeds six feet.	Less than significant
Wildfire	**APM FIRE-3:** In response to the need for fire mitigation during prolonged emergency response times, any Proposed Project facilities would be designed and constructed with resistance to wildfire ignition and consummation where feasible	Less than significant

TABLE ES-1 (CONTINUED)
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Wildfire	**APM FIRE-4:** All construction crews and inspectors shall be equipped with radio or cellular telephone access that is operational within the Proposed Project work area to allow for immediate reporting of fires. Fires shall be reported to the fire agencies with jurisdiction in the area upon discovery of the ignition. All construction personnel shall be trained in immediate steps to take if a fire starts, including fire reporting.	Less than significant
Wildfire	**APM FIRE-5:** LSPGC and/or its contractors shall notify applicable local fire departments of construction activities associated with the Proposed Project prior to construction and coordinate with emergency service providers regarding potential ingress and egress constraints that may occur. Prior to construction, an agreement would be in place with agencies providing wildfire response services to the Proposed Project area that would ensure they have access through the gated entrance off Fern Road in case of emergency.	Less than significant
PG&E Construction Measures		
Biological Resources	**AMM-1:** Conduct annual training on habitat conservation plan requirements for employees and contractors performing covered activities in the Plan Area that are applicable to their job duties and work. Tailboard and site-specific training will also be conducted prior to commencing work.	Less than significant
Biological Resources	**AMM-2:** Park vehicles and equipment on pavement, existing roads, or other disturbed or designated areas (barren, gravel, compacted dirt).	Less than significant
Biological Resources	**AMM-3:** Use existing access and ROW roads. Minimize the development of new access and ROW roads, including clearing and blading for temporary vehicle access in areas of natural vegetation.	Less than significant
Biological Resources	**AMM-4:** Route off-road access paths and site work sites to minimize impacts on plants, shrubs, and trees, small mammal burrows, and unique natural features (e.g., rock outcrops).	Less than significant
Biological Resources	**AMM-5:** Notify conservation landowners at least 2 business days prior to conducting covered activities on protected lands (state- or federally owned wildlife areas, ecological reserves, or conservation areas); more notice will be provided if practicable or if required by other permits. If the work is an emergency, as defined in PG&E's Utility Procedure ENV-8003P-01, PG&E will notify the conservation landowner within 48 hours after initiating emergency work. Although this notification is intended only to inform conservation landowner, PG&E will attempt to work with the conservation landowner to address landowner concerns.	Less than significant
Biological Resources	**AMM-6:** Minimize potential for covered species to become trapped, injured, or killed in pipes, culverts, or under materials or equipment. Inspect pipes and culverts wide enough to be entered by a covered species that could inhabit the area where pipes are stored for wildlife species prior to moving pipes and culverts. Contact a biologist if a covered species or other federally-listed species is suspected or discovered.	Less than significant
Biological Resources	**AMM-7:** Vehicle speeds on unpaved roads will not exceed 15 miles per hour. All covered wildlife species. Avoid and minimize direct mortality or injury of covered species that may cross unpaved roads in work sites.	Less than significant
Hazards	**AMM-8:** Prohibit trash dumping, firearms, open fires (such as barbecues), hunting, and pets (except for safety in remote locations) at work sites.	
Wildfire	**AMM-9:** In designated State Responsibility Areas, equip all motorized equipment with federally or state-approved spark arrestors. Ensure a backpack pump filled with water and a shovel and fire-resistant mats and/or windscreens is onsite during welding. During fire "red flag" conditions as determined by the California Department of Forestry and Fire Protection, prohibit welding. Each fuel truck will carry a large fire extinguisher with a minimum rating of 40 B:C. Clear parking and storage areas of all flammable materials.	
Biological Resources	**AMM-10:** Minimize the covered activity footprint and minimize the amount of time spent at a work site to reduce the potential for take of species.	Less than significant

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Water Quality	**AMM-11:** Utilize standard erosion and sediment control BMPs (pursuant to the most current version of PG&E's Stormwater Field Manual for Construction Best Management Practices) to prevent construction site runoff into waterways. All covered aquatic species	Less than significant
Water Quality	**AMM- 12:** Stockpile soil within established work site boundaries and locate stockpiles so as not to enter water bodies, stormwater inlets, other standing bodies of water. Cover stockpiled soil prior to precipitation events**.**	Less than significant
Biological Resources	**AMM-13:** Fit open trenches or steep-walled holes with escape ramps of plywood boards or sloped earthen ramps at each end if left open overnight. Field crews will search open trenches or steep-walled holes every morning prior to initiating daily activities to ensure wildlife is not trapped. Field crews will not handle covered species. If any covered wildlife species is found, work will stop and a biologist will be notified. A biologist with appropriate take permits will relocate the species to adjacent habitat or the species will be allowed to naturally disperse, as determined by a biologist.	Less than significant
Biological Resources	**AMM-14:** If the covered activity disturbs 0.1 acre or more of habitat for a covered species in grasslands, the field crew will revegetate the area with a commercial "weed free" seed mix. (Except in suitable habitat for Mount Hermon June beetle, Ohlone tiger beetle and Zyante band-winged grasshopper.)	Less than significant
Biological Resources	**AMM-15:** Prohibit vehicular and equipment refueling within 250 feet of the edge of wetlands, streams, or waterways. If refueling must be conducted closer to wetlands, construct a secondary containment area subject to review by an environmental field specialist and/or biologist. Maintain spill prevention and cleanup equipment in refueling areas.	Less than significant
Biological Resources	**AMM-16:** Maintain a buffer of 50 feet from the edge of wetlands, ponds, or riparian areas. If maintaining the buffer is not practicable because the covered activity footprint is within the buffered area, other measures as prescribed by the biologist or the HCP administrator to minimize impacts such as flagging access routes or paths, requiring foot access, restricting work until the dry season, or requiring a biological monitor during the activity.	Less than significant
Biological Resources	**AMM-17:** Directionally fall trees away from an exclusion zone, if an exclusion zone has been defined. If this is not practicable, remove the tree in sections. Avoid damage to adjacent trees to the extent practicable. Avoid removal of snags and conifers with basal hollows, crown deformities, and/or limbs more than 6 inches in diameter.	Less than significant
Biological Resources	**AMM-18:** Nests with eggs and/or chicks will be avoided: contact a biologist or the Avian Protection Program Manager for further guidance. Work will be stopped until the crew can obtain clarification from a biologist or the Avian Protection Program Manager on how to proceed.	Less than significant
Biological Resources	**BMP-1: Nesting Birds.** If work is anticipated to occur within the nesting bird season (February—September), nesting birds, including raptors and other species protected under the Migratory Bird Treaty Act, may be impacted. If active nests are discovered, exclusionary measures and or designated avoidance buffers may be required and implemented according to the guidance in the PG&E Nesting Bird Management Plan. For nests discovered during construction, PG&E implements Work Procedure (WP) 2321 to identify and avoid impacts to nesting birds. WP 2321 generally requires assistance from the project biologist to determine if the construction action will impact the nest, and if so, identify whether alternative actions or monitoring can be implemented to avoid impacts. If active nests are observed during construction, crews must immediately alert the PG&E project biologist.	Less than significant

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Biological Resources	**BMP-2:** Identify wetlands, ponds, and riparian areas and establish and maintain a buffer of 50 feet around wetlands, ponds, and riparian areas. If maintaining the buffer is not practicable because the work sites are within any part of the buffered area, the field crew will implement other measures as prescribed by the biologist to minimize habitat impacts. These measures may include flagging access, requiring foot access, restricting work until the dry season, or requiring a biological monitor during the activity. Activities must maintain the hydrology necessary to support the wetland, pond, or riparian area (inclusive of downstream).	Less than significant
Biological Resources	**BMP-3: Ringtail cat (Basariscus astutas) avoidance:** If a ringtail cat is observed on or in a PG&E facility or access road, it will be allowed to leave on its own. If the ringtail does not leave the work area on its own, contact the PG&E Biologist.	Less than significant
Geology and Soils	**BMP-4: Generation of Spoil- Substation**. All spoils generated from within PG&E substations require sampling and shall only be disposed of PG&E approved landfills listed in ERTC Attachment Guide, Section 4, Part 1: ENV-4000P-01-JA15 'Job Aid- PG&E Authorized Disposal & Recycling Facilities'. Spoils from within substations are prohibited from give-away. Copies of all manifests are required to be submitted to the Environmental Lead/Project Environmental Field Specialist (EFS).	Less than significant
Hazardous Materials	**BMP-5: Asbestos.** If any loadbearing structure (poles, towers, concrete pads, etc.) is to be removed by PG&E, this work may require asbestos testing and notification to the local Air District or California Air Resource Board (CARB). Notify the Environmental Field Specialist (EFS) at least 45 calendar days prior to work commencing. The Air District must be notified at least 10 working days prior to work (demolition) commencing, some districts require 14 days. If the construction start date changes, notify the EFS immediately as notification to the Air District may need to be resubmitted. EFS is responsible for obtaining any necessary permits from the air district prior to start of work.	Less than significant
Hazardous Materials	**BMP-6: Combustion Sources.** If project or work involves the installation of a combustion source that may require a local air district permit, please work with the EFS and Air SME to evaluate compliance requirements. Combustion sources, depending on HP or MMBtu rating may require an Authority to Construct Permit prior to any installation activities and a Permit to Operate prior to operating. Typical Combustion Sources that require permits are: • Engines ≤50 HP; • Boilers/Heaters that combust natural gas; and • Flares.	Less than significant
Air Quality	**BMP-7: Fugitive Dust General.** Types work activities where water trucks or other dust abatement methods are typically required include: excavation, trenching, grading, sand blasting, and demolition. The crew shall not allow visible dust to pass beyond the project boundary. The crew shall abate dust by: • Applying water to disturbed areas and to storage stockpiles; • Applying water in sufficient quantities to prevent dust plumes during activities such as clearing & grubbing, backfilling, trenching and other earth moving activities; • Limit vehicle speed to 15 miles per hour; • Load haul trucks with a freeboard (space between top of truck and load) of six inches or greater; • Cover the top of the haul truck load; • Clean-up track-out at least daily; and The crew shall not generate dust in amounts that create a nuisance to wildlife or people, particularly where sensitive receptors such as schools and hospitals are located nearby or down-wind. During inactive periods (e.g. after normal working hours, weekends, and holidays), the crew shall apply water or other approved material to form a visible crust on the soil and restrict vehicle access.	Less than significant

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Resource Area	Applicant Proposed Measures (APMs) PG&E Construction Measures Avoidance Minimization Measures (AMMs) and Best Management Practices (BMPs) and Mitigation Measures (MMs) Identified in the IS/MND	Significance with Measures Implemented
Hazardous Materials	**BMP-8: Hazardous Materials Business Plan.** The Environmental Field Specialist (EFS) shall be notified 30 days prior to a threshold exceeding hazardous material/waste being placed on-site. Threshold limits are: 200 cubic feet of compressed gases (1000 cubic feet for simple asphyxiation or the release of pressure only; carbon dioxide), 500 pounds of solids, or 55 gallons of liquids for more than 30 non-consecutive days. The following jurisdictions require notification for any amount of hazardous material/waste: Counties: Nevada, San Bernardino (waste only), San Francisco, Santa Clara (call for city specific details), Santa Cruz, Yuba (waste only) Cities: Bakersfield (waste only), Berkeley, Healdsburg, Sebastopol, Petaluma, Santa Clara (call for city specific details) NOTE: The Project EFS will develop an HMBP if it is required.	Less than significant
Hazardous Materials	**BMP-9: Hazardous Waste Management Hazardous Materials Storage.** This project may involve the storage of hazardous materials and they must be managed according to regulations and best management practices. • All releases of hazardous materials must be immediately addressed. Maintain a spill kit onsite during the length of the project. Contact the project EFS for spills of hazardous materials/wastes to determine if agency notifications will be required and/or if additional resources are needed. • Hazardous materials, greater than 440 lbs and less than 1001 lbs can be transported on PG&E vehicles if the proper MOT shipping paper/MSDS accompanies the load. Contact the project EFS for additional guidance in these areas. • All hazardous materials containers must be marked correctly. • All hazardous materials signs must be displayed as required. • Non saturated oily rags (to be laundered) stored in non-combustible containers. • Emergency equipment such as fire extinguisher, eye wash, MSDS, etc. on-site. • Hazardous material containers must be in good condition. • All hazardous materials must be compatible with containers. • Hazardous materials containers are kept closed. • Immediately contact the local EFS and stop work if any of the following conditions occur. After hours or if the local EFS is unavailable, please call the Environmental Hotline at 800-874-4043. – Discharge or spill of hazardous substance. – If an Environmental Regulator visits the site; – Visually cloudy/muddy water is observed leaving the work area; – An underground storage tank is discovered; or – A subsurface component related to site remediation activities (e.g., monitoring well, recovery well, injection well) is discovered. No subsurface components may be impacted. • If during excavation unanticipated evidence of contamination is identified (e.g., staining, odors), work must cease and when safe to do so, cover the trench with steel plates. In order to minimize impacts to public safety and the environment, place contaminated soil on a polyethylene sheet (4 ml) and cover or place the contaminated soil in lined covered containers. Then contact your local/support EFS to determine the next steps. If any subsurface components related to site remediation activities (e.g., monitoring well, recovery well, injection well) are discovered in the path of excavation, work must cease in that location and your EFS must be notified to determine the next steps. No subsurface components may be impacted.	Less than significant

TABLE ES-1 (CONTINUED)
ENVIRONMENTAL IMPACTS WITH IMPLEMENTATION OF
APPLICANT PROPOSED MEASURES, PG&E CONSTRUCTION MEASURES AND MITIGATION MEASURES

Resource Area	Applicant Proposed Measures (APMs) PG&E Construction Measures Avoidance Minimization Measures (AMMs) and Best Management Practices (BMPs) and Mitigation Measures (MMs) Identified in the IS/MND	Significance with Measures Implemented
Hazardous Materials	**BMP-10: Sulfur Hexafluoride (SF6) Gas Material/Waste Management.** Before accessing any equipment that may contain SF_6 gas byproduct waste, contact your local Environmental Field Specialist (EFS) at least two weeks in advance for assistance in arranging cleanup, transportation and disposal. PSC will retrieve, package, label and transport SF_6 byproducts. All SF_6 waste that is removed from a Substation must have proper shipping papers which could include a remote waste shipping paper or a manifest (manifests require a temporary EPA ID number). • Substation personnel shall contact PSC to retrieve, package, label, and transport SF_6 byproduct waste (i.e. fluorides of sulfur, metallic fluorides, etc.). All SF_6 byproduct waste that is removed must have proper shipping papers, which could include a remote waste shipping paper or a manifest (manifests require a permanent or temporary EPA ID number). • SF_6 cylinder tracking and facility inventory shall be managed in accordance with Utility Procedure TD-3350P-001. Advanced Specialty Gas (ASG) provides sole-source service in supplying, replacing, removal and recycling of SF_6 in all facilities. ASG provides 24-hour service in response to events involving SF_6 as well as delivery and removal of all SF_6 cylinders. Contact information: https://www.advancedspecialtygases.com.	Less than significant
Hazardous Materials	**BMP-11: SPCC.** The local/support EFS shall be notified 30 days prior to an SPCC triggering event occurs (modification to existing or new storage of >1,320 gallons of oil in containers >55 gallons). If the oil volume is contained in anything greater than 55 gallons, the SPCC Plan must be certified by an engineer. The SPCC containment must be installed prior to moving onsite of quantities requiring containment. The PM number must remain open until the local/support EFS notifies you that the plan is certified by an engineer, and any necessary modifications are complete.	Less than significant
Hydrology and Water Quality	**BMP-12: Stormwater Measures.** For PG&E-owned substations, the Project EFS will provide the Stormwater Group with the following upon completion of the PER: Stormwater Needs Request Form, Soil Disturbance Calculation Spreadsheet, and a KMZ file showing the proposed work area. These documents shall be sent by the Project EFS, via email, to: stormwater@pge.com (if applicable). [Note: LSPGC will obtain the Storm Water Pollution Prevention Plan (SWPPP) for Fern Road Substation and the area immediately adjacent to it containing PG&E's monitoring facilities.]	Less than significant
Hydrology and Water Quality	**BMP-13: PG&E Good Housekeeping,** Stockpile Management, and Small Area Substation Construction Stormwater Management Activity Specific Erosion Sediment Control Plan (A-ESCPs) measures shall be implemented.	Less than significant
Hydrology and Water Quality	**BMP-14: Small Excavation: Construction Dewatering.** Dewatering of trenches or excavations may be required. The Environmental Lead/Project EFS shall be notified at least 30 days in advance to ensure the appropriate dewatering methods are used, proper notifications are made, and, if necessary, applicable authorizations/permits are obtained. All dewatering activities must be coordinated through the Environmental Lead/Project EFS throughout the duration of the project.	Less than significant
Cultural and Tribal Resources	**BMP-15: Inadvertent Cultural Resource Discovery.** If cultural resources are observed during ground-disturbing activities (including, but not limited to flaked stone tools (projectile point, biface, scraper, etc.) and debitage (flakes) made of chert, obsidian, etc., groundstone milling tools and fragments (mortar, pestle, handstone, millingstone, etc.), faunal bones, fire-affected rock, dark middens, housepit depressions and human interments, small cemeteries or burial plots, cut (square) nails, containers or miscellaneous hardware, glass fragments, cans with soldered seams or tops, ceramic or stoneware objects or fragments, milled or split lumber, earthworks, feature or structure remains and trash dumps), the following procedures will be followed: • Stop all ground disturbing work within 100 feet of the discovery location to avoid impacts.	Less than significant

TABLE ES-1 (CONTINUED)
ENVIRONMENTAL IMPACTS WITH IMPLEMENTATION OF
APPLICANT PROPOSED MEASURES, PG&E CONSTRUCTION MEASURES AND MITIGATION MEASURES

Resource Area	Applicant Proposed Measures (APMs) PG&E Construction Measures Avoidance Minimization Measures (AMMs) and Best Management Practices (BMPs) and Mitigation Measures (MMs) Identified in the IS/MND	Significance with Measures Implemented
	• Immediately notify a PG&E Cultural Resource Specialist who will assess the discovery. • Leave the site or the artifact untouched. • Record the location of the resource, the circumstances that led to discovery, and the condition of the resource. • Do not publicly reveal the location of the resource and ensure the location is secured. • If unsure about the significance or antiquity of a discovery, photograph the artifact or feature with a scale (e.g., coin, tape measure, etc.) and send to a PG&E Cultural Resource Specialist for review. Comprehensive guidance on the protocol related to an inadvertent discovery of potentially significant cultural resources on a job site can be found in Utility Standard ENV-8005S or by consulting a PG&E Cultural Resource Specialist.	
Cultural and Tribal Resources	**BMP-16: Human Remains Protocol.** Section 7050.5 of the California Health and Safety Code (CHSC) states that it is a misdemeanor to knowingly disturb a human burial. In keeping with the provisions provided in 7050.5 CHSC and Public Resource Code 5097.98, if human remains are encountered (or are suspected) during any project-related activity: • Stop all work within 100 feet; • Immediately contact a PG&E Cultural Resource Specialist (CRS), who will notify the county coroner; • Secure location, but do not touch or remove remains and associated artifacts; • Do not remove associated spoils or pick through them; • Record the location and keep notes of all calls and events; and Treat the find as confidential and do not publicly disclose the location. Upon discovery of cultural resources or suspected human remains, contact the Cultural Resources Specialist.	Less than significant
Cultural and Tribal Resources	**BMP-17: Worker Awareness Training.** Prior to the start of any ground-disturbing activity, PG&E's Cultural Resource Specialist (CRS) shall prepare archeological, historical and paleontological resources sensitivity training materials for use during a Project-wide Worker Environmental Awareness Training (WEAP), or equivalent. The CRS shall make the training materials available for review and comment by the Native American group that expressed interest in the project. The WEAP shall be conducted by a qualified environmental trainer working under the supervision of the CRS. In the event construction crews are phased, additional trainings shall be conducted for new construction personnel. The training session shall focus on the recognition of the types of resources that could be encountered within the Project site and the procedures to be followed if they are found. PG&E and/or its contractor shall retain documentation demonstrating that all construction personnel attended the training prior to the start of work on the site, which documentation shall be made available upon request.	Less than significant
Applicable to all	**BMP-18: Nighttime Construction.** PG&E will provide advance notice to CPUC if nighttime construction is planned in advance.	Less than significant
Air Quality	**BMP-19: Construction Equipment Air Quality.** PG&E will ensure that at least 41 percent of the on-site construction equipment associated with the PG&E interconnection facilities and distribution modifications include Tier 4 interim emissions controls and Level 3 diesel particulate filters by including this requirement in its contractor or internal specifications, with confirmation of the requirement provided to the CPUC. The hourly usage of diesel equipment that does not meet this standard shall be documented, with the logs available upon request.	Less than significant
Biological Resources	**BMP-20: Bat-Safe Tree Removal.** If tree removal or trimming is necessary, PG&E will follow the procedures identified in Mitigation Measure BIO-1.	Less than significant

TABLE ES-1 (CONTINUED)
ENVIRONMENTAL IMPACTS WITH IMPLEMENTATION OF
APPLICANT PROPOSED MEASURES, PG&E CONSTRUCTION MEASURES AND MITIGATION MEASURES

Resource Area	Applicant Proposed Measures (APMs) PG&E Construction Measures Avoidance Minimization Measures (AMMs) and Best Management Practices (BMPs) and Mitigation Measures (MMs) Identified in the IS/MND	Significance with Measures Implemented
Biological Resources	**BMP-21: APLIC Guidance.** PG&E will consider and incorporate Avian Power Line Interaction Committee (APLIC) design recommendations (2006, 2012), as applicable, for its 500 kV transmission line. For its distribution lines, conductors will be upgraded to tree-wire and all energized metallic parts will be covered, thereby eliminating or greatly minimizing the risk of bird collision or electrocution; and ensuring that any impacts would be less than significant.	Less than significant
CEQA Mitigation Measures		
Air Quality	**Mitigation Measure AQ-1:** LSPGC shall ensure that 41 percent of equipment horsepower-hours related to the on-site construction equipment associated with the Fern Road Substation Facilities include Tier 4 interim emissions controls and Level 3 diesel particulate filters. An initial listing that identifies each off-road unit's certified tier specification and diesel particulate filter status to be operated at the Fern Road Substation Facilities, shall be submitted to the CPUC for review before the start of construction activities at those sites. Construction activities at the Fern Road Substation Facilities shall not begin until the equipment listing has been submitted to the CPUC. As LSPGC requires new or replacement construction equipment at the Project sites, LSPGC shall document verification of the certified engine tier or Level 3 diesel particulate filters before their use on those Project sites. Before the start of construction, LSPGC shall develop a diesel-powered equipment-use hours tracking tool and procedure. The tracking tool shall be utilized by LSPGC (and/or its construction contractor[s]) to keep track of the certified engine tier and daily equipment use hours of all off-road diesel-powered equipment. If all diesel-powered equipment is Tier 4 certified with Level 3 diesel particulate filters, the tracking tool is not required. The tracking tool shall be maintained by LSPGC and tracking updates shall be submitted to CPUC on a monthly basis to track the Project's compliance. The updated tracking tool shall be submitted to the CPUC no later than the 10th day of the following month.	Less than significant
Biological Resources	**Mitigation Measure BIO-1: Bat-Safe Tree Removal.** A qualified biologist shall conduct a pre-construction survey for roosting bats in trees to be removed or pruned. If no roosting bats are found, no further action is required. If a bat roost is found, the following measures shall be implemented to avoid impacts on roosting bats. If active maternity roosts are found in trees to be removed as part of construction, tree removal shall commence before maternity colonies form (generally before March 1) or after young are flying (generally by July 31). Active maternal roosts shall not be disturbed. If a non-maternal roost of bats is found in a tree to be removed as part of construction, the individuals shall be safely evicted, under the direction of a qualified biologist and with approval from California Department of Fish and Wildlife. Removal of the tree should occur no sooner than two nights after the initial minor site modification (to alter airflow), under guidance of the qualified biologist. The modifications shall alter the bat habitat, causing bats to seek shelter elsewhere after they emerge for the night. On the following day, the tree may be removed, in presence of the biologist. If any bat habitat is not removed, departure of bats from the construction area shall be confirmed with a follow-up survey prior to start of construction.	Less than significant
Noise	**Mitigation Measure NOI-1:** Based on the locations where blasting is needed, the blasting contractor shall estimate noise levels at nearby receptors from blasting events using methods established by the former U.S. Bureau of Mines. The charge weight used for blasting shall be adjusted such that predicted noise levels at nearby receptors shall be less than 133 dB(L), which is the regulatory limit defined by the U.S. Bureau of Mines for air-overpressure measured with 2-Hz response seismographs.	Less than significant

TABLE ES-1 (CONTINUED)
ENVIRONMENTAL IMPACTS WITH IMPLEMENTATION OF
APPLICANT PROPOSED MEASURES, PG&E CONSTRUCTION MEASURES AND MITIGATION MEASURES

Resource Area	Applicant Proposed Measures (APMs) PG&E Construction Measures Avoidance Minimization Measures (AMMs) and Best Management Practices (BMPs) and Mitigation Measures (MMs) Identified in the IS/MND	Significance with Measures Implemented
Noise	**Mitigation Measure NOI-2:** Based on the location where blasting is needed, the blasting contractor shall estimate vibration levels at nearby receptors from blasting events using methods established by the former U.S. Bureau of Mines. The charge weight used for blasting shall be adjusted such that predicted vibration levels at receptors shall not exceed the more conservative limit of 0.3 in/sec PPV published by Caltrans.	Less than significant

Required Approvals

The CPUC is the lead state agency for the Project under CEQA because a PTC is required in accordance with Section III.B of CPUC General Order 131-D. General Order 131-D contains the permitting requirements for the construction of transmission and power line facilities. In addition to the PTC, the Applicant would obtain all applicable permits for the Project from federal, state, and local agencies. **Table ES-2** provides the potential permits and approvals that may be required for Project construction.

TABLE ES-2
ANTICIPATED PERMIT, APPROVAL, AND CONSULTATION REQUIREMENTS

Permit/Approval/Consultation	Agency	Jurisdiction/Purpose
State Agencies		
Section 401 of the Federal Clean Water Act,	Central Valley RWQCB	Clean Water Act, Section 401 water quality certification
National Pollutant Discharge Elimination System General Permit for Discharge of Construction Related Stormwater	State Water Resources Control Board	As directed by the State Water Resources Control Board, monitor development and implementation of SWPPPs and other aspects of the National Pollutant Discharge Elimination System permit SWPPPs are required for stormwater discharges associated with construction activities that disturb more than 1 acre of land.
California Public Utilities Code Section 1001 et seq. and CPUC General Order 131-D, Permit to Construct	California Public Utilities Commission	Compliance with General Order 131-D for substation and transmission line facilities and CEQA review and overall approval of the proposed project, including approval of a Permit to Construct.
Local/Regional Agencies		
Encroachment and Traffic Control Permit	Shasta County	Construction within the public right-of-way, specifically within Fern Road.
Building and Grading Permits (non-discretionary)	Shasta County	Construction of the control enclosure (building permit) and grading/fill for STATCOM substation pad (grading permit).
Subdivision Map Act	Shasta County	Authorization to subdivide private property.
Road Emissions Permit	Shasta County Air Pollution Control District	Control dust from unpaved roads.

NOTES: CEQA = California Environmental Quality Act; CPUC = California Public Utilities Commission; STATCOM = static synchronous compensator; SWPPP = storm water pollution prevention plan

SOURCE: LSPGC, 2022a.

Environmental Determination

On the basis of this initial evaluation:

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

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

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

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

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

Based upon an Initial Study, it is determined that the proposed Project WOULD NOT HAVE a significant effect on the environment with the incorporation of the Applicant Proposed Measures and mitigation measures (attached). The Initial Study/Mitigated Negative Declaration is available for review at the CPUC, 505 Van Ness Avenue, San Francisco, California 94102.

5/11/23

Boris Sanchez
Project Manager
California Public Utilities Commission

Date

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CHAPTER 1
Introduction

On April 6, 2022, LS Power Grid, California, LLC (LSPGC or Applicant) submitted a Permit to Construct (PTC) application (A-22-04-004) for the Round Mountain 500-Kilovolt (kV) Dynamic Reactive Support Project (Project). On May 6, 2022, the California Public Utilities Commission (CPUC) Energy Division determined that the PTC application was complete.

LSPGC proposes to construct and operate the Fern Road Substation, consisting of a +/- 529-million-volt-ampere,[1] reactive (MVAR) dynamic reactive device to be installed in a minimum of two equally sized static synchronous compensator (STATCOM) units and ancillary components. The Fern Road Substation would be independently connected through the LSPGC–owned and operated 500 kV substation to the existing Pacific Gas and Electric Company (PG&E) Gates Substation via the existing Round Mountain–Table Mountain #1 and #2 500 kV transmission lines as described in further detail in Chapter 2, *Project Description*.

For the purpose of this California Environmental Quality Act (CEQA) analysis, the Project includes both the Fern Road Substation Facilities proposed by LSPGC and the PG&E Facilities. The Project was identified by the California Independent System Operator Corporation (CAISO) to ensure the reliability of the CAISO-controlled grid. CPUC will use the information in this CEQA document to inform its decision whether to approve the LSPGC application to construct and operate the Fern Road Substation only. The construction and operation of the PG&E Facilities, though analyzed in this CEQA document, are not considered part of CPUC's LSPGC application decision.

1.1 CEQA Process

Pursuant to the requirements of CEQA, the CEQA Guidelines, and CPUC General Order 131-D, CPUC prepared an Initial Study and Mitigated Negative Declaration (IS/MND) to evaluate the potential environmental impacts of the Project and identify mitigation measures to reduce potentially significant impacts.

As stated in Public Resources Code Section 21064.5, an MND may be prepared when:

> *[T]he initial study (IS) has identified potentially significant effects on the environment, but: (1) revisions in the project plans or proposals made by, or agreed to by, the applicant would avoid the effects or mitigate the effects to a point where clearly no significant effect on the environment would occur, and*

[1] In this document, the designation "+/-" indicates both leading (capacitive) and lagging (inductive) reactive power.

> *(2) there is no substantial evidence in light of the whole record before the public agency that the project, as revised, may have a significant effect on the environment.*

CPUC has determined, based on the results of the IS, that the appropriate type of CEQA documentation for this Project is an MND.

This IS/MND identifies the Project's potential environmental effects, evaluates the level of significance of each impact under CEQA, and identifies the mitigation measures agreed to by LSPGC and PG&E that would avoid or reduce the impacts of the Project to levels that would be less than significant. Specifics of the Project described and analyzed in the IS/MND are based on LSPGC's Application for a PTC, the Proponent's Environmental Assessment (LSPGC 2022a), and LSPGC and PG&E responses to CPUC data requests (SLPGC 2022b, 2022c; PG&E 2022a, 2022b, 2022c). This information is intended to describe construction, operation, and maintenance requirements and activities to inform an analysis of the Project's environmental effects, using the questions from the checklist in CEQA Guidelines Appendix G.

1.2 Public Review Process

On May 26, 2023, CPUC filed a notice of completion (NOC) with the Governor's Office of Planning and Research, State Clearinghouse; published a notice of intent (NOI) to adopt an MND; and released this Draft IS/MND for a 30-day public and agency review period. As outlined in **Appendix A**, the Draft IS/MND was distributed to federal, state, and local agency representatives, and the NOI was distributed to property owners within 1,000 feet of the Project and to other interested organizations and individuals. Legal notice will appear in the *Redding Record Searchlight* on May 26, 2023, and June 2, 2023, announcing the availability of the Draft IS/MND for public review in compliance with CEQA.

On May 26, 2023, CPUC mailed a notice to relevant agencies, organizations, and individuals residing in the Project area, announcing that the Draft IS/MND was available for public review (recipients are identified in Appendix A). CPUC established a Project website, https://ia.cpuc.ca.gov/environment/info/esa/roundmountain/index.html, to provide information about the Project and the CEQA process, including the IS/MND, estimated schedule, public comment period, and other Project details. Additionally, a Project voice mail phone number, (707) 796-7012, and email address, RndMnt@esassoc.com, are available to enable the public to send queries to the CPUC CEQA team and comment on the Draft IS/MND.

CPUC is accepting input on this Draft IS/MND from stakeholder agencies, the public, and other interested parties during a formal review period. In accordance with Section 15105(b) of the CEQA Guidelines, the public review and comment period begins on May 26, 2023, and ends at 5:00 p.m. on June 26, 2023. Copies of all written comments on the Draft IS/MND received during this comment period will be included in the Final IS/MND. No in-person or virtual public meeting or workshop is planned for the Project.

The Draft IS/MND will be available for a 30-day public comment period: May 26, 2023, through June 26, 2023. The public may submit written comments regarding the Project and the adequacy

of the Draft IS/MND. Written comments on the Draft IS/MND must be postmarked or received by email no later than Monday, June 26, 2023, at 5:00 pm. Commenters should be sure to include their names, addresses, and telephone numbers in all correspondence. Note: submitted comments become part of the public record.

Written comments on the Draft IS/MND should be sent to:

CPUC c/o ESA
Attn.: Michael Manka/Round Mountain Project
1425 N. McDowell Blvd., Suite 200
Petaluma, CA 94954
RndMnt@esassoc.com

Copies of the Draft IS/MND will be available for public review on the Project website: https://ia.cpuc.ca.gov/environment/info/esa/roundmountain/index.html. This website will be used to post all public documents during the environmental review process. Printed copies or CD copies of the Draft IS/MND may be requested by email at RndMnt@esassoc.com.

Project information repositories include the following public libraries:

Oak Run Community Library	Shasta Public Libraries–Redding Library
27480 Oak Run to Fern Rd.	1100 Parkview Ave
Oak Run, CA 96069	Redding, CA 96001
Phone: (530) 472-1211	Phone: (530) 245-7250

1.3 California Public Utilities Commission Jurisdiction

CPUC has sole and exclusive state jurisdiction over the siting and design of the Project. Pursuant to CPUC General Order No. 131-D, Section XIV.B:

> *Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters*.

Consequently, public utilities are directed to consider local regulations and consult with local agencies, but the counties' and cities' land use regulations are not applicable to the Project because local jurisdictions do not have jurisdiction over the Project. Accordingly, the discussion of local regulations in this IS/MND is provided for informational purposes only.

As stated in the introductory text of this chapter, CPUC's decision on the Project is whether to approve the LSPGC application to construct and operate the Fern Road Substation Facilities only. The construction and operation of the PG&E Facilities, though analyzed in this CEQA document, are not considered part of CPUC's LSPGC application decision.

1.4 References

L.S. Power Grid, LLC (LSPGC). 2022a. *Proponent's Environmental Assessment Application of LS Power Grid California, LLC for Permit to Construct the Round Mountain 500 kV Dynamic Reactive Support Project*. April 6, 2022.

———. 2022b. Response to Data Request #2 for the Round Mountain 500 kV Dynamic Reactive Support Project. July 29, 2022.

———. 2022c. Response to Data Request #2 for the Round Mountain 500 kV Dynamic Reactive Support Project. August 11, 2022.

Pacific Gas and Electric Company (PG&E). 2022a. Response to Data Request #1 for the Round Mountain 500 kV Dynamic Reactive Support Project. July 6, 2022.

———. 2022b. Response to Data Request #3 for the Round Mountain 500 kV Dynamic Reactive Support Project. July 29, 2022.

———. 2022c. Response to Data Request #5 for the Round Mountain 500 kV Dynamic Reactive Support Project. September 1, 2022.

CHAPTER 2
Project Description

2.1 Introduction

LS Power Grid California, LLC (LSPGC or Applicant), in its California Public Utilities Commission (CPUC) application (A-22-04-004) filed on April 6, 2022 (LSPGC 2022a), requests a Permit to Construct (PTC) the Round Mountain 500-Kilovolt (kV) Dynamic Reactive Support Project. The application includes the Proponent's Environmental Assessment (PEA) prepared pursuant to Rule 2.4 of CPUC's Rules of Practice and Procedure.

If the PTC is approved, LSPGC would construct and operate the proposed Fern Road Substation. The substation would consist of a +/- 529-million-volt-ampere,[1] reactive (MVAR) dynamic reactive device installed in a minimum of two equally sized static synchronous compensator[2] (STATCOM) units. The Fern Road Substation would be independently connected through the LSPGC–owned and operated 500 kV substation to Pacific Gas and Electric Company's (PG&E's) regional electric transmission system via the existing Round Mountain–Table Mountain #1 and #2 500 kV transmission lines that are located adjacent to the Fern Road Substation site.

For the purpose of this California Environmental Quality Act (CEQA) analysis, the Project includes both the proposed Fern Road Substation Facilities and the PG&E Facilities described in this chapter. The Project was identified by the California Independent System Operator Corporation (CAISO) to ensure the reliability of the CAISO-controlled grid. CPUC will use the information in this CEQA document to inform its decision whether to approve the LSPGC application to construct and operate the proposed Fern Road Substation only. The construction and operation of the PG&E Facilities, though analyzed in this CEQA document, are not considered part of CPUC's LSPGC application decision.

2.1.1 Project Objectives

The Project is proposed to address CAISO-identified reliability issues as described in Section 2.3.1, *Existing System Reliability*. The purpose of the Project is to provide dynamic reactive support at the PG&E Round Mountain Substation, a 500 kV level regional substation in Shasta County, California. The Applicant has identified the following objectives for the Project:

(1) Ensure the reliability of a major portion of the CAISO-controlled grid.

[1] In this document, the designation "+/-" indicates both leading (capacitive) and lagging (inductive) reactive power.

[2] A STATCOM device provides or absorbs reactive current to regulate voltage on electricity transmission networks.

(2) Provide cost-effective voltage control and other electric transmission grid benefits.

(3) Support the provision of safe, reliable, and adequate electricity service to the PG&E service territory.

(4) Facilitate the importation and use of renewable electricity to fulfill California's energy policies and goals by ensuring reliable operation of the grid.

2.2 Project Location

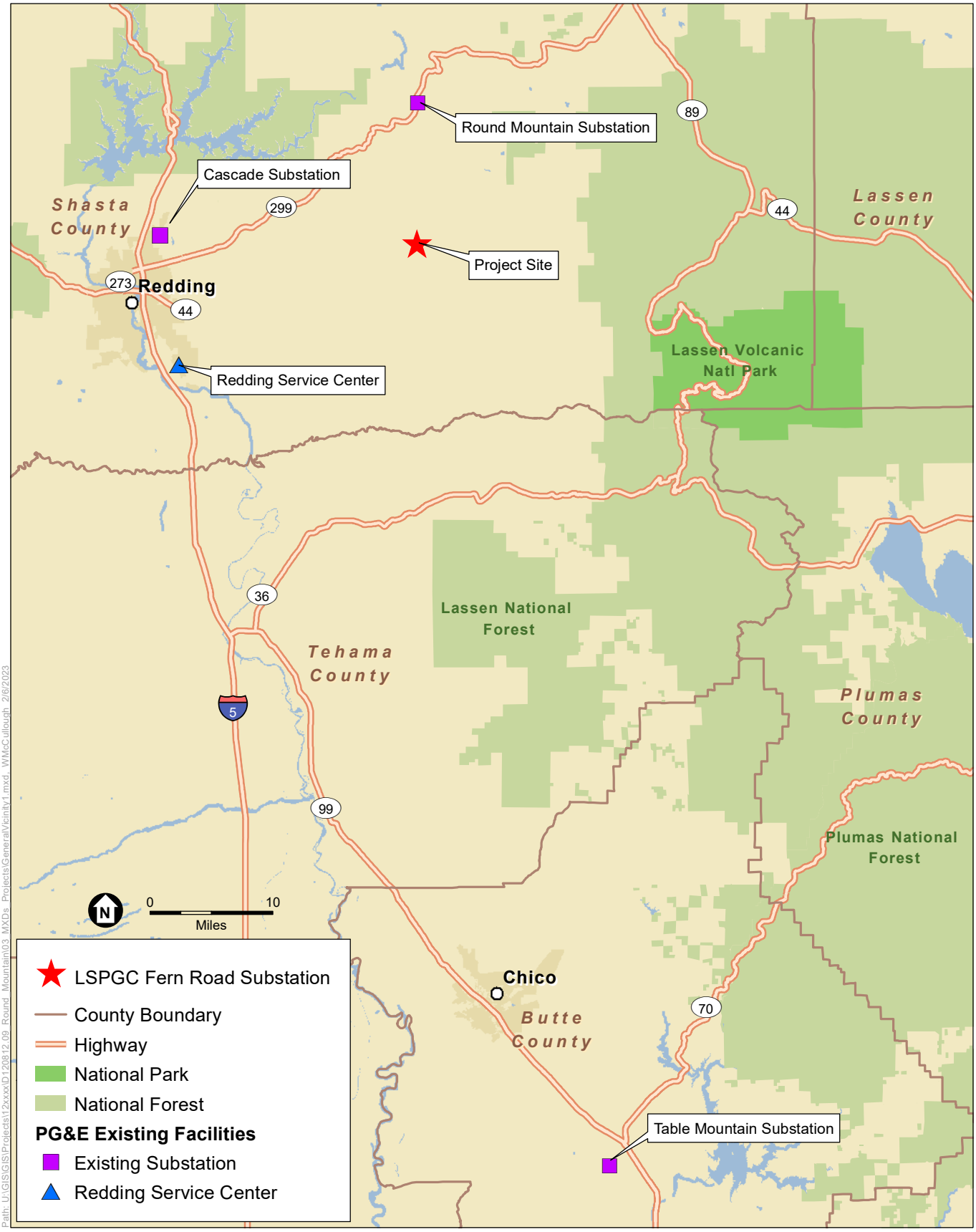
The Applicant would construct, operate, and decommission the proposed Fern Road Substation on an approximately 40-acre undeveloped site located in Shasta County, California, east of Fern Road and the existing PG&E transmission right-of-way (ROW), approximately 1.6 miles northwest of the unincorporated community of Whitmore and 9.3 miles north of State Route 44. The site of the proposed Fern Road Substation is within an existing regional transmission system directly adjacent to the Round Mountain–Table Mountain #1 and #2 500 kV transmission line corridor. The surrounding area is used primarily for agriculture.

The Project also includes several upgrades that would be conducted by PG&E, collectively referred to in this document as the *PG&E Facilities*. The PG&E Facilities include substation upgrades at its Round Mountain and Table Mountain substations, respectively located in Round Mountain, Shasta County, and north of Oroville, Butte County. The upgrades to the PG&E Facilities would also include installation of microwave towers or monopoles at its existing PG&E Redding Service Center and Cascade Substation located in Redding, and distribution modifications along Fern Road and adjacent to the Fern Road Substation site. See **Figure 2-1**, *General Vicinity*, for the general locations of the Project components.

2.3 Existing System

The Project would connect the PG&E-proposed Fern Road Substation to the existing regional transmission system. Electric supply to the greater North Valley area is provided primarily by hydroelectric and renewable power generation, several market facilities, and a few qualifying generation facilities. The North Valley area's electric transmission system comprises 60 kV, 115 kV, 230 kV, and 500 kV transmission facilities (CAISO 2018). The 500 kV system is part of the Pacific Alternating Current Intertie (PACI) between California and the Pacific Northwest. The 230 kV system complements the PACI and runs from north to south, with connections to various renewable generation facilities. The 115 kV and 60 kV systems serve local electrical demand in the North Valley area. The North Valley area's internal transmission system connects to the Humboldt and Sierra areas via the PG&E Cottonwood, Table Mountain, Palermo, and Rio Oso substations (CAISO 2018).

The existing system in the greater North Valley area also includes numerous existing PG&E overhead electric distribution line circuits that serve the immediate area, including the existing distribution line circuit located west of Fern Road that would provide backup power to the proposed Fern Road Substation. PG&E also has several generation facilities (hydroelectric) that feed into the local PG&E substations.



SOURCE: LS Power Grid California LLC, 2022; ESRI, 2022

Round Mountain 500 kV Area Dynamic Reactive Support Project

Figure 2-1
General Vicinity

ESA

2.3.1 Existing System Reliability

Studies prepared by CAISO determined that high-voltage issues at the PG&E Round Mountain 500 kV substation frequently occur under non-peak conditions when the PACI flows are lower. High-voltage issues have resulted in limited opportunities for transmission line clearances[3] to complete maintenance work on the existing transmission system. In some cases, transmission line clearances have been canceled to address voltage issues. In addition to the high-voltage issues under light loading conditions, the Round Mountain Substation's bus voltage varies significantly on a daily basis as the output of solar generation in California results in PACI flow changes. These hourly voltage fluctuations are expected to increase in the future with more solar integration in California and the expansion of the Western Energy Imbalance Market in the Pacific Northwest.

Adding voltage support in the area would alleviate both voltage issues described above. A dynamic device with both reactive and capacitive range, implemented to support the PG&E Round Mountain Substation, would enable system operations to set pre-contingency system voltages at lower levels to support the post-contingency reactive power injection at the Round Mountain 500 kV bus, and would support the voltage with acceptable ranges for normal operations. As such, the CAISO identified the need for additional dynamic reactive support to both absorb reactive power under normal system conditions and supply reactive power with contingencies as needed.

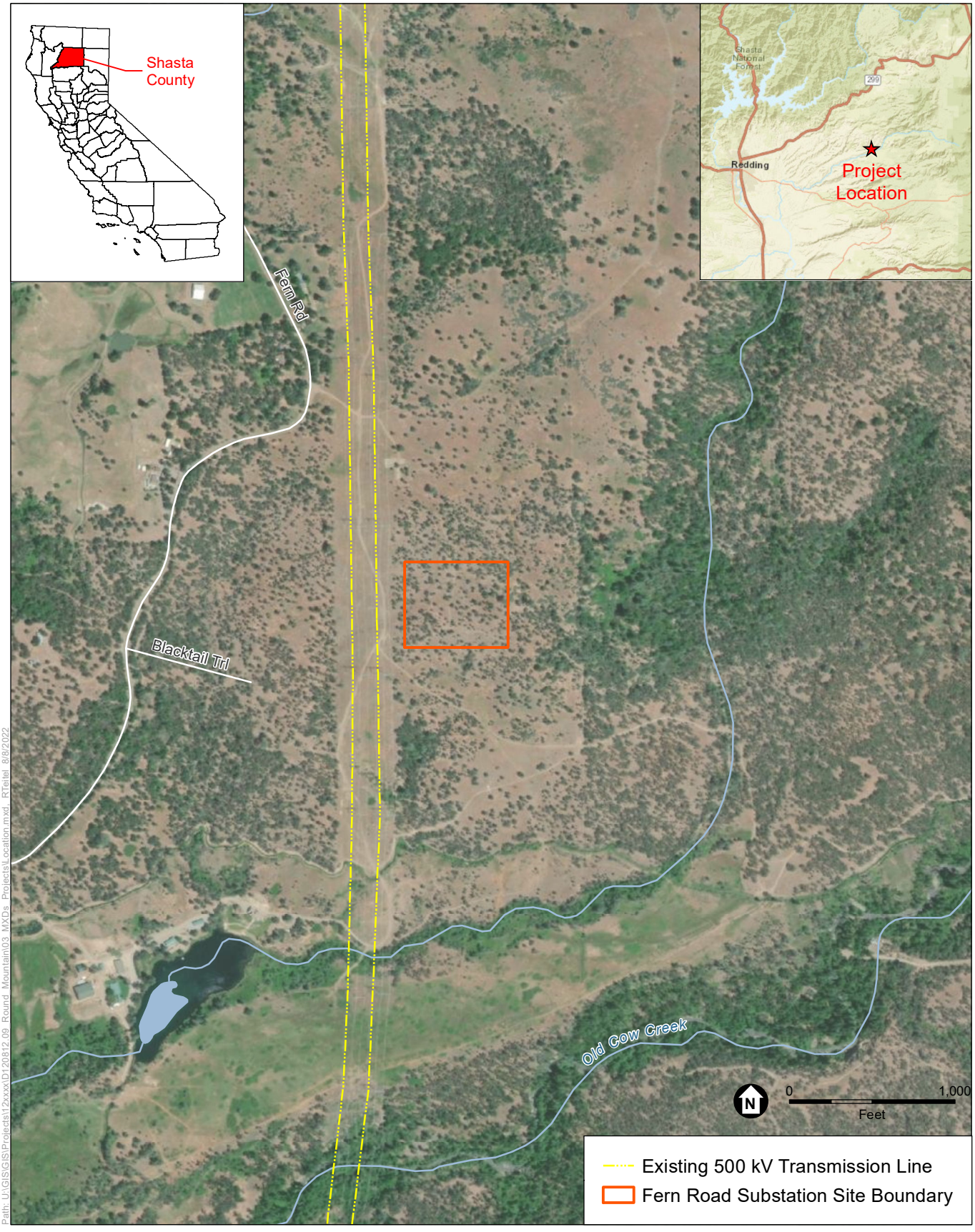
The Project was developed in response to the CAISO-identified reliability issues and would alleviate voltage support issues by providing system stability and reliability for the greater North Valley area. The Project is specified to include two independent blocks of dynamic reactive support to further enhance system reliability.

2.4 Project Overview

The Applicant would construct the proposed Fern Road Substation, providing approximately +/-529 MVAR dynamic reactive capability to be installed in a minimum of two STATCOM units. See **Figure 2-2**, *Proposed Fern Road Substation Location*, for the location of the Fern Road Substation.

The Project would have a rated real power output of zero megawatts (MW) and a nominal terminal voltage of 500 kV. Therefore, the Project would not increase capacity, but would provide voltage support and grid stability at the PG&E Round Mountain Substation 500 kV buses. See **Figure 2-3**, *Project Overview in Vicinity of Fern Road Substation Site*, for an illustration of the Project components relative to existing general features at and near the Fern Road Substation site.

[3] A transmission line "clearance" refers to the procedure of deenergizing a specific transmission line so that maintenance and facility improvement activities can be conducted safely.

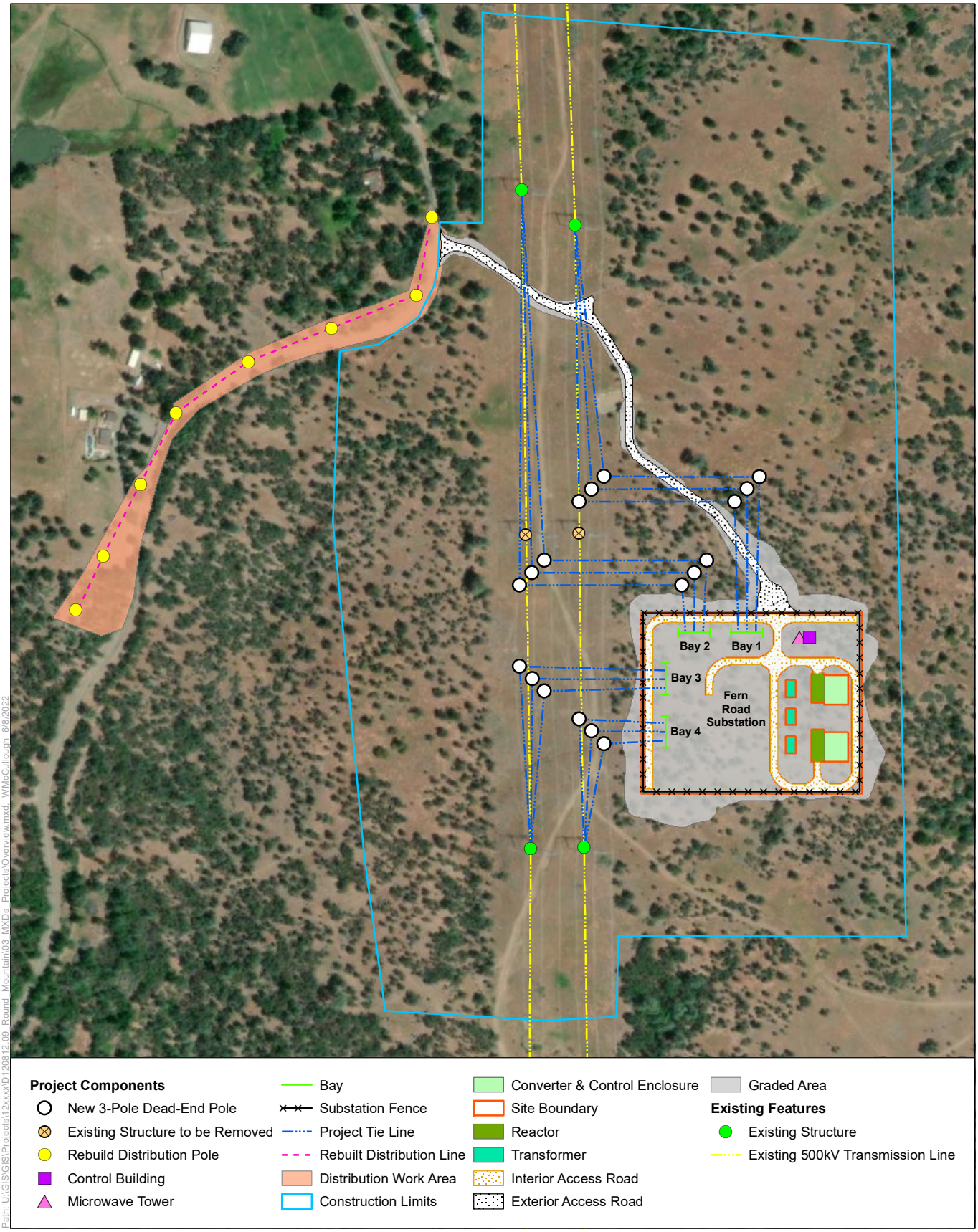


SOURCE: LS Power Grid California LLC, 2022a; ESRI, 2022

Round Mountain 500 kV Area Dynamic Reactive Support Project

Figure 2-2
Proposed Fern Road Substation Location

ESA



SOURCE: LS Power Grid California LLC, 2022a; ESRI, 2022

Round Mountain 500 kV Area Dynamic Reactive Support Project

Figure 2-3
Project Overview in Vicinity of Fern Road Substation Site

ESA

As described in Section 2.1, *Introduction*, the Project includes two types of facilities: the LSPGC-proposed Fern Road Substation Facilities and the PG&E Facilities. This CEQA document has been developed to inform CPUC's decision on whether to approve, approve with modifications, or deny LSPGC's application to construct and operate the proposed Fern Road Substation Facilities. The PG&E Facilities are analyzed in this CEQA document because, combined with the proposed Fern Road Substation Facilities, they constitute the Project being evaluated under CEQA. However, the PG&E Facilities are not part of this application proceeding and would not be authorized under this specific CPUC decision. To facilitate CPUC decision-making, the two major facility types are described in separate subsections below.

2.4.1 Proposed Fern Road Substation Facilities

Section 2.5 describes the primary components, construction, operation and maintenance (O&M), and decommissioning of the proposed Fern Road Substation Facilities, which include the proposed Fern Road Substation, access road, belowground conductor/cable, and telecommunication lines. Section 2.5 also presents the Applicant Proposed Measures (APMs), ROW requirements, and a summary of electrical and magnetic fields (EMFs) for the Fern Road Substation.

2.4.2 PG&E Facilities

Section 2.6 describes the PG&E Facilities, including the interconnection facilities required to connect the proposed Fern Road Substation to the PG&E Round Mountain Substation and the regional electrical grid. The interconnection is essential for the Fern Road Substation to provide the dynamic reactive support necessary for the region. The upgrades to the PG&E Facilities would also include electrical upgrades to the PG&E Round Mountain and Table Mountain substations, grid monitoring facilities at the Fern Road Substation, and microwave installations at the existing PG&E Redding Service Center and Cascade Substation.

2.5 Fern Road Substation Facilities

2.5.1 Fern Road Substation Facilities Components

2.5.1.1 Fern Road Substation

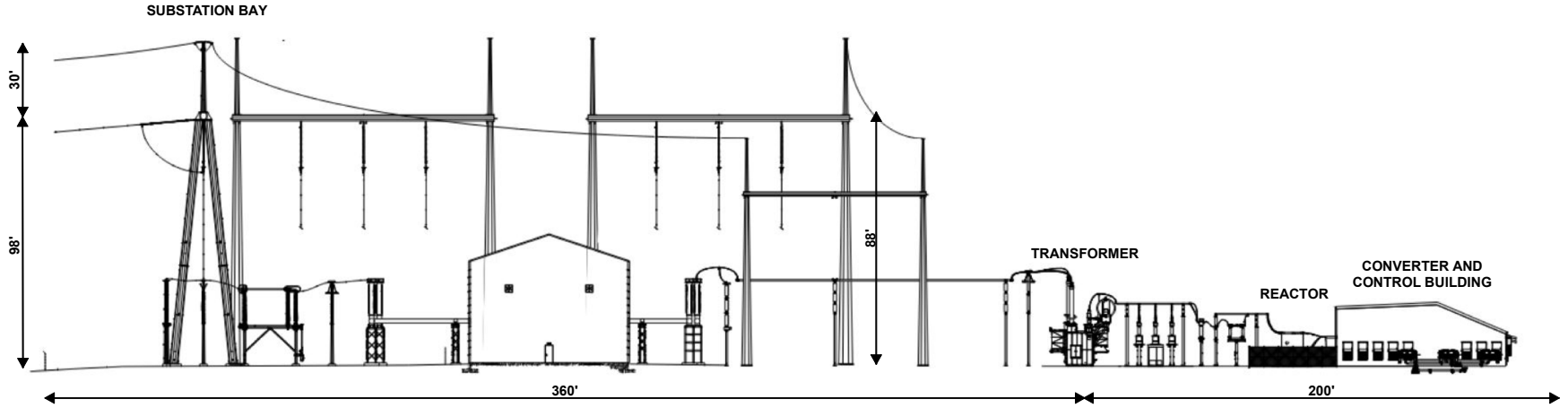
LSPGC's proposed Fern Road Substation would include the two STATCOM units with a 500 kV switchyard and associated facilities, occupying a total of approximately 7.5 acres. Ancillary facilities, including an access road and parking, would require additional grading and disturbance of approximately 3 acres. The Fern Road Substation would have a rated real power output of 0 MW and a nominal terminal voltage of 500 kV. The STATCOM units would not increase the capacity of the regional electric transmission system. Within the fence line of the Fern Road Substation would be a small approximately 0.5-acre area for the PG&E Facilities to monitor grid operations (see Section 2.6.1 for further details).

Figure 2-4, *Fern Road Substation Profile*, provides a vertical depiction of the proposed substation including the approximate heights of various substation components. In addition,

Figure 2-5, *Fern Road Substation Diagram*, provides a schematic diagram that shows points of change of ownership from PG&E to LSPGC for the Fern Road Substation.

The proposed STATCOM units and associated facilities would be constructed within the new proposed Fern Road Substation, which would include the following components:

- Lightning shielding masts.
- Nine 500 kV sulfur hexafluoride (SF_6) gas-insulated circuit breakers and associated disconnect switches, current transformers, and voltage transformers.
- 500 kV disconnect switches.
- 500 kV voltage transformers.
- Medium-voltage station service transformers.
- 500 kV bussing.
- 500 kV surge arresters.
- One metal 55-foot-tall gas insulated substation (GIS) enclosure, approximately 10,000 square feet.
- One control enclosure.
- Four 500 kV take-off towers.
- Three 3-phase, 500 kV main power transformers (including an installed spare).
- Outdoor heating, ventilation, and air conditioning equipment and insulated gate bipolar transistor (IGBT)/converter cooling equipment.
- Outdoor air core reactors.
- Outdoor medium-voltage bussing.
- Outdoor medium-voltage instrument/auxiliary transformers.
- Outdoor medium-voltage surge arresters.
- Outdoor medium-voltage group-operated air break switches.
- Two approximately 6,000-square-foot STATCOM IGBT valve/control enclosures containing the following equipment:
  - IGBT converters.
  - Protective relaying and control equipment.
  - Supervisory control and data acquisition (SCADA) equipment.
  - Cooling equipment.
  - Alternating current/direct current auxiliary power equipment.
  - Spare parts and maintenance tool storage.
  - Miscellaneous support facilities.

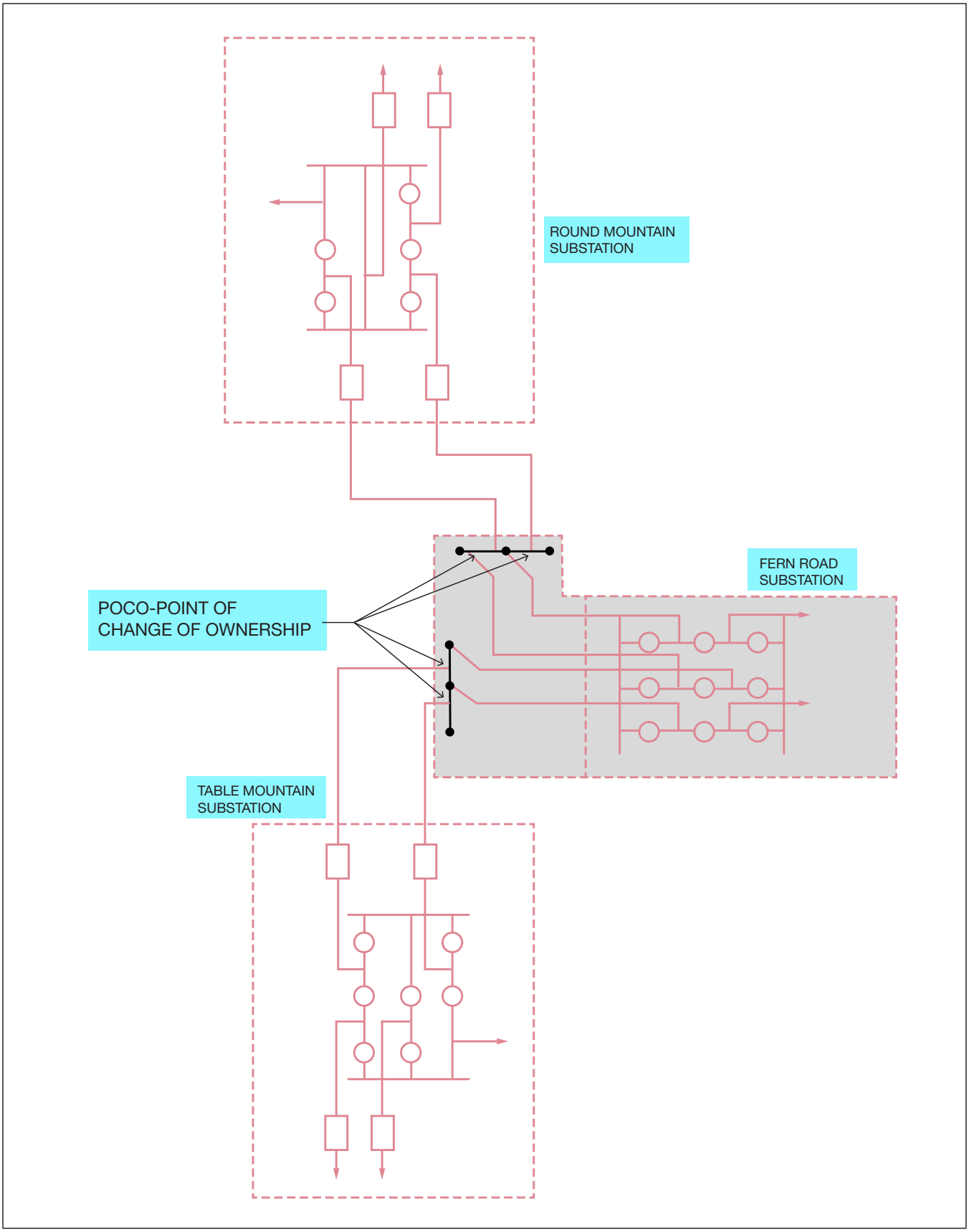


SOURCE: LS Power Grid California LLC, 2022b

Round Mountain 500 kV Area Dynamic Reactive Support Project

Figure 2-4
Fern Road Substation Profile

ESA



SOURCE: LS Power Grid California LLC, 2022a

Round Mountain 500 kV Area Dynamic Reactive Support Project

Figure 2-5
Fern Road Substation Diagram

All major equipment (e.g., power transformers,[4] power circuit breakers,[5] reactors,[6] IGBT[7] valve/control enclosures, cooling equipment) would be installed on concrete foundations. See Table 2-4 later in this chapter for the dimensions of the proposed concrete foundations.

Each of the three power transformers would require up to 21,550 gallons of oil, for a Project total of approximately 64,650 gallons. Each transformer would have an oil containment system consisting of an impervious, lined, open, or stone-filled sump area around the transformer. This containment system would be designed to contain the oil volume of the transformers plus the stormwater volume from a 25-year, 24-hour storm. The tallest structure at the Fern Road Substation would be the approximately 199-foot-high microwave tower owned by PG&E and located within the area reserved for PG&E's facilities, which would hold both PG&E and LSPGC communications equipment. The microwave tower and take-off tower foundations would be approximately 8–10 feet in diameter and set approximately 20–25 feet below ground-level. The substation would be surrounded with chain-link and barbed wire security fencing approximately 9 feet in height, with a secure gate accessible only by PG&E staff, LSPGC staff, and maintenance/emergency services contractor personnel.

Lighting would be installed at the proposed Fern Road Substation and would conform to National Electric Safety Code requirements and other applicable outdoor lighting codes. The National Electric Safety Code recommends, as good practice, illuminating the substation facilities to a minimum of 22 lux or 2 foot-candles. The facility would not require 24-hour illumination. Photocell-controlled lighting (motion detection) would be provided at a level sufficient to provide safe entry to and exit from the proposed Fern Road Substation and control building. Additional manually controlled lighting would be provided to create safe working conditions at the substation facility when required. All lighting would be shielded and pointed downward to minimize glare onto surrounding properties and habitats.

The proposed Fern Road Substation would be equipped with distribution-level power from station service transformers located within the facility that would step down the energy from the medium-voltage bus to the distribution power level. An electric overhead distribution line would be installed to provide backup power for the proposed substation from an existing PG&E distribution line located along the west side of Fern Road (see Section 2.6.3, *PG&E Distribution Modifications*, for details).

2.5.1.2 Access Roads

Access to the proposed Fern Road Substation site for construction and O&M would be from Fern Road, a public road that is approximately 30 feet wide. Access to Fern Road is provided by

4 A transformers is electrical equipment that transforms electric current from one voltage to another.

5 A circuit breaker is an electrical protection device that is used to isolate equipment in the event of a system fault, providing both safety and equipment protection.

6 STATCOM reactors and electrical equipment that remove harmonics from the electric current and smooth the current waveform, providing system reliability.

7 An IGBT valve is a module containing several insulated-gate bipolar transistors, which are power semiconductor devices. This device allows the STATCOM to perform fast and efficient switching to regulate its output in a highly controllable manner.

Whitmore Road via Old 44 Drive, from State Route 44 and Interstate 5. No improvements are proposed for Fern Road as part of the Project.

Direct access to the Fern Road Substation from Fern Road would be from an upgraded existing access road. The existing 700-foot-long, 15-foot-wide private dirt road would be extended an additional 1,000 feet and widened to approximately 20 feet. The access road is located along the northwestern property line and is currently used by PG&E for access to its transmission lines. This road would be graded flat to accommodate heavy equipment and vehicle access to the substation site and temporary staging yard. Gravel or base rock would be used to create an all-weather, dust resistant surface. The total disturbance area for the access road would be approximately 0.96 acre.

Additionally, the Project would include the development of a new access road that would provide internal access within the Fern Road Substation during construction and O&M. This new internal access road would be located within the perimeter of the proposed substation. See Figure 2-3 for an illustration of the interior and exterior access road locations.

2.5.1.3 Belowground Conductor/Cable

Below-grade facilities associated with the Fern Road Substation would include equipment foundations, oil containment for transformers, the grounding grid, low-voltage cable needed for the GIS and STATCOM equipment, conduit, and foundations for the control enclosures. Typical belowground conductor and/or cable would be approximately 2–4 feet below ground surface. No other below-grade work or cable installations are proposed.

2.5.1.4 Telecommunication Lines

The Project would not include underground telecommunication lines. However, it would include a SCADA system that would consist of fully redundant servers, power supplies, ethernet local area network (LAN) and wide area network (WAN) connections, routers, firewalls, and switches. The Fern Road Substation would include an approximately 199-foot-tall microwave tower that would be used as the primary path for telecommunications for the facility.

Additionally, LSPGC may include a second medium that would provide telecommunication diversity back to its off-site control center. This communication medium would likely be a long-term evolution (LTE) cellular connection from the control enclosures that would be located within the Fern Road Substation. An LTE antenna (approximately 10 inches tall) would be mounted to one of the control enclosures to boost the LTE cellular connection at the proposed substation.

2.5.2 Construction of the Fern Road Substation Facilities

This section provides an overview of the typical methods that would be used for construction of the Fern Road Substation Facilities.

2.5.2.1 Site Preparation

Surveying and Staking

The Applicant would survey and mark the centerline at line-of-sight intervals, at points of intersection (including offset stakes marking the edges of the external access road ROW), and at all known underground facilities. The Applicant would also clearly mark any sensitive biological, cultural, paleontological, or hydrological resources, where appropriate, to prevent construction activities and equipment from entering those areas.

Utilities

Before initiating construction, the Applicant would contact Underground Service Alert (USA), also known as USA North 811, to identify underground utilities within or close to the Project site. There are no existing overhead utilities that would need to be relocated to accommodate the proposed Fern Road Substation, and it is not anticipated that any underground utilities would be identified along any of the Project components. In the event underground utilities are identified, the Applicant would work with the owner of those utilities to determine whether design changes could be made or whether relocation procedures and locations would be necessary.

Vegetation Clearance

Construction of the Fern Road Substation could require clearing approximately 7.5 acres of grazing land. Construction of the new exterior access road and the transmission line poles/towers would require clearing approximately 4.1 acres of grazing land. Vegetation removal would occur only in approved work areas and would be completed using mechanized removal equipment or by hand using chain saws. Following the initial clearing of the substation site, topsoil would be salvaged to a depth of 12 inches, or to actual depth if shallower, for on-site storage and use in site restoration, as appropriate. Salvaged topsoil material would be kept on-site in the immediate vicinity of temporary disturbance areas or at a nearby approved work area to be used in restoration of temporary disturbed areas, as appropriate.

Tree Trimming and Removal

The Fern Road Substation site would be cleared of trees and vegetation as discussed previously, specifically for the permanent facilities and to facilitate construction of those facilities. In total, approximately 739 trees would be removed and approximately 150 trees would be trimmed as a result of the whole of the Project (i.e., the Fern Road Substation Facilities and the PG&E Facilities). Tree removal would be completed utilizing mechanized removal equipment or by hand using chain saws. Tree removal would not occur outside of approved work areas and would be limited as much as possible.

Table 2-1, *Tree Survey Data,* identifies the number of trees, species, the average diameter at breast height, and the number of trees to be removed or trimmed.

TABLE 2-1
PROJECT TREE SURVEY DATA

Tree Type	Number of Trees	Average DBH (inches)	Number to Trees to Be Removed	Number of Trees to Be Trimmed
Blue Oak	2,266	7.84	727	75
California Black Oak	72	10.53	0	0
California Buckeye	14	8.07	0	0
Gray Pine	95	12.12	12	75

NOTES: DBH = diameter at breast height

Tree survey data represent both the Fern Road Substation Facilities and the PG&E Facilities.

SOURCE: LSPGC 2022a.

See PEA Appendix 4.4-A, *Biological Resources Technical Report*, for the Tree Count Survey Report, which includes additional details regarding the number of trees surveyed, diameter at breast height for each tree, and a health assessment for the trees.

Blasting

Blasting may be required for the installation of foundations for tubular steel poles (TSPs) and other substation equipment. If rock is encountered during excavation that cannot be removed by digging, a hydraulic rock drilling and splitting (rock-splitting) procedure would be used to minimize trenching or drilling time, depending on site-specific conditions. The procedure involves drilling a hole in the rock and inserting a non-blasting cartridge of propellant. Activation of the cartridge is mechanically initiated by an impact generation device. This hydro-fracturing effect causes controlled tensile crack propagation in the rock, but does not result in flyrock, noxious fumes, or ground vibrations.

In the unlikely event that rock blasting would be necessary in areas where solid rock is present and the hydraulic rock drilling and splitting procedure would be ineffective, the following blasting procedure would be executed. The procedure would involve drilling 3-inch-diameter blast holes and inserting explosives. Blasting caps would be connected and a non-electric detonator would be employed. Flyrock protection would be installed before blasting, and seismographs would be placed nearby to measure and record peak particle velocity and air blast levels at various distances from the blast site. Dust control would include a combination of steel plate, plus geo-textile fabric with chain-link fence, covering and wetting the blasting surface. Should blasting be necessary, the blasting contractor would be required to obtain a blasting permit and explosive permit in accordance with applicable local regulatory ordinances. Best management practices would be used before, during, and after all Project-related blasting activities, where necessary, to prevent erosion and off-site sedimentation.

A blasting plan would be prepared and submitted to CPUC before the initiation of any blasting activities. The plan would identify the proposed blasting locations (with accompanying map), types and amounts of blasting agent to be used at each location, estimated impact radii, and noise estimates.

2.5.2.2 Excavation and Grading

Earthmoving activities would be required for the construction of the proposed Fern Road Substation and associated improvements. Permanent cut-and-fill slopes for the substation and external access road would be stabilized during construction with best management practices (BMPs) outlined in the proposed Fern Road Substation's storm water pollution prevention plan (SWPPP). The SWPPP BMPs would remain in place and would be maintained until new vegetation is established in temporarily disturbed areas. No new landscaping is proposed within or surrounding the proposed Fern Road Substation.

Table 2-2, *Grading Summary for Fern Road Substation Facilities*, summarizes the grading, excavation, material removal, and quantities of imported material anticipated to be required for construction of the proposed Fern Road Substation and access roads.

TABLE 2-2
GRADING SUMMARY FOR FERN ROAD SUBSTATION FACILITIES

Grading Description	Quantity	Material Description
Total Cut (topsoil + net cut)	63,000 cubic yards	Excavated earthwork material
Total Fill (select import + net fill)	60,000 cubic yards	Placed and compacted material
Total Export/Stockpiled/Wasted	21,000 cubic yards	Material to be removed from site
Total Import (select import + structural fill)	19,000 cubic yards	Gravel to be imported (included in total fill 4–8 inches)

SOURCE: LSPGC 2022a.

Generally, grading and excavation would be accomplished in a phased approach. Earthwork activities (e.g., grading, excavation) would be completed such that the site would meets the Project's design specifications and match proposed grades. During earthwork, soils and other surficial deposits that do not possess sufficient strength and stability to support structures would be removed from the work area. Blasting may be required given the geologic conditions on-site. Removal would typically extend to competent materials with high mechanical strength, resistant to erosion and deformation. Material that requires processing would be mechanically processed on-site to achieve a maximum particle size and distribution suitable for conventional placement in engineered fills.

As a result of the grading, approximately 21,000 cubic yards of cut material would be hauled off-site, stockpiled, or wasted. In addition to general earthmoving quantities, approximately 4–8 inches of surface gravel would be required to be imported and installed within the footprint of the Fern Road Substation for grounding purposes. This material would be imported from a suitable, nearby aggregate source. All clean spoils excavated for the Project would be used on-site to balance cut and fill calculations, as feasible. All unusable and/or contaminated spoils would be sent to a properly licensed landfill facility. All recyclables would be taken to a licensed recycle facility, and all refuse would be taken to a suitable landfill facility.

2.5.2.3 Staging Areas

The Project would include an approximately 1.4-acre temporary construction staging area within the footprint of the 40-acre site, directly north of the Fern Road Substation, as depicted in **Figure 2-6***, Construction Staging Area*. The staging area may be used as a refueling area for vehicles and construction equipment; as an equipment wash station; for equipment assemblage; for storage of materials, equipment, and containers; to house the construction trailers and portable restrooms; and for parking and lighting. Some substation equipment, such as disconnect switches, instrument transformers, take-off towers, insulators, conductors, bus, connectors, conduit, cable trench, and rebar, would be received and temporarily stored at the staging area before installation. The staging area would be temporarily fenced and gated and would be connected to the access road via a temporary driveway. At the conclusion of construction activities, the fencing around the staging yard would be removed and the site restored to its previous condition.

Preparation of the staging area would involve clearing, grubbing, and limited grading of the area. In-ground perimeter security fencing would then be installed around the outer limits of the staging area work area. Lighting would also be installed for security purposes. Temporary construction power would be provided from an extension of an existing distribution line along Fern Road near the Project site. Temporary generators would be a contingency if it is determined that distribution power is unavailable. Gravel may be used to line the ground at the staging area to avoid the creation of unsafe surface conditions and unnecessary sediment transport off-site. Construction workers would typically meet at the staging area each morning and park their vehicles. All construction equipment and vehicles associated with construction of the Fern Road Substation Facilities would be parked within the staging area while inactive and at the completion of each workday, where practical.

2.5.2.4 Work Areas

Construction of the Fern Road Substation would require grading, fill, and the installation of silt fencing that would extend beyond the proposed permanent impact area. In addition, work areas would be needed around the substation's perimeter to facilitate construction activities and access.

It is anticipated that all major equipment such as power transformers, power circuit breakers, control enclosures, capacitors, and reactors would be delivered to the Fern Road Substation site and placed directly on previously constructed foundations. Other equipment, such as disconnect switches, instrument transformers, transmission structures, insulators, conductors, bus, connectors, conduit, cable trench, and rebar, would be received and temporarily stored at the staging area before installation. All construction equipment and vehicles associated with construction of the Fern Road Substation would be parked within the staging area while inactive and at the completion of each workday, when practical.

SOURCE: LS Power Grid California LLC, 2022a; ESRI, 2022

Round Mountain 500 kV Area Dynamic Reactive Support Project

Figure 2-6
Construction Staging Area

ESA

2.5.2.5 Work Area Disturbance

Construction of the Fern Road Substation Facilities would result in both temporary and permanent disturbance, as summarized in **Table 2-3**, *Fern Road Substation Facilities Work Area Disturbance and Dimensions*. In total, construction of the Fern Road Substation Facilities would result in approximately 11.4 acres of permanent disturbance and approximately 1.5 acres of temporary disturbance to mainly agricultural and previously disturbed lands. **Figure 2-7**, *Project Disturbance Areas*, depicts the temporary and permanent disturbance areas that would be associated with the Fern Road Substation Facilities portion of the Project.

TABLE 2-3
FERN ROAD SUBSTATION FACILITIES WORK AREA DISTURBANCE AND DIMENSIONS

Work Area	Temporary or Permanent Disturbance	Disturbance Area and Dimensions
Fern Road Substation	Permanent	7.5 acres
Exterior Access Road	Permanent	1.0 acre
Graded Area	Permanent	2.9 acres
Construction Staging Yard	Temporary	1.4 acres
Construction Staging Yard Access Road	Temporary	0.1 acre
Limits of Construction (overland access only)	N/A (overland travel, access only)	75.0 acres

NOTE: N/A = not applicable

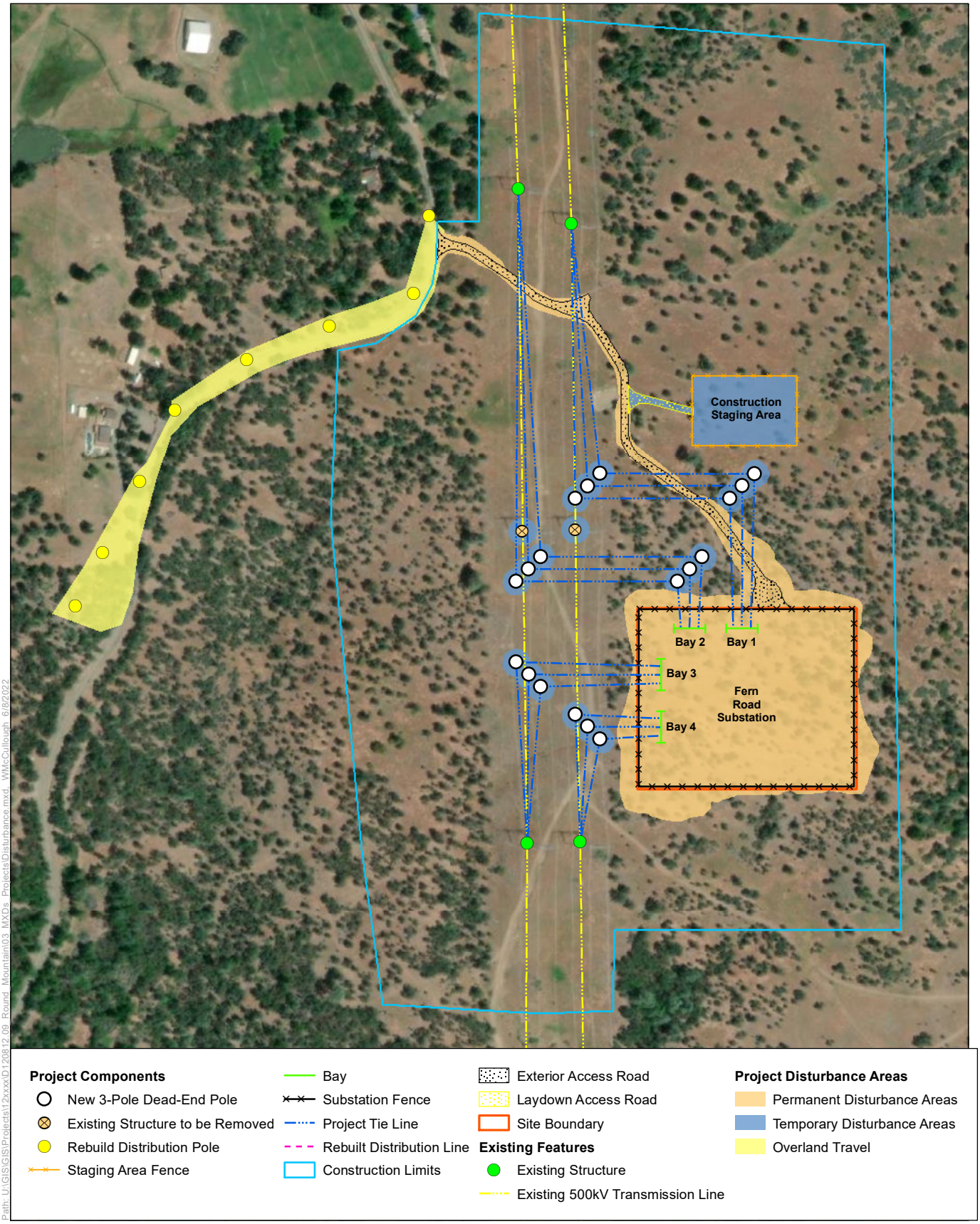
SOURCE: LSPGC 2022a

2.5.2.6 Temporary Power

The PG&E Facilities portion of the Project would include tapping an existing overhead distribution line along Fern Road for power at the Fern Road Substation site during construction and operation (see Section 2.6.3). The use of generators for temporary power during construction would be a contingency if the distribution power line were not available at the time of construction.

2.5.2.7 Access Roads

No helicopter access would be used during construction or O&M of the Project; however, overland access may be required during construction. This area would be restricted to the "Limits of Construction" area and would not require any ground disturbance or tree removal. Any overland access would avoid any federal or state jurisdictional waters. As described previously in Section 2.5.1.2, an existing road off Fern Road, 700 feet in length, would be expanded to approximately 20 feet wide and extended by 1,000 feet to serve as the proposed exterior access road to the Fern Road Substation. The exterior access road would be graded flat and gravel or base rock would be used to create an all-weather, dust resistant surface. Approximately 1 acre would be disturbed to construct the exterior access road. The exterior access road is depicted in Figure 2-3*, Project Overview in Vicinity of Fern Road Substation Site*.



SOURCE: LS Power Grid California LLC, 2022a; ESRI, 2022

Round Mountain 500 kV Area Dynamic Reactive Support Project

Figure 2-7
Project Disturbance Areas

ESA

The Fern Road Substation would also include a new permanent interior access road, which would be constructed as a loop within the substation site boundary to provide internal access within the site (Figure 2-3). The new internal access road would be approximately 20 feet wide and approximately 1,500 feet long and would include a permanent gate at the single point of entry. The internal access road would be graded and finished with gravel or rock.

2.5.2.8 Fern Road Substation

Facility Installation

Before the clearing and grubbing that would be required for the Fern Road Substation, all necessary surveys, markings, and installation of stormwater management features (e.g., silt fence, fiber rolls) would be completed. In addition, fencing, driveways, and gates would be installed (some temporarily) to provide site security during construction activities. Construction of the substation would take place in phases beginning with site preparation and grading, then installation of foundations and underground equipment, followed by installation and testing of electrical equipment.

After site preparation and grading, all necessary below-grade construction would begin, involving construction of the structure and equipment foundations, underground ducts, the ground grid, and the control enclosure. Upon completion of all earthwork and below-grade work, major equipment and structures would be installed and anchored on their respective foundations. It is anticipated that all major electrical equipment such as power transformers, reactors, power circuit breakers, control enclosure, and reactors would be delivered to the site and placed directly on the previously constructed foundations. Other equipment (e.g., air disconnect switches, instrument transformers, transmission structures, insulators, conductors, rigid bus, connectors, conduit, cable, rebar) would be received and temporarily stored at the construction staging area before installation. Transmission interconnection line terminations and distribution connections would be completed inside the substation after final installation of the substation structures and equipment.

Foundations

As discussed above, construction of concrete foundations would be required for installation of the substation equipment. **Table 2-4**, *Fern Road Substation Foundation Dimensions*, identifies the proposed concrete foundation types and dimensions for the 500 kV bus supports and other major substation equipment. As shown, slab concrete foundations would be 12–70 feet wide, 12–145 feet long, and 2–6 feet deep, and drilled pier concrete foundations would be 3 or 6 feet in diameter and would be 15 or 20 feet deep.

Take-Off Towers

The 500 kV take-off towers at the Fern Road Substation would be installed on concrete pier foundations. Large augers and drill rigs would complete the required excavations and, if necessary, a reinforcing steel rebar cage would then be lowered into the excavation. In some cases, blasting may be necessary to clear rock from the excavation areas. Water trucks and portable water tanks would be used to minimize fugitive dust during excavation activities. An

TABLE 2-4
FERN ROAD SUBSTATION FOUNDATION DIMENSIONS

Substation Equipment	Foundation Type	Approximate Width (ft)	Approximate Length (ft)	Approximate Diameter (ft)	Approximate Depth (ft)
STATCOM IGBT Valve/Control Enclosures	Slab	70	85	N/A	2
Three-Phase 500 kV Main Power Transformers	Slab	30	50	N/A	6
Outdoor Core Reactors	Slab	12	12	N/A	2.5
500 kV Bus Support	Drilled Pier	N/A	N/A	3	15
500 kV Take-Off Towers	Drilled Pier	N/A	N/A	6	20
GIS Enclosure	Slab	65	145	N/A	2.5
Control Enclosure	Slab	35	45	N/A	2.5
Spare Parts and Maintenance Tool Storage Pads	Slab	30	30	N/A	2.5
Cooling Equipment	Slab	45	50	N/A	2.5

NOTES: ft = feet; GIS = gas insulated substation; IGBT = insulated gate bipolar transistor; kV = kilovolt; N/A = not applicable; STATCOM = static synchronous compensator

SOURCE: LSPGC 2022b

approximately 30-foot-tall form would be constructed for each foundation. Concrete would be delivered to the site by concrete trucks that would pour the concrete to fill the foundation excavations. Each completed foundation would be left to cure for approximately 28 days.

Cranes would be used to lift and place the new towers onto the newly installed foundations. Cranes and/or bucket trucks would lift workers into elevated positions to work on the newly installed towers. Crew cab and pickup trucks would be used to transport workers and tools to each installation site.

2.5.2.9 Public Safety and Traffic Control

The active construction and staging area would be fenced at all times and would restrict public access to the site. In addition, all open holes or trenches would be covered at the end of the day to protect construction workers as they leave and enter the Project site.

Traffic control procedures or single-lane closures may be implemented intermittently along Fern Road during construction to safely accommodate materials or equipment deliveries. One lane may need to be closed along Fern Road when equipment is being delivered to the Project site. Public safety controls or lane restrictions would be temporary, and detours are not anticipated to be necessary. Flaggers or other traffic control measures would be utilized to guide traffic around active work areas in a safe manner. All traffic-control plans and encroachment permits would be reviewed and approved by Shasta County and provided to CPUC before implementation.

2.5.2.10 Dust, Erosion, and Runoff Controls

Dust

During construction of the Fern Road Substation Facilities, the dust control measures identified in APM AQ-2 would be implemented (see Table 2-9 in Section 2.5.5, *Applicant Proposed Measures*). These measures include the use of water trucks or sprinkler systems and other dust control measures, including the application of nontoxic soil binders. In addition, LSPGC would obtain a Road Emissions Permit from the Shasta County Air Pollution Control District to control dust emissions from the proposed unpaved access roads.

Erosion

Construction of the Fern Road Substation Facilities and the PG&E monitoring facilities would result in the disturbance of more than 1 acre of soil. As a result, the Applicant would be required to prepare, file, and implement a SWPPP in accordance with the State of California's General Permit for Stormwater Discharges Associated with Construction Activities (2009-009-DWQ, as amended by 2010-0014-DWQ and 2012-0006-DWQ). The SWPPP would include measures to limit erosion and off-site transport of pollutants from construction activities. The plan would designate BMPs that would be followed during construction to help stabilize disturbed areas and reduce erosion, sedimentation, and pollutant transport.

Runoff

The substation pad would be graded to allow stormwater to drain directly off-site. During storm events, stormwater would run off in sheet flow to the adjacent land surface.

2.5.2.11 Water Supply and Use

Water would be used as needed for dust suppression and to meet compaction requirements. Construction-related water use would occur mainly during the site development and below-grade construction phases. During construction, restroom facilities would be provided by portable units that would not require water. Approximately 900,000 gallons of water would be required during construction, originating from local sources with existing capacity to serve the Project's needs. Water would be trucked from the local sources located in the city of Redding or the city of Red Bluff, which both have their own independent water sources. It is not anticipated that recycled water, reclaimed water, or groundwater would be used to meet the Project's construction needs. The Project would not require water sources for O&M activities because the Fern Road Substation would not be staffed.

2.5.2.12 Hazardous Materials and Management

Hazardous Materials

Construction of the Fern Road Substation Facilities would require the limited use of hazardous materials, such as fuels, lubricants, cleaning solvents, and other chemicals. Additionally, the substation would include transformers containing mineral oil, which is considered a hazardous material in California. All hazardous materials would be stored, handled, and used in accordance

with applicable regulations. Safety Data Sheets would be made available at the construction site for all crew workers. Based on the anticipated volume of hazardous liquid materials, such as fuel, that would be stored and dispensed at the proposed staging area, a Spill Prevention, Control, and Countermeasure (SPCC) plan would be required (in accordance with the applicable provisions of Code of Federal Regulations Title 40, Parts 112.1 through 112.7). Although none is expected, if preexisting hazardous waste were to be encountered at the Project site, it would be removed and disposed of in a manner consistent with all federal and state regulations. Herbicides and/or pesticides are not proposed for use during construction.

Hazardous Materials Management

Before construction, a SPCC plan and a hazardous materials management plan (HMMP) would be prepared, describing protocols for the use, transport, storage, management, and disposal of hazardous materials. Construction would not begin until this plan is complete. The plans would be prepared in accordance with relevant federal and state guidelines and regulations (e.g., California Division of Occupational Safety and Health regulations). The HMMP would include the following information related to hazardous materials and waste, as applicable:

- A list of hazardous materials that would be used on-site during construction and O&M, to be updated as needed along with product Safety Data Sheets and other information regarding storage, application, transportation, and disposal requirements.
- A hazardous materials communication (i.e., HAZCOM) plan.
- Assignments and responsibilities of Project health and safety roles.
- Standards for any secondary containment and countermeasures that would be required for hazardous materials.
- Spill response procedures based on product and quantity. The procedures would identify the materials to be used, the locations of such materials within the Project area, and disposal protocols.
- Protocols for the management, testing, reporting, and disposal of potentially contaminated soils or groundwater observed or discovered during construction. These protocols would include the termination of work within the area of suspected contamination; sampling by an individual trained by the U.S. Department of Labor, Occupational Safety & Health Administration; and testing at a certified laboratory.

2.5.2.13 Waste Generation and Management

Solid Waste

Solid wastes generated during construction would primarily be nonhazardous wastes, including wood, metal, paper, and plastic packaging. Estimated volumes of construction debris total approximately 500 cubic yards. Earthwork associated with the Fern Road Substation Facilities would generate approximately 21,000 cubic yards of excess cut material that would need to be disposed of off-site after the completion of grading. The material excavated during trenching would be used as backfill when possible and would not be excess material requiring disposal. If possible, recyclable construction material would be transported to an approved recycling facility.

Construction waste that cannot be recycled would ultimately be disposed of at the Richard W. Curry West Central Landfill, the Waste Management Anderson Landfill, or another approved facility. Construction waste would be disposed of properly and in accordance with all applicable federal, state, and local laws regarding solid and hazardous waste, including the California Integrated Waste Management Act of 1989, which has set reduction rates for solid waste sent to landfills.

Liquid Waste

Liquid waste streams associated with construction of the Project would consist primarily of sanitary waste and stormwater runoff. Sanitary waste from self-contained portable toilets would be routinely pumped as needed and would be taken by the vendor to a proper sanitary waste facility for disposal. Sanitary waste would be generated at a rate of 100–150 gallons per week per 10 workers on-site. Sanitary waste would be transported by the licensed sanitary waste services for off-site disposal at their contracted treatment, storage, and disposal facilities. Stormwater runoff would be managed according to a stormwater management plan and associated SWPPP that would require approval by the regional water quality control board. Groundwater would not likely be encountered, but dewatering effluent may be produced during excavation. This effluent would be filtered and managed according to the dewatering plan that would be developed as part of the SWPPP.

Hazardous Waste

Project construction would generate limited amounts of hazardous wastes, such as used lubricants, cleaning solvents, and other chemicals. Additional hazardous wastes that could be encountered or released during construction include contaminated soils, incidental spill waste, and concrete washout.

Wastes generated or encountered would be handled, contained, and disposed of according to federal, state, and local regulations. In addition, as described previously in Section 2.5.2.12, *Hazardous Materials and Management*, an HMMP would be prepared before construction, describing protocols for the use, transport, storage, management, and disposal of hazardous materials. This could include containment and transport in vessels approved by the U.S. Department of Transportation, the use of secondary containment, and training of material handlers to ensure workers' safety and the reduction of cross-contamination.

2.5.2.14 Fire Prevention and Response

Construction Fire Prevention Plan

The Fern Road Substation site is within an elevated fire risk area (Tier 2), as identified by the California Department of Forestry and Fire Protection. To reduce potential fire hazards during construction, a Project-specific construction fire prevention plan would be prepared pursuant to APM FIRE-1 (see Table 2-9 in Section 2.5.5, *Applicant Proposed Measures*).

Fire Breaks

During construction activities that are considered "hot work" (e.g., welding, grinding, or any other activity that creates hot sparks), the Applicant would implement a 10-foot buffer around

that activity, and vegetation would be cleared to ensure that sparks do not create a fire hazard. For activities that would not produce sparks but would still have the potential to produce a fire hazard (e.g., ground rod or ground wire installation), the Applicant would implement a 5-foot buffer to be cleared of vegetation, and the construction fire prevention plan described above would provide additional details, such as how to handle sparks.

2.5.2.15 Construction Workforce, Equipment, Traffic, and Schedule

Construction Workforce and Equipment

Construction of the Fern Road Substation Facilities would occur simultaneously with construction at the PG&E Facilities (described in Section 2.6). The workers would likely commute from the greater Redding and Red Bluff areas. **Table 2-5**, *Fern Road Substation Facilities Construction Equipment and Workforce*, lists the expected equipment and personnel for each construction activity and briefly summarizes the construction work plan for each Fern Road Substation Facilities activity. It also lists the uses of the equipment for each construction phase. Minor changes to personnel and equipment needs may be identified during final Project design or during construction, based on site conditions.

As shown in the table, a maximum of approximately 40 workers would be required during the below-grade work. When combined with the PG&E Facilities portion of the Project (see Section 2.6), a total of 45 workers would be present at the Project sites for the above-grade development, PG&E distribution modifications, and PG&E substation upgrade phases of the Project. Final testing and checkout would require approximately 24 electricians and/or engineers.

Table 2-6, *Anticipated Construction Equipment*, provides a list of equipment types and their associated uses.

In addition to the use of the equipment identified above, pickup trucks and construction worker vehicles would travel to and from the work areas daily for each Project component. Additional maintenance and/or delivery trucks would travel to and from the staging areas two to three times per week, or up to four times per week during peak activities. All trucks carrying loads would be covered while traveling on county roads.

Construction Traffic

All construction vehicles would enter the Fern Road Substation site from Fern Road. Signage and/or flaggers would be used to maintain public safety and reduce the potential for disruptions to traffic flow during construction. A designated parking area for worker vehicles would be established in the staging area north of the Fern Road Substation Facilities. Because truck traffic would enter and exit via a roadway maintained by Shasta County, the Applicant would develop and implement a traffic control plan, pursuant to APM TRA-1 (see Table 2-9 in Section 2.5.5, *Applicant Proposed Measures*). All traffic control plans and encroachment permits would be reviewed and approved by Shasta County and provided to CPUC before implementation. No existing sidewalks, trails, paths, or driveways would be affected by the Project.

TABLE 2-5
FERN ROAD SUBSTATION FACILITIES CONSTRUCTION EQUIPMENT AND WORKFORCE

Construction Phase/ Equipment Description*	Estimated Horsepower	Equipment Quantity	Estimated Workforce	Estimated Start Date	Estimated End Date	Hours/ Day
Survey						
Pickup—Half-Ton	395	2	4	September 2023	February 2024	4
Site and Staging Preparation						
Truck—Water, 4,000 Gallons	300	4	12	September 2023	December 2023	10
Pickup—1-Ton	410	1				2
Loader—4–5 Yards	275	2				10
Truck—Dump, 10–12 Yards	415	6				5
Motor Grader	250	1				10
Roller	405	1				10
Pickup—Half-Ton	395	1				2
Below-Grade Construction						
Truck—Water, 4,000 Gallons	300	2	40	December 2023	June 2024	10
Excavator	108	2				10
Forklift—8,000–9,000 Pounds, Reach	100	2				4
Backhoe—2x4	68	2				5
Pickup—Half-Ton	395	4				2
Pickup—1-Ton	410	4				2
Excavator—Mini	70	1				5
Generator—25 kW	34	2				10
Loader—4–5 Yards	275	2				10
Pressure Digger—Lo-Drill (Tracked)	125	2				8
Truck—Dump, 10–12 Yards	415	3				5
Tool—Van/Conex 20-Foot	–	6				10
Trencher	75	2				5
Skid Steer Loader	74	2				10
Above-Grade Construction and Equipment Installation						
Pickup—Half-Ton	395	4	30	June 2024	February 2025	2
Pickup—1-Ton	410	4				2
Welding Truck	395	2				2
Generator—25 kW	34	2				10
Crane—35-Ton	250	2				5
Forklift—10,000 Pounds, Reach	130	2				4
Forklift—15,000 Pounds	130	1				4
Wire Trailer/Tensioner	–	2				2
Wire Puller	70	2				2
Manlift—40-Foot	49	3				8
Manlift—120-Foot	74	2				8

TABLE 2-5 (CONTINUED)
FERN ROAD SUBSTATION FACILITIES CONSTRUCTION EQUIPMENT AND WORKFORCE

Construction Phase/ Equipment Description*	Estimated Horsepower	Equipment Quantity	Estimated Workforce	Estimated Start Date	Estimated End Date	Hours/ Day
Commissioning and Testing						
Pickup—Half-Ton	395	4	24	February 2025	June 2025	2
Pickup—1-Ton	410	4				2
Generator—25 kW	34	2				10
Manlift—40-Foot	49	3				8
Tool—Van/Conex 20-Foot	–	6				10

NOTE: kW = kilowatts

SOURCE: Based on LSPGC 2022a with revisions to update the schedule.

TABLE 2-6
ANTICIPATED CONSTRUCTION EQUIPMENT

Equipment Type	Equipment Use
Air compressors	Operate air tools.
Asphalt grinder	Grind asphalt.
Backhoe	Excavate trenches.
Bobcat	Excavate trenches.
Boom truck	Access poles and other height-restricted items; lift and set steel.
Boom truck with trailer	Deliver steel, discs, panels, and insulators.
Bucket truck/manlift	Set steel; install equipment; use as a guard structure.
Bulldozer	Grade pads and access roads; conduct demolition activities; excavate and backfill walls.
Bull wheel tensioner	Control the conductor at pulling tension during a pulling operation.
Cable dolly	Pull cable.
Cable dolly (trailer)	Transport the reels of the conductor (no engine; can be pulled by an assist truck).
Compactor	Compact soil; clear/grub/finish.
Concrete truck	Transport and process concrete.
Crane	Lift and position structures.
Drilling rig/truck-mounted auger	Excavate for direct-bury and micropile poles.
Dump truck	Haul excavated materials/import backfill, as needed.
Diesel generator	Provide power for construction activities.
Excavator	Excavate soils and materials (conduct trenching).
Forklift	Transport materials at structure sites and staging areas.
Grader	Use for road construction and maintenance.
Jackhammer	Break concrete and asphalt.
Line truck	Install clearance structures; pull cables/connections.
Loader	Conduct demolition activities; load dump trucks.
Pickup trucks	Transport construction personnel.
Portable generators	Operate power tools.
Pulling rig	Pull the conductor into position or duct and secure it at the correct tension.

TABLE 2-6 (CONTINUED)
ANTICIPATED CONSTRUCTION EQUIPMENT

Equipment Type	Equipment Use
Reel trailer	Feed the new conductor to the pulling and tensioner; collect the old conductor.
Relay/telecommunications van	Transport and support construction personnel.
Roller	Repair streets.
Scraper	Grade pads and access roads.
Splice trailer	Store splicing supplies.
Tool van	Store tools.
Tractor/trailer unit	Transport materials at structure sites and staging area.
Trencher	Conduct trenching for the underground telecommunication line.
Wire truck	Hold spools of wire.
Water truck	Provide water for dust suppression and other construction needs.

SOURCE: LSPGC 2022a.

The peak number of vehicle trips would occur between approximately September 2023 and June 2024, during the earthwork and grading-related phases of Fern Road Substation construction (e.g., site development and below-grade construction activities), which would involve hauling debris from the site and importing fill to the site. During this period, maximum daily vehicle trips (i.e., round trips) would total approximately 90 trips per day, consisting of approximately 40 truck trips and 50 worker trips. Maximum daily truck trips would include approximately 10 dump truck exports, 10 rock deliveries, 5 trips to haul off excess materials, 5 trips by concrete trucks, 5 trips by water trucks, and 5 trips by equipment delivery trucks. Other periods of Fern Road Substation construction would have lower average numbers of worker vehicle trips and correspondingly lower impacts. **Table 2-7***, Fern Road Substation Facilities Estimated Average Daily Construction Traffic*, outlines the average daily truck and worker-related vehicle trips associated with the proposed Fern Road Substation Facilities, as well as the vehicle miles traveled per construction phase.

TABLE 2-7
FERN ROAD SUBSTATION FACILITIES ESTIMATED AVERAGE DAILY CONSTRUCTION TRAFFIC

Construction Phase	Average Daily Truck Trips	Average Daily Worker Trips	Average Daily Truck VMT[a]	Average Daily Worker VMT[b]	Total Daily Average VMT
Site Development (includes survey, road work, site and staging yard preparation)	15	8	600 miles	800 miles	1,400 miles
Below-Grade Construction	10	15	400 miles	1,500 miles	1,900 miles
Above-Grade Construction and Equipment Installation	5	15	200 miles	1,500 miles	1,700 miles
Commissioning and Testing	5	5	200 miles	500 miles	700 miles

NOTES:

VMT = vehicle miles traveled

a. VMT based on 20-mile radius for all truck trips.
b. VMT based on a 50-mile radius for all worker trips.

SOURCE: LSPGC 2022a.

Vehicle trips by construction personnel would generally be made by workers arriving at the site in the morning and leaving the site at the end of the day; worker-related trips during the middle of the day would be limited. Construction activities would occur Monday through Saturday during daylight hours. To reduce the potential number of daily worker-related vehicle trips to and from the Fern Road Substation site, the Applicant proposes implementation of APM GHG-1 to encourage carpooling to the greatest extent possible (see Table 2-9 in Section 2.5.5, *Applicant Proposed Measures*).

Construction Schedule

Project construction is estimated to take approximately 22 months to complete, without any unforeseen or unpredictable factors such as bad weather. Construction is scheduled to begin in September 2023 and run through June 2025. **Table 2-8**, *Fern Road Substation Facilities Construction Schedule*, summarizes the construction schedule for the Fern Road Substation Facilities, outlined by phase.

TABLE 2-8
FERN ROAD SUBSTATION FACILITIES CONSTRUCTION SCHEDULE

Construction Phase	Start Date	End Date	Number of Workdays
Survey	September 2023	February 2024	180
Site Development	September 2023	December 2023	120
Below-Grade Construction	December 2023	June 2024	210
Above-Grade Construction and Equipment Installation	June 2024	February 2025	270
Commissioning and Testing	February 2025	June 2025	150

SOURCE: Based on LSPGC 2022a with revisions to update the schedule.

Construction activities at the Fern Road Substation site would generally be scheduled to occur during the hours of 7 a.m. to 7 p.m., 6 days per week (Monday through Saturday). Work outside those hours is not anticipated to be necessary, but in case it is required, CPUC approval would be obtained. On infrequent occasions, construction activities could be scheduled outside of these hours to avoid or reduce schedule delays; to complete construction activities such as continuous concrete pours to accommodate the schedule for system outages; or to address emergencies.

2.5.2.16 Post-construction

Commissioning and Testing

Commissioning and testing would begin with equipment fit-up inspections and simple electrical tests to ensure that the equipment is connected properly, followed by transformer energization and auxiliary electrical tests. After confirmation that the transformer and medium-voltage electrical system are working properly, functional tests would begin on the STATCOM units to ensure that the power electronic devices operate as designed. This testing would include various performance tests to ensure that the STATCOM units could meet all necessary electrical outputs. During these tests, the STATCOM cooling system would be tested to confirm the adequate

cooling of the power electronic devices. Lastly, the power electronic devices and protection/control system would be tested and programmed to meet Project requirements. The Project would then be ready to be energized.

Commissioning and testing would require the use of pickup trucks, forklifts, and manlifts and would involve approximately 24 on-site construction personnel. Commissioning and testing of the Project would take approximately 5 months between August 2024 and December 2024, for a total duration of 150 workdays, at which point the Project would be fully functional and ready for commercial operation.

Landscaping

No landscaping is proposed at the access road intersection with Fern Road or around the Fern Road Substation Facilities.

Demobilization and Site Restoration

Demobilization

After the completion of construction, the process of demobilization would begin. First, all equipment not needed for the remaining testing and revegetation would be removed. Next, all temporarily disturbed work areas would be restored to their approximate preconstruction conditions as described below.

Site Restoration

The Applicant would restore all areas temporarily disturbed by the Fern Road Substation Facilities portion of Project activities to the areas' approximate preconstruction conditions. All areas would be assessed carefully to ensure that all residual construction debris and waste is removed and transported off-site to an approved disposal facility. Project waste materials that are routinely recycled would be recycled in an appropriate fashion at an approved disposal facility. The Applicant would conduct a final inspection to ensure that cleanup activities are completed successfully.

Areas disturbed by grading, augering, or equipment movement would be restored to their original contours and drainage patterns. Work areas would be decompacted, and salvaged topsoil materials would be re-spread and then recontoured to aid in the restoration of temporarily disturbed areas. Revegetation activities would be conducted in accordance with the Fern Road Substation Facilities SWPPP and the proposed APMs identified in Table 2-9 in Section 2.5.5, *Applicant Proposed Measures*. Restoration could include recontouring, reseeding, and planting replacement vegetation, as appropriate. Additional restoration opportunities could include preparing the site for future utility uses. Erosion control measures may be required and would also be implemented in accordance with the Fern Road Substation Facilities SWPPP and proposed APMs.

2.5.3 Operation and Maintenance

2.5.3.1 System Controls and Operation Staff

Because the Fern Road Substation would be remotely monitored by the Applicant's control center, which is staffed 24 hours a day, 7 days a week, it would not be staffed on-site. Should any equipment malfunction, O&M personnel would be dispatched to the site to investigate the problem and take appropriate corrective action. The Project would be operated by the Applicant's control center in Austin, Texas, and the Applicant's local maintenance/technical staff, utilizing other existing LSPGC staff members and outside resources for maintenance and emergency response. The Project would be incorporated into the Applicant's existing programs with existing equipment, experienced staff, and trusted contractors to provide operational and cost efficiencies with reduced risks. The Project would also be monitored by CAISO's control center in Folsom, California, and CAISO would have operational control of the proposed Fern Road Substation, with authority to direct the Applicant's control center.

The Applicant currently has five staff members in its transmission maintenance group with an average experience of more than 15 years. One local, California-based field staff member would also be added in 2024 to support maintenance of the Project facilities. Day-to-day management of the Project would be provided by the Applicant's asset management teams based in Texas and Missouri.

2.5.3.2 Inspection Programs

In general, each required piece of equipment at the proposed Fern Road Substation would undergo monthly inspection to check that no obvious abnormalities exist. This inspection would be conducted without taking the proposed substation out of service. It is anticipated that the Fern Road Substation would be taken out of service once a year to perform more extensive checks and maintenance on the substation's main components. Because of the diversity of equipment and individual system components, a small, specialized team would execute the varying monthly and annual maintenance. Inspection and maintenance would be performed by a small crew of one to two high-voltage technicians and one to two personnel provided by the equipment vendor, with support provided by the Applicant's staff.

2.5.3.3 Operation and Maintenance Programs

A perimeter fence would enclose the Fern Road Substation site, and the access gate would be locked to prevent entry by unauthorized individuals. Access would be restricted further by posting signage on the exterior and at the entryway to the Fern Road Substation Facilities.

The Applicant would regularly inspect, maintain, and repair the Project and access roads after the completion of construction. Typical O&M would involve routine inspections and preventive maintenance to ensure service reliability, as well as emergency work to maintain or restore service. The Applicant would perform aerial and ground inspections of the Fern Road Substation Facilities and patrol aboveground components annually.

Routine maintenance is expected to require approximately one trip per month by crews composed of two to four people. Routine operations would require monthly visits to the substation site by one or two workers in a light utility truck. One annual major maintenance inspection is anticipated, requiring a crew of two to four personnel. This inspection would take approximately one week to complete. Nighttime maintenance activities are not expected to occur more than once per year.

2.5.3.4 Security

The Fern Road Substation's physical security would be designed in accordance with the North American Electric Reliability Corporation's Critical Infrastructure Protection requirements, with 24/7 monitoring, response, and control through the Applicant's control center and staff. The Project would include a perimeter physical security system consisting of an 8-foot-tall chain link security fence with an additional 1-foot barbed wire extension at the top. The 9-foot-tall perimeter security fence would have one gate integrated with electronic access card readers. The gate would be 24 feet wide.

Access to the Fern Road Substation Facilities would be restricted through the use of electronic access cards. Access to the control enclosure would be further restricted with monitored entry, an automatic electronic locking mechanism, and two-factor authentication consisting of an electronic access card and a personal code entered on a keypad. The substation's design would include indoor and outdoor physical security cameras placed throughout the site, with at least two of the cameras placed around the exterior of the control house. The security cameras would be routed through a network video recorder located in the WAN control panel and communicated to the Applicant's control center for monitoring.

The Fern Road Substation's lighting would be photocell controlled and would provide illumination for security. Light fixtures would be located near major outdoor equipment, general substation areas, and building exteriors. Light-emitting diode (i.e., LED) lights would be mounted on A-frames, H-frames, and shield wire poles, structures, poles, and supplementary buildings as required. The general illumination level within the substation would be 2 foot-candles. The illumination level for equipment such as disconnect switches, operating mechanisms, and transformer control cabinets would be no less than 2 foot-candles.

2.5.3.5 Water Use

The Project would not require water sources for O&M activities because the Fern Road Substation would not use water for cooling or other operational purposes and would be unstaffed. Drinking water would be brought in by the Applicant's personnel during O&M activities.

2.5.3.6 Vegetation Management

In accordance with fire break clearance requirements (Public Resources Code Section 4292 and California Code of Regulations Title 14, Section 1254), the Applicant would trim or remove flammable vegetation in the area surrounding the Fern Road Substation site, the interconnection transmission lines, and distribution poles to reduce potential fire and other safety hazards. One-

person crews typically conduct this work using mechanical equipment consisting of weed trimmers, rakes, shovels, and leaf blowers. The Applicant would typically inspect the substation site on an annual basis to determine whether brush clearing is required.

The PG&E Round Mountain–Table Mountain #1 and #2 500 kV transmission lines, located west of the Fern Road Substation site, and the associated proposed PG&E interconnections would also be subject to the regulations described above. PG&E actively removes all vegetation from its transmission line ROW.

2.5.3.7 Future Expansions and Equipment Life Spans

Consistent with CAISO technical specifications for the substation site to accommodate increased renewable energy generation, the Applicant's property can support a future substation expansion to include up to six additional circuit breakers (four additional line positions) within an expanded GIS enclosure; four additional dead-end structures with disconnect switches; and the required connecting buswork, protection and control devices, and other appurtenances.

Adding this equipment would require that the Fern Road Substation's southern fence line be extended an estimated 215 feet, which would add approximately 2.1 acres to the currently proposed substation footprint. Based on a review of CAISO's transmission plans, it is projected that such a potential expansion could happen approximately 10 years from the initial energizing of the Fern Road Substation. Should an expansion of the substation be required in the future, LSPGC would seek the appropriate permit(s) from CPUC. The expected usable life of all Project facilities is 40 years.

2.5.4 Decommissioning (Fern Road Substation Facility)

Before removal or abandonment of the facilities, the Applicant would prepare a removal and restoration plan, which would be subject to CPUC review and approval. The plan would address removal of the Fern Road Substation from the permitted area, any requirements for restoration and revegetation, and the potential preparation of the property for future utility uses.

After construction, temporarily disturbed areas would be returned as closely as possible to their original contours and allowed to revegetate naturally.

2.5.5 Applicant Proposed Measures

The Applicant proposes to implement certain Project design features referred to as "Applicant Proposed Measures" or APMs to avoid or reduce impacts of the Project. The APMs, listed in **Table 2-9**, are considered part of the Project for the purposes of this CEQA analysis. These Project features are also discussed in the context of the relevant environmental issue area analyses presented in Chapter 3, *Environmental Checklist and Discussion*.

TABLE 2-9
APPLICANT PROPOSED MEASURES FOR THE FERN ROAD SUBSTATION FACILITIES

APM Number	Description
APM AES-1	All proposed Fern Road Substation Facilities sites would be maintained in a clean and orderly state. Nighttime lighting would be directed away from residential areas and have shields to prevent light spillover effects. Upon completion of project construction, project staging and temporary work areas would be returned to pre-project conditions, including re-grading of the site and re-vegetation or re-paving of disturbed areas to match pre-existing contours and conditions.
APM AES-2	Structures and equipment at the proposed Fern Road Substation would be a non-reflective finish and neutral gray color.
APM AQ-1	The Proposed Project would implement the following Shasta County Standard Mitigation Measures (SMMs:)
AQ-SMM-1	Maintain all construction equipment in proper tune according to manufacturer's specifications.
AQ-SMM-2	Fuel all off-road and portable diesel-powered equipment with ARB-certified motor vehicle diesel fuel (non-taxed version suitable for use off-road).
AQ-SMM-3	Use diesel construction equipment meeting ARB's Tier 2 certified engines or cleaner off-road heavy-duty diesel engines and comply with the State Off-Road Regulation.
AQ-SMM-4	Use on-road heavy-duty trucks that meet the ARB's 2007 or cleaner certification standard for on-road heavy-duty diesel engines and comply with the State On-Road Regulation.
AQ-SMM-5	All on and off-road diesel equipment shall not idle for more than five minutes. Signs shall be posted in the designated queuing areas and or job sites to remind drivers and operators of the five-minute idling limit.
AQ-SMM-6	Diesel idling within 1,000 feet of sensitive receptors is not permitted.
AQ-SMM-7	Staging and queuing areas shall not be located within 1,000 feet of sensitive receptors.
AQ-SMM-8	Electrify equipment when feasible.
AQ-SMM-9	Substitute gasoline-powered in place of diesel-powered equipment, where feasible; and use alternatively fueled construction equipment on-site where feasible, such as compressed natural gas (CNG), liquefied natural gas (LNG), propane or biodiesel.
APM AQ-2	During construction the following Dust Control Plan measures shall be implemented to control fugitive dust and particulate emissions in compliance with SCAQMD SMMs: • Reduce the amount of the disturbed area where possible; • Use water trucks or sprinkler systems in sufficient quantities to prevent airborne dust from leaving the site. Increased watering frequency would be required whenever wind speeds exceed 15 mph. Reclaimed (non-potable) water should be used whenever possible; • All dirt stock-pile areas should be sprayed daily as needed; • All roadways, driveways, sidewalks, etc. to be paved should be completed as soon as possible, and building pads should be laid as soon as possible after grading unless seeding or soil binders are used; • All relevant fugitive dust mitigation measures contained in APM AQ-2 shall be shown or otherwise noted on grading and building plans.
APM BIO-1	Speed of vehicles driving along proposed access roads and on the Proposed Project site during construction and operation would be limited to 15 miles per hour. In addition, construction and maintenance employees would be required to stay on established and clearly marked and existing roads and within the limits of disturbance except when not feasible due to physical or safety constraints and would be advised that care should be exercised when commuting to and from the Proposed Project area to reduce accidents and animal road mortality.
APM BIO-2	Conductors and ground wires would be spaced sufficiently apart so that raptors cannot contact two conductors or one conductor and a ground wire to cause electrocution (APLIC, 2006).
APM BIO-3	Appropriate methods to reduce the risks of avian collisions would be incorporated into the Project's design (APLIC, 2012).

TABLE 2-9 (CONTINUED)
APPLICANT PROPOSED MEASURES FOR THE FERN ROAD SUBSTATION FACILITIES

APM Number	Description
APM BIO-4	If feasible, the Applicant would avoid construction during the migratory bird nesting or breeding season (February 15 to August 31). When it is not feasible to avoid construction during the nesting or breeding season, the Applicant would perform a survey in the area where the work is to occur. This survey would be performed to determine the presence or absence of nesting birds. If an active nest (i.e., containing eggs or young) is identified, a suitable construction buffer would be implemented to ensure that the nesting or breeding activities are not substantially adversely affected. If the nesting or breeding activities are being conducted by a federal- or state-listed species, the Applicant would consult with the USFWS and CDFW as necessary. Monitoring of the nest would continue until the birds have fledged or construction is no longer occurring on the site. If an inactive nest is identified, careful nest removal under the supervision and direction of qualified biologists could occur wherever necessary.
APM BIO-5	If a raptor nest is observed during pre-construction surveys, a qualified biologist would determine if it is active. If the nest is determined to be active, the biological monitor would monitor the nest to ensure that nesting or breeding activities are not substantially adversely affected. If the biological monitor determines that activities associated with the Proposed Project are disturbing or disrupting nesting or breeding activities, the monitor would make recommendations to reduce noise or disturbance in the vicinity of the nest, such as temporarily suspending work in the area. If the nest is determined to be inactive, the nest would be removed under direct supervision of the qualified biologist.
APM BIO-6	All excavated holes or trenches that are not be filled at the end of a workday would be covered, or a wildlife escape ramp would be installed to prevent the inadvertent entrapment of wildlife species.
APM BIO-7	The use of outdoor lighting during construction and O&M of the proposed Fern Road Substation would be minimized whenever practicable. Photocell controlled lighting (motion detection) would be provided at a level sufficient to provide safe entry and exit to the proposed Fern Road Substation and control building. All lighting would be selectively placed, shielded, and directed downward to the maximum extent practicable. Night work would be avoided to the maximum extent.
APM BIO-8	A Workers Environmental Awareness Program (WEAP) would be implemented to educate all construction and O&M workers on site-specific biological and non-biological resources and proper work practices to avoid harming wildlife during construction or O&M activities.
APM BIO-9	Prior to initial vegetation clearance and ground-disturbing activities, a qualified biologist would conduct pre-construction sweeps of the Proposed Project work area for special-status wildlife and plants. In the event of the discovery of a previously unknown special-status plant, the area would be marked as a sensitive area and would be avoided to the maximum extent practicable. If avoidance of species listed under the Federal or California Endangered Species Act is not possible, USFWS and/or CDFW would be consulted. Any other construction activities that may impact sensitive biological resources including movement of construction equipment and other activities outside of the fenced/paved areas within wildlife habitat would be monitored by a qualified biologist. The monitor/inspector would have the authority to stop work activities upon the discovery of sensitive biological resources and allow construction to proceed after the identification and implementation of steps required to avoid or minimize impacts to sensitive resources.
APM BIO-10	All sensitive biological areas (including the populations of silvery false lupine and ephemeral and intermittent streams and seasonal wetlands) within the Proposed Project work area would be clearly marked prior to construction commencing to restrict construction activities and equipment from entering these areas. At least a 5-foot buffer from all construction activities would be established around these areas. These buffers would be inspected regularly to ensure that they remain in place.
APM BIO-11	Vegetation and tree removal would be avoided to the maximum extent feasible to allow construction to proceed.
APM BIO-12	All areas that are temporarily disturbed by the Proposed Project activities would be restored to approximate pre-construction conditions. Areas that are disturbed by grading, augering, or equipment movement would be restored to their original contours and drainage patterns. Work areas would be decompacted, and salvaged topsoil materials would be re-spread following recontouring to aid in restoration of temporary disturbed areas. A project-specific Restoration and Revegetation Plan (Restoration Plan) would be prepared for the Proposed Project and submitted to the CPUC for approval prior to construction activities commencing. The Restoration Plan would include procedures for restoration activities, including plant species to be planted, procedures to reduce weed encroachment, and expected timeframes for restoration and revegetation. Revegetation activities would be conducted in accordance with the Proposed Project SWPPP and APMs. Restoration could include recontouring,

TABLE 2-9 (CONTINUED)
APPLICANT PROPOSED MEASURES FOR THE FERN ROAD SUBSTATION FACILITIES

APM Number	Description
APM BIO-12 (cont.)	reseeding, and planting replacement vegetation, as appropriate. Temporarily disturbed areas would be revegetated with appropriate weed-free native seed mixes or species that are characteristic of the plant community that was disturbed.
APM BIO-13	All vehicles would be cleaned prior to arrival on the Proposed Project site to avoid spread of noxious weeds and non-native invasive plant species.
APM CUL-1	LSPGC would design and implement a Worker Environmental Awareness Program (WEAP) that would be provided to all Project personnel who may encounter and/or alter historical resources or unique archaeological properties, including construction supervisors and field personnel. The WEAP would be submitted and approved by the CPUC prior to construction. No construction worker would be involved in ground disturbing activities without having participated in the WEAP. The WEAP would include, at a minimum: • Training on how to identify potential cultural resources and human remains during the construction process; • A review of applicable local, state and federal ordinances, laws and regulations pertaining to historic preservation; • A discussion of procedures to be followed in the event that unanticipated cultural resources are discovered during implementation of the Proposed Project; • A discussion of disciplinary and other actions that could be taken against persons violating historic preservation laws and LSPGC policies; and • A statement by the construction company or applicable employer agreeing to abide by the WEAP, LSPGC policies and other applicable laws and regulations. The WEAP may be conducted in concert with other environmental or safety awareness and education programs for the Proposed Project, provided that the program elements pertaining to cultural resources are provided by a Qualified Archaeologist, defined as an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for Archaeology (36 CFR Part 61).
APM CUL-2	If proposed facilities and ground-disturbing activities move outside the previously surveyed acreage, the new areas would be subjected to a cultural resources inventory report that includes archaeological, unique archaeological, and built-environment resources within all areas that could be affected by the Proposed Project. Impacts to any historical resources or unique archaeological resources identified as a result of the inventory report would be avoided by project redesign, capping, or other appropriate treatment.
APM CUL-3	In the event that previously unidentified cultural resources are uncovered during implementation of the Proposed Project, all work within 100 feet (30 meters) of the discovery would be halted and redirected to another location. LSPGC's qualified archaeologist would inspect the discovery and determine whether further investigation is required. If the discovery can be avoided and no further impacts would occur, the resource would be documented on California Department of Parks and Recreation cultural resource records and no further effort would be required. If the resource cannot be avoided and may be subject to further impact, LSPGC would evaluate the significance and CRHR eligibility of the resources and, in consultation with the CPUC, determine appropriate treatment measures. Preservation in place shall be the preferred means to avoid impacts to significant historical resources. Consistent with CEQA Section 15126.4(b)(3), if it is demonstrated that resources cannot feasibly be avoided, LSPGC's qualified archaeologist, in consultation with the CPUC and, if the unearthed resource is prehistoric or Native American in nature, the Native American monitor shall develop additional treatment measures, such as data recovery consistent with CEQA Guidelines 15126.4(b)(3)(C)- (D). Archaeological materials recovered during any investigation shall be curated at an accredited curation facility or transferred to the appropriate tribal organization.
APM CUL-4	Avoidance and protection of inadvertent discoveries that contain human remains shall be the preferred protection strategy where feasible and otherwise managed pursuant to the standards of CEQA Guidelines 15064.5(d) and (e). If human remains are discovered during construction or O&M activities, all work shall be diverted from the area of the discovery, and the CPUC shall be informed immediately. The Applicant shall contact the county coroner to determine whether or not the remains are Native American. If the remains are determined to be Native American, the coroner would contact the NAHC. The NAHC would then identify the person or persons it believes to be the most likely descendant of the deceased Native American, who in turn would make recommendations for the appropriate means of treating the human remains and any associated funerary objects. No part of the Proposed Project is located on federal land and no federal monies are involved; therefore, the Proposed Project is not subject to the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA).

TABLE 2-9 (CONTINUED)
APPLICANT PROPOSED MEASURES FOR THE FERN ROAD SUBSTATION FACILITIES

APM Number	Description
APM GEO-1	The following measures would be implemented during construction to minimize impacts from geological hazards and disturbance to soils: • Keep vehicle and construction equipment within the limits of the Project and in approved construction work areas to reduce disturbance to topsoil; • Prior to grading, salvage topsoil to a depth of six inches or to actual depth if shallower (as identified in site-specific geotechnical investigation report) to avoid mixing of soil horizons; • Avoid construction in areas with saturated soils, whenever practical, to reduce impacts to soil structure and allow safe access. Similarly, avoid topsoil salvage in saturated soils to maintain soil structure; • Keep topsoil material on-site in the immediate vicinity of the temporary disturbance or at a nearby approved work area to be used in restoration of temporary disturbed areas. Temporary disturbance areas would be re-contoured following construction to match pre-construction grades. Areas would be allowed to re-vegetate naturally or would be reseeded with a native seed mix from a local source if necessary. On-site material storage would be sited and managed in accordance with all required permits and approvals; and • Keep vegetation removal and soil disturbance to a minimum and limited to only the areas needed for construction. Removed vegetation would be disposed of off-site to an appropriate licensed facility or can be chipped on-site to be used as mulch during restoration.
APM GEO-2	The structural requirements of the CBC are applicable to certain structural components of the Project, including the control enclosures. LSPGC and/or its contractors would design such structures to comply with such CBC standards and shall adhere to and implement all design recommendations and parameters established in the Project's Supplemental Geotechnical Engineering Report to be prepared and submitted to the CPUC upon completion.
APM PALEO-1	Prior to the issuance of grading permits, a qualified paleontologist shall be retained to prepare and oversee the PRMMP for the Proposed Project. The PRMMP shall contain monitoring procedures, define areas and types of earthwork to be monitored, and provide methods for determining the significance of fossil discoveries. The PRMMP shall direct that a qualified paleontological monitor (working under the supervision of the qualified paleontologist) shall monitor all excavations or grading at depths exceeding two feet bgs in sedimentary deposits of the Montgomery Creek Formation and the sedimentary portions of the Tuscan Formation. Determination of whether or not the Tuscan Formation on the Proposed Project site contains sedimentary deposits would be made based either on results of any new geotechnical information or on observations of fresh exposures during initial earthwork in the northern portion of the Proposed Project site. The duration and timing of paleontological monitoring shall be determined by the qualified paleontologist based on the grading plans and construction schedule and may be modified based on the initial results of monitoring. The PRMMP shall state that any fossils that are collected shall be prepared to the point of curation, identified to the lowest reasonable taxonomic level, and curated into a recognized professional repository (e.g., SDNHM, UCMP), along with associated field notes, photographs, and compiled fossil locality data. Donation of the fossils shall be accompanied by financial support for initial specimen curation and storage. Following the completion of the above tasks, the qualified paleontologist shall prepare a final mitigation report that outlines the results of the mitigation program. This report shall include discussions of the methods used, stratigraphic section(s) exposed, fossils collected, and significance of recovered fossils. The report shall be submitted to appropriate agencies, as well as to the designated repository.
APM PALEO-2	If paleontological resources are encountered during ground disturbing activities when the qualified paleontologist (or paleontological monitor) is not on site (an inadvertent discovery), earthwork within the vicinity of the discovery shall immediately halt, and the qualified paleontologist shall evaluate the significance of the fossil discovery. If the fossil discovery is deemed significant, the fossil shall be recovered using appropriate recovery techniques based on the type, size, and mode of preservation of the unearthed fossil. Earthwork may resume in the area of the fossil discovery once the fossil has been recovered and the qualified paleontologist deems the site has been mitigated to the extent necessary.
APM GHG-1	The following measures shall be implemented to minimize greenhouse gas emissions from all construction sites: • If suitable park-and-ride facilities are available in the Project vicinity, construction workers shall be encouraged to carpool to the job site. • Demolition debris shall be recycled for reuse to the extent feasible.

TABLE 2-9 (CONTINUED)
APPLICANT PROPOSED MEASURES FOR THE FERN ROAD SUBSTATION FACILITIES

APM Number	Description
APM GHG-1 (cont.)	• The contractor shall use line power instead of diesel generators at all construction sites where line power is available. • The contractor shall maintain construction equipment per manufacturing specifications.
APM HAZ-1	A site-specific SPCCP would be prepared prior to the initiation of construction. In the event of an accidental spill, the Project would be equipped with secondary containment that meets SPCCP Guidelines. The secondary containment would be sufficiently sized to accommodate accidental spills.
APM HAZ-2	A HMMP would be prepared and implemented for the Project. The plan would be prepared in accordance with relevant state and federal guidelines and regulations (e.g., Cal/OSHA). The plan would include the following information related to hazardous materials and waste, as applicable: • A list of hazardous materials present on-site during construction and O&M to be updated as needed along with product Safety Data Sheets and other information regarding storage, application, transportation, and disposal requirements; • A Hazardous Materials Communication (i.e., HAZCOM) Plan; • Assignments and responsibilities of Project health and safety roles; • Standards for any secondary containment and countermeasures required for hazardous materials; • Spill response procedures based on product and quantity. The procedures would include materials to be used, location of such materials within the Proposed Project area, and disposal protocols; and • Protocols for the management, testing, reporting, and disposal of potentially contaminated soils or groundwater observed or discovered during construction. This would include termination of work within the area of suspected contamination sampling by an OSHA trained individual and testing at a certified laboratory. The Project would also be equipped with lead-acid batteries to provide backup power for monitoring, alarm, protective relaying, instrumentation and control, and emergency lighting during power outages. Secondary containment would be constructed around and under the battery racks, and the HMMP would address containment from a battery leak. The plan would be provided to the CPUC prior to construction for recordkeeping. Plan updates would be made and submitted as needed if construction activities change whereas the existing plan does not adequately address the Project.
APM HAZ-3	In the event that soils suspected of being contaminated (on the basis of visual, olfactory, or other evidence) are removed during site grading activities or excavation activities, the excavated soil shall be tested, and if contaminated above hazardous waste levels, shall be contained and disposed of at a licensed waste facility. The presence of known or suspected contaminated soil shall require testing and investigation procedures to be supervised by a qualified person, as appropriate, to meet state and federal regulations.
APM HAZ-4	LSPGC shall implement ongoing fire patrols during the fire season as defined each year by local, state, and federal fire agencies. These dates vary from year to year, generally occurring from late spring through dry winter periods. During Red Flag Warning events, as issued daily by the National Weather Service, all construction/maintenance activities shall cease, with an exception for transmission line testing, repairs, unfinished work, or other specific activities which may be allowed if the facility/equipment poses a greater fire risk if left in its current state. The Proposed Project area is located within an area designated as a Very High or High Fire Hazard Severity Zone; thus, LSPGC will prepare a Construction Fire Prevention Plan prior to construction. All construction/maintenance crews and inspectors shall be provided with radio and cellular telephone access that is operational in all work areas and access routes to allow for immediate reporting of fires. Communication pathways and equipment shall be tested and confirmed operational each day prior to initiating construction/maintenance activities at each work site. All fires shall be reported to the fire agencies with jurisdiction in the area immediately upon discovery of the ignition. All construction/maintenance personnel shall be trained in fire-safe actions, initial attack firefighting, and fire reporting. All construction/maintenance personnel shall be trained and equipped to extinguish small fires in order to prevent them from growing into more serious threats. All construction/maintenance personnel shall carry at all times a laminated card and be provided a hard hat sticker that list pertinent telephone numbers for reporting fires and defining immediate steps to take if a fire starts. Information on laminated contact cards and hard hat stickers shall be updated and redistributed to all construction/maintenance personnel and outdated cards and hard hat stickers shall be destroyed prior to the initiation of construction/maintenance activities on the day the information change goes into effect.

TABLE 2-9 (CONTINUED)
APPLICANT PROPOSED MEASURES FOR THE FERN ROAD SUBSTATION FACILITIES

APM Number	Description
APM HAZ-4 (cont.)	Construction/maintenance personnel shall have fire suppression equipment on all construction vehicles. Construction/maintenance personnel shall be required to park vehicles away from dry vegetation. Water tanks, fire extinguishers, and/or water trucks shall be sited or available at active project sites for fire protection during construction. The Applicant shall coordinate with applicable local fire departments prior to construction/maintenance activities to determine the appropriate amounts of fire equipment to be carried on vehicles and, should a fire occur, to coordinate fire suppression activities.
APM WQ-1	Because the Project involves more than an acre of soil disturbance, a SWPPP would be prepared as required by the state NPDES General Permit for Discharges of Stormwater Associated with Construction Activity. This plan would be prepared in accordance with the Water Board guidelines and other applicable erosion and sediment control BMPs. Implementation of the plan would help stabilize disturbed areas and would reduce erosion and sedimentation. The SWPPP would designate BMPs that would be followed during and after construction of the Project, examples of which may include the following erosion-minimizing measures: • Using drainage control structures (e.g., straw wattles or silt fencing) to direct surface runoff away from disturbed areas; • Strictly controlling vehicular traffic; • Implementing a dust-control program during construction; • Restricting access to sensitive areas; • Using vehicle mats in wet areas; or • Revegetating disturbed areas, where applicable, following construction. In areas where soils are to be temporarily stockpiled, soils would be placed in a controlled area and would be managed with similar erosion control techniques. Where construction activities occur near a surface waterbody or drainage channel and drainage from these areas flows towards a waterbody or wetland, stockpiles would be placed at least 100 feet from the waterbody or would be properly contained (such as berming or covering to minimize risk of sediment transport to the drainage). Mulching or other suitable stabilization measures would be used to protect exposed areas during and after construction activities. Erosion-control measures would be installed, as necessary, before any clearing during the wet season and before the onset of winter rains. Temporary measures, such as silt fences or wattles intended to minimize erosion from temporarily disturbed areas, would remain in place until disturbed areas have stabilized.
APM WQ-2	Groundwater encountered during construction would be handled and discharged in accordance with all state and federal regulations including the following: • Recovered groundwater would be contained on site and tested prior to discharge; • If testing determines water is suitable for land application, discharge may be applied to flat, vegetated, upland areas, used for dust control, or used in other suitable construction operations (e.g., concrete mixing); • Land application would be made in a manner that discharge does not result in substantial erosion and would not be made directly to receiving waters or storm drains; • Water unsuitable for land application would be disposed of at an appropriately permitted facility; and • Discharge to surface waters or storm drains may occur only if permitted by the agency(ies) with jurisdiction over the resource (e.g., USACE, RWQCB, and/or CDFW, as applicable).
APM PS-1	LSPGC would coordinate construction activities with local law enforcement and fire protection agencies. Emergency service providers would be notified of the timing, location, and duration of construction activities.
APM TRA-1	LSPGC would prepare a Traffic Control Plan to describe measures to be taken to guide traffic (such as signs and workers directing traffic), safeguard construction workers, provide safe passage, and minimize traffic impacts. LSPGC would follow its standard safety practices as needed, including installing appropriate barriers between work zones and transportation facilities, posting adequate signs, and using proper construction techniques. LSPGC would follow the recommendations in this manual regarding basic standards for the safe movement of traffic on highways and streets in accordance with Section 21400 of the California Vehicle Code. If required for obtaining a local encroachment permit, LSPGC would establish a Traffic Management Plan (TMP) to address haul routes, timing of heavy equipment and building material deliveries, potential street and/or lane closures, signing, lighting, and traffic control device placement. Construction activities would be coordinated with local law enforcement and fire protection agencies. Emergency service providers would be notified as required by the local permit of the timing, location, and duration of construction activities.

TABLE 2-9 (CONTINUED)
APPLICANT PROPOSED MEASURES FOR THE FERN ROAD SUBSTATION FACILITIES

APM Number	Description
APM UTIL-1	The Applicant shall notify all utility companies with utilities located within or crossing the proposed Fern Road Substation Facilities' Rights-of-Way (ROW) to locate and mark existing underground utilities along the entire length of the proposed Fern Road Substation Facilities at least 14 days prior to construction. No subsurface work shall be conducted that would conflict with (i.e., directly impact or compromise the integrity of) a buried utility. In the event of a conflict, areas of subsurface excavation or pole installation shall be realigned vertically and/or horizontally, as appropriate, to avoid other utilities and provide adequate operational and safety buffering. In instances where separation between third-party utilities and underground excavations is less than 5 feet, the Applicant shall submit the intended construction methodology to the owner of the third-party utility for review and approval at least 30 days prior to construction. Construction methods shall be adjusted as necessary to assure that the integrity of existing utility lines is not compromised.
APM FIRE-1	**Construction Fire Prevention Plan** A Proposed Project-specific Construction Fire Prevention Plan (Plan) for construction of the Proposed Project shall be submitted for review prior to initiation of construction. A draft copy of the Plan shall be provided to CPUC and state and local fire agencies at least 90 days before the start of any construction activities in areas designated as Very High or High Fire Hazard Severity Zones. Plan reviewers shall also include federal, state, or local agencies with jurisdiction over areas where the Proposed Project is located. The final Plan shall be approved by CPUC no more than 60 days after receipt from the applicant. The Plan shall be fully implemented throughout the construction period and include the following at a minimum: • The purpose and applicability of the Plan • Responsibilities and duties • Preparedness training and drills • Procedures for fire reporting, response, and prevention that include: – Identification of daily site-specific risk conditions – The tools and equipment needed on vehicles and to be on hand at sites – Reiteration of fire prevention and safety considerations during tailboard meetings – Daily monitoring of the red-flag warning system with appropriate restrictions on types and levels of permissible • Coordination procedures with federal and local fire officials • Crew training, including fire safety practices and restrictions • Method(s) for verifying that all Plan protocols and requirements are being followed A project fire marshal or similar qualified role shall be established to enforce all provisions of the Construction Fire Prevention Plan as well as perform other duties related to fire detection, prevention, and suppression for the Proposed Project. Construction activities shall be monitored to ensure implementation and effectiveness of the Plan. **Fire Prevention Practices (Construction and Maintenance)** The Applicant shall implement ongoing fire patrols during the fire season as defined each year by local, state, and federal fire agencies. These dates vary from year to year, generally occurring from late spring through dry winter periods. During Red Flag Warning events, as issued daily by the National Weather Service, all construction/maintenance activities shall cease, with an exception for transmission line testing, repairs, unfinished work, or other specific activities which may be allowed if the facility/equipment poses a greater fire risk if left in its current state. All construction/maintenance crews and inspectors shall be equipped with radio or cellular telephone access that is operational in all work areas and access routes to allow for immediate reporting of fires. Communication pathways and equipment shall be tested and confirmed operational each day prior to initiating construction/maintenance activities at each work site. All fires shall be reported to the fire agencies with jurisdiction in the area immediately upon discovery of the ignition. All construction/maintenance personnel shall be trained in fire-safe actions, initial attack firefighting, and fire reporting. All construction/maintenance personnel shall be trained and equipped to extinguish small fires in order to prevent them from growing into more serious threats. All construction/maintenance personnel shall carry at all times a laminated card and be provided a hard hat sticker that list pertinent telephone numbers for reporting fires and defining immediate steps to take if a fire starts. Information on laminated contact

TABLE 2-9 (CONTINUED)
APPLICANT PROPOSED MEASURES FOR THE FERN ROAD SUBSTATION FACILITIES

APM Number	Description
APM FIRE-1 (cont.)	cards and hard hat stickers shall be updated and redistributed to all construction/maintenance personnel, and outdated cards and hard hat stickers shall be destroyed prior to the initiation of construction/maintenance activities on the day the information change goes into effect. Construction/maintenance personnel shall have fire suppression equipment on all construction vehicles. Construction/maintenance personnel shall be required to park vehicles away from dry vegetation. Water tanks and/or water trucks shall be sited or available at active project sites for fire protection during construction. The Applicant shall coordinate with applicable local fire departments prior to construction/maintenance activities to determine the appropriate amounts of fire equipment to be carried on vehicles and, should a fire occur, to coordinate fire suppression activities.
APM FIRE-2	Fires shall be prevented or minimized by exercising care when operating utility vehicles within the right-of-way and access roads and by parking vehicles away from dry vegetation where hot catalytic converters could present the potential to ignite a fire. Fire protective mats or shields would be used during grinding or welding to prevent or minimize the potential for fire. In addition, the following fire prevention measures would be implemented: • Because of the isolated nature of this site, the Proposed Project would develop on-site emergency water storage for fire suppression. The water storage system would include an aboveground metallic tank with no less than 1,000 gallons of storage capacity, as well as a pump and hose to dispense water in an emergency situation. • Livestock grazing, that would be allowed to continue on the property and surround area, prevents fires by reducing flammable fuels in the Proposed Project vicinity. As practicable, livestock grazing programs should be designed and implemented so as to remove grass and forb vegetation immediately adjacent to the Proposed Project site prior to the commencement of fire season (March to September). • Vegetation that is capable of generating flame lengths greater than 12 feet would be evaluated annually and removed from the surface of the transmission line corridor as appropriate. This would include all woody vegetation types whose maximum average canopy exceeds six feet.
APM FIRE-3	In response to the need for fire mitigation during prolonged emergency response times, any Proposed Project facilities would be designed and constructed with resistance to wildfire ignition and consummation where feasible.
APM FIRE-4	All construction crews and inspectors shall be equipped with radio or cellular telephone access that is operational within the Proposed Project work area to allow for immediate reporting of fires. Fires shall be reported to the fire agencies with jurisdiction in the area upon discovery of the ignition. All construction personnel shall be trained in immediate steps to take if a fire starts, including fire reporting.
APM FIRE-5	LSPGC and/or its contractors shall notify applicable local fire departments of construction activities associated with the Proposed Project prior to construction and coordinate with emergency service providers regarding potential ingress and egress constraints that may occur. Prior to construction, an agreement would be in place with agencies providing wildfire response services to the Proposed Project area that would ensure they have access through the gated entrance off Fern Road in case of emergency.

NOTES:

APM = Applicant Proposed Measure; Applicant = LS Power Grid, California, LLC; ARB = California Air Resources Board; BMP = best management practice; bgs = below ground surface; Cal/OSHA = California Division of Occupational Safety and Health; CBC = California Building Code; CDFW = California Department of Fish and Wildlife; CEQA = California Environmental Quality Act; CFR = Code of Federal Regulations; CPUC = California Public Utilities Commission; CRHR = California Register of Historical Resources; CNG = compressed natural gas; HMMP = hazardous materials management plan; LNG = liquefied natural gas; LSPGC = LS Power Grid, California, LLC; mph = miles per hour; NAGPRA = Native American Graves Protection and Repatriation Act of 1990; NAHC = Native American Heritage Commission; NPDES = National Pollutant Discharge Elimination System; O&M = operation and maintenance; OSHA = U.S. Department of Labor, Occupational Safety & Health Administration; PG&E = Pacific Gas and Electric Company; Plan = Construction Fire Prevention Plan; PRMMP = Paleontological Resources Mitigation and Monitoring Plan; Project = Round Mountain 500-Kilovolt Dynamic Reactive Support Project; Restoration Plan = Restoration and Revegetation Plan; ROW = right-of-way; RWQCB = regional water quality control board; SCAQMD = South Coast Air Quality Management District; SDNHM = San Diego Natural History Museum; SMM = Standard Mitigation Measure; SPCCP = Spill Prevention, Control, and Countermeasure Plan; SWPPP = storm water pollution prevention plan; TMP = Traffic Management Plan; UCMP = University of California Museum of Paleontology; USACE = U.S. Army Corps of Engineers; USFWS = U.S. Fish and Wildlife Service; WEAP = Workers Environmental Awareness Program

The APMs are only applicable to the proposed Fern Road Substation Facilities portion of the Project unless specified as otherwise applicable to the PG&E Facilities.

SOURCE: LSPGC 2022a

2.5.6 Land Ownership, Right-of-Way Requirements, and Easement Applications

The parcel where the Fern Road Substation would be constructed is under private ownership. The Applicant holds an exclusive option to purchase at least 40 acres of an approximately 426-acre parcel of land. Before construction, the Applicant would exercise the option and secure fee title to those 40 acres or more. All proposed substation-related construction would be conducted on LSPGC-owned property after acquisition of the land by the Applicant through the purchase of a portion of a single privately owned parcel. The proposed Fern Road Substation would be located within the 40-acre portion of the parcel; the remaining 386 acres would retain its grazing use and public access rights and would not be physically constrained as a result of the land transaction.

There are no existing easements associated with the Fern Road Substation Facilities site; therefore, the Project would not require the replacement, modification, or relocation of existing ROW or easements. The Project would be sited on land owned by LSPGC. The PG&E 500 kV interconnection transmission lines to be constructed and owned by PG&E would require the granting of an easement by LSPGC to PG&E because the facility's change in ownership demarcation would occur on LSPGC property. The new permanent easement would be for a total of approximately 7.5 acres. Project construction would not require the relocation or demolition of commercial or residential property or structures. No temporary easements would be required for Project construction activities.

2.5.7 Summary of Electric and Magnetic Fields (Fern Road Substation Facility)

2.5.7.1 Introduction

Extremely low frequency (ELF) EMFs include alternating current (i.e., AC) fields and other electromagnetic, non-ionizing radiation from 1 hertz (Hz) to 300 Hz. Power lines, such as electrical wiring and electrical equipment, produce ELF fields at 60 Hz (OSHA 2022). This CEQA document does not consider EMFs in the context of the CEQA analysis of potential environmental impacts, for two reasons: (1) There is no agreement among scientists that EMFs create a potential health risk; and (2) there are no defined or adopted CEQA standards for defining health risk from EMFs.

On January 15, 1991, CPUC initiated an investigation to consider its role in mitigating the health effects, if any, of EMFs from utility facilities and power lines. A working group of interested parties, the California EMF Consensus Group, was created by CPUC to advise on this issue.

The California EMF Consensus Group's fact-finding process was open to the public, and its report incorporated public concerns. Its recommendations were filed with CPUC in March 1992. Based on the work of the California EMF Consensus Group, written testimony, and evidentiary hearings, CPUC's decision (93-11-013) was issued on November 2, 1993, to address public concern about possible EMF health effects from electric utility facilities. In August 2004, CPUC opened an Order Instituting Rulemaking to update the commission's policies and procedures

related to EMFs emanating from regulated utility facilities. The final decision, issued in CPUC Decision 06-01-042, included the following conclusions and findings:

> *We find that the body of scientific evidence continues to evolve. However, it is recognized that public concern and scientific uncertainty remain regarding the potential health effects of EMF exposure. We do not find it appropriate to adopt any specific numerical standard in association with EMF until we have a firm scientific basis for adopting any particular value.*

This continues to be CPUC's position regarding standards for EMF exposure. The State of California has not determined that any risk would merit adopting any specific limits or regulations regarding EMF levels from electric power facilities. Presently, there are no applicable federal, state, or local regulations related to EMF levels from power lines or related facilities, such as the Project. However, CPUC has implemented a decision (Decision 06-01-042) requiring utilities to incorporate "low-cost" or "no-cost" measures for managing EMFs from electrical facilities up to approximately 4 percent of total project cost. Four percent of total project budgeted cost is the benchmark for developing EMF reduction measure guidelines, and reduction measures should achieve some noticeable reductions.

Recognizing that there is a great deal of public interest and concern regarding potential health effects from human exposure to EMFs from power lines and related facilities, this document provides information regarding EMFs associated with electric utility facilities and human health and safety. Thus, the EMF information in this CEQA document is presented for the benefit of the public and decision makers.

2.5.7.2 Field Management Plan Information

The Project is a dynamic reactive device that would have a minimum of two equally sized STATCOM units. For purposes of preparation of the field management plan, the Project is equivalent to a substation. Generally, magnetic field values along a substation's perimeter are low compared to those within the substation's interior because of the distance to the energized equipment. Normally, the highest values of magnetic fields around the perimeter of a substation are caused by overhead power lines and underground duct banks entering and leaving the substation, rather than by substation equipment.

CPUC adopted the *EMF Design Guidelines for Electrical Facilities* dated July 21, 2006, which require preparation of a substation field management plan in the form of a checklist for construction of any new substation rated 50 kV or above. The field management plan guidelines state that magnetic field modeling for a new substation project is not required (CPUC 2006). Decision 06-01-042 has determined that low-cost field reduction measures are not required in open areas, such as agricultural grazing areas. Therefore, the checklist prepared by the Applicant evaluates only no-cost field reduction measures. The specific no-cost field reduction measures are described in the field management plan submitted by the Applicant (see Appendix B).

2.6 PG&E Facilities

As part of the Project, PG&E would construct 500 kV interconnection upgrades, substation upgrades, and distribution modifications to provide the connection for operation of the Fern Road Substation. The modifications, including all interconnection facilities, would be constructed and owned by PG&E and are considered part of the Project being reviewed under CEQA; however, they are not included in the LSPGC Application. This document collectively refers to these upgrades as the *PG&E Facilities*.

Based on the preliminary scope of the PG&E Facilities, they qualify as replacement of existing power line facilities up to 2,000 feet in length; substation modifications, not upgrades; or as distribution power line facilities (voltages under 50 kV), and would not require permitting or noticing under General Order (GO) 131-D. In any case, PG&E would separately comply with GO 131-D.

2.6.1 PG&E Interconnection Facilities

The modification of the PG&E Round Mountain–Table Mountain #1 and #2 500 kV transmission lines would be required for the interconnection of the Fern Road Substation Facilities to the regional transmission system, and is considered a connected project for purposes of CEQA compliance. Per PG&E's current plans, PG&E would reconfigure approximately 1,000 feet of both the Round Mountain–Table Mountain #1 and #2 500 kV transmission lines for an overhead connection to the Fern Road Substation. Each transmission line circuit would be connected to the Fern Road Substation bus to provide a connection to the proposed STATCOM units. The PG&E transmission line reconfiguration would require the removal of two existing lattice steel structures (approximately 130 feet tall) located just north of the proposed substation. Eighteen tubular steel pole (i.e., TSP) dead-end structures, three for each line, would be constructed to support the 90-degree turns necessary to connect to the Fern Road Substation. The new PG&E TSPs would be approximately 105–155 feet tall and would require new permanent easement rights from LSPGC. PG&E would adhere to raptor management best practices and the Avian Power Line Interaction Committee's standard guidelines for raptor-safe construction of the interconnection facilities (PG&E 2022b).

Interconnection with the Fern Road Substation Facilities would require monitoring operations at the Fern Road Substation. Monitoring facilities constructed, owned, and maintained by PG&E would be installed within the fence line of the Fern Road Substation. The monitoring facilities within this area would include the following components:

- A microwave tower with dedicated antennas for PG&E and LSPGC, approximately 199 feet tall.
- A 500 kV grounds storage building, approximately 20 feet by 40 feet.
- A security fence/wall, card readers, swing gate, and security cameras.
- A communications monitoring building, approximately 80 feet by 15 feet.

2.6.2 PG&E Substation Modifications

In addition to the modified 500 kV transmission lines described above, modifications would be required at the existing PG&E Round Mountain Substation and the Table Mountain Substation. The Round Mountain Substation would require the reduction of the series capacitor banks and enhanced protection (i.e., additional relays). The Table Mountain Substation would add series capacitor banks and enhanced protection that would require extending an internal substation isolation fence. New PG&E microwave path communications would also be included as part of the modifications, which would require installing one new microwave tower or monopole and modifying one existing microwave tower. These microwave towers or monopoles would range in height from approximately 30 feet to 100 feet. The new microwave towers or monopoles would be constructed at the existing PG&E Redding Service Center and Cascade Substation.

2.6.3 PG&E Distribution Modifications

The extension of distribution-level power to the Fern Road Substation would be provided through a new tap into an existing PG&E distribution line located on the west side of Fern Road. PG&E distribution modifications would include converting approximately eight wood poles from a single-phase 12 kV to a three-phase 12 kV. This would require PG&E to replace approximately 8 wood poles and reconductor approximately 1,600 feet of distribution line. The new wood or steel poles would be up to approximately 24 inches in diameter and 50 feet tall and would be installed as close to the original pole locations as feasible.

In addition, an electric overhead distribution line would be installed to provide backup power for the Fern Road Substation Facilities from an existing PG&E distribution line that currently runs parallel to Fern Road. The distribution line would be installed on approximately 35 new wood poles that would be placed on the northern side of the Fern Road Substation exterior access road and into the Fern Road Substation Facilities. The distribution poles would be set approximately 8–10 feet below ground-level and would be approximately 30–40 feet tall.

Because of its location, the distribution line would be built to fire hardening standards, which would require covering any exposed energized metallic parts that vegetation and/or raptors could contact, including conductors and connectors (PG&E 2022b).

Because the design of the distribution modifications is ongoing, illustrations of the distribution poles and their locations along the proposed exterior access road are not yet available. PG&E has also noted that the number of distribution poles mentioned above is a preliminary estimate pending specific design information (PG&E 2022b).

2.6.4 PG&E Facilities Construction

At the time this CEQA document was prepared, only preliminary designs were available for the PG&E Round Mountain Substation upgrades/modifications and interconnection facilities. The following section describes the available information and construction assumptions used in this analysis.

2.6.4.1 Tubular Steel Pole Dead-End Structure Construction

Tubular Steel Poles

As described previously, the Fern Road Substation Facilities would connect to the PG&E Round Mountain–Table Mountain #1 and #2 500 kV transmission lines via two approximately 1,000-foot transmission interconnection lines, constructed and supplied by PG&E, from the future PG&E TSP dead-end structures to the substation's take-off towers. A total of 18 TSPs, in six groups of three, would be installed as part of the 500 kV interconnection (see Figure 2-3).

See **Figure 2-8**, *Typical 3-Pole Dead-End Arrangement*, for a drawing that depicts the dead-end structures. The PG&E TSP dead-end structures would be installed on concrete pier foundations. Large augers and drill rigs would complete the required excavations and, if necessary, a reinforcing steel rebar cage would then be lowered into the excavation. In some cases, blasting may be necessary to clear rock from the excavation areas. An approximately 20-foot-tall form would be constructed, and concrete would then be poured to fill the excavation. Each completed foundation would be left to cure for approximately 28 days.

Equipment used for power pole installation typically includes truck-mounted augers and drills to excavate the holes. When foundations are needed, concrete trucks supply and pour concrete into the installed holes. Cranes are used to lift and place the new poles/towers into the newly installed holes or foundations. Cranes and/or bucket trucks lift workers into elevated positions to work on the newly installed poles or towers. Crew cab and pickup trucks are used to transport workers and tools to each installation site. Water trucks and portable water tanks are used to minimize fugitive dust during excavation and restoration activities.

Telecommunications

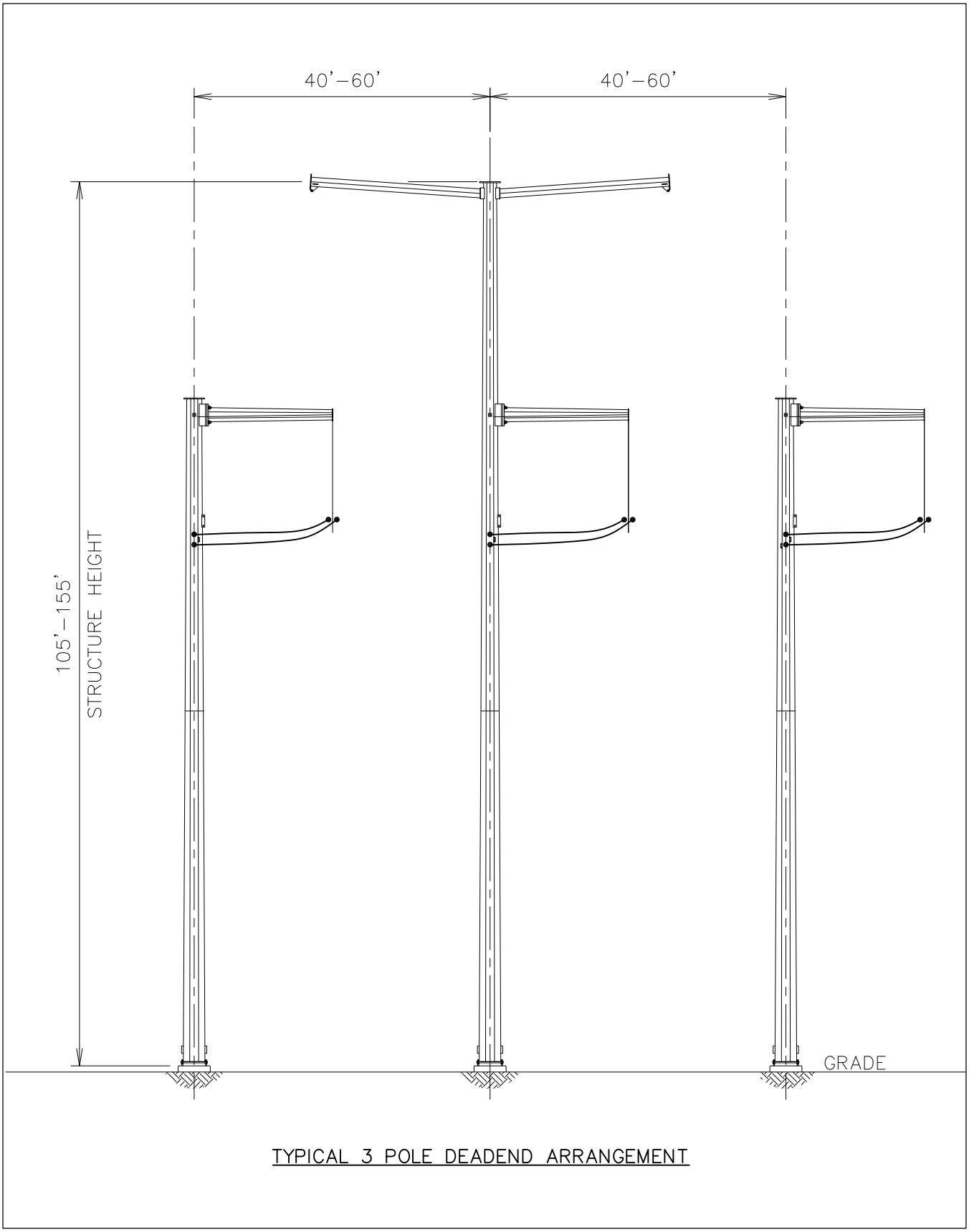
Given the remote location of the Project site and the lack of existing telecommunications lines in the area, no telecommunications lines are proposed. The substation would communicate with local PG&E substations via a microwave tower.

Blasting

Blasting may be required for the installation of foundations for PG&E's dead-end TSPs (see Section 2.5.2.1, *Site Preparation*).

2.6.4.2 Overland Access Routes

PG&E would not create any permanent access roads and would continue to use the existing transmission-line ROW access road, to the extent that it reaches the proposed TSP sites, or would use LSPGC's proposed exterior access road. Limited overland access would occur within the PG&E transmission line easement to TSP sites not directly adjacent to these access roads. The existing access road may require a slight realignment at the location of one TSP pole near an ephemeral stream, but detailed information regarding that issue is not yet available pending further information about the exact location of the pole relative to the roadway and the ephemeral stream (PG&E 2020b).



SOURCE: PG&E, 2022c

Round Mountain 500 kV Area Dynamic Reactive Support Project

Figure 2-8
Typical 3-Pole Dead End Arrangement

ESA

Overland access may be required during construction of the PG&E distribution modifications. This area would be restricted to the "Limits of Construction" area and would not require any ground disturbance or tree removal. Any overland access would avoid any federal or state jurisdictional waters.

2.6.4.3 Staging Areas

PG&E would utilize temporary work areas for short-term laydown of construction materials and equipment. PG&E would also utilize the Project's staging yard for longer term construction staging needs associated with transmission line work near the Fern Road Substation (see Section 2.5.2.3).

In addition to the staging yard located adjacent to the proposed Fern Road Substation, PG&E would utilize its existing Redding Service Center, Cascade Substation, Round Mountain Substation, and Table Mountain Substation properties as staging areas for associated work at those locations.

2.6.4.4 Construction Work Areas

PG&E 500 kV Interconnection

The PG&E 500 kV transmission line interconnection work would be completed within and around the existing PG&E ROW. The work area outside the existing ROW would be used for installation of the TSPs and conductor, removal of the existing lattice steel towers, laydown of materials, stringing of conductor, and any overhead work required for adjacent structures located north and south of the transmission line modifications.

PG&E Substation Modifications

The PG&E substation modifications at the Round Mountain Substation, Table Mountain Substation, Cascade Substation, and Redding Service Center would not require the expansion of the facilities beyond the utility-owned substation property. All work activities would be conducted within existing substation properties.

PG&E Distribution Modifications

The PG&E distribution modifications work areas would be along the west side of Fern Road and the north side of the Fern Road Substation's exterior access road.

Work Area Disturbance

Construction of the PG&E Facilities would result in both temporary and permanent disturbance, as summarized in **Table 2-10**, *PG&E Facilities Work Area Disturbance and Dimensions*. In total, the PG&E Facilities would result in approximately 0.15 acre of permanent disturbance and approximately 2.3 acres of temporary disturbance to mainly agricultural grazing land and previously disturbed lands. Figure 2-7, *Project Disturbance Areas*, depicts the temporary and permanent disturbance areas associated with the Project, including the areas for the PG&E Facilities.

TABLE 2-10
PG&E FACILITIES WORK AREA DISTURBANCE AND DIMENSIONS

Work Area	Temporary or Permanent Disturbance	Disturbance Area and Approximate Dimensions
PG&E Interconnection Facilities	Permanent	0.15 acre
	Temporary	1.8 acres
PG&E Distribution Modifications (the eight replacement poles only; the work areas associated with the 35 new wood poles are represented by the Exterior Access Road disturbance areas shown in Table 2-3)	Permanent	0.004 acre
	Temporary	0.054 acre
	Overland Travel	3.2 acres

NOTE: PG&E = Pacific Gas and Electric Company

SOURCE: LSPGC 2022a

2.6.4.5 Hazardous Materials and Waste

Similar to construction of the Fern Road Substation Facilities, construction of the PG&E Facilities would require the limited use of hazardous materials, such as fuels, lubricants, cleaning solvents, and chemicals, and would result in the generation of a limited amount of hazardous waste. All hazardous materials would be stored, handled, and used in accordance with applicable regulations. See Section 2.5.2.12 for additional discussion of hazardous materials, hazardous materials management, and solid waste generation, and the relevant regulations and management practices that would be followed during construction.

As described above, the PG&E distribution modifications would include the replacement of approximately eight existing PG&E distribution wood poles. The wood poles to be removed may have been treated with chemicals (e.g., penta oil, creosote, chemonite, and/or chromated copper, depending on the year of installation), which for certain uses and quantities can be considered regulated hazardous materials. Therefore, disposal of the wood poles would require specific testing and handling procedures prescribed by federal and state regulations.

2.6.4.6 PG&E Construction Workforce, Equipment, Trips, and Schedule

Construction Workforce and Equipment

Construction at the PG&E Facilities would occur simultaneously with construction of the Fern Road Substation Facilities (described in Section 2.5). The workers would likely commute from the greater Redding and Red Bluff areas. **Table 2-11**, *PG&E Facilities Construction Equipment and Workforce*, lists the expected equipment and personnel for each construction activity and briefly summarizes the construction work plan for each PG&E activity. It also lists the uses of the equipment for each construction phase. Minor changes to personnel and equipment needs may be identified during final Project design or during construction, based on site conditions.

TABLE 2-11
PG&E FACILITIES CONSTRUCTION EQUIPMENT AND WORKFORCE

Construction Phase/ Equipment Description*	Estimated Horsepower	Equipment Quantity	Estimated Workforce	Estimated Start Date	Estimated End Date	Hours/ Day
PG&E Substation Upgrades						
Manlift—40-Foot	49	1	5	September 2023	March 2025	10
Forklift—10,000 Pounds, Reach	130	1				10
Excavator—Mini	70	1				5
Loader—4–5 Yards	275	1				5
Pressure Digger—Lo-Drill (Tracked)	125	2				10
Pickup—1-Ton	410	3				10
Welding Truck	395	2				2
PG&E Distribution Modifications						
Pressure Digger—Lo-Drill (Tracked)	125	2	10	November 2024	January 2025	8
Truck—Dump, 5–6 Yards	210	1				1
Pickup—1-Ton	410	2				2
Crane—35-Ton	250	1				5
Forklift—10,000 Pounds, Reach	130	1				2
Manlift—40-Foot	49	3				8
Wire Trailer/Tensioner		1				2
Wire Puller	70	1				2
PG&E Interconnection Facilities						
Crane—35-Ton	250	2	15	February 2025	June 2025	10
Pressure Digger—Lo-Drill (Tracked)	125	2				8
Truck—Dump, 10–12 Yards	415	3				5
Wire Trailer/Tensioner		2				5
Manlift—40-Foot	49	3				10
Truck—Water, 4,000 Gallons	300	4				4
Manlift—120-Foot	74	2				10
Pickup—1-Ton	410	4				10

NOTE: PG&E = Pacific Gas and Electric Company

SOURCE: Based on LSPGC 2022a with revisions to update the schedule.

As shown in the table, a daily maximum of approximately 20 workers would be required during the overlap of the PG&E substation upgrades and the PG&E 500 kV interconnection. When combined with the Fern Road Substation Facilities portion of the Project (see Section 2.5), a total of 45 workers would be present at the Project sites for the above-grade development, PG&E distribution modifications, and PG&E substation upgrade phases of the Project. The equipment types and associated uses for the PG&E Facilities would be similar to those provided in Table 2-6 for the Fern Road Substation Facilities.

In addition to the use of the equipment identified above, pickup trucks and construction worker vehicles would travel to and from the work areas daily for each component of the PG&E Facilities.

Construction Traffic

All construction vehicles associated with the PG&E interconnection facilities would enter the site from the Fern Road Substation's external access road. Construction vehicles for the PG&E distribution modifications would access the site from Fern Road and/or the Fern Road Substation's external access road, and construction vehicles for the PG&E substation upgrades would access the sites via the existing substation access points. Signage and/or flaggers would be used to maintain public safety and reduce the potential for disruptions to traffic flow during construction. A designated parking area for worker vehicles would be established within the staging area north of the Fern Road Substation Facilities. Because construction trucks and equipment for the distribution modifications would access the site from a roadway maintained by Shasta County, PG&E would be required to secure an encroachment permit from the County. All encroachment permits would be reviewed and approved by Shasta County and would be provided to CPUC before implementation. No existing sidewalks, trails, paths, or driveways would be affected by the PG&E Facilities part of the Project.

The peak vehicle use associated with the PG&E Facilities would occur from approximately November 2023 through January 2024, during the overlap of the substation and distribution modifications. This vehicle use would involve hauling materials to the sites. **Table 2-12***, PG&E Facilities Estimated Average Daily Construction Traffic*, outlines the average daily truck and worker-related vehicle trips associated with the PG&E Facilities, as well as the vehicle miles traveled per construction phase.

TABLE 2-12
PG&E FACILITIES ESTIMATED AVERAGE DAILY CONSTRUCTION TRAFFIC

Construction Phase	Average Daily Truck Trips	Average Daily Worker Trips	Average Daily Truck VMT[a]	Average Daily Worker VMT[b]	Total Daily Average VMT
PG&E Distribution Modifications	3	3	120 miles	300 miles	420 miles
PG&E 500 kV Interconnection	3	3	120 miles	300 miles	420 miles
PG&E Substation Upgrades	3	3	120 miles	300 miles	420 miles

NOTES:
kV = kilovolt; PG&E = Pacific Gas and Electric Company; VMT = vehicle miles traveled
a. VMT based on 20-mile radius for all truck trips.
b. VMT based on a 50-mile radius for all worker trips.
SOURCE: LSPGC 2022a.

Vehicle trips by construction personnel would generally be made by workers arriving at the sites in the morning and leaving the sites at the end of the day; worker-related trips during the middle of the day would be limited. Construction activities would occur Monday through Saturday during daylight hours.

Construction Schedule

Construction of the PG&E Facilities is estimated to take a total of approximately 22 months to complete, without any unforeseen or unpredictable factors such as bad weather. The same as for the Fern Road Substation Facilities, construction is scheduled to begin in September 2023 and run through June 2025. **Table 2-13**, ***PG&E Facilities Construction Schedule,*** summarizes the construction schedule for the PG&E Facilities, outlined by phase.

TABLE 2-13
PG&E FACILITIES CONSTRUCTION SCHEDULE

Construction Phase	Start Date	End Date	Number of Workdays
PG&E Off-Site Substation Upgrades	September 2023	March 2025	210
PG&E Off-Site Distribution Modifications	November 2024	January 2025	90
PG&E 500 kV Interconnection	February 2025	June 2025	150

NOTES: kV = kilovolt; PG&E = Pacific Gas and Electric Company

The PG&E construction schedule is identified by LS Power Grid, California, LLC (LSPGC) as tentative because LSPGC is not responsible for that work.

SOURCE: Based on LSPGC 2022a with revisions to update the schedule.

Construction activities at the PG&E Facilities sites would generally be scheduled to occur during the hours of 7 a.m. to 7 p.m., 6 days per week (Monday through Saturday). Work outside of those hours is not anticipated to be necessary, but in case it is required, PG&E would provide advance notice to CPUC if the need for night work is known in advance. On infrequent occasions, construction activities could be scheduled outside of these hours to avoid or reduce schedule delays; to complete construction activities such as continuous concrete pours to accommodate the schedule for system outages; or to address emergencies.

Operation and Maintenance (PG&E Interconnection)

The PG&E Facilities would be part of PG&E infrastructure that is maintained regularly. The PG&E Facilities related to the Project would not result in a measurable increase in maintenance requirements or the addition of personnel.

2.6.5 Decommissioning (PG&E Interconnection)

It is unknown whether any of the PG&E Facilities would be removed or left in place after decommissioning of the proposed Fern Road Substation Facilities.

2.6.6 PG&E Construction Measures

The APMs (shown above in Table 2-9) would not apply to the PG&E Facilities. However, the PG&E Facilities would be subject to Avoidance and Minimization Measures (AMMs) 1 through 18 from PG&E's Multi-Regional Habitat Conservation Plan General and other PG&E BMPs. PG&E would implement the PG&E AMMs and BMPs identified in **Table 2-14** as part of the PG&E Facilities components of the Project.

TABLE 2-14
PG&E AVOIDANCE AND MINIMIZATION MEASURES AND BEST MANAGEMENT PRACTICES

AMM or BMP Number	Description
AMM-1	Conduct annual training on habitat conservation plan requirements for employees and contractors performing covered activities in the Plan Area that are applicable to their job duties and work. Tailboard and site-specific training will also be conducted prior to commencing work.
AMM-2	Park vehicles and equipment on pavement, existing roads, or other disturbed or designated areas (barren, gravel, compacted dirt).
AMM-3	Use existing access and ROW roads. Minimize the development of new access and ROW roads, including clearing and blading for temporary vehicle access in areas of natural vegetation.
AMM-4	Route off-road access paths and site work sites to minimize impacts on plants, shrubs, and trees, small mammal burrows, and unique natural features (e.g., rock outcrops).
AMM-5	Notify conservation landowners at least 2 business days prior to conducting covered activities on protected lands (state- or federally owned wildlife areas, ecological reserves, or conservation areas); more notice will be provided if practicable or if required by other permits. If the work is an emergency, as defined in PG&E's Utility Procedure ENV-8003P-01, PG&E will notify the conservation landowner within 48 hours after initiating emergency work. Although this notification is intended only to inform conservation landowner, PG&E will attempt to work with the conservation landowner to address landowner concerns.
AMM-6	Minimize potential for covered species to become trapped, injured, or killed in pipes, culverts, or under materials or equipment. Inspect pipes and culverts wide enough to be entered by a covered species that could inhabit the area where pipes are stored for wildlife species prior to moving pipes and culverts. Contact a biologist if a covered species or other federally-listed species is suspected or discovered.
AMM-7	Vehicle speeds on unpaved roads will not exceed 15 miles per hour. All covered wildlife species. Avoid and minimize direct mortality or injury of covered species that may cross unpaved roads in work sites.
AMM-8	Prohibit trash dumping, firearms, open fires (such as barbecues), hunting, and pets (except for safety in remote locations) at work sites.
AMM-9	In designated State Responsibility Areas, equip all motorized equipment with federally or state-approved spark arrestors. Ensure a backpack pump filled with water and a shovel and fire-resistant mats and/or windscreens is onsite during welding. During fire "red flag" conditions as determined by the California Department of Forestry and Fire Protection, prohibit welding. Each fuel truck will carry a large fire extinguisher with a minimum rating of 40 B:C. Clear parking and storage areas of all flammable materials.
AMM-10	Minimize the covered activity footprint and minimize the amount of time spent at a work site to reduce the potential for take of species.
AMM-11	Utilize standard erosion and sediment control BMPs (pursuant to the most current version of PG&E's Stormwater Field Manual for Construction Best Management Practices) to prevent construction site runoff into waterways. All covered aquatic species
AMM-12	Stockpile soil within established work site boundaries and locate stockpiles so as not to enter water bodies, stormwater inlets, other standing bodies of water. Cover stockpiled soil prior to precipitation events.
AMM-13	Fit open trenches or steep-walled holes with escape ramps of plywood boards or sloped earthen ramps at each end if left open overnight. Field crews will search open trenches or steep-walled holes every morning prior to initiating daily activities to ensure wildlife is not trapped. Field crews will not handle covered species. If any covered wildlife species is found, work will stop and a biologist will be notified. A biologist with appropriate take permits will relocate the species to adjacent habitat or the species will be allowed to naturally disperse, as determined by a biologist.
AMM-14	If the covered activity disturbs 0.1 acre or more of habitat for a covered species in grasslands, the field crew will revegetate the area with a commercial "weed free" seed mix. (Except in suitable habitat for Mount Hermon June beetle, Ohlone tiger beetle and Zyante band-winged grasshopper.)
AMM-15	Prohibit vehicular and equipment refueling within 250 feet of the edge of wetlands, streams, or waterways. If refueling must be conducted closer to wetlands, construct a secondary containment area subject to review by an environmental field specialist and/or biologist. Maintain spill prevention and cleanup equipment in refueling areas.
AMM-16	Maintain a buffer of 50 feet from the edge of wetlands, ponds, or riparian areas. If maintaining the buffer is not practicable because the covered activity footprint is within the buffered area, other measures as prescribed by the biologist or the HCP administrator to minimize impacts such as flagging access routes or paths, requiring foot access, restricting work until the dry season, or requiring a biological monitor during the activity.

TABLE 2-14 (CONTINUED)
PG&E AVOIDANCE AND MINIMIZATION MEASURES AND BEST MANAGEMENT PRACTICES

AMM or BMP Number	Description
AMM-17	Directionally fall trees away from an exclusion zone, if an exclusion zone has been defined. If this is not practicable, remove the tree in sections. Avoid damage to adjacent trees to the extent practicable. Avoid removal of snags and conifers with basal hollows, crown deformities, and/or limbs more than 6 inches in diameter.
AMM-18	Nests with eggs and/or chicks will be avoided: contact a biologist or the Avian Protection Program Manager for further guidance. Work will be stopped until the crew can obtain clarification from a biologist or the Avian Protection Program Manager on how to proceed.
BMP-1	**Nesting Birds.** If work is anticipated to occur within the nesting bird season (February—September), nesting birds, including raptors and other species protected under the Migratory Bird Treaty Act, may be impacted. If active nests are discovered, exclusionary measures and or designated avoidance buffers may be required and implemented according to the guidance in the PG&E Nesting Bird Management Plan. For nests discovered during construction, PG&E implements Work Procedure (WP) 2321 to identify and avoid impacts to nesting birds. WP 2321 generally requires assistance from the project biologist to determine if the construction action will impact the nest, and if so, identify whether alternative actions or monitoring can be implemented to avoid impacts. If active nests are observed during construction, crews must immediately alert the PG&E project biologist.
BMP-2	Identify wetlands, ponds, and riparian areas and establish and maintain a buffer of 50 feet around wetlands, ponds, and riparian areas. If maintaining the buffer is not practicable because the work sites are within any part of the buffered area, the field crew will implement other measures as prescribed by the biologist to minimize habitat impacts. These measures may include flagging access, requiring foot access, restricting work until the dry season, or requiring a biological monitor during the activity. Activities must maintain the hydrology necessary to support the wetland, pond, or riparian area (inclusive of downstream).
BMP-3	**Ringtail cat (*Basariscus astutas*) avoidance:** If a ringtail cat is observed on or in a PG&E facility or access road, it will be allowed to leave on its own. If the ringtail does not leave the work area on its own, contact the PG&E Biologist.
BMP-4	**Generation of Spoil- Substation.** All spoils generated from within PG&E substations require sampling and shall only be disposed of PG&E approved landfills listed in ERTC Attachment Guide, Section 4, Part 1: ENV-4000P-01-JA15 'Job Aid- PG&E Authorized Disposal & Recycling Facilities'. Spoils from within substations are prohibited from give-away. Copies of all manifests are required to be submitted to the Environmental Lead/Project Environmental Field Specialist (EFS).
BMP-5	**Asbestos.** If any loadbearing structure (poles, towers, concrete pads, etc.) is to be removed by PG&E, this work may require asbestos testing and notification to the local Air District or California Air Resource Board (CARB). Notify the Environmental Field Specialist (EFS) at least 45 calendar days prior to work commencing. The Air District must be notified at least 10 working days prior to work (demolition) commencing, some districts require 14 days. If the construction start date changes, notify the EFS immediately as notification to the Air District may need to be resubmitted. EFS is responsible for obtaining any necessary permits from the air district prior to start of work.
BMP-6	**Combustion Sources.** If project or work involves the installation of a combustion source that may require a local air district permit, please work with the EFS and Air SME to evaluate compliance requirements. Combustion sources, depending on HP or MMBtu rating may require an Authority to Construct Permit prior to any installation activities and a Permit to Operate prior to operating. Typical Combustion Sources that require permits are: • Engines ≤50 HP; • Boilers/Heaters that combust natural gas; and • Flares.
BMP-7	**Fugitive Dust General.** Types work activities where water trucks or other dust abatement methods are typically required include: excavation, trenching, grading, sand blasting, and demolition. The crew shall not allow visible dust to pass beyond the project boundary. The crew shall abate dust by: • Applying water to disturbed areas and to storage stockpiles; • Applying water in sufficient quantities to prevent dust plumes during activities such as clearing & grubbing, backfilling, trenching and other earth moving activities; • Limit vehicle speed to 15 miles per hour;

TABLE 2-14 (CONTINUED)
PG&E AVOIDANCE AND MINIMIZATION MEASURES AND BEST MANAGEMENT PRACTICES

AMM or BMP Number	Description
BMP-7 (cont.)	• Load haul trucks with a freeboard (space between top of truck and load) of six inches or greater; • Cover the top of the haul truck load; • Clean-up track-out at least daily; and The crew shall not generate dust in amounts that create a nuisance to wildlife or people, particularly where sensitive receptors such as schools and hospitals are located nearby or down-wind. During inactive periods (e.g. after normal working hours, weekends, and holidays), the crew shall apply water or other approved material to form a visible crust on the soil and restrict vehicle access.
BMP-8	**Hazardous Materials Business Plan.** The Environmental Field Specialist (EFS) shall be notified 30 days prior to a threshold exceeding hazardous material/waste being placed on-site. Threshold limits are: 200 cubic feet of compressed gases (1000 cubic feet for simple asphyxiation or the release of pressure only; carbon dioxide), 500 pounds of solids, or 55 gallons of liquids for more than 30 non-consecutive days. The following jurisdictions require notification for any amount of hazardous material/waste: Counties: Nevada, San Bernardino (waste only), San Francisco, Santa Clara (call for city specific details), Santa Cruz, Yuba (waste only) Cities: Bakersfield (waste only), Berkeley, Healdsburg, Sebastopol, Petaluma, Santa Clara (call for city specific details) NOTE: The Project EFS will develop an HMBP if it is required.
BMP-9	**Hazardous Waste Management Hazardous Materials Storage.** This project may involve the storage of hazardous materials and they must be managed according to regulations and best management practices. • All releases of hazardous materials must be immediately addressed. Maintain a spill kit onsite during the length of the project. Contact the project EFS for spills of hazardous materials/wastes to determine if agency notifications will be required and/or if additional resources are needed. • Hazardous materials, greater than 440 lbs and less than 1001 lbs can be transported on PG&E vehicles if the proper MOT shipping paper/MSDS accompanies the load. Contact the project EFS for additional guidance in these areas. • All hazardous materials containers must be marked correctly. • All hazardous materials signs must be displayed as required. • Non saturated oily rags (to be laundered) stored in non-combustible containers. • Emergency equipment such as fire extinguisher, eye wash, MSDS, etc. on-site. • Hazardous material containers must be in good condition. • All hazardous materials must be compatible with containers. • Hazardous materials containers are kept closed. • Immediately contact the local EFS and stop work if any of the following conditions occur. After hours or if the local EFS is unavailable, please call the Environmental Hotline at 800-874-4043. – Discharge or spill of hazardous substance. – If an Environmental Regulator visits the site; – Visually cloudy/muddy water is observed leaving the work area; – An underground storage tank is discovered; or – A subsurface component related to site remediation activities (e.g., monitoring well, recovery well, injection well) is discovered. No subsurface components may be impacted. • If during excavation unanticipated evidence of contamination is identified (e.g., staining, odors), work must cease and when safe to do so, cover the trench with steel plates. In order to minimize impacts to public safety and the environment, place contaminated soil on a polyethylene sheet (4 ml) and cover or place the contaminated soil in lined covered containers. Then contact your local/support EFS to determine the next steps. • If any subsurface components related to site remediation activities (e.g., monitoring well, recovery well, injection well) are discovered in the path of excavation, work must cease in that location and your EFS must be notified to determine the next steps. No subsurface components may be impacted.

TABLE 2-14 (CONTINUED)
PG&E AVOIDANCE AND MINIMIZATION MEASURES AND BEST MANAGEMENT PRACTICES

AMM or BMP Number	Description
BMP-10	**Sulfur Hexafluoride (SF_6) Gas Material/Waste Management.** Before accessing any equipment that may contain SF_6 gas byproduct waste, contact your local Environmental Field Specialist (EFS) at least two weeks in advance for assistance in arranging cleanup, transportation and disposal. PSC will retrieve, package, label and transport SF_6 byproducts. All SF_6 waste that is removed from a Substation must have proper shipping papers which could include a remote waste shipping paper or a manifest (manifests require a temporary EPA ID number). • Substation personnel shall contact PSC to retrieve, package, label, and transport SF_6 byproduct waste (i.e. fluorides of sulfur, metallic fluorides, etc.). All SF_6 byproduct waste that is removed must have proper shipping papers, which could include a remote waste shipping paper or a manifest (manifests require a permanent or temporary EPA ID number). • SF_6 cylinder tracking and facility inventory shall be managed in accordance with Utility Procedure TD-3350P-001. Advanced Specialty Gas (ASG) provides sole-source service in supplying, replacing, removal and recycling of SF_6 in all facilities. ASG provides 24-hour service in response to events involving SF_6 as well as delivery and removal of all SF_6 cylinders. Contact information: https://www.advancedspecialtygases.com.
BMP-11	**SPCC.** The local/support EFS shall be notified 30 days prior to an SPCC triggering event occurs (modification to existing or new storage of >1,320 gallons of oil in containers >55 gallons). If the oil volume is contained in anything greater than 55 gallons, the SPCC Plan must be certified by an engineer. The SPCC containment must be installed prior to moving onsite of quantities requiring containment. The PM number must remain open until the local/support EFS notifies you that the plan is certified by an engineer, and any necessary modifications are complete.
BMP-12	**Stormwater Measures.** For PG&E-owned substations, the Project EFS will provide the Stormwater Group with the following upon completion of the PER: Stormwater Needs Request Form, Soil Disturbance Calculation Spreadsheet, and a KMZ file showing the proposed work area. These documents shall be sent by the Project EFS, via email, to: stormwater@pge.com (if applicable). [Note: LSPGC will obtain the Storm Water Pollution Prevention Plan (SWPPP) for Fern Road Substation and the area immediately adjacent to it containing PG&E's monitoring facilities.]
BMP-13	**PG&E Good Housekeeping,** Stockpile Management, and Small Area Substation Construction Stormwater Management Activity Specific Erosion Sediment Control Plan (A-ESCPs) measures shall be implemented.
BMP-14	**Small Excavation: Construction Dewatering.** Dewatering of trenches or excavations may be required. The Environmental Lead/Project EFS shall be notified at least 30 days in advance to ensure the appropriate dewatering methods are used, proper notifications are made, and, if necessary, applicable authorizations/permits are obtained. All dewatering activities must be coordinated through the Environmental Lead/Project EFS throughout the duration of the project.
BMP-15	**Inadvertent Cultural Resource Discovery.** If cultural resources are observed during ground-disturbing activities (including, but not limited to flaked stone tools (projectile point, biface, scraper, etc.) and debitage (flakes) made of chert, obsidian, etc., groundstone milling tools and fragments (mortar, pestle, handstone, millingstone, etc.), faunal bones, fire-affected rock, dark middens, housepit depressions and human interments, small cemeteries or burial plots, cut (square) nails, containers or miscellaneous hardware, glass fragments, cans with soldered seams or tops, ceramic or stoneware objects or fragments, milled or split lumber, earthworks, feature or structure remains and trash dumps), the following procedures will be followed: • Stop all ground disturbing work within 100 feet of the discovery location to avoid impacts. • Immediately notify a PG&E Cultural Resource Specialist who will assess the discovery. • Leave the site or the artifact untouched. • Record the location of the resource, the circumstances that led to discovery, and the condition of the resource. • Do not publicly reveal the location of the resource and ensure the location is secured. • If unsure about the significance or antiquity of a discovery, photograph the artifact or feature with a scale (e.g., coin, tape measure, etc.) and send to a PG&E Cultural Resource Specialist for review. Comprehensive guidance on the protocol related to an inadvertent discovery of potentially significant cultural resources on a job site can be found in Utility Standard ENV-8005S or by consulting a PG&E Cultural Resource Specialist.

TABLE 2-14 (CONTINUED)
PG&E AVOIDANCE AND MINIMIZATION MEASURES AND BEST MANAGEMENT PRACTICES

AMM or BMP Number	Description
BMP-16	**Human Remains Protocol.** Section 7050.5 of the California Health and Safety Code (CHSC) states that it is a misdemeanor to knowingly disturb a human burial. In keeping with the provisions provided in 7050.5 CHSC and Public Resource Code 5097.98, if human remains are encountered (or are suspected) during any project-related activity: • Stop all work within 100 feet; • Immediately contact a PG&E Cultural Resource Specialist (CRS), who will notify the county coroner; • Secure location, but do not touch or remove remains and associated artifacts; • Do not remove associated spoils or pick through them; • Record the location and keep notes of all calls and events; and • Treat the find as confidential and do not publicly disclose the location. Upon discovery of cultural resources or suspected human remains, contact the Cultural Resources Specialist.
BMP-17	**Worker Awareness Training.** Prior to the start of any ground-disturbing activity, PG&E's Cultural Resource Specialist (CRS) shall prepare archeological, historical and paleontological resources sensitivity training materials for use during a Project-wide Worker Environmental Awareness Training (WEAP), or equivalent. The CRS shall make the training materials available for review and comment by the Native American group that expressed interest in the project. The WEAP shall be conducted by a qualified environmental trainer working under the supervision of the CRS. In the event construction crews are phased, additional trainings shall be conducted for new construction personnel. The training session shall focus on the recognition of the types of resources that could be encountered within the Project site and the procedures to be followed if they are found. PG&E and/or its contractor shall retain documentation demonstrating that all construction personnel attended the training prior to the start of work on the site, which documentation shall be made available upon request.
BMP-18	**Nighttime Construction.** PG&E will provide advance notice to CPUC if nighttime construction is planned in advance.
BMP-19	**Construction Equipment Air Quality.** PG&E will ensure that at least 41 percent of the on-site construction equipment associated with the PG&E interconnection facilities and distribution modifications include Tier 4 interim emissions controls and Level 3 diesel particulate filters by including this requirement in its contractor or internal specifications, with confirmation of the requirement provided to the CPUC. The hourly usage of diesel equipment that does not meet this standard shall be documented, with the logs available upon request.
BMP-20	**Bat-Safe Tree Removal.** If tree removal or trimming is necessary, PG&E will follow the procedures identified in Mitigation Measure BIO-1.
BMP-21	**APLIC Guidance.** PG&E will consider and incorporate Avian Power Line Interaction Committee (APLIC) design recommendations (2006, 2012), as applicable, for its 500 kV transmission line. For its distribution lines, conductors will be upgraded to tree-wire and all energized metallic parts will be covered, thereby eliminating or greatly minimizing the risk of bird collision or electrocution; and ensuring that any impacts would be less than significant.

NOTES:

A-ESCP = Activity Specific Erosion Sediment Control Plan; AMM = Avoidance and Minimization Measure; ASG = Advanced Specialty Gas; BMP = Best Management Practice; CARB = California Air Resources Board; CRS = Cultural Resource Specialist; EPA = U.S. Environmental Protection Agency; CHSC = California Health and Safety Code; EFS = Environmental Field Specialist; HCP = habitat conservation plan; HMBP = Hazardous Materials Business Plan; HP = horsepower; ID = identification; kV = kilovolt; lbs = pounds; ml = milliliters; MMBtu = million British thermal units; MSDS = Material Safety Data Sheet; PG&E = Pacific Gas and Electric Company; ROW = right-of-way; SF_6 = sulfur hexafluoride; SPCC = Spill Prevention, Control, and Countermeasure; SWPPP = storm water pollution prevention plan; WEAP = Worker Environmental Awareness Program; WP = Work Procedure

SOURCE: PG&E 2022a, 2022c

2.6.7 Right-of-Way Requirements or Easement Applications (PG&E Interconnection)

The PG&E 500 kV interconnection transmission lines and part of the PG&E distribution modifications that would be constructed and owned by PG&E would require the granting of an

easement by LSPGC to PG&E because the facility's change in ownership demarcation would occur on LSPGC property. The new permanent easement would be a total of approximately 7.5 acres.

2.6.8 Summary of Electrical and Magnetic Fields (PG&E Interconnection)

No summary of EMFs would be prepared for the PG&E Facilities.

2.7 Required Approvals

CPUC is the lead agency for the CEQA review of the Project. The Applicant must comply with CPUC's GO 131-D, which contains the permitting requirements for construction of the Project. In addition to the PTC that would be issued by CPUC, the Applicant would obtain approval for the Project from other state and local agencies, as required and outlined in **Table 2-15***, Anticipated Permit, Approval, and Consultation Requirements*.

TABLE 2-15
ANTICIPATED PERMIT, APPROVAL, AND CONSULTATION REQUIREMENTS

Permit/Approval/Consultation	Agency	Jurisdiction/Purpose
State Agencies		
Section 401 of the Federal Clean Water Act, National Pollutant Discharge Elimination System General Permit for Discharge of Construction Related Stormwater	State Water Resources Control Board	As directed by the State Water Resources Control Board, monitor development and implementation of SWPPPs and other aspects of the National Pollutant Discharge Elimination System permit and 401 certification program. SWPPPs are required for stormwater discharges associated with construction activities that disturb more than 1 acre of land.
California Public Utilities Code Section 1001 et seq. and CPUC General Order 131-D, Permit to Construct	California Public Utilities Commission	Compliance with General Order 131-D for substation and transmission line facilities and CEQA review and overall approval of the proposed project, including approval of a Permit to Construct.
Local/Regional Agencies		
Encroachment and Traffic Control Permit	Shasta County	Construction within the public right-of-way, specifically within Fern Road.
Building and Grading Permits (non-discretionary)	Shasta County	Construction of the control enclosure (building permit) and grading/fill for STATCOM substation pad (grading permit).
Subdivision Map Act	Shasta County	Authorization to subdivide private property.
Road Emissions Permit	Shasta County Air Pollution Control District	Control dust from unpaved roads.

NOTES: CEQA = California Environmental Quality Act; CPUC = California Public Utilities Commission; STATCOM = static synchronous compensator; SWPPP = storm water pollution prevention plan

SOURCE: LSPGC 2022a.

For the PG&E Facilities, PG&E would comply with GO 131-D separately from the Applicant's Project and does not anticipate a need for permitting or noticing. Other than the Permit to

Construct, PG&E would be required to obtain the same state, local, and regional agency approvals as described above in Table 2-15.

2.8 References

Avian Power Line Interaction Committee (APLIC). 2006. *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006*. Washington, DC, and Sacramento, CA: Edison Electric Institute, APLIC, and California Energy Commission.

———. 2012. *Reducing Avian Collisions with Power Lines: The State of the Art in 2012*. Washington, DC: Edison Electric Institute and APLIC. Washington, DC. Available: http://www.aplic.org/uploads/files/11218/Reducing_Avian_Collisions_2012watermarkLR.pdf.

California Independent System Operator (CAISO). 2018. *Final 2018–2019 Transmission Planning Process Unified Planning Assumptions and Study Plan.* March 30, 2018. Available: http://www.caiso.com/Documents/Final2018-2019StudyPlan.pdf. Accessed May 31, 2022.

California Public Utilities Commission (CPUC). 2006. *EMF Design Guidelines for Electrical Facilities.* July 21, 2006.

L.S. Power Grid California, LLC (LSPGC). 2022a. *Proponent's Environmental Assessment Application of LS Power Grid California, LLC for Permit to Construct the Round Mountain 500 kV Dynamic Reactive Support Project*. April 2002.

———. 2022b. Response to Data Request #2 for the Round Mountain 500 kV Dynamic Reactive Support Project. July 29, 2022.

Pacific Gas and Electric Company (PG&E). 2022a. Response to Data Request #1 for the Round Mountain 500 kV Dynamic Reactive Support Project. July 6, 2022.

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———. 2022c. Electronic mail from Cait Ribeiro of PG&E to Matt Fagundes of Environmental Science Associates. September 16, 2022.

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CHAPTER 3
Environmental Checklist and Discussion

3.1 Aesthetics

Issues:		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
I.	**AESTHETICS —** Except as provided in Public Resources Code Section 21099, would the project:				
a)	Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b)	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c)	In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d)	Create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area?	☐	☐	☒	☐

3.1.1 Visual Concepts and Terminology

For the purposes of this analysis, visual or aesthetic resources are defined as both the natural and built features of the landscape that contribute to a public viewer's experience and appreciation of a given environment. Definitions of the following terms and concepts are provided to aid readers' understanding of the content in this section.

Visual quality is defined as the overall visual impression or attractiveness of an area as determined by the particular landscape characteristics, including landforms, rock forms, water features, and vegetation patterns. The attributes of line, form, and color combine in various ways to create landscape characteristics whose variety, vividness, coherence, uniqueness, harmony, and pattern contribute to the overall visual quality of an area. For the purposes of this analysis, visual quality is defined according to three levels:

- *Indistinctive, or industrial*: Generally lacking in natural or cultural visual resource amenities typical of the region.
- *Representative*: Typical or characteristic of the region's natural and/or cultural visual amenities.

- *Distinctive*: Unique or exemplary of the region's natural or cultural scenic amenities.

Viewer exposure addresses the variables that affect viewing conditions from potentially sensitive areas. Viewer exposure considers the following factors:

- *Landscape visibility*—the ability to see the landscape.
- *Viewing distance*—the proximity of viewers to the Project.
- *Viewing angle*—whether the Project would be viewed from above (superior), from below (inferior), or from a level line of sight (direct).
- *Extent of visibility*—whether the line of sight is open and panoramic to the Project area or restricted by terrain, vegetation, and/or structures.
- *Duration of view*—the length of time the subject is within view.

Viewer types and volumes of use pertain to the types of use (e.g., public viewers including recreationists and motorists) and amounts of use (e.g., number of recreational users or motorists) with which various land uses are associated. Generally, recreational users tend to be more concerned with scenery and landscape character, whereas people who commute to work through a landscape daily tend to have a lower concern for visual or scenic quality.

Visual sensitivity is the overall measure of an existing landscape's susceptibility to adverse visual changes. People in different visual settings, typically characterized by different land uses surrounding a project, have varying degrees of sensitivity to changes in visual conditions depending on the overall visual characteristics of the place. In areas of more distinctive visual quality, such as designated scenic highways, designated scenic roads, parks, and recreational and/or natural areas, visual sensitivity is characteristically more pronounced. In areas of more indistinctive or representative visual quality, sensitivity to change tends to be less pronounced, depending on the level of visual exposure. This analysis of visual sensitivity is based on the combined factors of visual quality, viewer types and volumes, and visual exposure to the Project. Visual sensitivity is reflected according to high, moderate, and low visual sensitivity ranges.

Definitions for the following terms also are provided, as they are used to describe and assess the aesthetic setting for and impacts of the Project.

Color is the property of reflecting light of a particular intensity and wavelength (or mixture of wavelengths) to which the eye is sensitive. It is the major visual property of surfaces.

Contrast is the opposition or unlikeness of different forms, lines, colors, or textures in a landscape. The contrast can be measured by comparing project features with the major features in the existing landscape.

Form is the mass or shape of an object or objects that appear unified.

A ***Key Observation Point (KOP)*** is a point on a travel route or at a use area or a potential use area, where the view of a proposed change in scenery would be most revealing. For the purposes

of the following analysis, KOPs describe locations from which setting photographs were taken. KOPs for the Project are shown in **Figure 3.1-1**, *KOP Locations*.

Landscape character is the arrangement of a particular landscape as formed by the variety and intensity of the landscape features and the four basic elements of form, line, color, and texture. These factors give the area a distinctive quality that distinguishes it from its immediate surroundings.

Line is the path, real or imagined, that the eye follows when perceiving abrupt differences in form, color, or texture. Within landscapes, lines may be found as ridges, skylines, structures, changes in vegetative types, or individual trees and branches.

A ***scenic vista*** is an area that is designated, signed, and accessible to the public for the purposes of viewing and sightseeing.

A ***scenic highway*** is any stretch of public roadway that is designated as a scenic corridor by a federal, state, or local agency.

Sensitive receptors or sensitive viewpoints include individuals or groups of individuals that have views of a site afforded by a scenic vista, scenic highway, residence, or public recreation area.

Texture is the visual manifestation of the interplay of light and shadow created by the variations in the surface of an object or landscape.

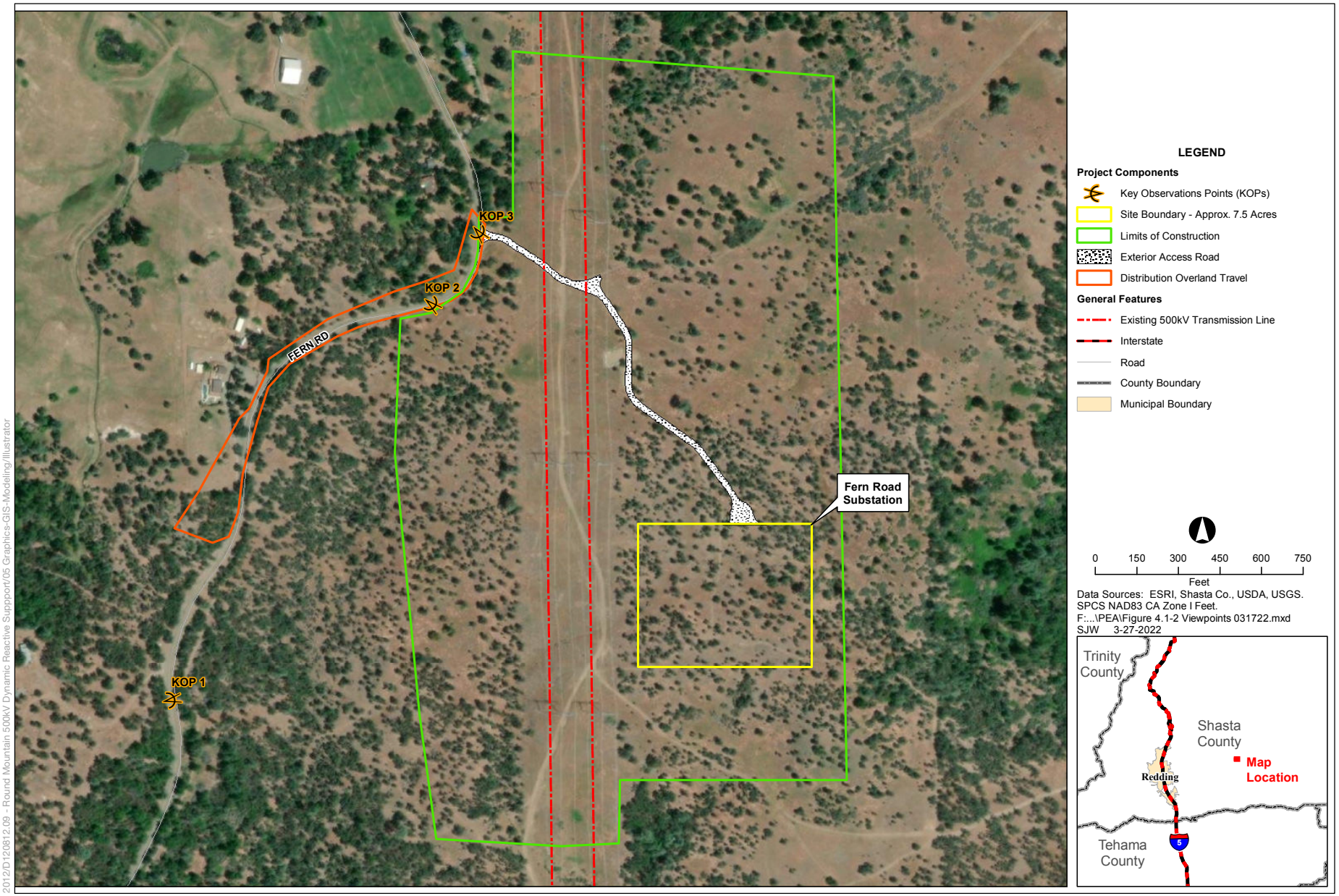
The ***viewshed*** for a project is the surrounding geographic area from which a project is likely to be seen, based on topography, atmospheric conditions, land use patterns, and roadway orientations.

3.1.2 Environmental Setting

The study area for this evaluation of potential impacts on aesthetics is a 5-mile radius around the Fern Road Substation site (Substation site). Additionally, because the Project would include physical changes at the Pacific Gas and Electric Company (PG&E) Redding Service Center, Round Mountain Substation, Table Mountain Substation, and Cascade Substation, the aesthetic conditions at these sites are also considered in this evaluation.

3.1.2.1 Existing Visual Quality of the Project Sites and Region

The Project is located primarily in the unincorporated area of south-central Shasta County approximately 1.6 miles northwest of the community of Whitmore. The Fern Road Substation site is adjacent to, and east of, the Round Mountain–Table Mountain #1 and #2 500-kilovolt (kV) transmission line corridor. The Substation site and land surrounding the site are currently used as grazing land. The land surrounding the Substation site is interspersed with rural residences and farm properties.



SOURCE: LS Power Grid California, LLC, 2022

Round Mountain 500 kV Dynamic Reactive Support Project

Figure 3.1-1
KOP Locations

ESA

From a regional perspective, the Project is in the southern portion of the Cascade Range. The Cascade Range physiographic province is characterized by a north-south trending chain of volcanoes. The Cascade Range province also includes some relatively flat lava plateaus, lava and cinder cones, plug domes, ash beds, and glacial deposits. Numerous rivers and streams flow through the range, dissecting the landscape and carving valleys and deep canyons.

The topography in the area of the Fern Road Substation site is primarily a series of hills and ridges separated by valleys. Although the Substation site is sparsely forested, the foreground, middle-ground, and background views to the north, south, and east of the site are dominated by forested lands on the neighboring hillsides and ridges. Views to the west under the existing transmission lines are dominated by scrubby vegetation along the fence row paralleling Fern Road and the agricultural residence across Fern Road. The vegetated fence row blocks views of the middle ground and background farther to the west.

The existing PG&E Cascade Substation and Redding Service Center are respectively located approximately 24 miles and 21 miles southwest of the Fern Road Substation site. The PG&E Cascade Substation is north of the city of Cascade and is primarily surrounded by agricultural fields, except for sparsely forested land to the north. The existing PG&E Redding Service Center is in a developed area in the southern portion of Redding, directly east of a residential area and west of the Redding Municipal Airport.

The PG&E Round Mountain Substation is located approximately 11 miles north of the Fern Road Substation site. The substation is located approximately 550 feet east of U.S. Highway (U.S.) 299 in the community of Round Mountain. A strip of undeveloped land and utility corridor lie between the roadway and substation. The trees within this strip obscure the view of the substation from U.S. 299. The adjacent areas to the north, south, and east are undeveloped or in agricultural use, or serve as utility corridors. To the west, U.S. 299 is lined by sparse commercial development, including a post office and community center.

The PG&E Table Mountain Substation is located approximately 75 miles south of the Fern Road Substation site and approximately 5 miles northwest of Oroville and Thermalito. This substation is located on Cotttonwood Road midway between SR 70 and SR 99. The area surrounding this substation is undeveloped, with agricultural uses approximately 1 mile to the west along SR 99.

Scenic Roadways

The nearest state-designated or eligible scenic highway to the Fern Road Substation site is State Route (SR) 44. SR 44 is eligible for designation from Redding in the west to SR 89 in the east (Caltrans 2018). At its nearest point, SR 44 is approximately 9.6 miles south of the Fern Road Substation site; the Substation site is not visible from SR 44. The Table Mountain Substation is located approximately 2 miles southwest of SR 70 (Feather River National Scenic Byway), a state highway eligible for scenic designation from the SR 149 interchange at Wicks Corner north to beyond the Plumas County line.

The Scenic Highways element of the Shasta County General Plan (General Plan) identifies scenic roadways at the county level. The General Plan acknowledges that SR 44 is a state-eligible scenic highway (Shasta County 2004). U.S. 299 from Redding in the west to SR 89 in the east is identified as a "corridor in which natural environment is dominant." With this designation, the General Plan states that new development in this corridor should be designed to relate to the natural character of the corridor. The Round Mountain Substation site is located within approximately 550 feet of this section of U.S. 299 in Round Mountain. At its nearest point, U.S. 299 is approximately 8.5 miles north-northwest of the Fern Road Substation site; the Substation site is not visible from U.S. 299. The Butte County General Plan also designates local scenic highways at the county level. There are no county scenic highways in the vicinity of the Table Mountain Substation.

There are no state-designated or locally designated scenic roadways within view of the existing PG&E Cascade Substation or the Redding Service Center.

Scenic Vistas

The Shasta County and Butte County general plans do not designate scenic vista points. A review of U.S. Bureau of Land Management trail maps was also conducted for trails in the vicinity that could have vistas toward any of the Project components, including the Fern Road Substation site, the PG&E distribution modifications alignment, and the Table Mountain Substation. There are no such known or designated trails in the area of these Project components in either Shasta County or Butte County (BLM n.d.). Likewise, there are no scenic vista points from which the existing PG&E Cascade Substation, Round Mountain Substation, Table Mountain Substation, or Redding Service Center are visible.

Scenic Character

The overall visual or scenic character of the Fern Road Substation site and surroundings is primarily agricultural (e.g., farmsteads, grazing lands) and undeveloped (e.g., rural). This visual character can be described as representative of the visible elements throughout the region. The generally rural landscape is dominated by open agricultural views interspersed with forested hillsides and ridges.

At the PG&E Cascade Substation, the visual character is generally rural and agricultural, with residences interspersed nearby. However, this existing facility is visually dominant at this location, bringing an industrial appearance into an otherwise rural visual character. The Redding Service Center is located near Redding Municipal Airport and airport-related development, with residential development to the west. The visual character at this location reflects this mix of development.

The visual character in the vicinity of the Round Mountain Substation is mostly rural and agricultural, with a community feel along U.S. 299 and some residential and commercial development serving the rural area. The visual character surrounding the Table Mountain Substation site is primarily undeveloped grassland.

3.1.2.2 Viewer Types and Exposures

Local residents, primarily those who live along Fern Road, are the most common viewer group in the study area for the Fern Road Substation site. The closest residence to the Substation site is approximately 0.28 mile to the northwest on Fern Road. Local and regional travelers who are familiar with the Project vicinity or seeking an alternate route to destinations in the region could use Fern Road on an occasional basis. Although there are no designated bike lanes on any road in the vicinity of the Substation site, recreational cyclists could travel Fern Road. Fern Road is forested on both sides, and in more open areas, it is lined with vegetated fence rows. Views along Fern Road are generally brief and not sustained, typically lasting less than a few seconds or minutes, depending on travel speed and duration of view. Viewer sensitivity is considered low to moderate.

Viewers in the vicinity of the PG&E Cascade Substation would be primarily residents and motorists, including employees at the substation. Viewers in the vicinity of the Redding Service Center also would be primarily residents, employees at area businesses, and travelers to and from Redding Municipal Airport. Given the developed nature at these locations, the viewer sensitivity at these locations is low.

At the Round Mountain Substation site, viewers would be area residents and motorists on U.S. 299. Public views are available from the post office, the parking areas of commercial establishments, and the Mountain Community Center. However, these views are obscured by intervening trees and other vegetation. Visual sensitivity at the Round Mountain Substation would be moderately low. Given the relatively remote location of the Table Mountain Substation, the only viewers would be motorists traveling on Cottonwood Road between SR 70 and SR 99. The lack of viewers renders viewer sensitivity at this location low.

Scenic Vistas

As noted above, the Shasta County and Butte County general plans were reviewed to identify any officially designated scenic vistas. There are no designated scenic vistas in the vicinity of any of the Project components. Additionally, Google Earth was used to search for any natural, elevated scenic vistas near the Fern Road Substation site. Because of the forested nature of the Project vicinity and region, there are no elevated areas where high-quality views would be available within the vicinity of the Fern Road Substation site. Likewise, there are no scenic vista points from which the Cascade Substation, Round Mountain Substation, Table Mountain Substation, or Redding Service Center would be visible.

3.1.3 Regulatory Setting

3.1.3.1 Federal

Federal Aviation Administration Regulations on Objects Affecting Navigable Airspace

The Federal Aviation Administration (FAA) is the federal agency that identifies potential impacts related to air traffic and related safety hazards. The FAA's Federal Aviation Regulations (Code of Federal Regulations Title 14, Part 77) establish standards and notification requirements for objects affecting navigable airspace. This notification serves as the basis for evaluating the effect of the proposed construction or alteration on operating procedures; determining the potential hazardous effect of the proposed construction on air navigation; identifying mitigating measures to enhance safe air navigation; and charting new objects. FAA standards and Advisory Circular 70/7460-1L (FAA 2018) govern the marking and lighting of obstructions that have been deemed a hazard to air navigation. In general, any temporary or permanent structure, including appurtenances, that exceeds an overall height of 200 feet (61 meters) above ground level meets the requirements to be marked and/or lighted. This would likely include the proposed approximately 200-foot-tall microwave tower. The lighting and marking standards in Advisory Circular 70/7460-1L were developed specifically to reduce potential impacts on migratory bird populations (FAA 2018).

3.1.3.2 State

California Department of Transportation Scenic Highway Program

California State Scenic Highway Program

In 1963, the California Legislature created the Scenic Highway Program to protect scenic highway corridors from changes that would diminish the aesthetic value of lands adjacent to the highways. A highway may be designated as "scenic" depending on how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon travelers' enjoyment of the view. The Scenic Highway System includes highways that are either designated or eligible for designation as such.

There is only one designated state scenic highway in Shasta County: a 3.3-mile segment of SR 151 extending south from Shasta Dam, which at its closest point is located 26 miles west of the Fern Road Substation site. The nearest Project component to this segment of SR 151 is the PG&E Redding Service Center, approximately 13 miles to the southeast. None of the Project components are visible from SR 151. Eligible state scenic highways in Shasta County include SR 89 from the Siskiyou County line to its intersection with SR 44, U.S. 299 west of Interstate 5 (I-5) and east of SR 89, and SR 44 from I-5 to its intersection with SR 89.

There are no state-designated scenic highways in Butte County and SR 70 is the only state-eligible scenic highway in the county (Caltrans 2018).

3.1.3.3 Local

The California Public Utilities Commission (CPUC) has sole and exclusive state jurisdiction over the siting and design of the Project. Pursuant to CPUC General Order 131-D, Section XIV.B,

"Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction" (CPUC 1995). The discussion below presents local policies and regulations for informational purposes only; CPUC does not consider these regulations "applicable" as that term is used in CEQA.

Shasta County

Shasta County General Plan

The General Plan's Scenic Highways Element is intended to establish and protect state or county roads with scenic value. The element defines the term "scenic highway" as any freeway, highway, road, street, or boulevard that traverses an area of unusual scenic quality. The element also defines the area that is easily visible from a scenic highway or road as a "scenic corridor." The Scenic Highways Element also defines unique features that define the visual quality of scenic corridors:

Focal points—prominent natural or man-made features that immediately catch the eye.

Transition areas—locations where the visual environment changes dramatically.

Gateways—locations that mark the entrance to a community or geographic area.

Figure SH-1 in the Scenic Highways Element identifies such scenic highways and features. Both U.S. 299 and SR 44 from Redding to SR 89 are considered a "corridor in which the natural environment is dominant" (Shasta County 2004).

Shasta County has developed the following objectives and policies to protect the visual quality of scenic highways and corridors within the county.

> **Objective SH-1:** Protection of the natural scenery along the official scenic highways of Shasta County from new development which would diminish the aesthetic value of the scenic corridor.
>
> **Objective SH-2:** New development along scenic corridors of the official scenic highway should be designed to relate to the dominant character of the corridor (natural or natural and man-made contrast) or of a particular segment of the corridor. Relationships shall be achieved in part through regulations concerning building form, site location, and density of new development.
>
> **Objective SH-3:** Recognition that the management practices of agriculture, timber, and other resource-based industries which may cause some degradation of the visual quality of the scenic corridor are inevitable but their impacts are temporary.
>
> > ***Policy SH-a*:** To protect the value of the natural and scenic character of the official scenic highway corridors and the County gateways dominated by the natural environment, the following provisions, along with the County development standards, shall govern new development:
> >
> > - setback requirements;
> > - regulations of building form, material, and color;

- landscaping with native vegetation, where possible;
- minimizing grading and cut and fill activities;
- requiring use of adequate erosion and sediment control programs;
- siting of new structures to minimize visual impacts from highway;
- regulation of the type, size, and location of advertising signs; and
- utility lines shall be underground wherever possible; where undergrounding is not practical, lines should be sited in a manner which minimizes their visual intrusion.

Shasta County Zoning Ordinance

Section 17.84.050 of the Shasta County Zoning Ordinance outlines requirements for outdoor lighting as follows (Shasta County 2022):

> *All lighting, exterior and interior, shall be designed and located so as to confine direct lighting to the premises. A light source shall not shine upon or illuminate directly on any surface other than the area required to be lighted. No lighting shall be of the type or in a location such that constitutes a hazard to vehicular traffic, either on private property or on abutting streets.*

Butte County General Plan

The Conservation and Open Space Element of the Butte County General Plan addresses scenic resources. The element identifies notable scenic resources in the county, as well as scenic highways. Scenic resources include resources such as gateways, vista points, geologic formations, and historic resources. The element presents a number of goals, policies, and actions to maintain and enhance the quality of the county's scenic and visual resources. There are no specific goals, policies, and actions that would affect the development of the Project at the Table Mountain Substation, given its remote location in an undeveloped area (Butte County 2012).

Butte County Zoning Ordinance

SR 70 north of the SR 149 interchange has a scenic highway overlay zone. Pursuant to Section 24-42 of the Butte County Zoning Ordinance, the overlay zone establishes standards to preserve the natural aesthetic qualities of areas visible from designated state and county scenic roadways. Development within this overlay zone is intended to feature high-quality architectural design, preserve views from the designated highway, and maintain existing topographic features on-site (Butte County 2022).

Sections 24-62 through 24-70 address outdoor lighting relative to light and glare. However, pursuant to Section 24-63, *Applicability*, county outdoor lighting standards apply only to residential zones. The Table Mountain Substation site is located in an agricultural zone; therefore, county outdoor lighting standards would not apply (Butte County 2022).

3.1.4 Applicant Proposed Measures and PG&E Construction Measures

3.1.4.1 Applicant Proposed Measures

The following Applicant Proposed Measures (APMs) have been identified by LSPGC to address impacts on aesthetics.

APM AES-1: All proposed Fern Road Substation Facilities sites would be maintained in a clean and orderly state. Nighttime lighting would be directed away from residential areas and have shields to prevent light spillover effects. Upon completion of Proposed Project construction, Proposed Project staging and temporary work areas would be returned to pre-Proposed Project conditions, including re-grading of the site and re-vegetation or re-paving of disturbed areas to match pre-existing contours and conditions.

APM AES-2: Structures and equipment at the proposed Fern Road Substation would have a non-reflective finish and neutral earth-tone colors.

3.1.4.2 PG&E Construction Measures

PG&E has not proposed any construction measures to address impacts on aesthetics.

3.1.5 Environmental Impacts

3.1.5.1 Visual Impact Assessment Methodology and Assumptions

The methodology utilized in this analysis is adapted from an approach to visual impact assessment developed by the Federal Highway Administration (FHWA 2015). This analysis also considers the APMs that have been incorporated as Project design features to avoid or minimize visual resources impacts.

An adverse visual impact may occur when an action has any of the following effects:

(1) Perceptibly changes the existing physical features of the landscape that are characteristic of the region or locale.

(2) Introduces new features to the physical landscape that are perceptibly uncharacteristic of the region or locale, or become visually dominant in the viewshed.

(3) Blocks or totally obscures aesthetic features of the landscape. The degree of visual impact depends on the noticeability of the adverse change.

The noticeability of a visual impact is a function of a project's features, context, and viewing conditions (angle of view, distance, and primary viewing directions). The key factors in determining the degree of visual change are visual contrast, project dominance, and visual screening. The interaction of visual change with the components of visual sensitivity (visual quality, viewer types and volumes, and viewer exposure; see Section 3.1.2, *Environmental Setting*) is discussed below under "Overall Adverse Visual Impact."

Visual Contrast

Visual contrast is a measure of the degree of change in line, form, color, and texture that a project would create, when compared to the existing landscape. Visual contrast ranges from "none" to "strong," and may be characterized as follows:

- **None**—The element contrast is not visible or perceived.
- **Weak**—The element contrast can be seen but does not attract attention.
- **Moderate**—The element contrast begins to attract attention and begins to dominate the characteristic landscape.
- **Strong**—The element contrast demands the viewer's attention and cannot be overlooked.

Project Visual Dominance

Project visual dominance is a measure of the apparent size of a project component relative to other visible landscape features in the viewshed or seen area. The visual dominance of a component is affected by its relative location in the viewshed and the distance between the viewer and the project component.

Visual Screening

View blockage or impairment is a measure of the degree to which a project would obstruct or block views to aesthetic features because of its position and/or scale. Blockage of aesthetic landscape features or views can cause adverse visual impacts, particularly in instances where scenic or view orientations are important to the use, value, or function of the land use.

Overall Adverse Visual Impact

An overall adverse visual impact reflects the composite visual changes both to the directly affected landscape and from sensitive viewing locations. The visual impact levels referenced in this analysis indicate the relative degree of overall change to the visual environment that the Project would create, considering visual sensitivity, visual contrast, view blockage, and Project visual dominance.

In general, the determination of impact significance is based on combined factors of visual sensitivity and the degree of visual change that the Project would cause. **Table 3.1-1**, *Guidelines for Determining Adverse Visual Impact Significance*, shows how the interrelationship of these two overall factors determines whether adverse visual impacts would be significant. Following the table are descriptions of the various impact classifications for aesthetics.

TABLE 3.1-1
GUIDELINES FOR DETERMINING ADVERSE VISUAL IMPACT SIGNIFICANCE

Overall Visual Sensitivity	Overall Visual Change				
	Low	Low to Moderate	Moderate	Moderate to High	High
Low	No Impact	No Impact	Less than Significant	Less than Significant	Less than Significant
Low to Moderate	No Impact	Less than Significant	Less than Significant	Less than Significant	Less than Significant
Moderate	Less than Significant	Less than Significant	Less than Significant	Potentially Significant	Potentially Significant
Moderate to High	Less than Significant	Less than Significant	Potentially Significant	Potentially Significant	Significant
High	Less than Significant	Potentially Significant	Potentially Significant	Significant	Significant

DEFINITIONS
- **No Impact.** Effects may or may not be perceptible but are considered minor in the context of existing landscape characteristics and view opportunity.
- **Less than Significant.** Impacts are perceived as negative but do not exceed environmental significance thresholds.
- **Potentially Significant.** Impacts are perceived as negative and may exceed environmental significance thresholds, depending on project- and site-specific circumstances.
- **Significant Impacts.** Impacts with feasible mitigation may be reduced to less-than-significant levels or avoided altogether. Without mitigation or avoidance measures, impacts would exceed environmental significance thresholds.

SOURCE: Data compiled by Environmental Science Associates in 2022, modified from FHWA 2015

Key Observation Point Selection and Locations

The KOPs selected for the Project's analysis are summarized in **Table 3.1-2** and depicted in **Figures 3.1-2** through **3.1-5**.

TABLE 3.1-2
SUMMARY OF VIEWPOINTS, PRIMARY VIEWERS, DIRECTION OF VIEW, AND DESCRIPTION

View: Key Observation Point (KOP)	Potentially Affected Viewers	Direction of View	Description
KOP 1 (Figure 3.1-2)	Fern Road motorists	east	Fern Road approximately 0.4 mile (2,200 feet) south of the [future] Project exterior access, active roadway
KOP 2 (Figure 3.1-3)	Fern Road motorists	southeast	Fern Road approximately 350 feet south of the [future] Project exterior access, active roadway
KOP 3 (Figure 3.1-4)	Fern Road motorists	southeast	Fern Road from [future] Project exterior access, active roadway
KOP 4 (Figure 3.1-5)	Motorists traveling south on Lockheed Drive [and Airport Road]	south	Lockheed Drive; undeveloped land in foreground; industrial visual character in middle-ground view (i.e., Redding Service Center complex, utility lines and poles)

NOTES: KOP = Key Observation Point; Project = Round Mountain 500-Kilovolt Dynamic Reactive Support Project

SOURCE: Data compiled by Environmental Science Associates in 2022

Refer to Figure 3.1-1 for photograph viewpoint (KOP) location.

SOURCE: LS Power Grid California, LLC, 2022

Round Mountain 500 kV Dynamic Reactive Support Project

Figure 3.1-2
KOP 1- Fern Road Looking East Toward Fern Road Substation Site

ESA

Refer to Figure 3.1-1 for photograph viewpoint (KOP) location.

SOURCE: LS Power Grid California, LLC, 2022

Round Mountain 500 kV Dynamic Reactive Support Project

Figure 3.1-3
KOP 2 - Fern Road Looking Southeast Toward Fern Road Substation Site

ESA

Refer to Figure 3.1-1 for photograph viewpoint (KOP) location.

SOURCE: LS Power Grid California, LLC, 2022

Round Mountain 500 kV Dynamic Reactive Support Project

Figure 3.1-4
KOP 3 - Fern Road Looking Southeast Toward Fern Road Substation Site

ESA

SOURCE: LS Power Grid California, LLC, 2022

Round Mountain 500 kV Dynamic Reactive Support Project

Figure 3.1-5
Lockheed Drive Looking Southwest Toward the Redding Service Center

ESA

3.1.5.2 Direct and Indirect Effects

a) Have a substantial adverse effect on a scenic vista: *No Impact.*

As noted above in Sections 3.1.2.1 and 3.1.2.2, there are no publicly accessible scenic vista points in the vicinity of the Fern Road Substation site or the PG&E distribution modifications alignment that would be in the viewshed. Likewise, there are no publicly accessible scenic vista points in the vicinity of the Cascade Substation, Round Mountain Substation, Table Mountain Substation, or Redding Service Center. The Project would have no impact on scenic vistas.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway: *No Impact*.

SR 44 is a state-eligible scenic highway in the vicinity of the Fern Road Substation site. U.S. 299 is designated in the Shasta County General Plan's Scenic Highways Element as a "corridor in which natural environment is dominant." SR 70 is also a state-eligible scenic highway in the vicinity of the Table Mountain Substation site, from its interchange with SR 149 north to beyond the Plumas County line.

At their nearest points, SR 44 and U.S. 299 are approximately 9.6 miles south and 8.5 miles north-northwest, respectively, of the Fern Road Substation site and the PG&E distribution modifications alignment. These locations would not be visible from either roadway.

SR 70 is approximately 2 miles northeast of the Table Mountain Substation site. This state-eligible portion of SR 70 terminates here at the interchange with SR 149. Views would be available at the SR 149/SR 70 interchange at the terminus point; however, the views would be fleeting, as motorists would be traveling at the posted speed limit and negotiating the interchange.

Given the distances involved and the limited viewing opportunities, the Project would have no impact on state- or locally designated scenic highways at the Fern Road and Table Mountain substation sites.

There are no state- or locally designated scenic highways in the vicinity of the Cascade Substation, Round Mountain Substation, or Redding Service Center. The Project in these locations would have no impact on state- or locally designated scenic highways.

c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings; or if in an urbanized area, whether the Project would conflict with applicable zoning and other regulations governing scenic quality: *Less than Significant*.

CEQA Guidelines Appendix G Section I states that "in non-urbanized areas," a project would have a significant effect on the environment if it would "substantially degrade the existing visual character or quality of public views of the site and its surroundings." Public views are defined for purposes of this evaluation as "those that are experienced from a publicly accessible vantage point." A different consideration is suggested if a project would be located in an urbanized area. The Cascade Substation, and Redding Service Center are located in an urbanized area, as defined

in CEQA Guidelines Section 15387, or as mapped by the U.S. Census[1] (U.S. Bureau of the Census 2021). Therefore, this analysis is focused on the location of the Project components in a non-urbanized area, namely the Fern Road Substation site, PG&E distribution modifications alignment, Round Mountain, and Table Mountain substations. The following analysis focuses on the potential for the Project to substantially degrade the existing visual character or quality of public views of these sites and surroundings.

Construction and Decommissioning

Construction would introduce a level of activity and visual change to the Fern Road Substation site associated with construction activities and the presence of construction equipment. As described in Section 3.1.2, *Environmental Setting*, the existing visual character of the Fern Road Substation site and the PG&E distribution modifications alignment is characterized as primarily agricultural. Construction of the Project would involve earthwork, grading, and the construction, erection, and installation of facility equipment and infrastructure. Decommissioning would also involve restorative earthwork and grading, after the disassembly and removal of equipment from the Project sites. These activities would require the presence and movement of delivery trucks, vehicles, and construction equipment.

Additionally, construction activities would require the use of storage, staging, and active work areas. More details regarding specific activities and equipment required are provided in Section 2.5.2, *Construction of the Fern Road Substation Facilities*, and Section 2.6.4, *PG&E Facilities Construction*. The construction period and decommissioning period are each anticipated to last approximately 22 months (including commissioning and testing); accordingly, all activities associated with construction and decommissioning would be temporary.

Construction and decommissioning of the Project would involve the presence (and use of) large equipment and materials, which would have a temporary impact on the visual character of the Project sites. During the Project's construction and decommissioning phases, the quality of public views of the sites and their surroundings would be diminished by the presence of equipment, dust, and other emissions, which could reduce the quality of views. However, such impacts would not persist beyond the period of construction or decommissioning. Following decommissioning activities, temporarily disturbed areas would be returned as closely as possible to preconstruction contours, allowed to revegetate, and return to its existing use (e.g., grazing land). Structures such as poles (and presumably other aboveground structures) would be removed from the sites and the sites would be restored. Therefore, construction and decommissioning activities would have a less-than-significant impact on the visual quality of public views.

Operation and Maintenance

With the exception of the PG&E Redding Service Center and Cascade Substation, the Project would be mainly located in a non-urbanized (rural) area with existing industrial elements, including the existing transmission lines and towers within the viewshed of motorists traveling along Fern Road, and the roads in the vicinity of the Round Mountain Substation, Table Mountain Substation. This analysis focuses on potential effects associated with the addition of

[1] 2010 Census Urbanized Area Reference Maps: https://www.census.gov/geo/maps-data/maps/2010ua.html.

Project structures that could affect the public's viewing experience in these predominantly rural environments. KOPs 1, 2, and 3 were selected because they represent the only public views of the Fern Road Substation site.

KOP 1 (see Figure 3.1-2) is a view from Fern Road looking to the east toward the Fern Road Substation site that would be typical for viewers traveling this roadway. As demonstrated in the view, the existing industrial visual elements (i.e., high-voltage transmission lines and towers) are not clearly visible from this angle under existing conditions. The view of the Substation site and these elements is blocked or diminished by intervening vegetation and sloping topography, as shown in the simulated view on **Figure 3.1-6**. Thus, the visual sensitivity at this KOP would be low to moderate.

KOP 2 (see Figure 3.1-3) represents a view facing southeast toward the Fern Road Substation site from Fern Road. An undeveloped field dotted with trees dominates the foreground view, with the existing transmission lines and towers clearly seen in the middle-ground view. A ridge is visible beyond in the background view. The Project would replace industrial elements to the middle ground from this viewpoint. See **Figure 3.1-7** for a visual rendering of the replaced transmission lines and towers, plus the Fern Road Substation. The existing transmission lines and towers would be replaced with other lines and monopole towers. Also, some of the taller structures that would be within Fern Road Substation, such as the A-frames, would be visible in the middle-ground view. Motorists along Fern Road could reasonably be assumed to be traveling at speeds of 35–45 miles per hour in this location. Also, this view would be available only to motorists traveling south on Fern Road. The view would be to the back of motorists traveling north. Therefore, the duration of view (or visual exposure) would be limited and brief, and visual sensitivity for these receptors would be low to moderate.

KOP 3 represents a third view looking southeast toward the Fern Road Substation site from southbound Fern Road at the entrance to the site. The foreground is undeveloped fallow ground with trees interspersed and the transmission line overhead. Mature trees also provide a visual linear feature following the fence row. Middle-ground views are not available, as the ground slopes downward and out of view or is otherwise blocked by intervening vegetation. A ridge is visible beyond in the background view. The Project would replace some industrial elements in the foreground view (i.e., transmission lines and towers) and add industrial elements of sufficient height to be visible in the middle ground of this view (i.e., substation and PG&E interconnection steel structures). The new PG&E distribution wood poles would also be in this view just north (left, in the simulated view) of the site entrance gate. However, Project structures would be similar in line and form and would retain some visual semblance of energy transmission and distribution facilities (see **Figure 3.1-8**). As is the case for KOP 2, this view of KOP 3 would be available only to motorists on southbound Fern Road traveling at an assumed speed of 35–45 miles per hour. Again, the duration of view (or visual exposure) would be limited and brief, and visual sensitivity for these receptors would be low to moderate.

Existing View

Simulated View

Refer to Figure 3.1-1 for photograph view (KOP) location.

SOURCE: LS Power Grid California, LLC, 2022

Round Mountain 500 kV Dynamic Reactive Support Project

Figure 3.1-6
KOP 1 - Simulated View of Fern Road Looking East Toward the Project Site

ESA

Existing View

Simulated View

Refer to Figure 3.1-1 for photograph view (KOP) locations.

SOURCE: LS Power Grid California, LLC, 2022

Round Mountain 500 kV Dynamic Reactive Support Project

Figure 3.1-7
KOP 2 - Simulated View of Fern Road
Looking Southeast Toward the Project Site

ESA

Existing View

Simulated View

Refer to Figure 3.1-1 for photograph view (KOP) locations.

SOURCE: LS Power Grid California, LLC, 2022

Round Mountain 500 kV Dynamic Reactive Support Project

Figure 3.1-8
KOP 3 - Simulated View of Fern Road
Looking Southeast Toward the Project Site

ESA

Figure 3.1-5 presents a view looking southwest toward the Redding Service Center as seen from southbound Lockheed Drive. The foreground and middle-ground views are dominated by the industrial appearance of the service center, as well as an undeveloped parcel in the immediate foreground. Large warehouse buildings, work vehicles, and equipment are visible within the fenced perimeter of the service center. With the flat topography, there are no background views. The service center dominates views of motorists on Lockheed Drive. This site is located adjacent to the grounds of Redding Municipal Airport, which has multiple buildings close to the service center site. Considering the current industrial visual appearance of the Redding Service Center site and its surroundings, visual sensitivity for viewers here is low.

The Project-related upgrades at the Round Mountain and Table Mountain substations would be limited to the interior of the fenced perimeter. Foreground views of the Round Mountain Substation from U.S. 299 are obscured by intervening trees, although the industrial appearance of the substation is visible through the trees after the leaves have fallen. Most of the upgrades would be at ground level and not visible from public vantage points. The monopoles would range from 30 to 100 feet in height. The existing steel lattice towers are as tall. The addition of the microwave towers/monopoles would visually blend in with the existing steel towers and other vertical elements of the substation and not create visual contrast. Because the Project upgrades would not be visible from public vantage points and the taller elements would not create a visual contrast, visual sensitivity for viewers here is low.

The visual characteristics of the Project upgrades would be similar at the Table Mountain Substation. Most of the Project upgrades would be at ground level within the fenced perimeter of the facility and the monopoles would be as tall as the existing steel lattice towers. In the case of this Project component, the number of viewers with foreground views would be limited to motorists on Cottonwood Road. There are no stationary public vantage points that would offer foreground views of this substation. In middle-ground views from SR 70 or SR 99, the substation is not visually apparent to motorists on these roadways. Therefore, the Project upgrades would not create a notable visual contrast from public vantage points. Given the lack of viewing opportunities and the very low visual contrast that would be created by the Project upgrades at the Table Mountain Substation, visual sensitivity for viewers here is very low.

Public views of the Fern Road Substation site have low to moderate visual sensitivity, while the Cascade Substation, Round Mountain Substation, Table Mountain Substation, and Redding Service Center sites have low to very low visual sensitivity. This is because of the lack of available stationary public vantage points, the intervening vegetation and topography, and the existing visual character and quality of the surroundings.

At the Fern Road Substation site, the existing transmission lines and towers would be replaced with new transmission lines and monopole towers. In the views from KOPs 1 and 3, most of the proposed Fern Road Substation would not be visible because of the intervening vegetation, as well as the lack of a stationary publicly accessible vantage point. A-frames and other tall components of the substation would be visible from KOP 2, as there is less intervening vegetation and the topography at this location is relatively level compared to the varied terrain of the substation site. Although the Project would replace other similar utility transmission structures, it would also

introduce a new industrial substation at the site and add more utility transmission structures. The line and form of the additional transmission structures would be visually similar to those of the existing structures and would not create a substantial overall visual change or contrast to the existing visual quality at this site. Therefore, the Project's impact at the Fern Road Substation site would be less than significant.

With the similarity in the visual environment at the Cascade Substation, Round Mountain Substation, Table Mountain Substation, and Redding Service Center, the effects of the Project at those facilities would also be similar. The Project would alter the view at each facility to some extent by adding a new microwave tower or monopole, modifying an existing microwave tower, or modifying series capacitor banks and enhancing protection at each within the boundaries of these existing substation facilities. Such effects would not change the industrial appearance of the Cascade Substation, Round Mountain Substation, Table Mountain Substation, or Redding Service Center. In fact, the towers would be consistent with the existing industrial appearance and forms at those locations and would provide little, if any, visual contrast or change at these sites. Therefore, the Project's impact at the Cascade Substation, Round Mountain Substation, Table Mountain Substation, and Redding Service Center would be less than significant.

d) Create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area: *Less than Significant.*

The nearest receptor to the Fern Road Substation site is a residence 0.28 mile northwest of the site on the west side of Fern Road. Three other residences located to the west and south have been identified within 0.4 to 0.7 mile of the site. Because the substation would be located in a very sparsely populated non-urban area, a change in lighting conditions would have a significant effect on existing dark skies during the nighttime if the proposed lighting were to dramatically alter the existing dark skies for these receptors. However, as described in Chapter 2, *Project Description*, the Project would incorporate design features described in APM AES-1 to minimize light pollution. With implementation of APM AES-1, nighttime lighting at the Project facilities would be directed away from residential areas and be shielded to prevent light spillover effects. With APM AES-2, structures and equipment would be a nonreflective finish and neutral gray color, which would minimize conditions of glare and allow the Project facilities to blend into the landscape.

The communications towers that would be installed at the Cascade Substation and Redding Service Center—one at each location—would be 30–100 feet in height. Except for safety lighting meeting FAA requirements (particularly at the Redding Service Center adjacent to the Redding Municipal Airport), these Project components would be located within the boundaries of each facility and would not require additional lighting.

With the implementation of the design features described in APMs AES-1 and AES-2, impacts related to light and glare would be less than significant.

3.1.6 References

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3.2 Agriculture and Forestry Resources

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

3.2.1 Environmental Setting

3.2.1.1 Agriculture Resources

Shasta County is ranked 35th among the 58 California counties in total value of agricultural production (CDFA 2021). The three highest value agricultural crops for Shasta County in 2020 were hay, cattle, and apiary products (Shasta County 2020). In 2020, the gross value of Shasta County's agricultural production was $77,477,000, a 2.6 percent decrease from the previous year (Shasta County 2020). Although agriculture is not a dominant industry in Shasta County, it does account for a major component of the county's resource land base (Shasta County 2004a).

The valleys of the Sacramento River and its tributaries contain some of the most productive agricultural land in Shasta County; many hundreds of acres of land in these valleys are classified as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Shasta County 2004a). The foothills situated in the Eastern Upland region contain some of the best rangelands available in the County; by general category, 62 percent of the county's farmland (206,743 acres) is devoted to pastureland and/or rangeland (Shasta County 2004a). The land surrounding the Fern Road Substation site is currently used as grazing land. In Shasta County, fallowed agricultural

land is also considered grazing land if the majority of land on a parcel is left fallow during at least three of the previous five years (Shasta County 2004a).

The California Department of Conservation's Farmland Mapping and Monitoring Program (FMMP) provides data for use in planning for the present and future use of California's agricultural land resources. Within a 1-mile radius of the Fern Road Substation site, 94.5 percent of the land is designated as Grazing Land; 5.3 percent of land, in the northwest and southwest, is designated as Farmland of Local Importance; and a small sliver of Farmland of Statewide Importance (7.6 acres) is located near the southwest boundary of the radius (DOC 2016).

The FMMP defines Grazing Land as land on which the existing vegetation is suited for the grazing of livestock. Farmland of Local Importance is defined as land of importance to the local agricultural economy, as determined by each county's board of supervisors and a local advisory committee. However, none of the Project sites are on any land designated as Farmland of Local Importance. No areas within any of the Project sites are designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance.

The Fern Road Substation site, the Pacific Gas and Electric Company (PG&E) interconnection facilities, and part of the PG&E distribution modifications would be located on a 426-acre parcel of land zoned HP-BA-80 (Habitat Protection, 80-acre minimum lot area), referred to here as the "Project parcel." The Fern Road Substation would be constructed within a 40-acre portion of the Project parcel and the remaining 386 acres would remain grazing land (see Section 2.5.6, *Land Ownership, Right-of-Way Requirement and Easement Applications*, for more information). The purpose of the Habitat Protection (HP) district is to protect lands having significant wildlife habitat values (Shasta County 1989). The adjacent land parcels south and southeast of the Project parcel are also zoned HP. The areas north, west, and directly east of the Project parcel are zoned EA (Exclusive Agricultural) and EA-AP (Exclusive Agricultural-Agricultural Preserve). The purpose of the EA district is to preserve lands with agricultural value that have the combination of size and quality, sometimes in conjunction with other lands, to make their use for agriculture economically feasible (Shasta County 1989). The Agricultural Preserve (AP) district is intended to be combined with the EA district to identify the precise boundaries of agricultural preserves and to provide additional land use regulations necessary to comply with legal provisions applicable to agricultural preserves (Shasta County 1989). These parcels of land zoned for agricultural use, north, west, and directly east of the Project parcel are under Williamson Act contracts.

The PG&E Round Mountain Substation is on land zoned Unclassified District (U) and does not include any land designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Shasta County n.d.). The Table Mountain Substation is zoned Agriculture-80 and designated grazing land by the California Important Farmland Finder (Butte County 2022; Shasta County n.d.). The Redding Service Center and Cascade Substation is located on land zoned General Industrial (GI) and is not located on any agricultural land (City of Redding 2022; Shasta County n.d.).

Additionally, the Shasta County Municipal Code (1989) identifies special uses that are permitted in all districts, subject to specified limitations and requirements. Section 17.88.100 of the municipal code includes public uses, public utilities, and high-voltage electrical transmission and distribution projects as part of these special uses.

3.2.1.2 Forestry Resources

One of Shasta County's most valuable resources is its timberland. Shasta County produces the third largest volume of timber (212,779 million board feet) out of California's 58 counties (CDFA 2021). Timber accounts for 35.1 percent of the total agricultural value within Shasta County (CDFA 2021). Of the county's 2,428,000 total acres, 50.7 percent (1,231,000 acres) are dedicated to commercial forest uses (Shasta County 2004b). Timber preserve lands represent nearly half of all county timberlands and approximately 87 percent of privately owned timberlands (Shasta County 2004b). None of the Project sites are on forest land or land zoned for timber production. The purpose of Timber Production (TP) districts is to preserve lands devoted to and used for the growth and harvesting of timber that meet the requirements of the California Timberland Productivity Act of 1982 (Shasta County 1989). The TP district is equivalent to the timberland production zone referred to in the act. The nearest land zoned TP is approximately 2 miles southeast of the Fern Road Substation site (Shasta County n.d.). The purpose of Timberland (TL) districts is to preserve lands that are suitable for forest management but not located in a TP district (Shasta County 1989). The nearest land zoned TL is approximately two miles southeast of the Project parcel (Shasta County n.d.).

As mentioned above, the 426-acre Project parcel is zoned HP-BA-80. No forestry resources, timberland, or timberland zoned "Timberland Production" areas (as defined by Public Resources Code Section 12220[g], Public Resources Code Section 4526, and Government Code Section 5110[g]) are located within the Project area.

The PG&E Facilities are not located on land zoned for timber production. The nearest land zoned TL is approximately 0.5 mile west of the Round Mountain Substation (Shasta County n.d.). The nearest land zoned TP is approximately 1 mile to the west (Shasta County n.d.). The nearest TP district to the Redding Service Center and Cascade Substation is located approximately 15 miles to the west and the nearest land zoned TL is approximately 20 miles to the east (Shasta County n.d.). The nearest land to the Table Mountain Substation zoned TP is approximately 10 miles to the northeast (Butte County 2022).

3.2.2 Regulatory Setting

3.2.2.1 Federal

No federal plans or policies concerning agriculture and forestry resources apply to the Project.

3.2.2.2 State

California Farmland Mapping and Monitoring Program

The California Department of Conservation's FMMP provides a classification system for farmland based on technical soil ratings and current land use (DOC 2022a). The minimum land

use mapping unit is 10 acres unless specified; smaller units of land are incorporated into the surrounding map classifications.

For the purposes of this environmental analysis, the term "Farmland" refers to the FMMP map categories *Prime Farmland, Unique Farmland,* and *Farmland of Statewide Importance* (hereafter collectively referred to as "Farmland"). Generally, any conversion of the land from one of these categories to a lower quality category or a nonagricultural use would be considered to be an adverse impact. These map categories are defined as follows (DOC 2022a):

- ***Prime Farmland*:** Land that has the best combination of physical and chemical features able to sustain long-term agricultural production. It has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.
- ***Unique Farmland*:** Farmland of less quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated, but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date.
- ***Farmland of Statewide Importance*:** Land that is similar to *Prime Farmland* but with minor shortcomings, such as greater slopes or less ability to hold and store moisture. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.

California Land Conservation Act of 1965

The California Land Conservation Act of 1965 (Williamson Act) (Government Code Section 51200 et seq.) is the state's primary program aimed at conserving private land for agricultural and open space uses. The Williamson Act provides a mechanism through which private landowners can contract with counties and cities to voluntarily restrict their land to agricultural and compatible open-space uses. In return, Williamson Act contracts offer tax incentives by ensuring that land is assessed for its agricultural productivity rather than its highest and best (i.e., most remunerative) use. Contracts typically restrict land use for a period of 10 years; however, some jurisdictions exercise the option to extend the term for up to 20 years. Contracts automatically renew unless the landowner or county serves notice of nonrenewal (in which case the contract ends at the close of the current renewal period). Additionally, the landowner can petition for cancellation of a contract (DOC 2022b).

California Public Resources Code

Section 12220(g) of the California Public Resources Code 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" is defined by Public Resources Code Section 4526 as "land, other than land owned by the federal government..., which is available for, and capable of, growing a crop of trees of any commercial species used to produce lumber and other forest products, including Christmas trees."

California Government Code

Chapter 6.7 of the Government Code (Sections 51100–51155) regulates timberlands within the state. "Timberland production zone" is defined in Section 51104(g) as an area that has been zoned pursuant to Government Code Section 51112 or 51113 and is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses. In this context, "compatible uses" include any use that "does not significantly detract from the use of the property for, or inhibit, growing and harvesting timber" (Government Code Section 51104[h]). Watershed management, grazing, and the erection, construction, alteration, or maintenance of electric transmission facilities are examples of compatible uses. The general plans of cities and counties may use the term "timberland preserve zone," which Government Code Section 51104(g) defines as equivalent to "timberland production zone."

Chapter 7 of the Government Code (Section 51238 et seq.) defines compatible uses for Agricultural Preserves, i.e., land under a Williamson Act contract. Compatible uses that were defined at the time a contract was originally signed determine which uses are presently compatible under the contract.

California Public Utilities Commission General Order No. 131-D

The California Public Utilities Commission (CPUC) has sole and exclusive state jurisdiction over the siting and design of the Project. Pursuant to CPUC General Order 131-D, Section XIV.B, "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction." Although such projects are exempt from local land use and zoning regulations and discretionary permitting (i.e., they would not require discretionary approval from a local decision-making body such as a planning commission, county board of supervisors, or city council), General Order No. 131-D, Section XIV.B requires that in locating a project, "the public utility shall consult with local agencies regarding land use matters." The public utility would be required to obtain any required nondiscretionary local permits.

3.2.2.3 Local

As described above, CPUC has sole and exclusive jurisdiction over the siting, design, and construction of the Project; therefore, the Project is not subject to local discretionary regulations. The discussion below presents local plans, policies, and regulations for informational purposes only; however, these local laws are superseded by General Order 131-D and so do not govern CPUC's evaluation of Project impacts under CEQA.

Shasta County

Shasta County General Plan

The following objective and policy in Section 6.1, *Agricultural Lands*, of the Shasta County General Plan may be relevant to the Project (Shasta County 2004a):

> **Objective AG-4:** Recognition by Shasta County residents that preservation of agricultural lands, both large and small-scale, provides privately maintained open-space, facilitates a rural lifestyle, and requires Countywide understanding of the problems facing ranchers and farmers.

> ***Policy AG-b:*** Existing agricultural lands and other County lands shall be reviewed by the County at five year intervals to determine the appropriateness of either their current or potential classification as agricultural lands. The purpose of this review is to ensure that agricultural lands either currently or potentially preserved for agricultural uses merit such special treatment and to provide a systematic, uniform, and equitable process for the periodic review of certain current or potential agricultural lands.

The following objective and policy in Section 6.2, *Timberlands*, of the Shasta County General Plan may be relevant to the Project (Shasta County 2004b):

> **Objective T-2:** Protection of timberlands from incompatible adjacent land uses which adversely impact forest management activities.
>
> ***Policy T-d:*** Timberlands not within a TPZ [Timber Production Zone] shall be subject to the County development standards and requirements as to their use and residential density.
>
> *Use*—The primary use of these lands shall be for forest management and production. Secondary uses may include uses which do not impede forest management or the processing or utilization of timber. Such uses include limited residential and recreational uses, mineral exploration and extraction and processing where the surface area will be reclaimed, power generation facilities, and small hydropower facilities.
>
> *Density*—Timberland may be developed at the maximum residential density of one dwelling per 40, 60 or 80 acres as shown in [General Plan] Table T-3 except, when 75 percent or more of the portion of the parcel proposed to be developed is in a Dunning Site Classification of IV or V and is within one-mile driving distance on a legal easement of a County paved road, the parcel may be developed at the maximum residential density of one dwelling per 10 acres. Pre-existing legal parcels that are smaller than provided above may develop at a density of one dwelling per parcel, subject to County Development Standards. For proposed land divisions involving irregular survey sections the density may vary up to 5 percent but not more than that needed to adjust for the irregularity, whichever is less.
>
> *Clustering*—Developments on lands subject to a maximum density of the standards found in Table T-3 may receive a 100 percent density bonus if the residences are clustered on parcels not larger than 2 acres per residence to minimize conflicts with adjacent timber management activities on the remainder of the property.

Zoning

The Project parcel site is zoned HP-BA-80 (Habitat Protection, 80-Acre Minimum Lot Area). The purpose of the Habitat Protection (HP) district is to protect lands having significant wildlife habitat values (Shasta County 1989). The adjacent land parcels south and east of the Project parcel are also zoned HP. The areas north, west, and directly east of the Project parcel are zoned EA (Exclusive Agricultural) and EA-AP (Exclusive Agricultural-Agricultural Preserve). These parcels of land zoned for agricultural use, north, west, and directly east of the Project parcel are under Williamson Act contracts.

The PG&E Round Mountain Substation is on land zoned Unclassified District (U) (Shasta County n.d.). The PG&E Redding Service Center and Cascade Substation is located on land zoned General Industrial (GI) (City of Redding 2022; Shasta County n.d.).

Butte County

Butte County General Plan

The following goals and policies in Section 7, *Agricultural Element*, of the Butte County General Plan may be relevant to the Table Mountain Substation portion of the Project (Butte County 2012):

> **Goal AG-2:** Protect Butte County's agricultural lands from conversion to non-agricultural uses.
>
> > ***Policy AG-P2.3:*** Redesignation and rezoning of land designated as Agriculture to an urban designation shall be allowed only when the applicant can demonstrate that the following criteria are met and mitigated: a. The lot(s) for which conversion is requested is adjacent to uses other than agriculture or agricultural support uses (e.g. receiving plants, hulling plants). b. The conversion will not be detrimental to existing agricultural operations. c. The conversion land is adjacent to existing urban infrastructure and conversion will constitute a logical contiguous extension of a designated urban area. d. No feasible alternative exists that is less detrimental to agriculture. e. Full mitigation of impacts to the extent allowed under the law is provided, including, but not limited to, roads, drainage, schools, fire protection, law enforcement, recreation, sewage and lighting.
>
> > ***Policy AG-P2.5:*** When a request is made for a Conditional Use Permit on a lot(s) with existing agricultural operations, an agricultural maintenance plan to provide for the continuation of existing agricultural activities shall be submitted, in accordance with the Zoning Ordinance. The plan shall be reviewed for comments and conditions by the Agricultural Commissioner and Development Services prior to the Planning Commission hearing on the Conditional Use Permit.
>
> **Goal AG-5:** Reduce conflicts between urban and agricultural uses and between habitat mitigation banking and agricultural uses.
>
> > ***Policy AG-P5.3:*** The Zoning Ordinance shall require that a buffer be established on property proposed for residential development in order to protect lands designated Agriculture by the General Plan and zoned Agriculture under the Zoning Ordinance from incompatible use conflicts. The desired standard shall be 300 feet, but may be adjusted to address unusual circumstances.

Zoning

The Table Mountain Substation is located in Butte County on land zoned Agriculture-80 (Butte County 2022; Shasta County n.d.). The Agriculture designation allows for livestock grazing, animal husbandry, intense animal uses, and animal matter processing. Alternative energy facilities are allowed in the Agriculture designation, subject to permit requirements (Butte County 2012).

3.2.3 Applicant Proposed Measures and PG&E Construction Measures

3.2.3.1 Applicant Proposed Measures

No Applicant Proposed Measures (APM) would be implemented to address potential effects on agriculture or forestry resources.

3.2.3.2 PG&E Construction Measures

No PG&E construction measures (avoidance and minimization measures or best management practices) would be implemented to address potential effects on agriculture or forestry resources.

3.2.4 Environmental Impacts

3.2.4.1 Methodology and Assumptions

This analysis evaluates potential impacts on designated Important Farmland (which includes Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance). The conversion of Important Farmland would be considered a significant impact if more than 10 acres of Prime Farmland or more than 40 acres of non-Prime Farmland (Farmland of Statewide Importance or Unique Farmland) is converted to nonagricultural use. These thresholds are used because they are the minimum acreage requirements for individual parcels able to enter Williamson Act contracts, as stated in Section 51222 of the California Government Code, and represent parcels or areas of agricultural land that are large enough to sustain agricultural operations.

3.2.4.2 Direct and Indirect Effects

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: *No Impact.*

The Fern Road Substation component of the Project would be constructed on 40 acres of a 426-acre parcel zoned HP-BA-80. The Project would be on land defined by the FMMP as Grazing Land and would not require the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to nonagricultural land. Because the Project would not require the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to nonagricultural land, no impact would occur.

The PG&E Round Mountain Substation, Cascade Substation, Table Mountain Substation, and Redding Service Center are not located on Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. Modifications at these substations proposed as part of the Project would occur within the existing property fence lines and therefore would not require the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to nonagricultural land. The majority of the PG&E 500-kilovolt (kV) transmission line interconnection work would be done within and near the existing PG&E right-of-way (ROW).

In total, work at the PG&E Facilities would result in approximately 0.15 acre of permanent disturbance and approximately 2.3 acres of temporary disturbance to mainly agricultural grazing land and previously disturbed lands. Six new poles would be installed outside of the existing PG&E ROW on property that would be owned by the Applicant. This land is defined by the FMMP as Grazing Land and would not require the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide importance to nonagricultural uses. In addition, the PG&E

distribution modifications would occur immediately adjacent to Fern Road and the proposed exterior access road. Therefore, no impact would occur.

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract: *No Impact*.

The Project would not conflict with the existing zoning for agricultural use because Section 17.88.100 of the Shasta County Municipal Code allows public uses, public utilities, and high- voltage electrical transmission and distribution projects within all districts, including the HP district in which the Project parcel is located, subject to approval of a use permit by the Shasta County Permit Counter (Shasta County 1989). Additionally, the Project parcel is zoned HP-BA-80 and is not under a Williamson Act contract. Although parcels of land zoned for agricultural use north, west, and directly east of the Project parcel are under Williamson Act contracts, the Project parcel is not on any land zoned as EA or EA-AP; the limits of construction at the Project parcel would not extend beyond land zoned HP-BA-80.

The locations of the PG&E Round Mountain, Cascade, and Table Mountain substations and Redding Service Center are not under Williamson Act contracts. The Table Mountain Substation is the only PG&E facility associated with the Project located on land zoned for agriculture. However, the Agriculture-80 designation allows for alternative energy facilities (Butte County 2012). Additionally, the PG&E substation modifications at the Round Mountain Substation, Table Mountain Substation, Cascade Substation, and Redding Service Center would not require the expansion of the facilities beyond the utility-owned substation property. All work activities would be conducted within the existing substation properties. Therefore, no impact would occur.

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined in Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g): *No Impact*.

The Project parcel does not contain any land defined as forest land (as defined by Public Resources Code Section 12220[g]), timberland (as defined by Public Resources Code Section 4526), or land zoned Timberland Production (as defined by Government Code Section 51104[g]). The Project components that would be developed at the Project parcel would be constructed on land zoned HP-BA-80 and its zoning designation would not change. Additionally, the PG&E Round Mountain Substation, Cascade Substation, Table Mountain Substation, and Redding Service Center, the rest of the PG&E distribution modifications alignment, and the PG&E ROW do not contain any land defined as forest land. Therefore, the Project would not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production, and no impact would occur.

d) Result in the loss of forest land or conversion of forest land to non-forest use: *No Impact*.

The Fern Road Substation and PG&E Facilities sites do not contain any forest land (as defined in Public Resources Code Section 12220[g]). Therefore, the Project would not result in the loss of forest land or conversion of forest land to non-forest use, and no impact would occur.

e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use: *No Impact*.

As described under criteria c) and d), the Project parcel and other PG&E Facilities sites do not contain any land defined as forest land, timberland, or timberland zoned Timberland Production; therefore, the Project would not result in the conversion of forest land to non-forest land.

The construction of the Fern Road Substation would require the clearing of approximately 7.5 acres of grazing land and an additional 4.1 acres for the construction of the new access road and transmission line poles/towers. This would include the removal of 739 trees. This permanent disturbance would result in a loss of approximately 11.6 acres of HP-BA-80–zoned land used for grazing to nonagricultural uses. As mentioned above, the Fern Road Substation would be constructed within the 40-acre portion of the Project parcel and the remaining 386 acres would retain its grazing use and public access rights and would not be physically constrained.

A total of 4.1 acres would be cleared for the construction of the new access road and transmission line/pole towers for PG&E's 500 kV transmission line interconnection. Although the majority of the transmission line interconnection alignment would be located within PG&E's ROW, six poles would be installed on grazing land owned by the Applicant. This area would be disturbed only temporarily; grazing would continue around the new poles once construction is complete.

Hazardous waste generated by the construction, operation, and maintenance of the Project would be handled, contained, and disposed of according to federal, state, and local regulations. In addition, before construction, a hazardous materials management plan would be prepared

describing protocols for the use, transport, storage, management, and disposal of hazardous materials. Stormwater runoff would be managed according to a stormwater management plan and associated storm water pollution prevention plan that would be prepared to comply with any general construction permits and approved by the local regional water quality control board. Any additional pollutants and hazardous materials would be retained on-site or disposed of at a licensed facility. See Section 2.5.2.12, *Hazardous Materials and Management*, and Section 2.5.2.13, *Waste Generation and Management,* for more information. PG&E adheres to similar practices at its facility sites. Proper management of hazardous waste, pollutants, and stormwater runoff would protect adjacent agricultural uses north, west, and directly east of the Project parcel and any agricultural uses in the vicinity of the other PG&E facility sites. Therefore, no impact would occur.

3.2.5 References

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3.3 Air Quality

Issues:		*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
III.	**AIR QUALITY —** Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:				
a)	Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b)	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?	☐	☐	☒	☐
c)	Expose sensitive receptors to substantial pollutant concentrations?	☐	☒	☐	☐
d)	Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

3.3.1 Environmental Setting

Air quality is a function of both the rate and location of pollutant emissions under the influence of meteorological conditions and topographic features that influence pollutant movement and dispersal. Atmospheric conditions such as wind speed, wind direction, atmospheric stability, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants, which affects air quality.

3.3.1.1 Regional Topography, Meteorology, and Climate

Air quality is affected by both the rate and location of pollutant emissions and by meteorological conditions, which influence movement and dispersal of pollutants. Atmospheric conditions such as wind speed, wind direction, and air temperature gradients, along with local topography, provide the link between air pollutant emissions and air quality.

The Sacramento Valley Air Basin (SVAB) is surrounded by the Klamath Mountains and Coast Ranges to the northwest and the Cascade Range to the northeast and east. When winds are calm with fairly stable atmospheric conditions, the potential for substantial air pollution in the SVAB is considered high (Shasta County 2004).

The low-elevation areas of Shasta County generally experience moderate to very poor capability to disperse pollutants nearly 80 percent of the time. This is primarily because of the relatively stable atmosphere that acts to suppress vertical air movement. Extremely stable atmospheric conditions referred to as “inversions” act as barriers to pollutants. The elevation at the Fern Road Substation site is approximately 2,000 feet above sea level. In valley locations below 1,000 feet elevation, such as the Redding metropolitan area approximately 25 miles west-southwest of the Fern Road Substation site, inversions create a “lid” under which pollutants become trapped. Dust and other pollutants can be trapped within these inversion layers and will not disperse until atmospheric conditions become more unstable. This situation creates concentrations of pollutants

at or near the ground surface that can pose significant health risks for plants, animals, and people (Shasta County 2004).

The climate in the vicinity of the Project sites provides average maximum and minimum winter (i.e., January) temperatures of 44 degrees Fahrenheit (ºF) and 19ºF, respectively, while average summer (i.e., July) maximum and minimum temperatures are 88ºF and 44ºF, respectively (WRCC 2020a). Rainfall averages approximately 67 inches per year and snowfall averages 79 inches per year, with an average winter snow depth of 2 inches (WRCC 2020b). Average annual wind speeds in the Project area are approximately 19 miles per hour (mph), with average monthly peak wind speed at approximately 29 mph during October, and average monthly minimum average wind speed at 11 mph in June (USA 2020).

3.3.1.2 Criteria Air Pollutants

The U.S. Environmental Protection Agency (EPA) has identified criteria air pollutants that are a threat to public health and welfare. These pollutants are called "criteria" air pollutants because standards have been established for each of them to meet specific public health and welfare criteria (see Section 3.3.2, *Regulatory Setting*). Criteria pollutants that would be generated by the Project are described below.

Ozone

Ozone (O_3) is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and can cause substantial damage to vegetation and other materials. Ozone is not emitted directly into the atmosphere, but is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving reactive organic gases (ROG) and nitrogen oxides (NO_x), including nitrogen dioxide (NO_2), and the presence of sunlight. ROG and NO_x are known as precursor compounds for ozone. Significant ozone production generally requires ozone precursors to be present in a stable atmosphere with strong sunlight for approximately 3 hours.

Ozone is a regional air pollutant because it is not emitted directly by sources but is formed downwind of sources of ROG and NO_x under the influence of wind and sunlight. Ozone concentrations tend to be higher in the late spring, summer, and fall, when the long sunny days combine with regional subsidence inversions to create conditions conducive to the formation and accumulation of secondary photochemical compounds, like ozone.

Nitrogen Dioxide

NO_2 is an air quality pollutant of concern because it acts as a respiratory irritant. NO_2 is a major component of the group of gaseous nitrogen compounds commonly referred to as NO_x. A precursor to ozone formation, NO_x is produced by fuel combustion in motor vehicles, industrial stationary sources (such as industrial activities), ships, aircraft, and rail transit. Typically, NO_x emitted from fuel combustion is in the form of nitric oxide (NO) and NO_2. NO is converted to NO_2 when it reacts with ozone or undergoes photochemical reactions in the atmosphere. NO_2 can potentially irritate airways in the human respiratory system (EPA 2021). Short-term exposures can aggravate respiratory diseases, particularly asthma, leading to respiratory symptoms (such as coughing, wheezing, or difficulty breathing), hospital admissions, and visits to emergency rooms. Longer

exposures to elevated concentrations of NO_2 may contribute to the development of asthma and potentially increase susceptibility to respiratory infections.

Carbon Monoxide

Carbon monoxide (CO) is a nonreactive pollutant that is a product of incomplete combustion and is associated mostly with motor vehicle traffic. High CO concentrations develop primarily during winter when periods of light winds combine with the formation of ground-level temperature inversions (typically from the evening through early morning). These conditions result in reduced dispersion of vehicle emissions. Motor vehicles also exhibit increased CO emission rates at low air temperatures. When inhaled at high concentrations, CO combines with hemoglobin in the blood and reduces the blood's oxygen-carrying capacity. This reduces the amount of oxygen reaching the brain, heart, and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease, or anemia.

Particulate Matter

Respirable particulate matter (PM_{10}) and fine particulate matter ($PM_{2.5}$) represent fractions of particulate matter that can be inhaled into air passages and the lungs and can cause adverse health effects. Particulate matter in the atmosphere results from many kinds of dust- and fume-producing industrial and agricultural operations, fuel combustion, and atmospheric photochemical reactions. Some sources of particulate matter, such as demolition and construction activities, are more local in nature, while others, such as vehicular traffic, have a more regional effect. Very small particles of certain substances (e.g., sulfates and nitrates) can cause lung damage directly, or can contain absorbed gases (e.g., chlorides or ammonium) that may be injurious to health. Particulates can also damage materials and reduce visibility.

Sulfur Dioxide

Sulfur dioxide (SO_2) is produced through combustion of sulfur or sulfur-containing fuels such as coal. SO_2 is also a precursor to the formation of atmospheric sulfate and particulate matter (PM_{10} and $PM_{2.5}$) and contributes to potential atmospheric sulfuric acid formation that could precipitate downwind as acid rain.

Lead

Lead has a range of adverse neurotoxin health effects and was formerly released into the atmosphere primarily via leaded gasoline. The phase-out of leaded gasoline has resulted in decreasing levels of atmospheric lead.

Attainment Status

The Project is located mostly within Shasta County; a relatively small portion of the Project (i.e., modification at the Table Mountain Substation) would occur in Butte County. Both counties are within the SVAB. The Shasta County Air Quality Management District (AQMD) and Butte County Air Quality Management District (BCAQMD) are the government agencies that regulate sources of air pollution within the counties. Air basins that exceed either the California ambient air quality standards (CAAQS) and/or national ambient air quality standards (NAAQS) for any criteria pollutants are designated as "nonattainment areas" for that pollutant. To address nonattainment areas, California created the California State Implementation Plan (SIP), which is

designed to provide control measures needed to attain ambient air quality standards. The attainment status for each criteria pollutant in Shasta County and Butte County is shown in **Table 3.3-1**, *Shasta County and Butte County Attainment Status by Pollutant.*

TABLE 3.3-1
SHASTA COUNTY AND BUTTE COUNTY ATTAINMENT STATUS BY POLLUTANT

Pollutant	Shasta County		Butte County	
	Federal	State	Federal	State
Ozone (8-hour standard)	Unclassified/Attainment	Nonattainment	Nonattainment	Nonattainment
Carbon Monoxide (CO)	Unclassified/Attainment	Unclassified	Unclassified/Attainment	Attainment
Nitrogen Dioxide (NO_2)	Unclassified/Attainment	Attainment	Unclassified/Attainment	Attainment
Sulfur Dioxide	Unclassified/Attainment	Attainment	Unclassified/Attainment	Attainment
Lead	Unclassified/Attainment	Attainment	Unclassified/Attainment	Attainment
Hydrogen Sulfide	–	Unclassified	–	Unclassified
Sulfates	–	Attainment	–	Attainment
Visibility	–	Unclassified	–	Unclassified
Fine Particulates ($PM_{2.5}$)	Unclassified/Attainment	Attainment	Unclassified/Attainment	Nonattainment
Inhalable Particulates (PM_{10})	Unclassified	Attainment	Unclassified	Nonattainment

SOURCE: CARB 2020

Existing Air Quality

The AQMD and BCAQMD maintain regional monitoring networks that measure the ambient concentrations of criteria pollutants in the counties. Ambient air quality measurements from air monitoring stations maintained by the AQMD and BCAQMD help to determine the level of air quality in the local area. The closest air quality monitoring station to the Project sites in Shasta County with the most available data is the Redding station, approximately 24 miles southwest of the Fern Road Substation site. **Table 3.3-2** shows a 5-year (2016 through 2020) summary of ozone, PM_{10}, and $PM_{2.5}$ data collected at the Redding station. The data are compared to the CAAQS and NAAQS.

The closest air quality monitoring station to the Table Mountain Substation in Butte County is the Chico station, approximately 15 miles to the northwest. A summary of monitoring data for that station follows. During the 5-year study period from 2016 through 2020, the national ozone 8-hour standard was exceeded once in 2016 and once in 2020, and the state ozone 1-hour standard was exceeded once in 2020. Regarding PM10, there were 9 measured exceedances of the 24-hour national standard in 2018, and 8 measured exceedances of the standard in 2020; there were 8, 14, 40, 4, and 53 measured exceedances of the 24-hour state standard in 2016, 2017, 2018, 2019, and 2020, respectively. Regarding PM2.5, there were 1, 2, 18, and 33 measured exceedances of the 24-hour national standard in 2016, 2017, 2018, and 2020, respectively (CARB 2022).

TABLE 3.3-2
AIR QUALITY DATA SUMMARY (2016–2020) FOR THE REDDING STATION

Pollutant	Standard	Monitoring Data by Year				
		2016	2017	2018	2019	2020
Ozone						
Highest 1-Hour Average, ppm		0.084	0.082	0.089	0.072	0.077
Days over State Standard	0.09 ppm	0	0	0	0	0
Highest 8-Hour Average, ppm		0.074	0.075	0.076	0.070	0.069
Days over State/National Standards[a]	0.070 ppm	5	3	1	0	0
Fine Particulate Matter, $PM_{2.5}$						
Highest 24-Hour Average, µg/m^3		12.6	67.3	131	24.1	68.3
Measured days over National Standard Exceedances/Samples[b]	35 µg/m^3	0	1	5	0	3
Annual Average, µg/m^3	12 µg/m^3	5.1	7.8	15.8	6.6	10.1
Respirable Particulate Matter, PM_{10}						
California Highest 24-Hour Average		27.6	84.8	160.5	28.1	94.4
Measured Days over State Standard	50 µg/m^3	0	2	7	0	4
National Highest 24-Hour Average		28.4	88.9	166.1	26.4	95.4
Measured Days over National Standard	150 µg/m^3	0	0	1	0	0
State Annual Average	20 µg/m^3	11.1	16.1	23	NA	19.3

NOTES:

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

Generally, state standards are not to be exceeded and national standards are not to be exceeded more than once per year.

a. In October 2015, the U.S. Environmental Protection Agency implemented a new national 8-hour ozone standard of 70 parts per billion (or 0.070 ppm).

SOURCE: CARB 2022

3.3.1.3 Toxic Air Contaminants

Toxic air contaminants (TACs) are airborne substances that can cause short-term (acute) and/or long-term (chronic or carcinogenic, i.e., cancer-causing) adverse human health effects—injury or illness. TACs include both organic and inorganic chemical substances. They may be emitted by a variety of common sources including gasoline stations, automobiles, dry cleaners, industrial operations, and painting operations. The current California list of TACs includes nearly 200 compounds, including diesel particulate matter (DPM) emissions from diesel-fueled engines (CARB 2011).

3.3.1.4 Sensitive Receptors

Some receptors are considered more sensitive than others to air pollutants. The reasons for greater than average sensitivity include age, preexisting health problems, proximity to emissions sources, and/or duration of exposure to air pollutants. Schools, hospitals, and convalescent homes are considered relatively sensitive to poor air quality because children, elderly people, and the infirm are more susceptible to respiratory distress and other air quality–related health problems than the general public. Residential areas are considered sensitive to poor air quality because people

usually stay at home for extended periods of time, with greater associated exposure to ambient air quality. Recreational uses are also considered sensitive due to the greater exposure to ambient air quality conditions because vigorous exercise associated with recreation places a high demand on the human respiratory system. The AQMD considers sensitive receptors to be facilities that house or attract children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants (AQMD 2003).

The closest sensitive receptors to the Fern Road Substation Facilities sites and the PG&E interconnection facilities and distribution modifications sites are five residences, which would be between 100 and 1,000 feet from the nearest Project construction limit boundary. There are no nonresidential sensitive receptors in the vicinity of those sites. The closest sensitive receptors to the Round Mountain Substation are residences approximately 850 feet to the south. The Table Mountain Substation is surrounded by open space uses with no sensitive receptors in the vicinity. There are single-family homes along Alpine Way, approximately 120 feet west of the PG&E Redding Service Center.

3.3.2 Regulatory Setting

Air quality within the SVAB is addressed through the efforts of various federal, state, and local government agencies. These agencies work jointly and individually to improve air quality through legislation, regulations, planning, policymaking, education, and a variety of programs. The air pollutants of concern and agencies primarily responsible for improving the air quality within the SVAB and the pertinent regulations are discussed below.

3.3.2.1 Criteria Air Pollutants

Regulation of air pollution is achieved through both the CAAQS and NAAQS as well as emissions limits for individual sources of air pollutants. As required by the federal Clean Air Act (CAA), EPA has identified criteria pollutants and has established NAAQS to protect public health and welfare. NAAQS have been established for ozone, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead. As discussed previously, these pollutants are called “criteria” air pollutants because standards have been established for each of them to meet specific public health and welfare criteria.

To protect human health and the environment, the EPA has set “primary” and “secondary” maximum ambient thresholds for all seven criteria pollutants. Primary thresholds were set to protect human health, particularly sensitive receptors such as children, the elderly, and individuals suffering from chronic lung conditions such as asthma and emphysema. Secondary standards were set to protect the natural environment and prevent further deterioration of animals, crops, vegetation, and buildings.

As discussed previously, the NAAQS are defined as the maximum acceptable concentration that may be reached but not exceeded more than once per year. California has adopted more stringent ambient air quality standards (i.e., CAAQS) for most of the criteria air pollutants. **Table 3.3-3** presents both sets of ambient air quality standards (i.e., national and state) and provides the attainment status for each. California has also established state ambient air quality standards for

sulfates, hydrogen sulfide, and vinyl chloride; however, air emissions of these pollutants are not expected under the Project and are not discussed further in this IS/MND.

TABLE 3.3-3
NATIONAL AND STATE AMBIENT AIR QUALITY STANDARDS

Criteria Pollutant	Averaging Time	State Standard	Federal Primary Standard
Ozone	8 Hours	0.070 ppm	0.070 ppm
	1 Hour	0.09 ppm	–
Carbon Monoxide	8 Hours	9.0 ppm	9 ppm
	1 Hour	20 ppm	35 ppm
Nitrogen Dioxide	Annual Average	0.030 ppm	0.053 ppm
	1 Hour	0.18 ppm	0.100 ppm
Sulfur Dioxide	Annual Average	–	0.030 ppm
	24 Hours	0.04 ppm	0.14 ppm
	1 Hour	0.25 ppm	0.075 ppm
Respirable Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 mg/m^3	–
	24 Hours	50 mg/m^3	150 mg/m^3
Fine Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	12 mg/m^3	12.0 mg/m^3
	24 Hours	–	35 mg/m^3
Lead	3-Month Rolling Average	–	0.15 mg/m^3
Hydrogen Sulfide	1 Hour	0.03 ppm/42 $\mu g/m^3$	–
Sulfates	24 Hours	25 mg/m^3	–
Vinyl Chloride	24 Hours	0.01 ppm/26 $\mu g/m^3$	–

NOTES:
– = no applicable standard; $\mu g/m^3$ = micrograms per cubic meter; mg/m^3 = milligrams per cubic meter; ppm = parts per million

SOURCE: CARB 2016

3.3.2.2 Federal

EPA is responsible for implementing programs established under the federal CAA such as establishing and reviewing the NAAQS and judging the adequacy of SIPs. It has delegated the authority to implement many of the federal programs to the states while retaining an oversight role to ensure that the programs continue to be implemented.

3.3.2.3 State

The California Air Resources Board (CARB) is responsible for establishing and reviewing the state standards, compiling the California SIP and securing approval of that plan from EPA, conducting research and planning, and identifying TACs. CARB also regulates mobile sources of emissions in California, such as construction equipment, trucks, and automobiles, and oversees the activities of California's air quality districts, which are organized at the county or regional level. County or regional air quality management districts are primarily responsible for regulating

stationary sources at industrial and commercial facilities within their geographic areas and for preparing the air quality plans that are required under the federal CAA and California CAA.

California's Diesel Risk Reduction Plan/Diesel Fuel Regulations

As part of California's Diesel Risk Reduction Plan, CARB has issued numerous regulations to reduce diesel emissions from vehicles and equipment that are already in use. Combining these retrofit regulations with new engine standards for diesel fueled vehicles and equipment, CARB intended to reduce DPM emissions by 85 percent from year 2000 levels by 2020. The California Diesel Fuel Regulations (California Code of Regulations Title 13, Sections 2281–2285, and Title 17, Section 93114) provide standards for diesel motor vehicle fuel and nonvehicular diesel fuel.

CARB has also adopted a regulation for in-use off-road diesel vehicles that is designed to reduce emissions from diesel-powered construction and mining vehicles by imposing idling limitations on owners, operators, renters, or lessees of off-road diesel vehicles. The regulation requires operators of applicable off-road vehicles (self-propelled diesel-fueled vehicles 25 horsepower and up that were not designed to be driven on-road) to limit idling to no more than 5 minutes.

3.3.2.4 Local

The California Public Utilities Commission (CPUC) has exclusive jurisdiction over the siting, design, and construction of the Project; therefore, the Project is not subject to local discretionary regulations. CPUC General Order (GO) 131-D, Section XIV.B, states that "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters" (CPUC 1995). Public utilities are directed to consider local regulations and consult with local agencies, but county regulations are not applicable, as Shasta County and Butte County do not have jurisdiction over the Project.

Because CPUC has exclusive jurisdiction, the Project is not subject to local land use and zoning regulations or discretionary permits. The details below that relate to local regulations are provided for informational purposes and to assist with CEQA review. Although the Applicant and PG&E are not subject to local discretionary permitting, ministerial permits would be secured as required.

Northern Sacramento Valley Planning Area 2021 Triennial Air Quality Attainment Plan

The air districts for the counties of Shasta, Tehama, Butte, Glenn, Colusa, Sutter, and Yuba have established the Northern Sacramento Valley Planning Area (NSVPA). The NSVPA air districts were designated as nonattainment for the ozone CAAQS and have jointly prepared an air quality attainment plan to attain the ozone CAAQS standard by the earliest practicable date. The NSVPA air districts jointly prepared the original 1991 Air Quality Attainment Plan and have since prepared triennial updates to the plan. The latest update is referred to as the 2021 Triennial Air Quality Attainment Plan (2021 Plan). The 2021 Plan includes an assessment of progress toward achieving the control measure commitments in the previous plan, a summary of ozone data, emissions reductions for measures committed to in the previous plan, updated control measure

commitments, and updated growth rates. The NSVPA air districts also administer several grant programs that achieve emissions reductions in addition to stationary and areawide control measures. These incentive programs are voluntary and often target mobile sources, which compose the majority of the NO_x emissions inventory, but over which the districts have no regulatory authority. There are no control measures or grant programs that would be directly applicable to the Project (SVAQEEP 2021).

Shasta County General Plan

The Air Quality Element of the Shasta County General Plan includes the following policies designed to reduce air pollutant emissions in the county (Shasta County 2004):

> **Policy AQ-2b:** The County will work to accurately determine and fairly mitigate the local and regional air quality impacts of projects proposed in the unincorporated portions of Shasta County.
>
> **Policy AQ-2c:** Land use decisions, where feasible, should contribute to the improvement of air quality. New projects shall be required to reduce their respective air quality impacts to below levels of significance or proceed as indicated in Policy AQ-2e.
>
> **Policy AQ-2d:** Shasta County shall ensure that air quality impacts identified during CEQA review are: (1) consistently and fairly mitigated, and (2) mitigation measures are feasible.
>
> **Policy AQ-2e:** Shasta County will cooperate with the AQMD in assuring that new projects with stationary sources of emissions of non-attainment pollutants or their precursors that exceed 25 tons per year shall provide appropriate emission offsets. A comparable program which offsets indirect emissions of these pollutants exceeding 25 tons per year from development projects shall also be utilized to mitigate air pollution impacts. An Environmental Impact Report will be required for all projects that have unmitigated emissions of non-attainment pollutants exceeding 25 tons per year.
>
> **Policy AQ-2f:** Shasta County shall require appropriate Standard Mitigation Measures and Best Available Mitigation Measures on all discretionary land use applications as recommended by the AQMD in order to mitigate both direct and indirect emissions of non-attainment pollutants.
>
> **Policy AQ-2g:** Significance thresholds as proposed by the AQMD for emissions shall be utilized when appropriate for: (1) ROG and NOx, both of which are precursors of ozone, and (2) PM_{10} in determining mitigation of air quality impacts.
>
> **Policy AQ-2j:** The County shall work toward measures to reduce particulate emissions from construction, grading, excavation, and demolition to the maximum extent feasible.

Shasta County Air Quality Management District Rules

The AQMD enforces the following rules that may be applicable to the Project to limit the generation of air pollutants in Shasta County:

> **Rule 3.2:** Specific Air Contaminants. This rule establishes limits to the amount of pollutants that may be discharged into the atmosphere.
>
> **Rule 3.16:** Fugitive, Indirect, or Non-Traditional Sources. This rule established conditions upon any source, including sources of construction-related fugitive dust, to mitigate the emissions from such sources to below a level of significance or to a point that such emissions

no longer constitute a violation of the California Health & Safety Code Section 41700 and/or Section 41701.

Rule 3.32: Adhesives and Sealants. This rule limits the emission of VOCs [volatile organic compounds] from adhesives and sealants and associated primers, and from related surface preparation solvents, cleanup solvents, and strippers.

Butte County

Local regulations in Butte County pertaining to air quality are similar to those described above for Shasta County. The Conservation and Open Space Element of the Butte County General Plan includes one goal designed to minimize air pollutant emissions in the County (Butte County 2010). BCAQMD enforces several district rules that are applicable to the Project to limit the generation of air pollutants in the area as well (BCAQMD 2014).

3.3.3 Applicant Proposed Measures and PG&E Construction Measures

3.3.3.1 Applicant Proposed Measures

The following air quality measures have been proposed by the Applicant and would be implemented as part of the Fern Road Substation Facilities portion of the Project. The Applicant has also identified Applicant Proposed Measure (APM) GHG-1 to minimize greenhouse gas emissions, which would also reduce criteria pollutant emissions (see Section 3.8, *Greenhouse Gas Emissions*). For the list of air quality best management practices PG&E proposes to implement during construction and operation of its facilities that are part of the Project, see Section 3.3.3.2.

APM AQ-1: The Proposed Project would implement the following Shasta County Standard Mitigation Measures (SMMs):

- ***AQ-SMM-1*:** Maintain all construction equipment in proper tune according to manufacturer's specifications.
- ***AQ-SMM-2*:** Fuel all off-road and portable diesel-powered equipment with ARB [CARB]-certified motor vehicle diesel fuel (non-taxed version suitable for use off-road).
- ***AQ-SMM-3*:** Use diesel construction equipment meeting ARB's Tier 2 certified engines or cleaner off-road heavy-duty diesel engines and comply with the State Off-Road Regulation.
- ***AQ-SMM-4*:** Use on-road heavy-duty trucks that meet the ARB's 2007 or cleaner certification standard for on-road heavy-duty diesel engines and comply with the State On-Road Regulation.
- ***AQ-SMM-5*:** All on and off-road diesel equipment shall not idle for more than five minutes. Signs shall be posted in the designated queuing areas and or job sites to remind drivers and operators of the five-minute idling limit.
- ***AQ-SMM-6*:** Diesel idling within 1,000 feet of sensitive receptors is not permitted.

- ***AQ-SMM-7*:** Staging and queuing areas shall not be located within 1,000 feet of sensitive receptors.
- ***AQ-SMM-8*:** Electrify equipment when feasible.
- ***AQ-SMM-9*:** Substitute gasoline-powered in place of diesel-powered equipment, where feasible; and use alternatively fueled construction equipment on-site where feasible, such as compressed natural gas (CNG), liquefied natural gas (LNG), propane or biodiesel.

APM AQ-2: During construction the following Dust Control Plan measures shall be implemented to control fugitive dust and particulate emissions in compliance with SCAQMD SMMs:

- Reduce the amount of the disturbed area where possible;
- Use water trucks or sprinkler systems in sufficient quantities to prevent airborne dust from leaving the site. Increased watering frequency would be required whenever wind speeds exceed 15 mph. Reclaimed (non-potable) water should be used whenever possible;
- All dirt stock-pile areas should be sprayed daily as needed;
- All roadways, driveways, sidewalks, etc. to be paved should be completed as soon as possible, and building pads should be laid as soon as possible after grading unless seeding or soil binders are used;
- All relevant fugitive dust mitigation measures contained in APM AQ-2 shall be shown or otherwise noted on grading and building plans.

3.3.3.2 PG&E Construction Measures

PG&E would implement the following best management practices (BMPs) to address impacts on air quality attributable to the PG&E interconnection and distribution facilities portion of the Project's construction, operations, and/or maintenance.

BMP-5: Asbestos. If any loadbearing structure (poles, towers, concrete pads, etc.) is to be removed by PG&E, this work may will require asbestos testing and notification to the local Air District or California Air Resource Board (CARB). Notify the Environmental Field Specialist (EFS) at least 45 calendar days prior to work commencing. The Air District must be notified at least 10 working days prior to work (demolition) commencing, some districts require 14 days. If the construction start date changes, notify the EFS immediately as notification to the Air District may need to be resubmitted. EFS is responsible for obtaining any necessary permits from the air district prior to start of work.

BMP-6: Combustion Sources. If project or work involves the installation of a combustion source that may require a local air district permit, please work with the EFS and Air SME [Subject Matter Expert] to evaluate compliance requirements. Combustion sources, depending on HP [horsepower] or MMBtu [million British thermal units] rating may require an Authority to Construct Permit prior to any installation activities and a Permit to Operate prior to operating.

Typical Combustion Sources that require permits are:

- Engines ≤50 HP;

- Boilers/Heaters that combust natural gas; and
- Flares.

BMP-7: Fugitive Dust General. Types work activities where water trucks or other dust abatement methods are typically required include: excavation, trenching, grading, sand blasting, and demolition. The crew shall not allow visible dust to pass beyond the project boundary. The crew shall abate dust by:

- Applying water to disturbed areas and to storage stockpiles;
- Applying water in sufficient quantities to prevent dust plumes during activities such as clearing & grubbing, backfilling, trenching and other earth moving activities;
- Limit vehicle speed to 15 miles per hour;
- Load haul trucks with a freeboard (space between top of truck and load) of six inches or greater;
- Cover the top of the haul truck load;
- Clean-up track-out at least daily; and

The crew shall not generate dust in amounts that create a nuisance to wildlife or people, particularly where sensitive receptors such as schools and hospitals are located nearby or down-wind. During inactive periods (e.g., after normal working hours, weekends, and holidays), the crew shall apply water or other approved material to form a visible crust on the soil and restrict vehicle access.

BMP-19: Construction Equipment Air Quality. PG&E will ensure that at least 41 percent of the on-site construction equipment associated with the PG&E interconnection facilities and distribution modifications include Tier 4 interim emissions controls and Level 3 diesel particulate filters by including this requirement in its contractor or internal specifications, with confirmation of the requirement provided to the CPUC. The hourly usage of diesel equipment that does not meet this standard shall be documented, with the logs available upon request.

3.3.4 Environmental Impacts

3.3.4.1 Methodology and Assumptions

Significance Criteria

The CEQA Guidelines Appendix G Checklist (Section III, *Air Quality*) states that the significance criteria established by the applicable air quality management district or air pollution control district may be relied on to make the determinations for the above criteria. The AQMD has established air pollution emissions criteria for determining the significance of an impact during project construction and operation, and these thresholds have been used to evaluate the impacts of the Project on air quality. The AQMD requests that lead agencies apply standard mitigation measures and best available mitigation measures to the project as listed in the Shasta County General Plan's Air Quality Element. The standard mitigation measures are applied to all projects, while the list of best available mitigation measures is reviewed by the planning agency staff for consideration of a specific project. The General Plan does not include construction-related air quality mitigation

measures; however, the AQMD recommends implementation of standard mitigation measures, which are proposed by LSPGC for the Project as described in APM AQ-1, above.

As described in **Table 3.3-4**, AQMD has two levels of emissions thresholds that are used to determine the appropriate level of recommended best available mitigation measures. If the Project's emissions would be greater than the Level A thresholds but less than Level B thresholds, appropriate mitigation should be implemented, and the impact would be less than significant. If emissions would exceed the Level B thresholds after the application of mitigation measures, the Project would be considered to have a significant air quality impact. Because a small component of the Project (i.e., substation modifications at the Table Mountain Substation) would occur in Butte County, the BCAQMD emissions thresholds were reviewed. BCAQMD's construction emissions thresholds are the same as AQMD's Level B thresholds for ROG and NO_x, and the same as the AQMD's Level A threshold for PM_{10} (BCAQMD 2014). The Butte County operational emissions thresholds are the same as AQMD's Level A thresholds (BCAQMD 2014).

TABLE 3.3-4
SHASTA COUNTY EMISSIONS THRESHOLDS (POUNDS/DAY)

Significance Threshold Levels	ROG	NO_x	PM_{10}
A	25	25	80
B	137	137	137

NOTES:
NO_x = nitrogen oxides; PM_{10} = particulate matter less than or equal to 10 microns in diameter; ROG = reactive organic gases
SOURCE: AQMD 2003

The AQMD and BCAQMD also have recommended significance thresholds for non-criteria pollutants such as hazardous air pollutants (HAPs) or TACs. If the Project would result in a cancer risk equal to or greater than 10 in 1 million for the Maximally Exposed Individual (MEI), the impact would be significant (AQMD 2003; BCAQMD 2014). If the Project's estimated total hazard index would be equal to or greater than one for the MEI, then a significant impact associated with exposure to acute and chronic non-carcinogens would occur (AQMD 2003; BCAQMD 2014).

Approach to Analysis

Project-related regional air quality impacts would fall into two categories: short-term construction-related impacts and long-term operational impacts. First, during construction (short-term), the Project would generate air pollutants primarily from fugitive dust sources and diesel exhaust from construction equipment and vehicles.

As part of its application package to CPUC, the Applicant provided calculations and estimates of air pollutant emissions for the construction activities associated with the Project (LSPGC 2022; see Proponent's Environmental Assessment [PEA] Appendix 4.3-A). The Applicant's emissions calculations and health risk assessment (HRA) were independently reviewed by CPUC's

consultant, Environmental Science Associates (ESA), and were found to be technically adequate except that there were some construction equipment assumption inconsistencies between the project description and the emissions calculations. Based on input from CPUC (CPUC 2022), the Applicant had the emissions estimates revised to correct the inconsistencies and resubmitted PEA Appendix 4.3-A (Ldn Consulting 2022). Exhaust emissions that would be generated from construction equipment and vehicles, as well as fugitive dust from ground disturbance and vehicle travel on paved and unpaved roads, were estimated using California Emissions Estimator Model (CalEEMod) Version 2020.4.0. Construction was assumed to occur 6 days per week with construction starting in September 2023. Emissions were estimated for construction of both the LSPGC Fern Road Substation Facilities and the PG&E Facilities components of the Project, as identified below:

- Fern Road Substation Facilities site preparation, roadway work, and staging.
- Fern Road Substation Facilities below-grade construction.
- Fern Road Substation Facilities above-grade construction, including emissions associated with PG&E distribution modifications on LSPGC property.
- Fern Road Substation Facilities commissioning and testing.
- PG&E 500-kilovolt (kV) interconnection.
- PG&E substation modifications.
- PG&E off-site distribution modifications.

Detailed information about the duration and overlap of phases, and the specific construction equipment and vehicle trips modeled for each of the construction phases identified above, were provided for the Project by the Applicant's engineer and are identified in revised PEA Appendix 4.3-A.

The operation and maintenance activities required for the Fern Road Substation are anticipated to produce limited sources of emissions from worker trips, area sources such as landscaping, and energy usage from on-site auxiliary equipment (e.g., control building heating, ventilation, and air conditioning [HVAC] units, communications equipment, and facility lighting). Anticipated operations emissions were estimated by using CalEEMod and were assumed to begin in 2025.

To assess potential health risk impacts associated with DPM, the Applicant prepared a construction-phase HRA for the Project that includes cancer risk and chronic hazard index estimates for residential receptors along Fern Road (Ldn Consulting 2022; see revised PEA Appendix 4.3-A). DPM mass emissions for the HRA were estimated using the annual PM_{10} exhaust emissions from on-site construction operations obtained from the annual CalEEMod model output by summing each on-site source for the construction duration. The DPM concentration at the MEI receptor was then found by modeling the construction emissions with the Air Quality Dispersion Modeling (AERMOD) dispersion model. Once the dispersed concentrations of diesel particulates were estimated, the exposure was evaluated by calculating the worst-case inhalation cancer risk and chronic hazard index using methods identified in the

Office of Environmental Health Hazard Assessment (OEHHA) *Guidance Manual for Preparation of Health Risk Assessments* (OEHHA 2015).

The emissions associated with the PG&E facilities portion of the Project were modeled alongside the emissions associated with LSPGC's Fern Road Substation Facilities portion of the Project. Construction of the PG&E Facilities would occur simultaneously with construction of the Fern Road Substation Facilities and would include trenching conductor/cable and telecommunication lines and installation of the aboveground interconnection facilities.

Direct and Indirect Effects

a) Conflict with or obstruct implementation of the applicable air quality plan: *Less than Significant.*

The Project would be under the jurisdiction of the AQMD and BCAQMD. The AQMD and BCAQMD have partnered with air districts from other counties—Tehama, Glenn, Colusa, Sutter, and Yuba—to form the NSVPA. The NSVPA's most recently prepared air quality attainment plan is the 2021 Plan to attain the ozone CAAQS standards. The Project's construction and decommissioning activities would be short-term and conducted in compliance with applicable federal, state, and local requirements. Project construction activities have the potential to generate temporary ozone precursor emissions from the use of heavy-duty construction equipment, such as excavators and graders, and from vehicle trips by workers and haul trucks traveling to and from the Project sites. Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of construction activity, and prevailing weather conditions. The assessment of construction air quality impacts considers each of these potential sources (see discussion under Criterion b).

To determine whether a project would conflict with or obstruct implementation of the applicable air quality plan, the Lead Agency must demonstrate that a project would not directly obstruct implementation of an applicable air quality plan and would be consistent with the assumptions (typically land-use related) upon which the air quality plan is based. The Project would result in an increase in short-term employment compared to existing conditions. Because Project-related employment would be relatively limited (up to approximately 50 workers per day) and temporary, construction jobs under the Project's construction and decommissioning phases would not conflict with the long-term population and growth projections upon which the 2021 Plan is based. There are no control measures or grant programs that would be directly applicable to the Project; and, as described under Criterion b), the Project would result in a less-than-significant impact associated with construction and decommissioning. Therefore, in addition to the Project not directly conflicting with implementation of the 2021 Plan's measures or grant programs, it would also not result in a violation of an ozone air quality standard, which would be consistent with the intent of the 2021 Plan. The Project would not have a substantial effect on the regional and localized air quality in the SVAB, and would not conflict or obstruct implementation of the 2021 Plan. This impact would be less than significant.

Long-term operation of the Project would result in insignificant ozone precursor emissions mostly from on-site energy use from auxiliary equipment, such as control building HVAC units, and periodic worker vehicle trips. Exhaust emissions from these sources would be less than

significant (see discussion under Criterion b). Furthermore, Project operations would be consistent with the applicable growth projections and control strategies used in development of the 2021 Plan and would not jeopardize attainment of the air quality levels identified in the 2021 Plan because the Project would not be considered growth inducing (see Section 3.14, *Population and Housing*). For these reasons, long-term operations of the Project would not conflict with or obstruct the implementation of the 2021 Plan. No impact would result from the proposed operation and maintenance activities.

b) 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: *Less than Significant*.

CEQA defines cumulative impacts as two or more individual impacts which, when considered together, are either significant or "cumulatively considerable," meaning they add considerably to a significant environmental impact. An adequate cumulative impact analysis considers a project over time and in conjunction with other past, present, and reasonably foreseeable future projects whose impacts might compound those of the project being assessed.

By its very nature, air pollution is largely a cumulative impact. No single project would likely be sufficient in size, by itself, to result in nonattainment of the regional air quality standards. Instead, a project's emissions may be individually limited, but cumulatively considerable when taken in combination with past, present, and future development within the SVAB. The nonattainment status of the SVAB with respect to regional pollutants is a result of past and present development. Future attainment of federal and state ambient air quality standards is a function of successful implementation of the NSVPA's 2021 Triennial Air Quality Attainment Plan. Consequently, the AQMD's and BCAQMD's application of thresholds of significance for criteria pollutants is a relevant way to determine whether a project's individual emissions would have a cumulatively significant impact on air quality.

Shasta County is classified as a nonattainment area for the state ozone standards; and although Shasta County is in attainment of the state PM_{10} standards, the rest of the SVAB is nonattainment of those standards. Butte County is classified as a nonattainment area for the federal and state ozone standards; and nonattainment for the state PM_{10} and $PM_{2.5}$ standards. Therefore, the AQMD and BCAQMD have adopted CEQA thresholds of significance for ROG, NO_x, and PM_{10} for both short-term construction and long-term project operations as identified in Section 3.3.4.1, above. The AQMD and BCAQMD have determined that an exceedance of 137 pounds per day of either NO_x or ROG, or both of these precursors, indicates that a project would cumulatively jeopardize attainment of ozone standards and that an exceedance of 137 pounds per day PM_{10} in Shasta County and an exceedance of 80 pounds per day PM_{10} in Butte County indicates that a project would cumulatively jeopardize attainment of PM_{10} standards. An exceedance of the ozone and/or PM_{10} significance thresholds would result in a significant adverse impact on air quality.

Criteria pollutant emissions from construction equipment, vehicles, and generation of particulate matter in the form of fugitive dust are the primary concerns in evaluating the Project's short-term (i.e., construction and decommissioning) air quality impacts. Although long-term impacts associated with criteria pollutants were also evaluated, these would not be significant because

emissions from Project operation and maintenance would be limited to certain activities as discussed above.

Exhaust pollutants would be emitted during construction and decommissioning activities from a variety of construction and earthmoving equipment (e.g., excavators, loaders, generators) and construction and worker vehicles. Fugitive dust would be generated by ground-disturbing activities (e.g., site grading and foundation excavation), and by heavy truck travel on paved and unpaved roads.

Construction and Decommissioning Emissions

Construction of the Project would include site preparation and grading, and installation of the Fern Road Substation access road, foundations/supports, the 500 kV interconnection facilities, distribution modifications, and other electrical systems. It also includes the setting of equipment wiring and electrical system installation, and assembly of the accessory components. The Fern Road Substation Facilities portion of the Project site is approximately 40 acres and would require the grading of approximately 9 acres. The Fern Road Substation Facilities site would require the import of roughly 19,000 cubic yards of suitable base material and export of roughly 21,000 cubic yards of excavated materials. Construction of the Project was modeled over a 21-month period beginning in March 2023 and ending in December 2024. The schedule has since been revised to start construction in September 2023 and end construction in June 2025, but the schedule change is not anticipated to result in a substantial change to the estimated daily construction emissions. Material hauling/truck details, along with worker trips and the anticipated construction equipment and durations associated with the Project, were provided by the Applicant's engineer. The construction emissions estimates are presented in **Table 3.3-5,** *Project Construction Emissions Summary*. This analysis assumes that decommissioning emissions would be similar to construction emissions. Therefore, the emissions presented in Table 3.3-5 represent both construction and decommissioning emissions.

TABLE 3.3-5
PROJECT CONSTRUCTION EMISSIONS SUMMARY

Construction Year/ Significance Criteria	Construction Emissions (lb/day)		
	NOx	ROG	PM_{10}
2023	105.80	10.40	6.11
2024	68.36	4.72	3.33
AQMD Level "A" Threshold	25	25	80
AQMD Level "B" Threshold	137	137	137
Significant?	Yes	No	No

NOTES:
AQMD = Shasta County Air Quality Management District; lb/day = pounds per day; NO_x = nitrogen oxides; PM_{10} = particulate matter less than or equal to 10 microns in diameter; ROG = reactive organic gases

SOURCE: Ldn Consulting 2022; Revised Appendix 4.3-A

As shown in Table 3.3-5, total NO_x construction emissions associated with the Project would be up to approximately 106 pounds per day, which would exceed the Level A significance threshold

for NO_X but would not exceed the Level B significance threshold for NO_x. According to AQMD guidance, projects that would generate emissions greater than the Level A thresholds but less than the Level B thresholds should include measures to further reduce emissions. Such measures are proposed by both LSPGC (see APMs AQ-1 and AQ-2 in Section 3.3.1) and PG&E (see PG&E BMPs 5 through 7 in Section 3.3.2). Note that a small portion of the emissions estimates presented in Table 3.3-5 would actually occur in Butte County during the PG&E modifications at the Table Mountain Substation. Because the total Project emissions presented in Table 3.3-5 for the Fern Road Substation Facilities and the PG&E Facilities would not exceed the BCAQMD significance thresholds, the emissions associated with PG&E's Table Mountain Substation modifications would also not exceed the BCAQMD significance thresholds.

The Project's construction and decommissioning emissions would not result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is in nonattainment status under an applicable federal or state ambient air quality standard. Therefore, construction and decommissioning of the Project would result in a less-than-significant impact.

Operational Emissions

Project operations would begin in 2025. Once operational, the Project would generate minimal air pollutant emissions. Anticipated operations emissions would primarily be limited to sources such as energy use from auxiliary equipment (e.g., control building HVAC units) and periodic worker vehicle trips. The expected daily pollutant generation from these Project sources was estimated using the CalEEMod emissions model and is presented in **Table 3.3-6**, *Project Operational Emissions Summary.*

TABLE 3.3-6
PROJECT OPERATIONAL EMISSIONS SUMMARY

Operational Source/ Significance Criteria	Operations (lb/day)		
	ROG	NOx	PM_{10}
Area	0.51	0.00	0.00
Energy	0.00	0.00	0.00
Mobile	0.02	0.04	0.05
Total	**0.54**	**0.04**	**0.05**
AQMD Level "A" Threshold	25	25	80
Significant?	No	No	No

NOTES:
AQMD = Shasta County Air Quality Management District; lb/day = pounds per day; NO_x = nitrogen oxides; PM_{10} = particulate matter less than or equal to 10 microns in diameter; ROG = reactive organic gases

SOURCE: Ldn Consulting 2022; Appendix 4.3-A

As shown in Table 3.3-6, the Project would result in negligible operational emissions that would be well below the significance thresholds. Therefore, Project operations would not result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is in nonattainment status under an applicable federal or state ambient air quality standard, and the operational impact would be less than significant.

c) Expose sensitive receptors to substantial pollutant concentrations: *Less than Significant with Mitigation*.

Potential harmful airborne pollutants that could be generated by the Project are DPM and criteria pollutants. Therefore, Project effects relative to each of these pollutant types are addressed separately below with respect to this criterion.

Diesel Particulate Matter

A construction HRA was conducted to determine the impacts of the Project's construction-related emissions of DPM, which is a TAC. As discussed under *Methodology and Assumptions*, construction emissions from the CalEEMod output were modeled in AERMOD to determine the DPM concentration at the nearest resident, then the worst-case exposure was estimated using OEHHA guidance (OEHHA 2015). The analysis includes the assumption that because Tier 4 construction equipment has been a requirement for all new diesel construction equipment since 2014, it is appropriate to assume that a mix of roughly 35 percent by total horsepower of the Project's equipment fleet would be required to meet Tier 4 interim emissions standards and be installed with Level 3 diesel particulate filters (Ldn Consulting 2022).

This assumption for an unmitigated scenario appears to be unsupported. The CalEEMod emissions model already estimates unmitigated emissions by calendar year, incorporating the applicable equipment inventories and associated average emissions controls for a given year. In addition, this assumption is not consistent with AQ-SMM-3 in APM AQ-1, which calls for all diesel construction equipment to meet Tier 2 emissions requirements. Although a true unmitigated scenario was not evaluated as part of the HRA prepared for the Project, given the health risks identified for the HRA's controlled scenario described above, it is assumed that unmitigated DPM emissions would result in health risks that would be considered significant.

Analyzing the equipment inventory emissions controls by horsepower alone does not provide meaningful emissions information for the Project. A more applicable analysis would be to analyze the equipment inventory emission controls by horsepower-hour to capture the amount of time the equipment would operate. Using the same model data that were used to identify that 35 percent of equipment would have Tier 4 interim emissions controls and Level 3 diesel particulate filters, it was determined that 41 percent of the equipment would need to have Tier 4 interim emissions controls and Level 3 diesel particulate filters to generate the same amount of on-site PM_{10} mass emissions evaluated for the HRA's controlled scenario when evaluated in terms of equipment horsepower-hours.

Pursuant to BMP-19, at least 41 percent of the on-site construction equipment that would be associated with the PG&E interconnection facilities and distribution modifications would be installed with Tier 4 interim emissions controls and Level 3 diesel particulate filters. However, to reduce the health risk impact to a less-than-significant level, implementation of Mitigation Measure AQ-1 is recommended, which would require that 41 percent of the on-site construction equipment associated with LSPGC's Fern Road Substation Facilities include Tier 4 interim emissions controls and Level 3 diesel particulate filters. The results of the HRA with implementation of Mitigation Measure AQ-1 are presented in **Table 3.3-7**, *Project Mitigated Construction-Related Health Risk Summary.*

TABLE 3.3-7
PROJECT MITIGATED CONSTRUCTION-RELATED HEALTH RISK SUMMARY

Sensitive Receptor	Cancer Risk (per million)	Total Hazard Index (unitless)
MEI Resident	8.81	0.006
AQMD Threshold	10	1
Significant?	No	No

NOTES:
AQMD = Shasta County Air Quality Management District; MEI = Maximally Exposed Individual

SOURCE: Ldn Consulting 2022; Appendix 4.3-A

As shown in Table 3.3-7, the health risk impacts associated with the Project's construction TAC emissions would be reduced to below the AQMD significance thresholds. Therefore, all health risk impacts associated with exposure of sensitive receptors to DPM would be reduced to a less-than-significant level. Given the substantially reduced scope of construction activities associated with the PG&E substation modifications at the Round Mountain Substation, Table Mountain Substation, Cascade Substation, and Redding Service Center, DPM emissions associated with construction of those facilities would not result in a significant health risk near those facilities, and the associated impacts would be less than significant.

> **Mitigation Measure AQ-1:** LSPGC shall ensure that 41 percent of equipment horsepower-hours related to the on-site construction equipment associated with the Fern Road Substation Facilities include Tier 4 interim emissions controls and Level 3 diesel particulate filters. An initial listing that identifies each off-road unit's certified tier specification and diesel particulate filter status to be operated at the Fern Road Substation Facilities, shall be submitted to CPUC for review before the start of construction activities at those sites. Construction activities at the Fern Road Substation Facilities shall not begin until the equipment listing has been submitted to CPUC.
>
> As LSPGC requires new or replacement construction equipment at the Project sites, LSPGC shall document verification of the certified engine tier or Level 3 diesel particulate filters before their use on those Project sites. Before the start of construction, LSPGC shall develop a diesel-powered equipment-use hours tracking tool and procedure. The tracking tool shall be utilized by LSPGC (and/or its construction contractor[s]) to keep track of the certified engine tier and daily equipment use hours of all off-road diesel-powered equipment. If all diesel-powered equipment is Tier 4 certified with Level 3 diesel particulate filters, the tracking tool is not required. The tracking tool shall be maintained by LSPGC and tracking updates shall be submitted to CPUC on a monthly basis to track the Project's compliance. The updated tracking tool shall be submitted to CPUC no later than the 10th day of the following month.

Criteria Pollutants

The health effects associated with emissions of criteria pollutants are described above in Section 3.3.1.2, *Criteria Air Pollutants*. As described above, compliance with the ambient air quality standards indicates that regional air quality can be considered protective of public health.

As discussed under the Criterion a) impact discussion, construction, decommissioning, and operation of the Project would not result in emissions that exceed the AQMD or BCAQMD annual emissions thresholds for any of the air pollutants. As mentioned previously, these thresholds are established at health protective levels and include an adequate margin of safety. Therefore, Project construction, decommissioning, and operations would not be anticipated to result in an adverse health effect with respect to emissions of criteria air pollutants. The impact would be less than significant.

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people: *Less than Significant*.

The Project may create temporary construction odors from combustion of diesel fuel in equipment engines. Because of the highly dispersive nature of diesel exhaust and the fact that the nearest residential receptors are more than 1,000 feet away from the main Project site, this would not be considered significant. The Project is not anticipated to result in emissions that could cause long-term odors or other adverse effects during operations. Therefore, the Project would result in a less-than-significant impact related to the generation of odors.

3.3.5 References

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3.4 Biological Resources

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

3.4.1 Environmental Setting

This section presents the regional setting, upland and wetland natural communities, and habitat potential for special-status plant and wildlife species, sensitive natural communities, and wildlife corridors in the Project area. The information presented here is based primarily on the Biological Resources Technical Report (Heritage Environmental 2022) prepared for the Fern Road Substation site, which documents the findings of focused special-status species surveys conducted for the Project, and the findings of federal and state databases. The Pacific Gas and Electric Company (PG&E) Round Mountain Substation, Table Mountain Substation, and Redding Service Center, including areas both within and outside the facility boundary walls, are on permanently disturbed land associated with existing industrial facilities. Therefore, this environmental setting discussion focuses on the general area of the Fern Road Substation Facilities site and the PG&E interconnection facilities and distribution modifications sites.

3.4.1.1 Regional Setting

The Fern Road Substation Facilities, PG&E interconnections, and PG&E distribution modifications components of the Project would be located in an unincorporated area of south-central Shasta County within or adjacent to the PG&E Round Mountain–Table Mountain #1 and

#2 500-kilovolt (kV) transmission line corridor. These Project component sites are located approximately 1.6 miles northwest of the unincorporated area of Whitmore, within the Cascade Range Foothills Subregion in Northern California. Lassen Peak, the southernmost active volcano in the Cascade Range, is located approximately 25 miles southeast of these Project component sites.

Water in the Project region flows generally from the east and northeast off the Cascade Range toward the Sacramento Valley floor to the west and southwest. All water within a 1,000-foot buffer around the proposed Fern Road Substation work area flows generally from north to south. The Project region ranges in elevation from 825 to 3,980 feet above mean sea level, with the highest points located west of the Fern Road Substation site toward the Cascade Range and the lowest points east of the substation site near Clover Creek. The Fern Road Substation site slopes gradually downhill from north to south; elevations range from 1,710 to 2,130 feet above mean sea level. The closest climate station to the Project is Buckhorn, approximately 16 miles to the north-northeast, with an average of 63.55 inches of precipitation per year (Heritage Environmental 2022).

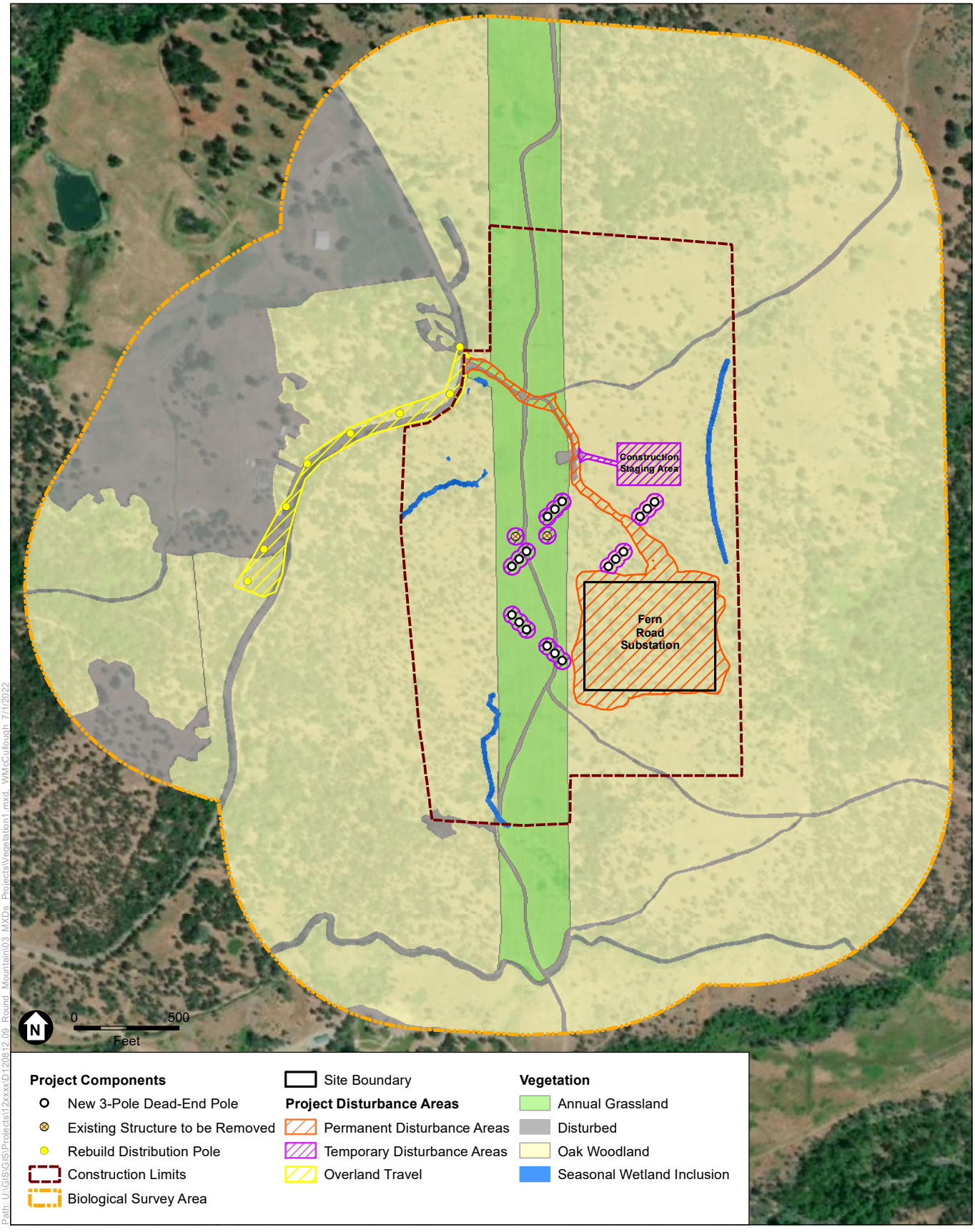
Vegetation Communities

The proposed substation would occupy approximately 8 acres within a construction envelope of approximately 90 acres (Fern Road Substation site). The construction limits support native and nonnative vegetation communities that have been disturbed by grazing and by the construction and maintenance of the existing 500 kV transmission lines, as well as Fern Road, private roads, and private residences. The vegetation community types described below are based on field observations and descriptions in the California Native Plant Society (CNPS) Manual of California Vegetation Online (CNPS 2022a). Natural communities were evaluated using NatureServe's Heritage Methodology, the same system used to assign global and state rarity ranks for plant and animal species in the California Natural Diversity Database (CNDDB). No sensitive natural communities occur in the Fern Road Substation or PG&E interconnection facilities areas.

Upland Communities

The Project and surroundings are dominated by blue oak woodland: *Quercus douglasii* forest and woodland alliance (S4), annual grassland: *Bromus tectorum–Taeniatherum caput-medusae* herbaceous semi-natural alliance (SNA), with some seasonal wetlands: Baltic and Mexican rush marshes: *Juncus arcticus* (var. *balticus, mexicanus*) herbaceous alliance (S4) and disturbed areas. The Fern Road Substation Facilities site and the PG&E interconnection facilities and distribution modifications sites would be located in blue oak woodland, annual grassland, and/or disturbed land cover types (**Figure 3.4-1***, Vegetation Communities in the Vicinity of the Fern Road Substation Site*).

Table 3.4-1 summarizes the approximate acreage of each community and land cover type that was mapped within the limits of construction associated with the Fern Road Substation Facilities and the PG&E interconnections and part of the distribution modifications. Brief descriptions of each land cover type are provided after the table.



SOURCE: LS Power Grid California LLC, 2022; ESRI, 2022

Round Mountain 500 kV Area Dynamic Reactive Support Project

Figure 3.4-1
Vegetation Communities in the Vicinity of the Fern Road Substation Site

ESA

TABLE 3.4-1
VEGETATION COMMUNITIES AND LAND COVER TYPES AT THE CONSTRUCTION LIMITS OF THE FERN ROAD SUBSTATION FACILITIES SITE AND THE PG&E INTERCONNECTION AND DISTRIBUTION MODIFICATIONS SITES

Vegetation Community of Land Cover Type Name	Approximate Acreage	Approximate Percent of Total Acreage
Blue Oak Woodland: *Quercus douglasii* Forest and Woodland Alliance (S4)	65.27	73%
Annual Grassland: *Bromus tectorum–Taeniatherum caput-medusae* Herbaceous Semi-Natural Alliance (SNA)	21.09	24%
Seasonal Wetlands: Baltic and Mexican Rush Marshes: *Juncus arcticus* (var. *balticus, mexicanus*) (S4)	1.05	1%
Disturbed	2.19	2%
Total	**89.60**	**100%**

NOTES: PG&E = Pacific Gas and Electric Company

The 90-acre "Construction Limits" in Table 3.4-1 and Figure 3.4-1 include substantial areas that would not be subject to Project disturbance.

SOURCE: Heritage Environmental 2022.

Blue Oak Woodland: *Quercus douglasii* Forest and Woodland Alliance (S4)

This habitat includes both hardwoods and conifers and comprises the majority of the vegetation type within the mapped limits of construction (approximately 73 percent). Blue oak is the dominant tree species with a gray pine (*Pinus sabiniana*) and buckeye (*Aesculus californica*) subcomponent. Associated shrub species include poison oak (*Toxicodendron diversilobum*), buck brush (*Ceanothus cuneatus*), and whiteleaf manzanita (*Arctostaphylos viscida*). The ground cover consists of forbs (predominantly big heron bill [*Erodium botrys*], common butter cup [*Ranunculus californicus*], and rose clover [*Trifolium hirtum*]); and annual grasses (predominantly bulbous bluegrass [*Poa bulbosa*], seaside barley [*Hordeum marinum*], and medusa head [*Taeniatherum caput-medusae*]).

Annual Grassland: *Bromus tectorum–Taeniatherum caput-medusae* Herbaceous Semi-Natural Alliance (SNA)

Annual grassland exists under the power lines and is a result of ongoing vegetation management (approximately 24 percent within the mapped limits of construction). Nonnative annual grasses such as seaside barley, medusa head, and bulbous bluegrass are the dominant grass species, and big heron bill, yellow star thistle (*Centaurea solstitialis*), and butter n' eggs (*Triphysaria eriantha*) are the dominant forb species in this habitat.

Seasonal Wetlands: Baltic and Mexican Rush Marshes: *Juncus arcticus (*var. *balticus, mexicanus)* Herbaceous Semi-Natural Alliance (S4)

The seasonal wetland habitats are found along the intermittent streams and seasonal wetlands within the site (approximately 1 percent of the site). These wetland habitats are found within the limits of construction, but the Project footprint at the Fern Road Substation site avoids these areas. The dominant species in this habitat are wire rush (*Juncus balticus*), yellow monkey flower (*Erythranthe guttata*), and annual beard grass (*Polypogon monspeliensis*).

Disturbed

Disturbed areas (approximately 2 percent of the mapped construction limits) have been changed from their natural state by human influence and include disturbed vegetation. This cover type includes all paved and dirt roads, buildings, and areas cleared for residences and agriculture.

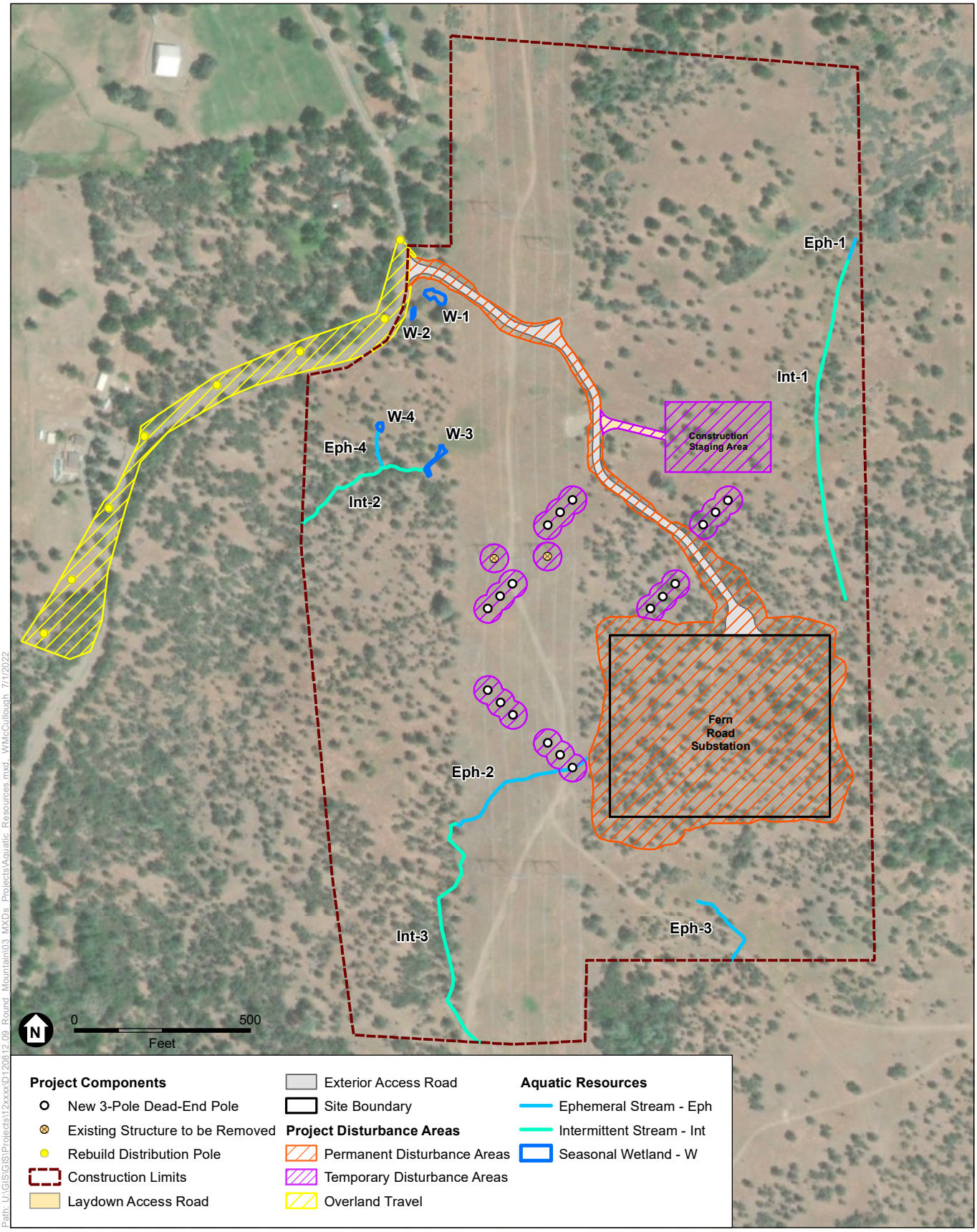
Wetland Communities

Aquatic resource delineation surveys were conducted in the mapped limits of construction on April 7 and April 24, 2020, and March 4 and March 10, 2021 (Heritage Environmental 2022). The surveys used routine on-site determination methods described in the U.S. Army Corps of Engineers (USACE) *Wetlands Delineation Manual* (1987 Manual) (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Version 2.0) (USACE 2008). Streams were mapped and delineated and data on vegetation, soil, and hydrology characteristics were collected in accordance with the 1987 Manual and the 2008 Arid West Region Supplement. These data were also used to determine boundaries for California Department of Fish and Wildlife (CDFW) Lake and Streambed Alteration Program jurisdictional waterways. A total of approximately 0.3 acre of potentially jurisdictional aquatic resources were identified in the construction work areas in the vicinity of the Fern Road Substation site, consisting of seven small stream segments and four small seasonal wetlands (Heritage Environmental 2022) (**Figure 3.4-2**, *Aquatic Resources*).

Three unnamed intermittent stream segments (Int-1 through Int-3) were identified in the mapped limits of construction. These stream segments dry up in late spring or early summer in typical years and are influenced by groundwater from the surrounding landscape. Limited vegetation is associated with these stream segments, consisting mostly of small intermediate patches of non-riparian facultative hydrophytic plants (Heritage Environmental 2022). Four unnamed ephemeral stream segments (Eph-1 through Eph-4) were also identified in the mapped limits of construction (Figure 3.4-2). These stream segments contained areas of very low flow and standing water in some segments during the April 7, 2020, and March 10, 2021, site visits. These segments do not appear to be influenced by groundwater and were dry during subsequent site visits (Heritage Environmental 2022). No wetland-associated plant species were observed in or adjacent to these stream segments.

Seasonal wetlands totaling 1.05 acres were identified on the Project site, comprising four small depressional areas (W-1 through W-4). Seaside barley (*Hordeum marinum*) and navarretia (*Navarretia intertexta*) are the dominant species at W-1 and W-2, while yellow monkey flower (*Erythranthe guttata*), seaside barley, and navarretia are the dominant species at W-3 and W-4. These areas had other facultative wetland species intermixed within the shallow depressional areas (Heritage Environmental 2022).

The stream segments located in the vicinity of the Fern Road Substation site flow off-site and enter an irrigation canal that receives its water from Old Cow Creek and then returns to Old Cow Creek downstream. Old Cow Creek is a tributary to Cow Creek, a tributary to the Sacramento River, which is a tributary to San Francisco Bay and the Pacific Ocean. Thus, all stream segments and seasonal wetlands would likely be considered waters of the state under California's Porter-Cologne Water Quality Control Act, jurisdictional streambeds under Section 1600 of the California Fish and Game Code, and waters of the United States under Section 404 of the Clean Water Act.



SOURCE: LS Power Grid California LLC, 2022; ESRI, 2022

Round Mountain 500 kV Area Dynamic Reactive Support Project

Figure 3.4-2
Aquatic Resources

ESA

Sensitive Natural Communities

There are no sensitive natural vegetation communities in the vicinity of the Fern Road Substation site that meet the definition of a biological resource under CEQA (i.e., rare, designated or otherwise protected).

Special-Status Species

General Wildlife

The Fern Road Substation site and vicinity are actively grazed by cattle. All of the common species that were observed during the surveys conducted for the Project were typical of oak woodland and annual grassland habitat, including American robin (*Turdus migratorius*), acorn woodpecker (*Melanerpes formicivorus*), red-winged blackbird (*Agelaius phoeniceus*), California quail (*Callipepla californica*), European starling (*Sturnus vulgaris*), and red-tailed hawk (*Buteo jamaicensis*). A full list of observed plant and animal species is included in the Biological Resources Technical Report prepared for the Project (Heritage Environmental 2022).

Seasonal wetland habitat along the intermittent streams in the area supports Sierran treefrogs (*Pseudacris sierra*) and may be used by other amphibian species as well. Common mammals such as raccoon (*Procyon lotor*), coyote (*Canis latrans*), squirrels (*Sciuridae* sp.), and Columbian black-tailed deer (*Odocoileus hemionus columbianus*) also use the site. No burrows were observed during field surveys (Heritage Environmental 2022).

Existing transmission structures associated with the Round Mountain–Table Mountain #1 and #2 500 kV transmission lines provide suitable nesting habitat for raptors, and the Fern Road Substation site and surrounding oak woodlands and annual grasslands provide suitable foraging habitat. Sixteen inactive stick nests were observed on transmission structures during nesting-bird surveys. Oak and pine trees and other vegetation may provide suitable nesting habitat for numerous tree-nesting bird species and grasslands may provide habitat for ground-nesting birds. No active nests were observed during nesting-bird surveys (Heritage Environmental 2022).

Special-Status Plants

All special-status plant species found within 5 miles of the Fern Road Substation site in Information for Planning and Conservation (IpaC) (USFWS 2022), CNPS (2022b), and CNDDB (CDFW 2022) occurrence records were evaluated for the species' potential to occur in the vicinity based on the presence of suitable habitat, elevation, and soils (see **Table 3.4-2**). Seven plants have moderate potential to occur, but none of these were observed during botanical surveys at the site (Heritage Environmental 2022). There is no U.S. Fish and Wildlife Service (USFWS) critical habitat for special-status species plants mapped within 5 miles of the Fern Road Substation site (USFWS 2022).

Botanical surveys were conducted at and in the vicinity of the Fern Road Substation site in April and May 2020, and in April and May 2021 (Heritage Environmental 2022). During the 2020 surveys, no special-status plant species were observed, but during the 2021 expanded surveys, one CNPS California Rare Plant Rank (CRPR) 4.3 plant species was observed: silvery false lupine (*Thermopsis californica* var. *argentata*). This plant species is discussed in further detail below.

TABLE 3.4-2
SPECIAL-STATUS SPECIES WITH POTENTIAL TO OCCUR AT THE PROJECT SITE

Common Name *Scientific Name*	Status (Federal/ State/ CRPR)	Habitat Requirements	Identification/ Survey Period	Potential to Occur
Plants				
Shasta ageratina *Ageratina shastensis*	--/--/1B.2	Perennial herb found on rocky, often carbonate soils in chaparral and lower montane coniferous forest from 400 to 1,800 meters.	Blooming period: June - October	**Unlikely.** Site lacks cliff habitat and no known occurrences within 5 miles of Project site, not observed during site botanical surveys
Scalloped moonwort *Botrychium crenulatum*	--/--/2B.2	Perennial rhizomatous herb found in bogs and fens, lower montane coniferous forest, meadows and seeps, freshwater marshes and swamps, and upper montane coniferous forest from 1,268 to 3,280 meters.	Blooming period: June – September	**Not Present.** Site lacks bogs/fens and is outside the preferred elevation range of this species. No known occurrences within 5 miles of Project site, not observed during site botanical surveys.
Mingan moonwort *Botrychium minganense*	--/--/2B.2	Perennial rhizomatous herb found in bogs and fens, lower montane coniferous forest, edges of meadows and seeps, and upper montane coniferous forest from 1,455 to 2,180 meters.	Blooming period: June – September	**Not Present.** Site is outside the preferred elevation range of this species. No known occurrences within 5 miles of Project site, not observed during site botanical surveys
Rattlesnake fern *Botrypus virginianus*	--/--/2B.2	Perennial herb found in bogs and fens, mesic lower montane coniferous forest, meadows and seeps, and riparian forest from 715 to 1,355 meters.	Blooming period: (April), June, August, September	**Unlikely.** Seasonal wetland habitat present; nearest CNDDB record approximately 4 miles northeast. Not observed during site botanical surveys
Watershield *Brasenia schreberi*	--/--/2B.3	Aquatic perennial rhizomatous herb found in marshes and swamps in freshwater from 30 to 2,200 meters.	Blooming period: June – September	**Not Present.** Site lacks freshwater marshes and is outside preferred elevation range of this species. No known occurrences within 5 miles of Project site, not observed during site botanical surveys.
Callahan's mariposa lily *Calochortus syntrophus*	--/--/1B.1	Perennial bulbiferous herb found in cismontane woodland and vernally mesic valley and foothill grassland from 525 to 1,145 meters.	Blooming period: May - June	**Moderate.** Suitable oak woodland and annual grassland habitats occur; nearest CNDDB record approximately four miles northeast. Not observed during site botanical surveys
Shasta clarkia *Clarkia borealis* ssp. *arida*	--/--/1B.1	Annual herb found in cismontane woodland and openings of lower montane coniferous forest from 490 to 595 meters.	Blooming period: June – August	**Unlikely.** Suitable oak woodland habitat is present, but no CNDDB records within 5 miles of Project site, not observed during site botanical surveys
Northern clarkia *Clarkia borealis* ssp. *borealis*	--/--/1B.3	Annual herb often found in roadcuts in chaparral, cismontane woodland and lower montane coniferous forest habitat types from 400 to 1,390 meters.	Blooming period: June – September	**Moderate.** Suitable oak woodland habitat is present, nearest CNDDB records approximately 5 miles north of Project site, not observed during site botanical surveys

TABLE 3.4-2
SPECIAL-STATUS SPECIES WITH POTENTIAL TO OCCUR AT THE PROJECT SITE

Common Name *Scientific Name*	Status (Federal/ State/ CRPR)	Habitat Requirements	Identification/ Survey Period	Potential to Occur
Plants (cont.)				
Silky cryptantha *Cryptantha crinita*	--/--/1B.2	Annual herb found on gravelly streambeds in cismontane woodland, lower montane coniferous forest, riparian forest, riparian woodland, and valley and foothill grassland from 61 to 1,215 meters.	Blooming period: April - May	**Moderate.** Suitable oak woodland and seasonal wetland habitats are present, nearest CNDDB record 5 miles southeast of Project site, not observed during site botanical surveys
Shasta limestone monkeyflower *Erythranthe taylorii*	--/--/1B.1	Annual herb found in openings, carbonate crevices, and rocky outcrops in cismontane woodland and lower montane coniferous forest from 355 to 980 meters.	Blooming period: (February) April – May	**Not Present.** Site is outside the preferred elevation range of this species. No known occurrences within 5 miles of Project site, not observed during site botanical surveys
Shasta fawn lily *Erythronium shastense*	--/--/1B.2	Perennial bulbiferous herb usually found on limestone - rocky, north-facing or shaded; can form clumps due to bulb offsets in cismontane woodland and lower montane coniferous forest from 350 to 1,020 meters.	Blooming period: (February) March - April	**Not Present.** Site lacks suitable limestone soils. No known occurrences within 5 miles of Project site, not observed during site botanical surveys
Jepson's horkelia *Horkelia daucifolia* var. *indicta*	--/--/1B.1	Perennial herb found in quaternary pyroclastic flows, clay, volcanic, vernally mesic, openings in cismontane woodland from 240 to 670 meters.	Blooming period: April - June	**Moderate.** Suitable oak woodland habitat present; no known occurrences within 5 miles of Project site, not observed during site botanical surveys
Finger rush *Juncus digitatus*	--/--/1B.1	Annual herb found in openings of cismontane woodland, openings of lower montane coniferous forest, and xeric vernal pools from 660 to 790 meters.	Blooming period: (April) May - June	**Moderate.** Suitable seasonal wetland habitat present, nearest CNDDB record 5 miles southeast of Project site, not observed during site botanical surveys
Bellinger's meadowfoam *Limnanthes floccose* ssp. *bellingeriana*	--/--/1B.2	Annual herb found in mesic areas of cismontane woodland and meadows and seeps from 290 to 1,100 meters.	Blooming period: April - June	**Moderate.** Suitable seasonal wetland habitat present; no known occurrences within 5 miles of Project site, not observed during site botanical surveys
Shasta snow-wreath *Neviusia cliftonii*	--/CCE/1B.2	Perennial deciduous shrub often found in streamsides, sometimes limestone, volcanic, or volcanic soils in cismontane woodland, lower montane coniferous forest, and riparian woodland from 300 to 590 meters.	Blooming period: April – June	**Not Present.** Site lacks suitable limestone soils. No known occurrences within 5 miles of Project site, not observed during site botanical surveys
Ahart's paronychia *Paronychia ahartii*	--/--/1B.1	Annual herb found in cismontane woodland, valley and foothill grassland, and vernal pools from 30 to 510 meters.	Blooming period: February – June	**Not Present.** Site lacks suitable vernal pools. No known occurrences within 5 miles of Project site, not observed during site botanical surveys.

TABLE 3.4-2
SPECIAL-STATUS SPECIES WITH POTENTIAL TO OCCUR AT THE PROJECT SITE

Common Name *Scientific Name*	Status (Federal/ State/ CRPR)	Habitat Requirements	Identification/ Survey Period	Potential to Occur
Plants (cont.)				
Sierra blue grass *Poa sierrae*	--/--/1B.3	Perennial rhizomatous herb found in lower montane coniferous forest from 365 to 1,500 meters.	Blooming period: April – June.	**Not Present.** Site lacks suitable coniferous forest. No known occurrences within 5 miles of Project site, not observed during site botanical surveys
Long-leaved starwort *Stellaria longifolia*	--/--/2B.2	Perennial rhizomatous herb found in bogs and fens, mesic meadows and seeps, riparian woodland, and upper montane coniferous forest from 900 to 1,830 meters.	Blooming period: May – August	**Not Present.** Site lacks bogs/fens and is outside the preferred elevation range of this species. No known occurrences within 5 miles of Project site, not observed during site botanical surveys
Silvery false-lupine *Thermopsis californica var. argentata*	--/--/4.3	Cismontane woodland, lower montane coniferous forest, pinyon and juniper woodlands from 400 to 2,500 meters.	Blooming period: April - October	**Present.** Two populations of 200-300 individuals each were observed during site botanical surveys in 2021, in northern portion of site (Heritage, 2022).
Maverick clover *Trifolium piorkowskii*	--/--/1B.2	Annual herb found on volcanic clay, openings, often streambanks in chaparral, cismontane woodland, lower montane coniferous forest, mesic valley and foothill grassland, and vernal pools from 160 to 680 meters.	Blooming period: April - May	**Unlikely.** Seasonal wetland habitat present. Nearest CNDDB record (1894) from 5 miles northwest of Project site; not observed during site botanical surveys
Siskiyou clover *Trifolium siskiyouense*	--/--/1B.1	Perennial herb sometimes found along streambanks in mesic meadows and seeps from 880 to 1,500 meters.	Blooming period: June – July	**Unlikely.** Seasonal wetland habitat present, but site is outside species' preferred elevation range. No known occurrences within 5 miles of Project site; not observed during site botanical surveys
Shasta huckleberry *Vaccinium shastense* ssp. *shastense*	--/--/1B.3	Perennial deciduous shrub found on acidic, mesic, often streambanks, sometimes, seeps, rocky outcrops, roadsides, and disturbed areas in chaparral, cismontane woodland, lower montane coniferous forest, riparian forest, and subalpine coniferous forest from 325 to 1,220 meters.	Blooming period: December – May (June – September)	**Moderate.** Suitable oak woodland habitat present; no known occurrences within 5 miles of Project site, not observed during site botanical surveys
Wildlife				
Invertebrates				
1. Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	FT/--/--	Occurs only in the Central Valley of California, in association with blue elderberry (*Sambucus nigra* ssp. *caerulea*). Prefers to lay eggs in elderberries 2-8 inches in diameter; some preference shown for "stressed" elderberries.	Adults emerge in spring until June. Exit holes visible year – round.	**Not Present**. No elderberry shrubs were observed during biological or botanical surveys. Nearest CNDDB record approximately 4.5 miles west of the Project site

TABLE 3.4-2
SPECIAL-STATUS SPECIES WITH POTENTIAL TO OCCUR AT THE PROJECT SITE

Common Name *Scientific Name*	Status (Federal/ State/ CRPR)	Habitat Requirements	Identification/ Survey Period	Potential to Occur
Wildlife (cont.)				
Invertebrates (cont.)				
2. Monarch butterfly *Danaus plexippus*	3.	4. Monarch butterfly breeding and larval habitat is on milkweed plants in open fields and meadows. During winter it stays in colonies in eucalyptus, Monterey cypress and other trees in California and at high altitudes in Mexico.	Adults active between April and October.	**Unlikely.** Individuals may occur onsite, but colonial wintering habitat is not present in this area.
Vernal pool fairy shrimp *Branchinecta lynchi*	FT/--/--	Endemic to the grasslands of the central valley, central coast mountains, and south coast mountains, in astatic rain-filled pools. Inhabit small, clear-water sandstone-depression pools and grassy swale, earth slump, or basalt-flow depression pools.	USFWS protocol-level wet-season sampling and dry season cyst identification	**Not Present.** The site lacks vernal pools. No CNDDB records within 5 miles.
5. Western bumble bee *Bombus occidentalis*	--/CT	Found in mixed woodlands, farmlands, meadows and grasslands. Nests underground in burrows or hollows; requires habitat with ample floral resources from spring through autumn	Year - round	**Not Present.** No bumblebees or host plants observed during site bumblebee surveys (Heritage 2022).
Amphibians				
Cascades frog *Rana cascadae*	--/CE, CSC/--	Inhabits wet mountain meadows, sphagnum bogs, ponds, lakes, and streams, in open or patchy coniferous forests. Hibernate in mud at the bottom of ponds and in spring-water saturated ground up to at least 75 meters from a pond. Breeding sites are quiet ponds, where eggs are laid in open shallow water or among submerged vegetation. Breeds in spring-summer, March to mid-August, soon after ice and snow melt. Larvae metamorphose into small frogs usually about 2-3 months after the eggs were laid.	Outside of the hibernation season	**Not Present**. The Project site lacks ponds or bogs; the intermittent stream and seasonal wetland habitat onsite does not provide suitable aquatic habitat for this species.
6. California red-legged frog *Rana draytonii*	FT/--/--	Found in or within 300 feet of aquatic habitat. Breed in quiet, slow moving streams, ponds, or marsh communities with emergent vegetation or dense riparian vegetation. May disperse up to two miles between suitable aquatic habitat.	Aquatic surveys of breeding sites optimally after April 15	**Not Present.** Project site is out of range of this species. No suitable breeding habitat and upland habitat is too far from nearest suitable breeding waters. No CNDDB records within 5 miles of the Project site.
Foothill yellow-legged frog *Rana boylii*	--/CE, CSC/--	Inhabits partially shaded, rocky streams with perennial flow at low to moderate elevations, in areas of chaparral, open woodland, and forest. Elevation range extends from sea level to around 7,000 feet.	Surveys of breeding sites between April - June	**Not Present**. The Project site's intermittent stream and seasonal wetland habitat does not provide suitable aquatic habitat for this species. Two CNDDB records within 5 miles of the site.

TABLE 3.4-2
SPECIAL-STATUS SPECIES WITH POTENTIAL TO OCCUR AT THE PROJECT SITE

Common Name *Scientific Name*	Status (Federal/ State/ CRPR)	Habitat Requirements	Identification/ Survey Period	Potential to Occur
Wildlife (cont.)				
Amphibians (cont.)				
Pacific tailed frog *Ascaphus truei*	--/CSC/--	Inhabits clear, cold swift-moving mountain streams with coarse substrates in mixed forest and conifer forests, primarily in older forest sites. During dry weather stays on moist stream-banks. Lays eggs in long strings under stones in water. Breeds May-October. eggs are laid in July, hatch in August-September.	Outside of dormancy period	**Not Present**. The Project site's intermittent stream and seasonal wetland habitat does not provide suitable aquatic habitat for this species.
Southern long-toed salamander *Ambystoma macrodactylum sigillatum*	--/CSC/--	Found in a wide variety of habitats, from semiarid sagebrush deserts to sub-alpine meadows, including dry woodlands, humid forests, and rocky shores of mountain lakes. Adults are subterranean except during the breeding season. Breeds in temporary or permanent ponds, or in quiet water at the edge of lakes and streams. During the breeding season adults may be found under logs, rocks, and other debris near water. Eggs are attached to vegetation or loose on bottom.	Outside of dormancy period	**Unlikely.** Suitable breeding habitat is not present onsite, nor nearby enough to use the site as upland habitat, though suitable dry woodlands are present.
Shasta salamander *Hydromantes shastae*	--/CT/--	Inhabits moist limestone fissures and caves, in volcanic and other rock outcroppings, and various hardwood, and hardwood-conifer habitats.	Outside of dormancy period	**Not Present.** No limestone or other rock outcrop habitat is present; species is only known to occur near Shasta Lake, 8 miles NW; no CNDDB records within 5 miles of the Project site.
Reptiles				
Western pond turtle *Emys marmorata*	--/CSC/--	Agricultural wetlands and other wetlands such as irrigation and drainage canals, low gradient streams, marshes, ponds, sloughs, small lakes, and their associated uplands.	Active outside of dormancy period November – February	**Unlikely**. The intermittent stream and seasonal wetland habitat onsite does not provide suitable aquatic habitat for this species. Numerous CNDDB records within 5 miles of the site.
Fish				
Pacific lamprey *Entosphenus tridentatus*	--/CSC/--	Spawn in medium- and large-sized freshwater streams in western North American, and migrate to the Pacific Ocean, returning upstream to spawn.	Spawn between March and July	**Not Present.** No suitable streams onsite.
Delta smelt *Hypomesus transpacificus*	FT/CE/--	Found in open surface waters in the Sacramento/San Joaquin Delta. Seasonally in Suisun Bay, Carquinez Strait and San Pablo Bay. Found in Delta estuaries with dense aquatic vegetation and low occurrence of predators. May be affected by downstream sedimentation.	Spawn December – July. Present year – round in the Delta	**Not Present**. The Project site is outside the known distribution range of this species. No CNDDB records are documented within 5 miles of the study area.

TABLE 3.4-2
SPECIAL-STATUS SPECIES WITH POTENTIAL TO OCCUR AT THE PROJECT SITE

Common Name *Scientific Name*	Status (Federal/ State/ CRPR)	Habitat Requirements	Identification/ Survey Period	Potential to Occur
Wildlife (cont.)				
Fish (cont.)				
Central Valley DPS steelhead *Oncorhynchus mykiss*	FT/--/--	Inhabits rivers and streams tributary to the Sacramento – San Joaquin Rivers and Delta ecosystems.	Spawn in winter and spring.	**Not Present.** No suitable streams onsite. Nearest CNDDB records are 0.5 and 3 miles south in Old Cow Creek and South Cow Creek.
Central Valley ESU spring-run Chinook salmon *Oncorhynchus tshawytscha*	FT/ST/--	Inhabits rivers and streams tributary to the Sacramento – San Joaquin Rivers and Delta ecosystems.	Spawn in late summer and fall.	**Not Present.** No suitable streams onsite.
Birds				
Northern goshawk *Accipiter gentilis*	--/CSC/--	Coniferous and deciduous forests, preferably mixed old-growth with heavy canopy coverage, and nearby openings for foraging.	Year - round	**Unlikely.** The site does not contain suitable forested habitat for this species.
Tricolored blackbird *Agelaius tricolor*	--/CT, CSC/-- (nesting colony)	Nests in dense blackberry, cattail, tules, bulrushes, sedges, willow, or wild rose within freshwater marshes. Nests in large colonies of at least 50 pairs (up to thousands of individuals).	Year – round	**Unlikely**. While the riparian habitat is not large enough for a nesting colony, annual grassland onsite provides suitable foraging habitat for this species.
Swainson's hawk *Buteo swainsoni*	--/CT/--	Nest peripherally to valley riparian systems lone trees or groves of trees in agricultural fields. Valley oak, Fremont cottonwood, walnut, and large willow trees, ranging in height from 41 to 82 feet, are the most commonly used nest trees in the Central Valley.	March – October	**Unlikely.** Site is more forested than preferred by this species, which typically nests near wide open areas. No CNDDB observations within 5 miles.
Northern harrier *Circus hudsonius*	--/CSC/--	Inhabits marshes, prairies, and grasslands. Occurs from annual grassland up to lodgepole pine and alpine meadows, as high as 10,000 feet (3,000 meters). Breeds from 0 to 0 to 5,700 feet (1,700 meters) in the Central Valley and Sierra Nevada, and up to 3,600 feet (800 meters) in northeastern California. Nests on ground in shrubby vegetation, usually at marsh edge.	Year-round	**Unlikely.** May forage over site but suitable dense grassland or marsh nesting habitat is not present.
Peregrine falcon *Falco peregrinus anatum*	--/FP/--	Found from tundra to tropics in habitat types including wetland, desert, and forest. Nests high off the ground over an open area, often on cliffs or tall buildings.	Year - round	**Unlikely.** No suitable nest habitat present but species may forage over oak woodland habitat. One CNDDB record 4 miles northeast of the site.

TABLE 3.4-2
SPECIAL-STATUS SPECIES WITH POTENTIAL TO OCCUR AT THE PROJECT SITE

Common Name *Scientific Name*	Status (Federal/ State/ CRPR)	Habitat Requirements	Identification/ Survey Period	Potential to Occur
Wildlife (cont.)				
Birds (cont.)				
Bald eagle *Haliaeetus leucocephalus*	--/CE/FP	Nests near water, including rivers, coasts, and lakes/reservoirs; in winter and migration, found in dry or mountainous areas.	Spring	**Unlikely.** Project site does not contain suitable nesting habitat near water; slight potential to occur during migration. No CNDDB records within 5 miles.
Greater sandhill crane *Grus canadensis tabida*	--/CT/--	Breeds in open wetlands, fields, and prairies. In California, breeds in northeastern California and winters in the Central Valley.	September – February	**Unlikely.** Project site does not contain suitable breeding or wintering habitat; slight potential to occur during migration. No CNDDB records within 5 miles.
California black rail *Laterallus jamaicensis coturniculus*	--/CT, FP/--	Inhabits saltwater, brackish, and freshwater marshes. Nests in high portions of salt marshes, shallow freshwater marshes, wet meadows, and flooded grass in dense vegetation.	Year – round	**Not Present**. The Project site does not provide suitable nesting habitat for this species. No CNDDB records within 5 miles.
Purple martin *Progne subis*	--/CSC/--	Nests, usually colonially, in cavities in trees or cliffs or in nest boxes in open, lowland areas near water.	April - August	**Not Present.** The Project site does not contain suitable nesting habitat for this species.
Bank swallow *Riparia riparia*	--/CT/--	Nests in riverbanks and forages over riparian areas and adjacent uplands.	April – July	**Not Present**. The Project site does not provide suitable nesting habitat for this species. No CNDDB records are documented within 5 miles.
Mammals				
Pallid bat *Antrozous pallidus*	--/CSC/--	Roosts in trees, cliffs, or buildings in deserts, grasslands, shrublands, or woodlands. Most common in open, dry habitats with rocky roosting areas. Sensitive to disturbance.	Year – round	**Unlikely.** Oak woodland trees in the Project site may occasionally host this species.
Ringtail *Bassariscus astutus*	--/CFP	Widely distributed, uncommon permanent resident of riparian habitats, brush stands of most forest and shrub habitats, at low to middle elevations.	Year - round	**Unlikely.** Project site lacks riparian habitat preferred by this species.
Townsend's big-eared bat *Corynorhinus townsendii*	--/CSC/--	Roosts in caves or mines in upland forest, chaparral and scrub, grassland, lower montane coniferous forest, meadows, and valley and foothill grassland. Forages in edge habitats near streams.	Year – round	**Unlikely.** No suitable roost habitat onsite but species may occasionally forage over seasonal wetlands or annual grassland. No CNDDB records within 5 miles.
California wolverine *Gulo gulo*	PT/CT, FP/--	Found in alpine and boreal coniferous or mixed forest habitats.	Year – round	**Not Present.** No suitable forest habitat is present onsite.
Silver-haired bat *Lasionycteris noctivagans*	WBWG-M	Coastal and montane coniferous forests, where it roosts in hollow trees, caves, snags, buildings, or under bark.	Year – round	**Unlikely.** May occasionally roost in oak woodland but prefers coniferous forests, which are not present onsite.

TABLE 3.4-2
SPECIAL-STATUS SPECIES WITH POTENTIAL TO OCCUR AT THE PROJECT SITE

Common Name *Scientific Name*	Status (Federal/ State/ CRPR)	Habitat Requirements	Identification/ Survey Period	Potential to Occur
Wildlife (cont.)				
Mammals (cont.)				
Hoary bat *Lasiurus cinereus*	WBWG-M	Prefers coniferous or mixed forests with edges for foraging; typically roosts in dense foliage of trees.	Year – round	**Moderate.** May roost in oak woodland and forage over seasonal wetland and grassland onsite.
Fisher – West Coast DPS *Pekania pennanti*	FE/CT, CSC/--	Found in coniferous or mixed forests with moderate or dense canopies, understory vegetation and limbs close to the ground.	Year – round	**Not Present.** No suitable forest habitat is present onsite.
American badger *Taxidea taxus*	--/CSC	Prefers open areas, scrub and dry grasslands with loose soil for burrowing, as well as agricultural land.	Year – round	**Unlikely.** Site contains oak woodland habitat with loose soils suitable for burrowing. No CNDDB records within 5 miles and no burrows observed during site surveys (Heritage, 2022).

Status Codes

Federal:
FE = federal endangered
FT = federal threatened
FC = candidate
PT = proposed threatened
FPD = proposed for delisting
FD = delisted
EFH = Essential Fish Habitat

WBWG-M Western Bat Working Group Medium Priority Species

California:
CE = California state endangered
CT = California state threatened
CR = California state rare
CSC = California species of special Concern
CCT = California state threatened candidate
CFP = California fully protected
SC = California state candidate for listing

CNPS Rank Categories:
1A = Plants presumed extirpated in California and either rare or extinct elsewhere
1B = Plants Rare, Threatened, or Endangered in California and elsewhere.
2A = Plants presumed extirpated in California, but more common elsewhere
2B = Plants Rare, Threatened, or Endangered in California, but more common elsewhere
3 = Plants about which more information is needed - A Review List
4 = Plants of limited distribution - A Watch List

CNPS Code Extensions:
.1 = Seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat)
.2 = Fairly endangered in California (20-80% occurrences threatened)
.3 = Not very endangered in California (less than 20% of occurrences threatened or no current threats known)

SOURCES: CDFW, 2022; CNPS, 2022; USFWS, 2022

USGS 7.5 minute quadrangles Whitmore, Oak Run, Miller Mountain, Clough Gulch, Inwood, Hagaman Gulch, Devils Rock, Montgomery Creek, and Hatchet Mountain Pass.

Silvery false-lupine (*Thermopsis californica* var. *argentata*)

Silvery false-lupine is a CRPR List 4.3 species, which means that it is of limited distribution. List 4.3 plants are considered rare but not necessarily special-status. This plant is a California endemic, a perennial herb with yellow flowers from April through October. These plants are typically found in montane woodlands, lower montane coniferous forests, or pinyon and juniper woodlands at altitudes from 1,380 to 8,300 feet. There are 153 known observations from the plant's range, which includes Shasta, Lassen, Modoc, and Siskiyou counties. The surveyed area contains two populations of this rare plant, numbering 200–300 individuals (Heritage Environmental 2022).

Special-Status Wildlife

All special-status species wildlife species found within the region of the Fern Road Substation site in the federal wildlife database IPaC (USFWS 2022) and the state wildlife database CNDDB (CDFW 2022) were evaluated for their potential to occur on-site based on the presence of suitable habitat (see Table 3.4-2). CNDDB records are shown on **Figure 3.4-3**, *CNDDB Occurrences within 5 Miles of the Project Site*. No USFWS critical habitat for special-status species wildlife is mapped within 5 miles of the Fern Road Substation site (USFWS 2022). Bumble bee and nesting-bird surveys were conducted in 2020; no bumble bees were observed. The only special-status wildlife species observed during nesting-bird surveys were raptors protected by the Migratory Bird Treaty Act (MBTA) and the California Fish and Game Code (Heritage Environmental 2022).

Raptor and migratory bird species protected by the MBTA and California Fish and Game Code, and special-status mammals identified as having moderate or high potential to occur in the vicinity of the Fern Road Substation site are described below.

Raptors

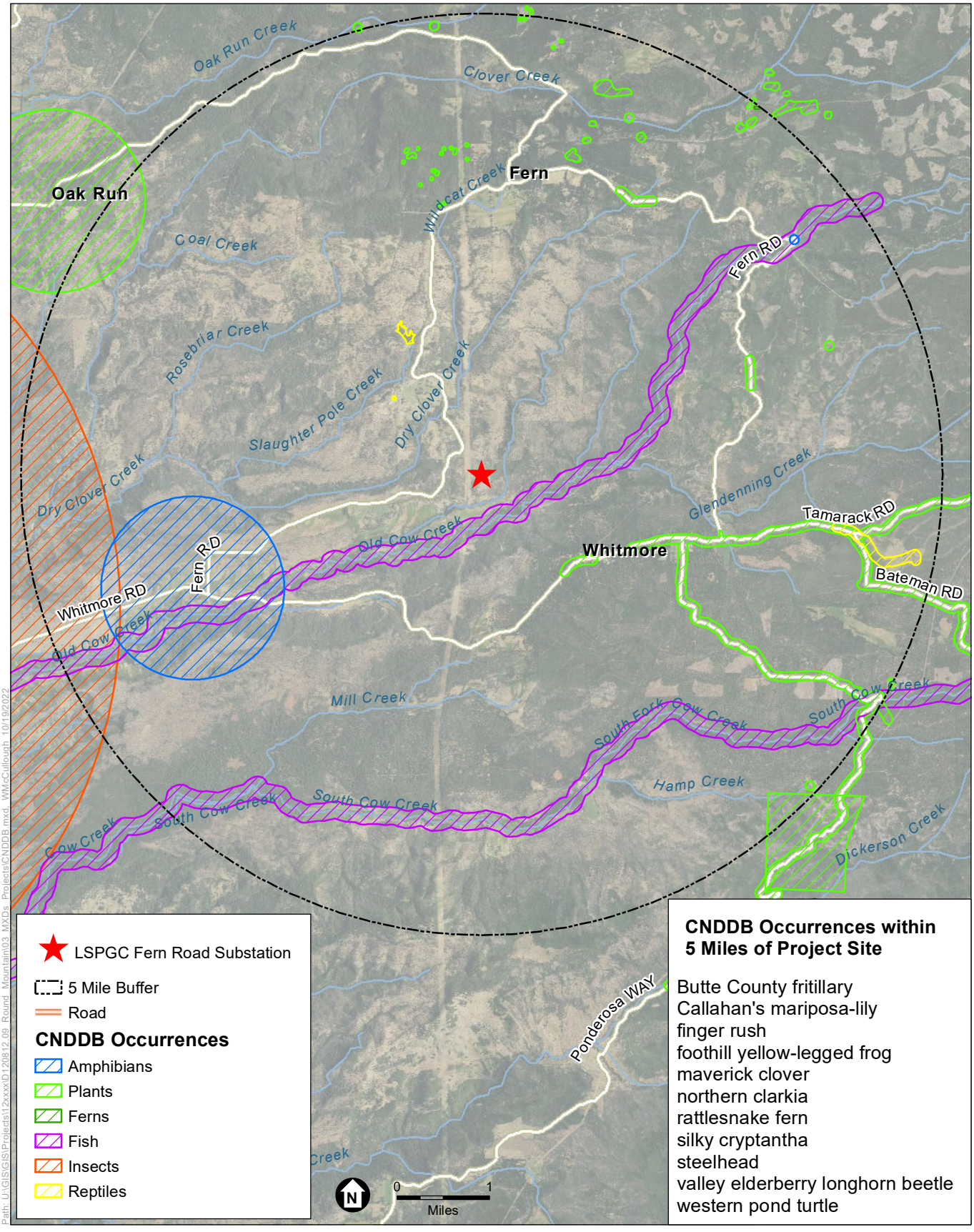
Special-status raptor species with moderate or high potential to occur at the site include Cooper's hawk (*Accipiter cooperii*), merlin (*Falco columbarius*), peregrine falcon (*Falco peregrinus anatum*), and sharp-shinned hawk (*Accipiter striatus*) (CDFW 2022; USFWS 2022). Additional, more common raptors with high potential to occur include red-shouldered hawk (*Buteo lineatus*), red-tailed hawk, barn owl (*Tyto alba*), great-horned owl, turkey vulture (*Cathartes aura*), and American kestrel (*Falco sparverius*). These raptor species are known to use open valley foothill woodland habitats including oak woodlands as found in the vicinity of the Fern Road Substation site (Heritage Environmental 2022).

A red-tailed hawk pair was observed during nesting-bird surveys in 2020 (Heritage Environmental 2022). The pair inspected but did not use two inactive nests on towers along the 500 kV transmission line alignment. The only other raptor species observed during field surveys was a turkey vulture. Sixteen large inactive stick nests were observed on the transmission line towers; none of the nests were active during the surveys (Heritage Environmental 2022). These stick nests could support raptor nesting, especially by red-tailed hawks.

Hoary Bat and other Bat Species

The hoary bat (*Lasiurus cinereus*) prefers coniferous and broadleaf forests, where it primarily uses forest edges and clearings but will also use dense forested areas. Roosts are located in dense foliage of medium to large trees, and foraging for insects occurs along habitat edges or in open areas near the roosting locations. This bat migrates in flocks to warmer climates during the winter months. Loss of roosting habitat due to timber harvest is likely the largest threat to this species.

There are no known occurrences of hoary bat within 5 miles of the Fern Road Substation site (CDFW 2022). However, based on available habitat, there is moderate potential that this species as well as common bat species may use oak woodland at the site for night roosting during the summer months.



SOURCE: LS Power Grid California LLC, 2022; ESRI, 2022; CNDDB, 2022

Round Mountain 500 kV Area Dynamic Reactive Support Project

3.4-3
CNDDB Occurrences within 5 miles of the Project Site

ESA

American Badger

American badger is a State Species of Special Concern (CDFW 2022). Badgers are medium-sized fossorial mammals that are primarily nocturnal. Burrows are preferentially dug in loose, friable soil in open habitats, including grasslands and pastures. Badgers prey on smaller mammals such as ground squirrels, mice, and voles, and are sensitive to human disturbance. Although no suitable badger burrows were observed in the vicinity of the Fern Road Substation site (Heritage Environmental 2022), the species is moderately likely to occur because of the presence of suitable habitat and prey base and the uninterrupted open space that characterizes the region.

Wildlife Movement and Corridors

Wildlife migration corridors connect suitable wildlife habitats between areas otherwise fragmented by rugged terrain, unsuitable vegetation, or human disturbance; they provide access to mates and resources, facilitate dispersal, and promote genetic diversity. Natural features (e.g., drainages, ridgelines, or riparian areas) often provide suitable corridors for wildlife travel.

Several creeks with riparian corridors that could be used by wildlife as movement corridors exist within 5 miles of the Fern Road Substation site. Dry Clover Creek (0.35 mile to the northwest), Clover Creek (4.5 miles to the northwest), Old Cow Creek (0.5 mile to the south), South Cow Creek (3.7 miles to the south), and their tributaries all flow through the region, and all contain significant natural riparian vegetation and could act as local migration corridors for terrestrial species. No riparian corridors or other potential terrestrial wildlife migration corridors exist within the immediate vicinity of the Fern Road Substation site itself. The existing Round Mountain–Table Mountain #1 and #2 500 kV transmission lines, Fern Road, private residences, and actively grazed land reduce the potential use of the Fern Road Substation site and vicinity as a migration corridor or potential nursery site. Terrestrial wildlife may use the site as a local migration corridor between natural habitats on either side (Heritage Environmental 2022).

The Fern Road Substation site lies within the Pacific Flyway—an important north-south migration corridor that runs along the Pacific coast of the Americas west of the Rocky Mountains. The Pacific Flyway links breeding grounds to the north with wintering areas to the south and is used by many species of birds during migration. Many birds (especially waterfowl) use locations in California's Sacramento Valley as a stopover point or wintering area. Although the Project site does not contain water resources for migrating waterfowl, it does contain potential foraging areas during migration for a variety of bird species. The Fern Road Substation site and surroundings may provide potential wildlife nursery sites within oak woodland and seasonal wetland areas. However, neither of these habitats contain dense vegetation and both are actively grazed by cattle, rendering the site less suitable for nurseries (Heritage Environmental 2022).

The California Essential Habitat Connectivity Project maintains a statewide Essential Habitat Connectivity Map, which broadly depicts large, relatively natural habitat blocks that support native biodiversity (Natural Landscape Blocks) and areas essential for ecological connectivity between them (Essential Connectivity Areas). The Fern Road Substation site and surrounding region lie outside of any of these Natural Landscape Blocks and Essential Connectivity Areas (Heritage Environmental 2022).

3.4.2 Regulatory Setting

3.4.2.1 Federal

Endangered Species Act of 1973, as Amended

The federal Endangered Species Act (FESA) and subsequent amendments (U.S. Code Title 16, Sections 1531–1543 [16 USC 1531–1543]) provide guidance for the conservation of endangered and threatened species and the ecosystems upon which they depend. In addition, the FESA defines species as threatened or endangered and provides regulatory protection for listed species. The FESA also provides a program for the conservation and recovery of threatened and endangered species and the conservation of designated critical habitat that USFWS determines is required for the survival and recovery of these listed species.

FESA Section 9 lists those actions that are prohibited under the FESA. The definition of "take" includes to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Although unauthorized take of a listed species is prohibited, take may be allowed when it is incidental to an otherwise legal activity. Section 9 prohibits take of listed species of fish, wildlife, and plants without special exemption. The definition of "harm" includes significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns related to breeding, feeding, or shelter. "Harass" is defined as actions that create the likelihood of injury to listed species by significantly disrupting normal behavioral patterns related to breeding, feeding, and shelter.

FESA Section 10 provides a means whereby a nonfederal action with the potential to result in take of a listed species can be allowed under an incidental take permit.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 USC 703–711) is the domestic law that affirms and implements a commitment by the U.S. to four international conventions (with Canada, Mexico, Japan, and Russia) for the protection of a shared migratory bird resource. Unless and except as permitted by regulations, the MBTA makes it unlawful at any time, by any means, or in any manner to intentionally pursue, hunt, take, capture, or kill migratory birds anywhere in the United States. The law also applies to disturbance and removal of nests occupied by migratory birds or their eggs during the breeding season, whether intentional or incidental.

Bald and Golden Eagle Protection Act of 1940

The federal Bald and Golden Eagle Protection Act of 1940 (16 USC 668) protects bald and golden eagles by prohibiting the taking, possession, and commerce of such birds and establishes civil penalties for violation of this act. Take of bald and golden eagles includes to "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb" (16 USC 668c). "Disturb" means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available: (1) injury to an eagle; (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior; or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering

behavior (*Federal Register* Title 72, Page 31132, June 5, 2007; Code of Federal Regulations Title 50, Section 22.3).

3.4.2.2 State

California Endangered Species Act

The California Endangered Species Act (CESA) (Fish and Game Code Section 2050 et seq.) establishes the policy of the state to conserve, protect, restore, and enhance threatened or endangered species and their habitats. The CESA mandates that state agencies should not approve projects that would jeopardize the continued existence of threatened or endangered species if reasonable and prudent alternatives are available that would avoid jeopardy. For projects that would affect a listed species under both the CESA and the FESA, compliance with the FESA would satisfy the CESA if CDFW determines that the federal incidental take authorization is "consistent" with the CESA under Fish and Game Code Section 2080.1. Before a project results in take of a species listed under the CESA, a take permit must be issued under Section 2081(b).

Fish and Game Code Sections 2080 and 2081

Section 2080 of the Fish and Game Code states, "No person shall import into this state [California], export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the [State Fish and Game] Commission determines to be an endangered species or threatened species, or attempt any of those acts, except as otherwise provided in this chapter, or the Native Plant Protection Act, or the California Desert Native Plants Act." Pursuant to Section 2081, CDFW may authorize individuals or public agencies to import, export, take, or possess state-listed endangered, threatened, or candidate species. These otherwise prohibited acts may be authorized through permits or memoranda of understanding if the take is incidental to an otherwise lawful activity, impacts of the authorized take are minimized and fully mitigated, the permit is consistent with any regulations adopted pursuant to any recovery plan for the species, and the project operator ensures adequate funding to implement the measures required by CDFW. CDFW makes this determination based on available scientific information and considers the ability of the species to survive and reproduce.

Fish and Game Code Sections 3503, 3503.5, and 3513

Under these sections of the Fish and Game Code, a project operator is not allowed to conduct activities that would result in the taking, possession, or destruction of any birds of prey; the taking or possession of any migratory nongame bird; the taking, possession, or needless destruction of the nest or eggs of any raptors or nongame birds; or the taking of any nongame bird pursuant to Fish and Game Code Section 3800, whether intentional or incidental.

California Environmental Quality Act Guidelines Section 15380

In addition to the protections provided by specific federal and state statutes, CEQA Guidelines Section 15380(b) provides that a species not listed on the federal or state list of protected species nonetheless may be considered rare or endangered for purposes of CEQA if the species can be shown to meet certain specified criteria:

(A) Although not presently threatened with extinction, the species is existing in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens; or

(B) The species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered "threatened" as that term is used in the FESA.

Native Plant Protection Act

California's Native Plant Protection Act (Fish and Game Code Sections 1900–1913) requires all state agencies to use their authority to carry out programs to conserve endangered and rare native plants. Provisions of the Native Plant Protection Act prohibit the taking of endangered or rare plants from the wild and require that CDFW be notified at least 10 days in advance of any change in land use in areas that support listed plants.

3.4.2.3 Local

Shasta County General Plan

The following are a relevant biological objective and policies from the Shasta County General Plan (Shasta County 2004).

Objective FW-1: Protection of significant fish, wildlife, and vegetation resources.

***Policy FW-c*:** Projects that contain or may impact endangered and/or threatened plant or animal species, as officially designated by the California Fish and Game Commission and/or the USFWS, shall be designed or conditioned to avoid any net adverse project impacts on those species.

***Policy FW-d*:** The significant river and creekside corridors of Shasta County shall be designated on the General Plan maps. The primary purpose of this designation is to protect the riparian habitats from development and from adverse impacts from conflicting resources uses. The purpose is also to encourage open space and recreation (policy OSR-e). Mapping of significant waterway corridors in areas designated as resource protection lands is not required since it is assumed that resource land uses will also act to protect such waterway corridors. Riparian habitat protection along the significant river and creekside corridors, as designated on the plan maps shall be achieved, where appropriate, by the following measures:

- Regulation of vegetation removal.
- Design of grading and road construction to restrict sediment input to all streams.
- Establishment of a development set-back
- The siting of structures, including clustering.
- Recreation plans for the Sacramento River, Clear Creek, and other feasible waterway resources.

***Policy FW-e*:** Salmon spawning gravel in the following rivers and creeks shall be protected:

- Sacramento River: Keswick Dam to Shasta-Tehama County line

- Battle Creek: Mouth to the mouth of South Fork Battle Creek.
- Cow Creek: Mouth to Powerhouse on South Cow Creek; the mouth of Coal Gulch on Old Cow Creek; the mouth of Dry Clover Creek on Clover Creek; the mouth of Tracy Creek on Oak Run Creek; the mouth of Salt Creek on Little Cow Creek.
- Cottonwood Creek: Mouth to west line of Section 6,T.29N., R.5W., M.D.B.& M.
- Bear Creek: Mouth to the Highway 44 bridge.
- Clear Creek: Mouth to Whiskeytown Dam.
- Churn Creek: Mouth to Redding City limits.
- Stillwater Creek: Mouth to the Highway 299E bridge.
- Olney Creek: Mouth to mouth of Tadpole Creek
- Anderson Creek: Mouth to Interstate 5.

***Policy FW-f*:** The County should encourage and support efforts by State and Federal agencies that implement the Upper Sacramento River Fisheries and Riparian Habitat Management Plan.

***Policy FW-g*:** The County shall encourage the Department of Fish and Game to prepare periodic biological assessments regarding the overall effectiveness of waterway protection efforts under the Stream Corridor Protection Program.

***Policy FW-h*:** The County shall encourage efforts to develop tree protection standards which focus on the County's differing land use types, namely; lowland urban, upland urban, rural residential and resource lands. Urban tree protection standards shall focus on landscaping that promotes energy conservation and design aesthetics, as opposed to preserving native vegetation.

***Policy FW-j*:** Efforts to restore the Middle Creek drainage basin, Clear Creek watershed basin, Battle Creek, Cow Creek, and other Sacramento River tributary watersheds shall be supported by the County.

***Policy W-a*:** Sedimentation and erosion from proposed developments shall be minimized through grading and hillside development ordinances and other similar safeguards as adopted and implemented by the County.

***Policy W-b*:** Septic systems, waste disposal sites, and other sources of hazardous or polluting materials shall be designed to prevent contamination to streams, creeks, rivers, reservoirs, or groundwater basins in accordance with standards and water resource management plans adopted by the County.

***Policy W-c*:** All proposed land divisions and developments in Shasta County shall have an adequate water supply of a quantity and a quality for the planned uses. Project proponents shall submit sufficient data and reports, when requested, which demonstrate that potential adverse impacts on the existing water users will not be significant. The reports for land divisions shall be submitted to the County for review and acceptance prior to a completeness determination of a tentative map. This policy will not apply to developments in special districts which have committed and documented, in writing, the ability to provide the needed water supply.

***Policy W-d*:** The potential for cumulative water quality impacts resulting from widespread use of septic systems in poorly suited soil areas shall be periodically

evaluated by the County for the need to provide greater monitoring and possible changes to applicable sewage disposal standards.

***Policy W-e*:** The Shasta County Water Agency should encourage and promote interagency water planning efforts within the County, particularly in the Redding Basin.

***Policy W-f*:** The County shall encourage and participate in interagency planning efforts, such as the Redding Area Water Council, to protect and enhance the quality of all groundwater and surface water resources.

PG&E Multiple Region Operations and Maintenance Habitat Conservation Plan

The Project sites lie within the PG&E Multiple Region Operations and Maintenance Habitat Conservation Plan (MRHCP) within the Sacramento Valley and Foothills Region (ICF 2020). The MRHCP is intended to avoid, minimize, and mitigate temporary and permanent impacts on threatened and endangered species resulting from PG&E's operation and maintenance (O&M) and minor new construction activities in the Plan Area, and to provide the basis for incidental take authorization under the FESA for PG&E's covered activities within 34 California counties in the Plan Area.

3.4.3 Applicant Proposed Measures and PG&E Construction Measures

3.4.3.1 Applicant Proposed Measures

The following Applicant Proposed Measures (APMs) have been identified by LSPGC to address impacts on biological resources associated with the Fern Road Substation Facilities.

APM BIO-1: Speed of vehicles driving along proposed access roads and on the Project site during construction and operation would be limited to 15 miles per hour. In addition, construction and maintenance employees would be required to stay on established and clearly marked and existing roads and within the limits of disturbance except when not feasible due to physical or safety constraints and would be advised that care should be exercised when commuting to and from the Project area to reduce accidents and animal road mortality.

APM BIO-2: Conductors and ground wires would be spaced sufficiently apart so that raptors cannot contact two conductors or one conductor and a ground wire causing electrocution (APLIC 2006).

APM BIO-3: Appropriate methods to reduce the risks of avian collisions would be incorporated into Project design (APLIC 2012).

APM BIO-4: If feasible, the Applicant would avoid construction and vegetation trimming/removal during the migratory bird nesting or breeding season (February 15 to August 31). When it is not feasible to avoid construction during the nesting or breeding season, the Applicant would perform a survey in the area where the work is to occur. This survey would be performed to determine the presence or absence of nesting birds. If an active nest (i.e., containing eggs or young) is identified, a suitable construction buffer (which would differ based on species and location of nest) would be implemented to ensure that the nesting or breeding activities are not substantially adversely affected. If the nesting or breeding activities are being conducted by a federal or state-listed species, the Applicant would consult with the USFWS and CDFW as necessary. Monitoring of the nest would continue until the

birds have fledged or construction is no longer occurring on the site. If an inactive nest is identified, careful nest removal under the supervision and direction of qualified biologists could occur wherever necessary.

APM BIO-5: If a raptor nest is observed during pre-construction surveys, a qualified biologist would determine if it is active. If the nest is determined to be active, the biological monitor would monitor the nest to ensure that nesting or breeding activities are not substantially adversely affected. If the biological monitor determines that activities associated with the Project are disturbing or disrupting nesting or breeding activities, the monitor would make recommendations to reduce noise or disturbance in the vicinity of the nest, such as temporarily suspending work in the area. If the nest is determined to be inactive, the nest would be removed under direct supervision of the qualified biologist.

APM BIO-6: All excavated holes/trenches that are not filled at the end of a workday would be covered, or a wildlife escape ramp would be installed to prevent the inadvertent entrapment of wildlife species.

APM BIO-7: The use of outdoor lighting during construction and O&M would be minimized whenever practicable. Photocell controlled lighting (motion detection) would be provided at a level sufficient to provide safe entry and exit to the Fern Road Substation and control building. All lighting would be selectively placed, shielded, and directed downward to the maximum extent practicable. Night work would be avoided to the maximum extent.

APM BIO-8: A Workers Environmental Awareness Program (WEAP) would be implemented to educate all construction and operations workers on site-specific biological and non-biological resources and proper work practices to avoid harming wildlife during construction or O&M activities.

APM BIO-9: Prior to initial vegetation clearance and ground-disturbing activities, a qualified biologist would conduct pre-construction sweeps of the Project work area for special-status wildlife and plants. In the event of the discovery of a previously unknown special-status plant, the area would be marked as a sensitive area and would be avoided to the maximum extent practicable. If avoidance of species listed under the Federal or California Endangered Species Act is not possible, USFWS and/or CDFW would be consulted. Any other construction activities that may impact sensitive biological resources including movement of construction equipment and other activities outside of the fenced/paved areas within wildlife habitat would be monitored by a qualified biologist. The monitor/inspector would have the authority to stop work activities upon the discovery of sensitive biological resources and allow construction to proceed after the identification and implementation of steps required to avoid or minimize impacts to sensitive resources.

APM BIO-10: All sensitive biological areas (including the populations of silvery false lupine and ephemeral and intermittent streams and seasonal wetlands) within the Project work area would be clearly marked prior to construction commencing to restrict construction activities and equipment from entering these areas. At least a 5-foot buffer from all construction activities would be established around these areas. These buffers would be inspected regularly to ensure that they remain in place.

APM BIO-11: Vegetation and tree removal would be avoided to the maximum extent feasible to allow construction to proceed.

APM BIO-12: All areas that are temporarily disturbed by the Project activities would be restored to approximate pre-construction conditions. Areas that are disturbed by grading, augering, or equipment movement would be restored to their original contours and drainage

patterns. Work areas would be decompacted, and salvaged topsoil materials would be re-spread following recontouring to aid in restoration of temporary disturbed areas. A project-specific Restoration and Revegetation Plan (Restoration Plan) would be prepared for the Project and submitted to the CPUC for approval prior to the start of construction activities. The Restoration Plan would include procedures for restoration activities, including plant species to be planted, procedures to reduce weed encroachment, and expected timeframes for restoration and revegetation. Revegetation activities would be conducted in accordance with the Project SWPPP [storm water pollution prevention plan] and APMs. Restoration could include recontouring, reseeding, and planting replacement vegetation, as appropriate. Temporarily disturbed areas would be revegetated with appropriate weed-free native seed mixes or species that are characteristic of the plant community that was disturbed.

APM BIO-13: All vehicles would be cleaned prior to arrival on the Project site to avoid spread of noxious weeds and non-native invasive plant species.

APM WQ-1: Because the Project involves more than an acre of soil disturbance, a SWPPP would be prepared as required by the state National Pollution Discharge Elimination System (NPDES) General Permit for Discharges of Stormwater Associated with Construction Activity. This plan would be prepared in accordance with the Water Board guidelines and other applicable erosion and sediment control best management practices (BMPs). Implementation of the plan would help stabilize disturbed areas and would reduce erosion and sedimentation. The SWPPP would designate BMPs that would be followed during and after construction of the Project, examples of which may include the following erosion-minimizing measures:

- Using drainage control structures (e.g., straw wattles or silt fencing) to direct surface runoff away from disturbed areas;
- Strictly controlling vehicular traffic;
- Implementing a dust-control program during construction;
- Prohibiting access to sensitive areas (such as the intermittent streams and seasonal wetland areas);
- Using vehicle mats in wet areas; or
- Revegetating disturbed areas, where applicable, following construction.

In areas where soils are to be temporarily stockpiled, soils would be placed in a controlled area and would be managed with similar erosion control techniques. Where construction activities occur near a surface waterbody or drainage channel and drainage from these areas flows towards a waterbody or wetland, stockpiles would be placed at least 100 feet from the waterbody or would be properly contained (such as beaming or covering to minimize risk of sediment transport to the drainage). Mulching or other suitable stabilization measures would be used to protect exposed areas during and after construction activities. Erosion-control measures would be installed, as necessary, before any clearing during the wet season and before the onset of winter rains. Temporary measures, such as silt fences or wattles intended to minimize erosion from temporarily disturbed areas, would remain in place until disturbed areas have stabilized.

3.4.3.2 PG&E Construction Measures

The following biological resources–specific avoidance and minimization measures (AMMs) and BMPs from PG&E's MRHCP (ICF 2020) would be implemented by PG&E during construction of the PG&E Facilities.

AMM-1: Conduct annual training on habitat conservation plan requirements for employees and contractors performing covered activities in the Plan Area that are applicable to their job duties and work. Tailboard and site-specific training will also be conducted prior to commencing work.

AMM-2: Park vehicles and equipment on pavement, existing roads, or other disturbed or designated areas (barren, gravel, compacted dirt).

AMM-3: Use existing access and ROW [right-of-way] roads. Minimize the development of new access and ROW roads, including clearing and blading for temporary vehicle access in areas of natural vegetation.

AMM-4: Route off-road access paths and site work sites to minimize impacts on plants, shrubs, and trees, small mammal burrows, and unique natural features (e.g., rock outcrops).

AMM-6: Minimize potential for covered species to become trapped, injured, or killed in pipes, culverts, or under materials or equipment. Inspect pipes and culverts wide enough to be entered by a covered species that could inhabit the area where pipes are stored for wildlife species prior to moving pipes and culverts. Contact a biologist if a covered species or other federally-listed species is suspected or discovered.

AMM-7: Vehicle speeds on unpaved roads will not exceed 15 miles per hour. All covered wildlife species. Avoid and minimize direct mortality or injury of covered species that may cross unpaved roads in work sites.

AMM-8: Prohibit trash dumping, firearms, open fires (such as barbecues), hunting, and pets (except for safety in remote locations) at work sites.

AMM-10: Minimize the covered activity footprint and minimize the amount of time spent at a work site to reduce the potential for take of species.

AMM-11: Utilize standard erosion and sediment control BMPs (pursuant to the most current version of PG&E's Stormwater Field Manual for Construction Best Management Practices) to prevent construction site runoff into waterways. All covered aquatic species.

AMM-12: Stockpile soil within established work site boundaries and locate stockpiles so as not to enter water bodies, stormwater inlets, other standing bodies of water. Cover stockpiled soil prior to precipitation events.

AMM-13: Fit open trenches or steep-walled holes with escape ramps of plywood boards or sloped earthen ramps at each end if left open overnight. Field crews will search open trenches or steep-walled holes every morning prior to initiating daily activities to ensure wildlife is not trapped. Field crews will not handle covered species. If any covered wildlife species is found, work will stop and a biologist will be notified. A biologist with appropriate take permits will relocate the species to adjacent habitat or the species will be allowed to naturally disperse, as determined by a biologist.

AMM-14: If the covered activity disturbs 0.1-acre or more of habitat for a covered species in grasslands, the field crew will revegetate the area with a commercial "weed free" seed mix (Except in suitable habitat for Mount Hermon June beetle, Ohlone tiger beetle and Zyante band-winged grasshopper).

AMM-15: Prohibit vehicular and equipment refueling within 250 feet of the edge of wetlands, streams, or waterways. If refueling must be conducted closer to wetlands, construct a secondary containment area subject to review by an environmental field specialist and/or biologist. Maintain spill prevention and cleanup equipment in refueling areas.

AMM-16: Maintain a buffer of 50 feet from the edge of wetlands, ponds, or riparian areas. If maintaining the buffer is not practicable because the covered activity footprint is within the buffered area, other measures as prescribed by the biologist or the HCP [habitat conservation plan] administrator to minimize impacts such as flagging access routes or paths, requiring foot access, restricting work until the dry season, or requiring a biological monitor during the activity.

AMM-17: Directionally fall trees away from an exclusion zone, if an exclusion zone has been defined. If this is not practicable, remove the tree in sections. Avoid damage to adjacent trees to the extent practicable. Avoid removal of snags and conifers with basal hollows, crown deformities, and/or limbs more than 6 inches in diameter.

AMM-18: Nests with eggs and/or chicks will be avoided: contact a biologist or the Avian Protection Program Manager for further guidance. Work will be stopped until the crew can obtain clarification from a biologist or the Avian Protection Program Manager on how to proceed.

BMP-1: Nesting Birds. If work is anticipated to occur within the nesting bird season, (February–September), nesting birds, including raptors and other species protected under the Migratory Bird Treaty Act, may be impacted. If active nests are discovered, exclusionary measures and or designated avoidance buffers may be required and implemented according to the guidance in the PG&E Nesting Bird Management Plan. For nests discovered during construction, PG&E implements Work Procedure (WP) 2321 to identify and avoid impacts to nesting birds. WP 2321 generally requires assistance from the project biologist to determine if the construction action will impact the nest, and if so, identify whether alternative actions or monitoring can be implemented to avoid impacts. If active nests are observed during construction, crews must immediately alert the PG&E project biologist.

BMP-2: Identify wetlands, ponds, and riparian areas and establish and maintain a buffer of 50 feet around wetlands, ponds, and riparian areas. If maintaining the buffer is not practicable because the work sites are within any part of the buffered area, the field crew will implement other measures as prescribed by the biologist to minimize habitat impacts. These measures may include flagging access, requiring foot access, restricting work until the dry season, or requiring a biological monitor during the activity. Activities must maintain the hydrology necessary to support the wetland, pond, or riparian area (inclusive of downstream).

BMP-3: Ringtail cat (*Bassariscus astutus*) avoidance: If a ringtail cat is observed on or in a PG&E facility or access road, it will be allowed to leave on its own. If the ringtail does not leave the work area on its own, contact the PG&E Biologist.

BMP-20: Bat-Safe Tree Removal. If tree removal or trimming is necessary, PG&E will follow the procedures identified in Mitigation Measure BIO-1.

BMP-21: APLIC Guidance. PG&E will consider and incorporate Avian Power Line Interaction Committee (APLIC) design recommendations (2006, 2012), as applicable, for its 500 kV transmission line. For its distribution lines, conductors will be upgraded to tree-wire and all energized metallic parts will be covered, thereby eliminating or greatly minimizing the risk of bird collision or electrocution; and ensuring that any impacts would be less than significant.

3.4.4 Environmental Impacts

3.4.4.1 Methodology and Assumptions

The significance criteria for assessing the impacts on biological resources come from the Environmental Checklist in CEQA Guidelines Appendix G (as amended in December 2019). According to the CEQA Checklist, the Project may cause a potentially significant impact on biological resources if it would:

- 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 CDFW or USFWS;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFW or USFWS;
- Have a substantial adverse effect on state or 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;
- 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;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- Conflict with the provisions of an adopted HCP, Natural Community Conservation Plan, or other approved local, regional, or state HCP.

Pursuant to the *Guidelines for Energy Project Applications Requiring CEQA Compliance: Pre-Filing Proponent's Environmental Assessments* (CPUC 2019), the following additional CEQA impact significance criterion is considered for biological resources.

The Project may cause a potentially significant impact on biological resources if it would:

- Create a substantial collision or electrocution risk for birds or bats.

3.4.4.2 Direct and Indirect Effects

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 Wildlife or U.S. Fish and Wildlife Service: *Less than Significant with Mitigation.*

Special-Status Plants

One CRPR 4.3 plant, silvery false-lupine, was found in the vicinity of the Fern Road Substation site within openings in blue oak woodland. CRPR 4.3 plants are of limited distribution in California and considered rare but not special-status. The two populations of silvery false-lupine that were observed are located outside the Project construction limits (see Figure 3.4-1), and impacts on these populations would be completely avoided.

Seven CRPR 1B plant species were determined to have moderate potential to occur at the mapped limits of construction in the vicinity of the Fern Road Substation site and surrounding area (Table 3.4-2), but none of these were observed during previously conducted site botanical surveys. The Fern Road Substation site vicinity is located on grazed land, reducing the potential for the occurrence of special-status plant species. However, if these plants were present in the work area, direct impacts could include destruction of individual plants, and indirect impacts could include loss of suitable habitat areas and introduction of nonnative weed species that may outcompete these plants. These potential impacts would be less than significant at the Fern Road Substation Facilities sites with implementation of APMs BIO-9, BIO-10, BIO-11, and BIO-13. APM BIO-9 provides for preconstruction surveys for special-status and rare plants and wildlife by a qualified biologist. If found, these species would be avoided, or if not avoidable, resource agencies would be consulted to determine how to proceed. Implementation of APM BIO-10 would avoid sensitive biological areas, including seasonal wetlands, streams, and known populations of silvery false-lupine, with at least a 5-foot buffer. Implementation of APM BIO-11 would keep vegetation removal to a minimum, and APM BIO-13 requires vehicles to be cleaned prior to arriving on-site, limiting the potential spread of noxious weeds. Implementation of these APMs would reduce impacts on special-status plants during construction of the Fern Road Substation Facilities to a less-than-significant level.

For the PG&E Facilities, impacts on special-status and rare plants including silvery false-lupine in the vicinity of the Fern Road Substation site would be reduced by implementation of AMM-1, AMM-2, AMM-3, AMM-4, AMM-11, AMM-14, AMM-15, and AMM-16. AMM-1 requires annual worker training on HCP requirements; AMM-2 requires parking on existing roads or disturbed ground; AMM-3 minimizes the development of new roads in areas of natural vegetation; AMM-4 routes paths and work sites away from biologically sensitive areas; AMM-11 applies erosion and sediment control BMPs to protect waterways; AMM-14 provides for revegetation with weed-free seed mix; AMM-15 prohibits refueling near wetlands or waterways; and AMM-16 promotes a buffer of 50 feet for wetlands and riparian areas. Implementation of these AMMs would reduce impacts on special-status plants during construction of the PG&E Facilities in the vicinity of the Fern Road Substation site to a less-than-significant level. Construction at the PG&E Facilities at the Round Mountain Substation, Table Mountain

Substation, Cascade Substation, and Redding Service Center would take place within developed areas, and therefore, would result in no impacts on special-status plants.

Impacts on special-status plants would not occur during O&M activities, because operation would take place on previously disturbed habitat unsuitable for colonization by special-status plants.

Special-Status Wildlife

Hoary bat and other bat species monitored by the Western Bat Working Group, American badger, and raptor and migratory bird species protected by the California Fish and Game Code and the MBTA are moderately likely to be present in the vicinity of the Fern Road Substation site. No other special-status species were moderately or highly likely to occur at the site, given the presence of transmission lines, grazing disturbance, and the lack of perennial waters.

Bat Species

Direct impacts on special-status and other bat species could result from removal of trees that house roosting sites during vegetation clearing, or from increased collision risk from power lines and other Project structures. Indirect impacts could include noise disturbance during construction and operation, and loss of foraging habitat. However, the conversion of foraging habitat to developed land would be a less-than-significant impact, because of the small size of the Project relative to the amount of suitable grassland foraging habitat in the region.

Impacts on bats associated with construction of the Fern Road Substation Facilities would be reduced with implementation of APMs BIO-3, BIO-7, BIO-8, BIO-9, BIO-11, and BIO-12. APM BIO-3 would implement Avian Power Line Interaction Committee (APLIC) recommendations for reducing risks of avian collisions with power lines. These recommendations would also protect flying bats. APM BIO-7 would protect bats by avoiding night work. APM BIO-8 would provide for worker training to minimize potential harm to special-status species during construction. APM BIO-9 would provide for preconstruction surveys for roosting bat habitat. APM BIO-11 would minimize tree removal on-site. APM BIO-12 would restore temporarily affected areas after construction. Implementation of these APMs would reduce impacts on bats, but the potential for significant impacts on roosting bats in trees during construction of the Fern Road Substation Facilities would remain. Implementation of Mitigation Measure BIO-1 would protect bat roosts in trees in the vicinity of the Fern Road Substation site by providing a bat-safe tree removal method.

Mitigation Measure BIO-1: Bat-Safe Tree Removal

A qualified biologist shall conduct a preconstruction survey for roosting bats in trees to be removed or pruned. If no roosting bats are found, no further action is required. If a bat roost is found, the following measures shall be implemented to avoid impacts on roosting bats.

If active maternity roosts are found in trees to be removed as part of construction, tree removal shall begin before maternity colonies form (generally before March 1) or after young are flying (generally by July 31). Active maternal roosts shall not be disturbed.

If a nonmaternal roost of bats is found in a tree to be removed as part of construction, the individuals shall be safely evicted, under the direction of a qualified biologist and with approval from CDFW. Removal of the tree should occur no sooner than 2 nights after the

initial minor site modification (to alter airflow), under guidance of the qualified biologist. The modifications shall alter the bat habitat, causing bats to seek shelter elsewhere after they emerge for the night. On the following day, the tree may be removed, in the presence of the biologist. If any bat habitat is not removed, departure of the bats from the construction area shall be confirmed with a follow-up survey before the start of construction.

With implementation of Mitigation Measure BIO-1, direct and indirect significant impacts from construction of the Fern Road Substation Facilities on special-status and other bat species during construction and O&M would be reduced to a less-than-significant level.

For the PG&E Facilities, impacts on bats would be reduced by implementation of AMM-1, AMM-4, AMM-8, AMM-10, AMM-17, and BMP-20. AMM-1 provides annual worker training on HCP requirements; AMM-4 routes paths and work sites away from biologically sensitive areas; AMM-8 prohibits trash dumping, firearms, open fires, hunting, and pets; AMM-10 minimizes the covered activity footprint and the amount of time spent at a work site; AMM-17 requires felling trees to minimize impacts on other trees, where roosting bats may be present; and BMP-20 commits PG&E to follow the procedures identified in Mitigation Measure BIO-1 if tree removal or trimming is determined to be necessary associated with PG&E's proposed facilities. Implementation of these AMMs and BMP would ensure that impacts on bats during construction of the PG&E Facilities would be less than significant.

Implementation of BMP-21 would ensure that significant impacts associated with collision and electrocution risk to bats during operation of the PG&E Facilities would be less than significant. With implementation of Mitigation Measure BIO-1, direct and indirect significant impacts from construction of the PG&E Facilities on special-status and other bat species during construction and O&M in the vicinity of the Fern Road Substation would be reduced to a less-than-significant level.

Construction of the PG&E Facilities at the Round Mountain Substation, Table Mountain Substation, Cascade Substation, and Redding Service Center would result in less-than-significant impacts on bat species because construction activities at those facilities would require no tree trimming or removal.

American Badger

American badgers would likely avoid work areas during construction activities because of the increased noise and activity. However, if present on the site, American badgers could be directly affected by equipment or vehicle strikes during construction and O&M activities; destruction of burrows or dens during construction and vegetation clearing; entrapment in excavations; and temporary or permanent loss of foraging and denning habitat.

Impacts on American badgers associated with construction of the Fern Road Substation Facilities would be reduced with implementation of APMs BIO-1, BIO-6, BIO-7, BIO-8, BIO-9, BIO-11, and BIO-12. Implementation of APM BIO-1 would maintain traffic on-site at 15 miles per hour (mph), reducing the chance of roadkill. APM BIO-6 would require that excavations be covered to prevent entrapment or injury. APM BIO-7 would protect badgers by avoiding night work whenever

feasible. Implementation of APM BIO-8 would provide for worker training to minimize potential harm to special-status species during construction. APM BIO-9 would require preconstruction surveys for badger dens. Implementation of APM BIO-11 would minimize tree removal on-site. Implementation of APM BIO-12 would restore temporarily affected areas following construction. Implementation of these APMs combined with the small footprint of the Project, the absence of badger burrows or fossorial habitat on the site, and the presence of high-quality badger habitat in the region would result in direct impacts on badgers during construction of the Fern Road Substation Facilities that would be less than significant.

For the PG&E Facilities, impacts on badgers in the vicinity of the Fern Road Substation site would be reduced by implementation of AMM-1, AMM-4, AMM-6, AMM-7, AMM-8, AMM-10, and AMM-13. Implementation of AMM-1 would provide annual worker training on HCP requirements; AMM-4 would route paths and work sites away from biologically sensitive areas; AMM-6 would require that pipes and culverts be covered to avoid species entrapment; AMM-7 would restrict vehicle speeds to 15 mph on-site; AMM-8 would prohibit trash dumping, firearms, open fires, hunting, and pets; AMM-10 would minimize the covered activity footprint and reduce the amount of time spent at a work site; and AMM-13 would provide escape ramps for trenches so wildlife would not be entrapped. With implementation of these AMMs, impacts on American badger during construction of the PG&E Facilities in the vicinity of the Fern Road Substation would be less than significant. Construction at the PG&E Facilities at the Round Mountain Substation, Table Mountain Substation, and Redding Service Center would result in no impacts on American badger because construction activities at those sites would occur within previously developed industrial facilities that do not contain suitable habitat.

Indirect impacts during construction could include increased noise from human and vehicle activity, which may disturb badgers and other wildlife and cause them to avoid habitat areas, or may interfere with foraging or rearing young. However, noise during construction activities would be short-term and alternative habitat areas are plentiful; thus, this impact associated with both the Fern Road Substation Facilities and the PG&E Facilities would be less than significant. Because human and vehicle traffic at the Project sites during operation would be expected to be minimal, direct and indirect impacts on badgers during operation would be less than significant.

Bird Species

The existing 500 kV transmission lines and towers create a baseline of electrocution and collision risks for avian species, which is likely minimal because these facilities follow APLIC guidelines (e.g., APLIC 2006, 2012). Project construction would increase the number of tall transmission line and substation bay structures at and in the vicinity of the Fern Road Substation site (approximately 21 new 110- to 199-foot-tall poles/structures and associated power lines would be installed, while two existing structures would be removed). Birds tend to avoid active construction activities because of the increased noise and activity; however, if any are present during construction, direct impacts on migratory birds, including special-status species, could include injury or mortality from vehicle strikes, loss of nesting habitat from removal of vegetation or transmission poles, and/or collision or electrocution risk from power lines and other Project structures, such as microwave towers. Raptors may be at particular risk because of their large

size; although they are generally thought to be able to avoid obstacles, their collision risk increases when foraging for prey or engaged in territorial defense (APLIC 2012).

Should raptors be present on or near any Project site during construction or operation of the Project facilities, they could experience mortality or injury from disturbance or collision with equipment including transmission poles, wires, or microwave towers. Although the majority of the Project sites already contains high-voltage transmission lines, the Project would introduce additional collision hazards. Risk factors typically associated with avian collisions with structures include size of facility, height of structures, and specific attributes of structures (e.g., guy wires), as well as siting in high-risk areas, frequency of inclement weather, type of development, and species or taxa at potential risk. The role of these risk factors has been outlined in the USFWS guidelines for communication towers (USFWS 2013), and by various literature studies (Gehring et al. 2009, 2011; Kerlinger et al. 2010). Collisions can result in injury or mortality, including, in the case of power lines, from electrocution.

These potential direct impacts associated with the Fern Road Substation Facilities would be avoided or minimized with implementation of APMs BIO-1, BIO-2, BIO-3, BIO-4, BIO-5, BIO-7, BIO-8, BIO-9, BIO-10, BIO-11, and BIO-12. Implementation of APM BIO-1 would maintain traffic on-site at 15 mph, reducing the chance of roadkill. APM BIO-2 would implement APLIC recommendations for reducing avian risk of electrocution from power lines, while APM BIO-3 would implement APLIC recommendations for reducing avian risk of collision with power lines. APM BIO-4 requires that the Project avoid vegetation removal during bird nesting season or conduct a survey before work and implement a suitable buffer to avoid disturbing active nests. APM BIO-5 would provide monitoring for active raptor nests in the vicinity of construction. APM BIO-7 would minimize the use of outdoor lighting, which can disorient migratory birds. APM BIO-8 would provide for worker training to minimize potential harm to special-status species during construction. APM BIO-9 would provide for preconstruction surveys for nesting birds. APM BIO-10 would avoid sensitive biological areas with at least a 5-foot buffer. APM BIO-11 would minimize tree removal on-site. APM BIO-12 would restore temporarily affected areas after construction. Implementation of these APMs would result in direct impacts on migratory birds during construction and O&M activities for the Fern Road Substation Facilities that would be less than significant.

With regard to the PG&E Facilities, impacts on migratory birds would be reduced with implementation of AMM-1, AMM-4, AMM-7, AMM-8, AMM-10, AMM-13, AMM-15, AMM-16, AMM-17, AMM-18, BMP-1 and BMP-21. Implementation of AMM-1 would provide annual worker training on HCP requirements; AMM-4 would route paths and work sites away from biologically sensitive areas; AMM-7 would restrict vehicle speeds to 15 mph on-site; AMM-8 would prohibit trash dumping, firearms, open fires, hunting, and pets; AMM-10 would minimize the covered activity footprint and minimize the amount of time spent at a work site; AMM-13 would provide escape ramps for trenches so wildlife would not be entrapped; AMM-15 would prohibit vehicular and equipment refueling within 250 feet of the edge of wetlands, streams, or waterways; AMM-16 would maintain a buffer of 50 feet from the edge of wetlands, ponds, or riparian areas; AMM-17 would require that trees be directionally felled to protect adjacent trees; AMM-18 requires avoidance of nests with eggs and/or that chicks be avoided until biological

guidance is received; BMP-1 requires surveys for raptors and other migratory birds during nesting season (February through September); andBMP-21 would ensure that the PG&E Facilities would be constructed according to APLIC recommendations to minimize collision and electrocution risks to birds. Implementation of the AMMs and BMPs would result in impacts on avian species during construction or operation of the PG&E Facilities that would be less than significant.

Indirect impacts on avian species during construction and operation could include habitat avoidance because of noise disturbance, which may disrupt breeding and foraging activities, or could cause birds to flush from their nests or to abandon eggs or young. However, noise during construction would be short-term, and the impact would be less than significant with implementation of APMs BIO-4, BIO-5, and BIO-7 for the Fern Road Substation Facilities and AMM-4, AMM-7, and AMM-10 for the PG&E Facilities.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service: *No Impact.*

No sensitive natural communities are present at any of the Project sites. Thus, no impact would occur under this criterion.

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: *Less than Significant.*

A total of approximately 0.3 acre of potential jurisdictional aquatic resources has been identified in the vicinity of the Fern Road Substation site (Section 3.4.1.1), consisting of seven small stream segments and four small seasonal wetlands (Heritage Environmental 2022) (see Figure 3.4-2). These stream segments and seasonal wetlands would likely be considered waters of the United States and of the state. Construction activities at the Fern Road Substation Facility sites would avoid all on-site wetlands and waters with at least a 5-foot buffer in accordance with APM BIO-10. Implementation of this APM would avoid direct impacts on wetlands and waters. Indirect impacts could include erosion from vehicle and equipment traffic passing close to waters and wetlands. Indirect impacts of construction of the Fern Road Substation Facilities would be avoided with implementation of APM WQ-1, which requires preparation of a SWPPP containing erosion and sediment control BMPs to avoid and minimize deposition into wetlands. With implementation of these APMs during construction and O&M activities, direct and indirect impacts on wetlands and waters associated with the Fern Road Substation Facilities would be reduced to less than significant.

For the PG&E Facilities, indirect impacts on wetlands and waters would be avoided with implementation of AMM-11, which would apply erosion and sediment control BMPs; AMM-12, which would stockpile soil away from waterbodies; AMM-15, which would prohibit refueling near wetlands; AMM-16, which would maintain a buffer of 50 feet from wetlands or waters whenever feasible; and BMP-2, which would maintain a buffer of 50 feet from wetlands and

waters whenever feasible. When maintenance of these buffers is infeasible, as with the pole adjacent to water feature Eph-2 on Figure 3.4-2, PG&E would request permits for temporary and permanent impacts on wetlands from USACE and the Regional Water Quality Control Board, if applicable, and would comply with all applicable permit conditions. With implementation of these AMMs and this BMP during construction and O&M activities, and compliance with permit requirements where applicable, direct and indirect impacts on wetlands associated with the PG&E Facilities in the vicinity of the Fern Road Substation site would be less than significant.

Construction of the PG&E Facilities at the Round Mountain Substation, Table Mountain Substation, and Redding Service Center would result in no impacts on federally protected wetlands, because there are no wetlands at those developed facility sites.

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: *Less than Significant.*

As stated in Section 3.4.1.1, no perennial waters, riparian corridors, or other potential wildlife migration corridors exist at any of the Project sites. The Fern Road Substation site and PG&E interconnection facilities and distribution modifications sites are adjacent to existing 500 kV transmission lines, in addition to Fern Road, rural residences, and active grazing lands, which reduces the likelihood of wildlife migration through the site and its vicinity. In addition, no nursery sites are anticipated to be affected by the Project. Although the Project sites lie within the Pacific Flyway for migratory birds, they do not contain sufficient water resources for a migratory stopover.

Impacts on migrating birds, which may forage in the area, associated with the Fern Road Substation Facilities would be reduced with implementation of APMs BIO-2 and BIO-3, which would apply APLIC standards to power lines to reduce the likelihood of avian electrocution or collision. Also, APM BIO-7 would minimize the use of outdoor lighting, which can disorient birds in flight. For these reasons, impacts associated with the Fern Road Substation Facilities would be less than significant under this criterion.

With regard to the PG&E Facilities, significant impacts on migratory birds passing through the area would be avoided with implementation of BMP-21, which would ensure that the PG&E Facilities adhere to APLIC recommendations to minimize collision and electrocution risks to birds. Implementation of this measure would ensure that impacts on migrating birds during construction or operation of the PG&E Facilities would be less than significant.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance: *No Impact.*

Because CPUC has exclusive jurisdiction over Project siting, design, and construction, the Project is not subject to local land use and zoning regulations or discretionary permits. However, local regulations related to biological resources were reviewed to ensure that the Project would not conflict with local policies or ordinances protecting biological resources. Shasta County does not have a tree preservation ordinance, and the Project complies with the policies of the Shasta County General Plan's Fish and Wildlife Habitat section (Section 3.4.2.3; Shasta County 2004)

concerning biological resources. Thus, implementation of the Project would not conflict with local policies or ordinances relating to biological resources, and no impact would occur.

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: *No Impact.*

The Project sites lie within the PG&E MRHCP within the Sacramento Valley and Foothills Region (ICF 2020). The MRHCP is intended to avoid, minimize, and mitigate temporary and permanent impacts on threatened and endangered species resulting from PG&E's ongoing O&M activities and minor new construction activities in the Plan Area. The MRHCP would apply to the PG&E Facilities components of the Project; however, the MRHCP concerns plant and wildlife species and critical habitat listed under the FESA. Federally listed species are not present at the PG&E Facilities sites; the special-status species with potential to occur in the vicinity of the Fern Road Substation site are state Species of Special Concern and birds protected under the MBTA. Because no species protected under the MRHCP are present at any of the Project sites, no conflicts with approved habitat conservation plans would occur, and no impact would occur.

Additional criterion g) Would the project create a substantial collision or electrocution risk for birds or bats? *Less than Significant*

The existing 500 kV transmission lines and distribution line adjacent to the Fern Road Substation site present a baseline risk for electrocution or collision for birds and bats. The Project would add 21 additional transmission poles/bus structures (while removing only two existing towers), 35 new wood distribution poles, and additional connecting transmission and distribution lines, along with two new microwave towers (up to 199 feet). These new structures would be designed to minimize risks of electrocution and collision during construction and O&M activities with implementation of APM BIO-2 (implement APLIC measures to minimize the risk of electrocution) and APM BIO-3 (implement APLIC measures to minimize the risk of collision on the distribution line) for the Fern Road Substation Facilities and implementation of BMP-21 for the PG&E Facilities. With implementation of these APMs and BMP, the incremental risk to birds or bats from installation and operation of the new structures would be minimized, and the impact would be less than significant.

3.4.5 References

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3.5 Cultural Resources

Issues:		*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
V.	**CULTURAL RESOURCES —** Would the project:				
a)	Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☐	☐	☒
b)	Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☒	☐
c)	Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☐	☒	☐

3.5.1 Environmental Setting

Cultural resources include historic architectural resources, archaeological resources, and human remains. This section provides an assessment of potential impacts of the Project on cultural resources. The cultural resources study area comprises the footprints of both the Fern Road Substation Facilities and the Pacific Gas and Electric Company (PG&E) Facilities and the access roads and staging area needed to construct and maintain the Project components.

3.5.1.1 Prehistoric Period

Regional archaeological investigations have developed classification schemes that attempt to place assemblages of cultural material in specific temporal and spatial contexts. Many of these schemes also attempt to associate artifact assemblages with specific groups and/or settlement/subsistence strategies. One of the more comprehensive of these chronologies includes five generalized cultural patterns spanning 8,000 years: the Borax Lake Pattern (6050–3050 B.C.), the Squaw Creek Pattern (3050–1050 B.C.), the Whiskeytown Pattern (1050–950 B.C.), the Tehama Pattern (A.D. 150–1200), and the Augustine Pattern of the Redding Aspect (beginning A.D. 1200) (Sundahl 1992).

The Borax Lake Pattern included assemblages of wide-stemmed points, handstones, milling slabs, and ovoid flake tools, and is attributed to Hokan-speaking peoples entering the area (Fredrickson 1973). The Squaw Creek Pattern appears to represent more intensive occupation of the southern Cascade region than the previous period as well as new artifact assemblages, which may reflect the migration of ancestral Yokuts and Miwok into the southern Cascades. The Whiskeytown Pattern appears to represent a shift in settlement and subsistence strategies in the Redding area (Hull et al. 1991; Sundahl 1992). The Tehama Pattern appears to be associated with the appearance of the bow and arrow in the region and is thought to reflect a mobile settlement/subsistence strategy that exploited multiple environments (Sundahl 1992). The Augustine Pattern, Redding Aspect is associated with the prehistoric Wintu, and is highlighted by the establishment of permanent villages along the banks of rivers and a subsistence pattern that is oriented toward riverine resources and acorn processing.

Others have proposed revised cultural chronologies; the refinement of these schemes integrate various regional chronologies and research frameworks (Hull et al. 1991). In summary,

archaeological research in the northern Sacramento Valley and surrounding area has provided cultural chronologies for the area and other information regarding its use and occupation by Native American populations, but questions persist regarding the chronologies, patterns of prehistoric settlement, and subsistence in the region.

3.5.1.2 Ethnographic Period

The cultural resources study area is located within the ethnographic territory of the Yana. The Yana have been divided into four groups based on linguistic differences: the Northern, Central, Southern, and Yahi. The study area is located in the tribal territory of the Central Yana peoples. The Yana occupied the foothill areas east of the Sacramento River between Redding and Tehama and as far east as Lassen Peak (Johnson 1978).

The Yana people where repeatedly and brutally targeted by non-Indigenous settlers beginning in the 1860s. This resulted in the genocide of the Yana people, who were decimated from a population of potentially up to 3,000 individuals to fewer than 50. Ishi, a Yahi-Yana Indian, was the most famous survivor of the massacre of the Yana people. Ishi, and anthropologist Alfred Kroeber, documented many Yahi lifeways at the University of California, Berkeley, between 1911 and Ishi's death in 1916 (Johnson 1978).

The Yana today are represented in the people of the Redding Rancheria, a federally recognized tribe consisting of Pit River, Wintu, and Yana peoples in southern Redding.

3.5.1.3 Historic Period

The expedition of Peter Skene Ogden across the northern Sacramento Valley in 1827 through 1828 is probably the earliest encounter between Native Americans and Euroamericans in the general vicinity. Succeeding expeditions of Euroamerican explorers and fur trappers brought foreign diseases that took a huge toll on the Native Americans in Northern California. In 1846, Mexico granted Pearson B. Reading the 26,000-acre San Buenaventura land grant, also known as Rancho Buenaventura, and Native Americans soon found themselves in competition for resources with settlers who were rapidly moving into the area. In 1848, Reading discovered gold in Clear Creek, a discovery that caused an influx of large numbers of gold-seekers to the area. A community named Horsetown, located west of present-day Redding, quickly grew up around Reading's discovery site, which was also called Reading's Bar or Clear Creek Diggings. The initial dramatic growth of mining and miners in the area was relatively short-lived, and mining operations declined and eventually stopped. The decline and cessation of mining forced landowners and other residents to turn to other industries to survive. Agricultural operations, primarily cattle ranching and logging, became the alternatives of choice in the area. Elias Anderson, one of Shasta County's first settlers, purchased the American Ranch in 1856. His original land holdings are approximately the center of present-day Anderson.

The growth and development of the northern Sacramento River Valley and surrounding area between the 1870s and 1880s is highlighted by the founding of the City of Redding in 1872. The city was named in honor of Benjamin B. Redding, a land agent for the Central Pacific Railroad Company. The town was renamed "Reading" in 1874, to honor the early pioneer Pierson B.

Reading, but the railroad would not recognize the name change. Consequently, the original name, Redding, was restored in 1880. Redding was located at the end of the Central/Southern Pacific railroad line until 1883, when the line was extended farther north. Redding was incorporated in 1887 as the first municipality in Shasta County and became the county seat in 1888. By 1910, the city had a population of 3,572 that was supported by a significant mineral extraction industry, principally copper and iron. With the decline of this industry, the population dropped dramatically by 1920, but the population was recovering by 1930, and it boomed during the 1930s with the construction of Shasta Dam. The building of the dam, which was completed in the 1940s, caused the population to nearly double by 1940.

Logging had been an industry in the area since the Gold Rush, but in the late 1940s, it expanded in the area and joined agriculture and mining as an important regional industry. From the 1950s to the 1960s, Redding continued to grow with the expansion of the lumber industry, the construction of Whiskeytown and Keswick dams, and the completion of Interstate 5. Logging remains an important business in the area today, but tourism also has become a thriving business centered on places such as Shasta Dam and Shasta Lake, Whiskeytown Reservoir, Shasta State Historic Park, Lassen Volcanic National Park, and McArthur Burney Falls State Park.

The cultural resources study area is located in central Shasta County, approximately 11 miles east of Millville. Originally known as Harrill's Mill, Millville was established in 1855 and was one of the area's first grist mills. Whitmore, approximately 3 miles southeast of the study area, is a small farming community that was originally known as Tamarack and was established in 1863 (Mengers and Eckhardt 2022).

3.5.1.4 Known Resources

Records Search and Historical Research

Information on the character and location of cultural resources at the study area and local vicinity was compiled from background and archival research at the California Historical Resources Information System through the Northeast Information Center, located at California State University, Chico. The Native American Heritage Commission (NAHC) and interested Native American individuals also were contacted. The research and Native American outreach were supplemented by an intensive survey of the study area. The information was then used to evaluate the Project against the significance criteria in the CEQA Guidelines Appendix G Environmental Checklist (as amended in December 2019) to determine potential impacts.

The Northeast Information Center's records search indicated that no portion of the cultural resources study area has been subjected to an intensive pedestrian survey within the past 5 years. Two earlier surveys of the study area were conducted in 2008 (Vaughan 2008; approximately 35 percent coverage) and 1982 (Sletteland and Ritter 1982; approximately 5 percent coverage). No cultural resources were identified in the study area during these surveys.

Background research indicates that the PG&E interconnection facilities area has been previously surveyed for cultural resources (Vaughan 2008) and no cultural resources have been identified.

The records search did not identify any cultural resources within the study area. Five resources have been recorded outside of the study area but within the 1-mile records search buffer. These resources are all prehistoric resources: three lithic scatters, one bedrock milling feature with lithics, and one habitation site with milling features and lithics. P-45-001567, the habitation site with milling features and lithics, is the nearest resource to the study area at approximately 0.25 mile to the east.

A review of historic maps and aerial imagery outlined the development history of the study area and vicinity. On the 1883 survey map, nothing is shown in the study area. The nearest feature is a house approximately 2 miles to the southwest. Maps from the 1930s show the alignment of Fern Road and the access road that crosses east-west through the study area from Fern Road. No structures are shown in the study area, but there are a few houses off Fern Road in the vicinity of the study area. The 1950s maps show fewer homes in the vicinity of the study area and shows that Fern Road has been paved while the east-west access road remained dirt. The existing 500 kilovolt (kV) transmission lines to which the Project would connect were constructed in the late 1970s. By this time, the trees along the alignment had been removed and additional access roads between the poles had been constructed for monitoring and maintenance. None of the maps show any buildings within the study area.

Archaeological Survey

The survey area included the study area (10 acres), the remainder of the surrounding parcel (40 acres), and a buffer for a total of approximately 86 acres. The survey entailed 5- to 10-meter transects depending on ground visibility and accessibility. Previously unrecorded resources encountered were recorded on digital Department of Parks and Recreation 523 site forms, and their locations recorded using a handheld device running Environmental System Research Institute (i.e., ESRI) Arc Collector software.

Two archaeological resources were located during the surface survey. RM-ISO-1 is an isolated rusted steel half-gallon rectangular fuel can of possible historic age. RM-ISO-2 is a rusted, flattened, steel casing to a 6-volt lantern battery of possible historic age (Mengers and Eckhardt 2022). Neither of these isolates meet any of the criterion for inclusion in the California Register of Historical Resources (California Register) and are not considered historical resources or unique archaeological resources.

Buried Site Sensitivity

Soils underlying the study area are shallow, and bedrock is approximately 3 to 4 feet below the surface. Soils in the study area are dominated by Kilarc very stony sandy clay loams and Supan very stony loams (NRCS 2022). These soils overlie Montgomery Creek Formation sandstone dating to the Eocene (55.8 to 33.9 million years ago) and Tuscan formation tuff-breccias formed by lahars dating to the Pliocene (5.3 to 2.6 million years ago) (Macdonald and Lydon 1972).

Landforms that predate the earliest periods for human occupation of the region are considered to have very low potential for the presence of buried archaeological sites, while those that postdate human occupation are considered to have a higher potential for buried archaeological sites. The degree of buried site potential is inversely related to the estimated date rate of a landform.

Currently, archaeological research indicates that the earliest evidence for human occupation of California dates to the Late Pleistocene, which ended approximately 11,500 years before present. Therefore, the potential for buried archaeological deposits in landforms from or predating the Late Pleistocene is very low (Rosenthal et al. 2003).

As mentioned previously, the study area is situated on an Eocene and Pliocene-aged landform consisting of sandstone, which is irregularly covered by volcanic materials include tuff-breccias and lava flows dating to millions of years before humans arrived in California (Macdonald and Lydon 1972; NRCS 2022). The Kilarc and Supan soils overlying the geology have been formed from the weathering of these bedrock materials. Based on the age of the geological material and the shallow soils above the bedrock, the potential for buried archaeological resources in the study area is very low.

Resource Summary

The entire study area was surveyed and no prehistoric archaeological cultural resources were identified as a result of the survey (Mengers and Eckhardt 2022). The records search results identified no prehistoric cultural resources previously recorded within the study area and the nearest known prehistoric resource is 0.25 mile east of the study area. Additionally, there are no perennial water sources in the study area, and the nearest water source is Coal Creek to the east (0.3 mile) and Clover Creek to the west (0.4 mile). Therefore, the landform, proximity to water resources, and proximity to known archaeological resources suggest that the study area has a low potential for the presence of prehistoric archaeological resources.

No previously recorded historic-era resources are located within the study area or a 1-mile-radius of the study area. No buildings or structures were identified in the study area on historic maps or aerial images. Two potentially historic-era isolated artifacts were identified in the study area during the pedestrian survey, but these resources are not significant historical resources or unique archaeological resources. Therefore, the potential for the presence of unrecorded historic-era archaeological resources in the study area is low.

3.5.2 Regulatory Setting

3.5.2.1 Federal

Although there is no federal nexus associated with the Project, the following information regarding federal laws addressing cultural resources is presented to provide context and continuity with state laws.

National Historic Preservation Act

The principal federal law addressing historic properties is the National Historic Preservation Act (NHPA), as amended (U.S. Code Title 54, Section 300101 et seq.), and its implementing regulations (Code of Federal Regulations Title 36, Part 800 [36 CFR 800]). Section 106 requires a federal agency with jurisdiction over a proposed federal action (referred to as an "undertaking" under the NHPA) to take into account the effects of the undertaking on historic properties, and to provide the Advisory Council on Historic Preservation and other interested parties an opportunity to comment on the undertaking.

The term "historic properties" refers to "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register [of Historic Places]" (36 CFR 800.16[*l*][1]). The implementing regulations (36 CFR 800) describe the process for identifying and evaluating historic properties, for assessing the potential adverse effects of federal undertakings on historic properties, and seeking to develop measures to avoid, minimize, or mitigate adverse effects. The Section 106 process does not require the preservation of historic properties; instead, it is a procedural requirement mandating that federal agencies take into account effects on historic properties from an undertaking before approval.

The steps of the Section 106 process are accomplished through consultation with the State Historic Preservation Officer, federally recognized Indian tribes, local governments, and other interested parties. The goal of consultation is to identify potentially affected historic properties, assess effects on such properties, and seek ways to avoid, minimize, or mitigate any adverse effects on such properties. The agency also must provide an opportunity for public involvement (36 CFR 800.1[a]). Consultation with Indian tribes regarding issues related to Section 106 and other authorities (such as the National Environmental Policy Act and Executive Order No. 13007) must recognize the government-to-government relationship between the federal government and Indian tribes, as set forth in Executive Order 13175 (*Federal Register* Title 65, Page 67249 [November 9, 2000]) and the Presidential Memorandum of November 5, 2009.

National Register of Historic Places

The National Register was established by the NHPA of 1966, as "an authoritative guide to be used by federal, State, and local governments, private groups, and citizens to identify the Nation's historic resources and to indicate what properties should be considered for protection from destruction or impairment" (36 CFR 60.2). The National Register recognizes a broad range of cultural resources that are significant at the national, state, and local levels and can include districts, buildings, structures, objects, prehistoric archaeological sites, historic-period archaeological sites, traditional cultural properties, and cultural landscapes. As noted above, a resource that is listed in or eligible for listing in the National Register is considered "historic property" under Section 106 of the NHPA.

To be eligible for listing in the National Register, a property must be significant in American history, architecture, archaeology, engineering, or culture. Properties of potential significance must meet one or more of the following four established criteria:

(1) Are associated with events that have made a significant contribution to the broad patterns of our history.

(2) Are associated with the lives of persons significant in our past.

(3) Embody the distinctive characteristics of a type, period, or method of construction or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.

(4) Have yielded, or may be likely to yield, information important in prehistory or history.

In addition to meeting one or more of the criteria of significance, a property must have integrity. Integrity is defined as "the ability of a property to convey its significance" (U.S. Department of the Interior 2002). The National Register recognizes seven qualities that, in various combinations, define integrity: location, design, setting, materials, workmanship, feeling, and association. To retain historic integrity, a property must possess several, and usually most, of these seven aspects. Thus, the retention of the specific aspects of integrity is paramount for a property to convey its significance.

Ordinarily, religious properties, moved properties, birthplaces or graves, cemeteries, reconstructed properties, commemorative properties, and properties that have achieved significance within the past 50 years are not considered eligible for the National Register unless they meet one of the "Criteria Considerations" (A–G), in addition to meeting at least one of the four significance criteria and possessing integrity (U.S. Department of the Interior 2002).

3.5.2.2 State

California Register of Historical Resources

The State of California implements the NHPA of 1966, as amended, through its statewide comprehensive cultural resources surveys and preservation programs. The California Office of Historic Preservation (OHP), as an office of the California Department of Parks and Recreation, implements the policies of the NHPA on a statewide level. The OHP also maintains the Historic Resources Inventory. The State Historic Preservation Officer is an appointed official who implements historic preservation programs within the state's jurisdictions.

The California Register is "an authoritative listing and guide to be used by State and local agencies, private groups, and citizens in identifying the existing historical resources of the State and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change" (Public Resources Code [PRC] Section 5024.1[a]). The criteria for eligibility for the California Register are based on National Register criteria (PRC Section 5024.1[b]). Certain resources are determined by statute to be automatically included in the California Register, including California properties formally determined eligible for, or listed in, the National Register.

To be eligible for the California Register, a prehistoric or historic-period property must be significant at the federal, state, and/or local level under one or more of the following four criteria:

(1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.

(2) Is associated with the lives of persons important in our past.

(3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values. or

(4) Has yielded, or may be likely to yield, information important in prehistory or history.

A resource eligible for the California Register must meet one of the criteria of significance described above and retain enough of its historic character or appearance (integrity) to be

recognizable as a historical resource and to convey the reason for its significance. It is possible that a historic resource may not retain sufficient integrity to meet the criteria for listing in the National Register, but it may still be eligible for listing in the California Register.

Additionally, the California Register consists of resources that are listed automatically and those that must be nominated through an application and public hearing process. The California Register automatically includes the following:

- California properties listed on the National Register and those formally determined eligible for the National Register.
- California Registered Historical Landmarks from No. 770 onward.[2]
- Those California Points of Historical Interest that have been evaluated by the OHP and have been recommended to the State Historical Commission for inclusion on the California Register.

The following other resources also may be nominated to the California Register:

- Historical resources with a National Register Status Code of Category 3, 4, or 5 (those properties identified as eligible for listing in the National Register, the California Register, and/or a local jurisdiction register).
- Individual historical resources.
- Historical resources contributing to historic districts.

Historical resources designated or listed as local landmarks, or designated under any local ordinance, such as an historic preservation overlay zone.

California Environmental Quality Act

CEQA (PRC Section 21000 et seq.) is the principal statute governing environmental review of projects occurring in the state. CEQA requires Lead Agencies to determine whether a proposed project would have a significant effect on the environment, including significant effects on historical or unique archaeological resources.

Under CEQA (Section 21084.1), a project that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment. An archaeological resource may qualify as a "historical resource" under CEQA. The CEQA Guidelines (California Code of Regulations Title 14, Section 15064.5) recognize that historical resources include all of the following:

(1) A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register.

[2] The current standards for designating a California Historic Landmarks are applied to Landmark #770 and onward. Landmarks designated before #770 do not meet the current designation criteria and therefore do not qualify as historical resources.

(2) A resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g).

(3) Any object, building, structure, site, area, place, record, or manuscript which a Lead Agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California by the Lead Agency, provided the Lead Agency's determination is supported by substantial evidence in light of the whole record.

The fact that a resource does not meet the three criteria outlined above does not preclude the Lead Agency from determining that the resource may be a historical resource as defined in PRC Section 5020.1(j) or 5024.1.

If a Lead Agency determines that an archaeological site is a historical resource, the provisions of CEQA Section 21084.1 and Section 15064.5 of the CEQA Guidelines apply. If a project may cause a substantial adverse change in the significance of a historical resource (defined as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired), the Lead Agency must identify potentially feasible measures to mitigate these effects (CEQA Guidelines Sections 15064.5[b][1] and 15064.5[b][4]).

If an archaeological site does not meet the criteria for a historical resource presented in the CEQA Guidelines, the site may be treated in accordance with the provisions of PRC Section 21083, which establishes requirements for unique archaeological resources. As defined in PRC Section 21083.2, a "unique" archaeological resource is an archaeological artifact, object, or site, about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- Contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information.
- Has a special and particular quality such as being the oldest of its type or the best available example of its type.
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

If an archaeological site meets the criteria for a unique archaeological resource as defined in Section 21083.2, and the Lead Agency determines that a project would have a significant effect on unique archaeological resources, the Lead Agency may require that reasonable efforts be made to permit any or all of these resources to be preserved in place (Section 21083.1[a]). If preservation in place is not feasible, mitigation measures are required.

The CEQA Guidelines note that if an archaeological resource is neither a unique archaeological resource nor a historical resource, the effects of the project on those resources shall not be considered a significant effect on the environment (CEQA Guidelines Section 15064.5[c][4]).

Assembly Bill 52

A summary of the Assembly Bill 52 statute is provided in Section 3.18, *Tribal Cultural Resources.*

California Health and Safety Code Section 7050.5

Section 7050.5 of the California Health and Safety Code requires that in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site, or any nearby area reasonably suspected to overlay adjacent remains, until the county coroner has examined the remains. If the coroner determines, or has reason to believe, that the remains are those of a Native American, the coroner shall contact the NAHC by telephone within 24 hours.

California Public Resources Code Section 5097.98

PRC Section 5097.98 provides procedures to follow in the event that human remains of Native American origin are discovered during Project implementation. It requires that no further disturbances occur in the immediate vicinity of the discovery, that the discovery be adequately protected according to generally accepted cultural and archaeological standards, and that further activities take into account the possibility of multiple burials. It further requires the NAHC, upon notification by a county coroner, designate and notify a Most Likely Descendant (MLD) regarding the discovery of Native American human remains. Once the MLD has been granted access to the site by the landowner and inspected the discovery, the MLD has 48 hours to provide recommendations to the landowner for the treatment of the human remains and any associated grave goods.

If no descendant is identified, the descendant fails to make a recommendation for disposition, or the landowner rejects the recommendation of the descendant, the landowner may, with appropriate dignity, reinter the remains and burial items on the property in a location that will not be subject to further disturbance.

3.5.2.3 Local

The California Public Utilities Commission (CPUC) has sole and exclusive state jurisdiction over the siting and design of the Project. Pursuant to CPUC General Order 131-D, Section XIV.B, "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters" (CPUC 1995). Consequently, public utilities are directed to consider local regulations and consult with local agencies, but county regulations are not applicable because Shasta County does not have jurisdiction over the Project.

Because CPUC has exclusive jurisdiction over the Project's siting, design, and construction, the Project is not subject to local land use and zoning regulations or discretionary permits. This section identifies local land use plans and regulations for informational purposes and to assist with CEQA review. Although LSPGC is not subject to local discretionary permitting, ministerial permits would be secured as required.

Shasta County Code of Ordinances

No ordinances in the Shasta County Code of Ordinances specifically related to cultural resources are applicable to the Project.

Shasta County General Plan

The following relevant cultural resources objective and policy from the Shasta County General Plan's Heritage Resources Element were reviewed, and the following summaries are provided for informational purposes.

Objective HER-1: Protection of significant prehistoric and historic cultural resources.

Policy HER-a: Development projects in areas of known heritage value shall be designed to minimize degradation of these resources. Where conflicts are avoidable, mitigation measures which reduce such impacts shall be implemented. Possible mitigation measures may include clustering, buffer or nondisturbance zones, and building siting requirements.

3.5.3 Applicant Proposed Measures and PG&E Construction Measures

3.5.3.1 Applicant Proposed Measures

LSPGC has proposed the following applicant proposed measures (APMs) to address impacts on cultural resources attributable to construction, operations, and/or maintenance of the Fern Road Substation Facilities.

APM CUL-1: LSPGC would design and implement a Worker Environmental Awareness Program (WEAP) that would be provided to all Proposed Project personnel who may encounter and/or alter historical resources or unique archaeological properties, including construction supervisors and field personnel. The WEAP would be submitted to and approved by the CPUC prior to construction. No construction worker would be involved in ground disturbing activities without have participated in the WEAP. The WEAP would include, at a minimum:

- Training on how to identify potential cultural resources and human remains during the construction process;
- A review of applicable local, state, and federal ordinances, laws and regulations pertaining to historic preservation;
- A discussion of procedures to be followed in the event that unanticipated cultural resources are discovered during implementation of the Proposed Project;
- A discussion of disciplinary and other actions that would be taken against persons violating historic preservation laws and LSPGC policies; and
- A statement by the construction company or applicable employer agreeing to abide by the WEAP, LSPGC policies, and other applicable laws and regulations.

The WEAP may be conducted in concert with other environmental or safety awareness and education programs for the Proposed Project, provided that the program elements pertaining to cultural resources are provided by a Qualified Archaeologist, defined as an archaeologist

meeting the Secretary of the Interior's Professional Qualifications Standards for Archaeology (36 CFR Part 61).

APM CUL-2: If proposed facilities and ground-disturbing activities move outside the previously surveyed acreage, the new areas would be subjected to a cultural resources inventory report that includes archaeological, unique archaeological, and built-environment resources within all areas that could be affected by the Proposed Project. Impacts to any historical resources or unique archaeological resources identified as a result of the inventory report would be avoided by project redesign, capping, or other appropriate treatment.

APM CUL-3: In the event that previously unidentified cultural resources are uncovered during implementation of the Proposed Project, all work within 100 feet (30 meters) of the discovery would be halted and redirected to another location. LSPGC's qualified archaeologist would inspect the discovery and determine whether further investigation is required. If the discovery can be avoided and no further impacts would occur, the resource would be documented on California Department of Parks and Recreation cultural resource records and no further effort would be required. If the resource cannot be avoided and may be subject to further impact, LSPGC would evaluate the significance and California Register of Historical Resources eligibility of the resources and, in consultation with the CPUC, determine appropriate treatment measures. Preservation in place shall be the preferred means to avoid impacts to significant historical resources. Consistent with CEQA Section 15126.4(b)(3), if it is demonstrated that resources cannot feasibly be avoided, LSPGC's qualified archaeologist, in consultation with the CPUC and, if the unearthed resource is prehistoric or Native American in nature, the Native American monitor shall develop additional treatment measures, such as data recovery consistent with CEQA Guidelines 15126.4(b)(3)(C)-(D). Archaeological materials recovered during any investigation shall be curated at an accredited curation facility or transferred to the appropriate tribal organization.

APM CUL-4: Avoidance and protection of inadvertent discoveries that contain human remains shall be the preferred protection strategy where feasible and otherwise managed pursuant to the standards of CEQA Guidelines 15064.5(d) and (e). If human remains are discovered during construction or O&M activities, all work shall be diverted from the area of the discovery, and the CPUC shall be informed immediately. The Applicant shall contact the county coroner to determine whether or not the remains are Native American. If the remains are determined to be Native American, the coroner would contact the NAHC. The NAHC would then identify the person or persons it believes to be the most likely descendant of the deceased Native American, who in turn would make recommendations for the appropriate means of treating the human remains and any associated funerary objects. No part of the Proposed Project is location on federal land and no federal monies are involved; therefore, the Proposed Project is not subject to the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA).

3.5.3.2 PG&E Construction Measures

PG&E would implement the following best management practices (BMPs) to address impacts on cultural resources attributable to construction, operation, and/or maintenance of the PG&E Facilities. No avoidance and minimization measures are applicable to cultural resources.

BMP-15: Inadvertent Cultural Resource Discovery. If cultural resources are observed during ground-disturbing activities (including, but not limited to flaked stone tools (projectile point, biface, scraper, etc.) and debitage (flakes) made of chert, obsidian, etc., groundstone milling tools and fragments (mortar, pestle, handstone, millingstone, etc.), faunal bones, fire-

affected rock, dark middens, housepit depressions and human interments, small cemeteries or burial plots, cut (square) nails, containers or miscellaneous hardware, glass fragments, cans with soldered seams or tops, ceramic or stoneware objects or fragments, milled or split lumber, earthworks, feature or structure remains and trash dumps) the following procedures will be followed:

- Stop all ground disturbing work within 100 feet of the discovery location to avoid impacts.
- Immediately notify a PG&E Cultural Resource Specialist who will assess the discovery and provide guidance on how to proceed, following Utility Standard ENV-8005S.
- Leave the site or the artifact untouched.
- Record the location of the resource, the circumstances that led to discovery, and the condition of the resource.
- Do not publicly reveal the location of the resource and ensure the location is secured.
- If unsure about the significance or antiquity of a discovery, photograph the artifact or feature with a scale (e.g., coin, tape measure, etc.) and send to a PG&E Cultural Resource Specialist for review.

Comprehensive guidance on the protocol related to an inadvertent discovery of potentially significant cultural resources on a job site can be found in Utility Standard ENV-8005S or by consulting a PG&E Cultural Resource Specialist.

BMP-16: Human Remains Protocol. Section 7050.5 of the California Health and Safety Code (CHSC) states that it is a misdemeanor to knowingly disturb a human burial. In keeping with the provisions provided in 7050.5 CHSC and Public Resource Code 5097.98, if human remains are encountered (or are suspected) during any project-related activity:

- Stop all work within 100 feet;
- Immediately contact a PG&E Cultural Resource Specialist (CRS), who will notify the county coroner;
- Secure location, but do not touch or remove remains and associated artifacts;
- Do not remove associated spoils or pick through them;
- Record the location and keep notes of all calls and events; and
- Treat the find as confidential and do not publicly disclose the location. Upon Discovery of cultural resources or suspected human remains, contact the Cultural Resources Specialist.

BMP-17: Worker Awareness Training. Prior to the start of any ground-disturbing activity, PG&E's Cultural Resource Specialist (CRS) shall prepare archeological and historical resources sensitivity training materials for use during a Project-wide Worker Environmental Awareness Training (WEAP), or equivalent. The CRS shall make the training materials available for review and comment by the Native American group that expressed interest in the project. The WEAP shall be conducted by a qualified environmental trainer working under the supervision of the CRS. In the event construction crews are phased, additional trainings shall be conducted for new construction personnel. The training session shall focus on the recognition of the types of resources that could be encountered within the Project site and the procedures to be followed if they are found. PG&E and/or its contractor shall retain

documentation demonstrating that all construction personnel attended the training prior to the start of work on the site, which documentation shall be made available upon request.

3.5.4 Environmental Impacts

3.5.4.1 Methodology and Assumptions

Potential historical resources, including archaeological resources and architectural resources, were identified using the background research, survey effort, and archaeological sensitivity analysis described previously in Section 3.5.1.4, *Known Resources*. The following analysis of direct and indirect effects is based on the criteria identified in the CEQA Guidelines, Appendix G.

3.5.4.2 Direct and Indirect Effects

a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5: *No Impact*.

CEQA Guidelines Section 15064.5 requires the lead agency to consider the effects of a project on historical resources. The following discussion focuses on historic architectural and structural resources of the built environment. Archaeological resources, including those that are potentially historical resources according to CEQA Guidelines Section 15064.5, are addressed below under criterion b).

No historic architectural resources have been previously recorded within the study area and no historic architectural resources were identified as part of the pedestrian survey for the Project. No historic architectural resources have been recorded in the PG&E interconnection facilities area.

Because no historic architectural resources are present in the study area or at the PG&E Facilities sites, no impacts on historic architectural resources qualifying as historical resources under CEQA would occur under this criterion.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5: *Less than Significant.*

CEQA Guidelines Section 15064.5 requires the lead agency to consider the effects of a project on archaeological resources. Archaeological resources can be considered significant as either historical resources or unique archaeological resources.

There are no known significant archaeological resources in the study area or the PG&E interconnection facilities area, so no impact on known significant archeological resources would occur. The two isolated, possibly historic-age artifacts identified during the pedestrian survey conducted for the Project are not eligible for the California Register and therefore are not considered historical resources or unique archaeological resources.

Although a discovery is unlikely, the potential remains for unrecorded subsurface prehistoric archaeological material to be uncovered during proposed ground-disturbing activities. The Project would entail excavation that may encounter archaeological materials that qualify as either historical resources or unique archaeological resources. To reduce impacts on archaeological resources, LSPGC would implement APMs CUL-1 and CUL-3 during construction of the Fern

Road Substation Facilities, requiring cultural resources awareness training and consideration of avoidance, recovery, and documentation of any identified resources. In addition, PG&E has proposed BMPs 15, 16, and 17, which provide for cultural resources awareness training and a protocol to follow in the event of an inadvertent discovery of cultural resources or human remains during Project implementation at the PG&E Facilities sites. CPUC has determined that implementing these APMs and BMPs would ensure that impacts associated with the discovery of any archaeological resources, if identified during Project construction, would be less than significant.

c) Disturb any human remains, including those interred outside of dedicated cemeteries: *Less than Significant.*

There are no known human remains in the study area or the PG&E Facilities areas. The likelihood of encountering unanticipated subsurface human remains during Project construction is low, based on the background research and survey results. To reduce impacts on human remains, LSPGC has proposed APM CUL-4, which includes actions to follow in the event of a discovery of human remains during construction of the Fern Road Substation Facilities. In addition, PG&E has proposed BMPs 16 and 17, which provides similar actions to follow in the event of a discovery of human remains during construction of the PG&E Facilities. With implementation of APM CUL-5 and BMPs 16 and 17, impacts on human remains would be less than significant.

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3.6 Energy

Issues:		*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
VI.	**ENERGY —** Would the project:				
a)	Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
b)	Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

3.6.1 Environmental Setting

3.6.1.1 California Energy System

California's energy system includes electricity, natural gas, and petroleum. According to the California Energy Commission (CEC), California's energy system generated 72 percent of the electricity, 48 percent of the natural gas, and less than 1 percent of the petroleum consumed or used in the state. The rest of the state's energy is imported and includes electricity from the Pacific Northwest and the Southwest; natural gas purchases from Canada, Rocky Mountain states, and the southwest; and petroleum imported from Alaska and foreign sources (CEC 2018a, 2022a, 2022b).

Electricity

The production of electricity requires the consumption or conversion of energy resources including natural gas, coal, water, nuclear, and renewable sources such as wind, solar, and geothermal. Of the electricity generated in California, approximately 48 percent is generated by natural gas–fired power plants, 9 percent comes from large hydroelectric dams, 8 percent comes from nuclear power plants, and less than 1 percent is generated by coal-fired power plants. The remaining approximately 33 percent of in-state total electricity production is supplied by renewable sources including solar, biomass, geothermal, small hydro, and wind power (CEC 2022a).

Electricity is generated and then distributed via a network of high-voltage transmission lines commonly referred to as the power grid. The Pacific Gas and Electric Company (PG&E) Round Mountain–Table Mountain #1 and #2 500-kilovolt (kV) transmission line corridor is part of the 500 kV transmission system that imports and exports hydro- and natural gas–generated electricity to other substations in the region (CAISO 2019).

Transportation Fuels

Gasoline is by far the largest transportation fuel by volume used in California. Nearly all the gasoline used in California is obtained through the retail market. In 2021, approximately 13.8 billion gallons of gasoline were sold in California's retail market (CDTFA 2022a). Diesel fuel is the second largest transportation fuel by volume used in California behind gasoline. Approximately 53 percent of total diesel sales in California is associated with retail sales. In 2021, 3.1 billion gallons of diesel were sold in California (CDTFA 2022b). According to the U.S. Department of Energy's Energy Information Administration, nearly all semi-trucks, delivery

vehicles, buses, trains, ships, boats and barges, and farm, construction, and military vehicles and equipment have diesel engines.

3.6.1.2 Local and Regional Energy Use

PG&E is an investor-owned utility company that provides electricity supplies and services throughout a 70,000-square-mile service area that extends from Eureka in the north to Bakersfield in the south, and from the Pacific Ocean in the west to the Sierra Nevada in the east. Shasta and Butte counties are within PG&E's service area for electricity. **Table 3.6-1** provides the operating characteristics of PG&E's electricity consumption by sector in the PG&E service area based on the latest available data from the CEC.

TABLE 3.6-1
ELECTRICITY CONSUMPTION IN THE PG&E SERVICE AREA (2020)

Agricultural and Water Pump	Commercial Building	Commercial Other	Industry	Mining and Construction	Residential	Streetlight	Total Usage
All Usage Expressed in Millions of kWh (GWh)							
6,638	26,247	3,949	9,814	1,748	29,834	290	78,519

NOTES: GWh = gigawatt-hours; kWh = kilowatt-hours

SOURCE: CEC 2022c

In Shasta County, approximately 1,579 million kilowatt-hours (kWh) of electricity were consumed in 2020, with approximately 808 million kWh consumed by nonresidential uses; and in Butte County, approximately 1,385 million kWh of electricity were consumed in 2020, with approximately 649 million kWh consumed by nonresidential uses (CEC 2022c).

PG&E delivers a range of clean energy resources, such as solar, wind, geothermal, biomass, and small hydroelectric. In 2021, PG&E delivered 50 percent of the electricity to customers from renewable resources that qualify under California's Renewable Portfolio Standards (RPS) program (discussed in Section 3.6.2, *Regulatory Setting*) and is well positioned to meet the 60 percent target set forth by Senate Bill (SB) 100 by 2030 (PG&E 2022).

Regular unleaded gasoline is used primarily to fuel passenger cars and small trucks. Diesel fuel is used primarily in large trucks and construction equipment. Both are used widely in Shasta and Butte counties and across all parts of the PG&E service territory. CEC estimates that 79 million gallons of gasoline and approximately 44 million gallons of diesel were sold in 2021 in Shasta County (CEC 2022d). An estimated 74 million gallons of gasoline and approximately 26 million gallons of diesel were sold in 2021 in Butte County (CEC 2022d).

Project Site Existing Energy Use

No existing energy uses are associated with the Fern Road Substation site. It is currently a privately owned property used primarily as grazing land. The Round Mountain Substation, Table Mountain Substation, Cascade Substation, and Redding Service Center have limited existing energy uses.

3.6.2 Regulatory Setting

3.6.2.1 Federal

Energy Policy Act of 2005

The Energy Policy Act of 2005 seeks to reduce reliance on nonrenewable energy resources and provides incentives to reduce current demand on these resources. For example, consumers and businesses can obtain federal tax credits for purchasing fuel-efficient appliances and products, including buying hybrid vehicles, building energy-efficient buildings, and improving the energy efficiency of commercial buildings. Additionally, tax credits are available for the installation of qualified fuel cells, stationary microturbine power plants, and solar power equipment.

3.6.2.2 State

California Integrated Energy Policy

In 2002, the California Legislature enacted SB 1389, which required CEC to develop an integrated energy plan every 2 years for electricity, natural gas, and transportation fuels, for the California Energy Policy Report. The plan calls for the state to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including providing assistance to public agencies and fleet operators in implementing incentive programs for zero-emission vehicles and their infrastructure needs, and encouraging urban designs that reduce vehicle miles traveled and accommodate pedestrian and bicycle access.

CEC has adopted the 2019 Integrated Energy Policy Report, which assesses major energy trends and issues facing the state's electricity, natural gas, and transportation fuel sectors and provides policy recommendations to conserve resources, protect the environment, ensure reliable, secure, and diverse energy supplies, enhance the state's economy, and protect public health and safety. The 2021 Integrated Energy Policy Report covers a broad range of topics, including decarbonizing buildings, ensuring reliability in a changing climate, decarbonizing the state's gas system, and providing the California Energy Demand Forecast (CEC 2022e).

Renewables Portfolio Standard

SB 100, as part of California's RPS program, sets a target for retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide 60 percent of their electricity from renewable resources by December 31, 2030, and further amends the RPS statute to set a policy of meeting 100 percent of retail sales from eligible renewables and zero-carbon resources by December 31, 2045. The California Public Utilities Commission (CPUC) and CEC jointly implement the RPS program.

Title 24 Building Energy Efficiency Standards

Title 24, Part 6, of the California Code of Regulations is the California Building Code governing all aspects of building construction. Included in Part 6 of the California Building Code are standards mandating energy efficiency measures in new construction. Since their establishment in 1977, the building efficiency standards (along with standards for energy efficiency in appliances) have contributed to a reduction in electricity and natural gas usage and costs in California. The standards are updated every 3 years to incorporate new energy efficiency technologies. The latest update to the Title 24 standards became effective January 1, 2020. The standards regulate energy consumed in buildings for heating, cooling, ventilation, water heating, and lighting. Title 24 is implemented through the local planning and permits processes (CEC 2021).

Construction Equipment Idling

The California Air Resources Board has also adopted a regulation for in-use off-road diesel vehicles that is designed to reduce emissions from diesel-powered construction vehicles by imposing idling limitations on owners, operators, renters, or lessees of off-road diesel vehicles. The regulation requires an operator of applicable off-road vehicles (self-propelled diesel-fueled vehicles 25 horsepower and up that were not designed to be driven on-road) to limit idling to no more than 5 minutes.

3.6.2.3 Local

CPUC has exclusive jurisdiction over the siting, design, and construction of the Project; therefore, the Project is not subject to local discretionary regulations. CPUC General Order 131-D, Section XIV.B, states that "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters" (CPUC 1995). Public utilities are directed to consider local regulations and consult with local agencies, but county regulations are not applicable because Shasta and Butte counties do not have jurisdiction over the Project.

Because CPUC has exclusive jurisdiction, the Project is not subject to local land use and zoning regulations or discretionary permits. The details below that relate to local regulations are provided for informational purposes and to assist with CEQA review. LSPGC and PG&E are not subject to local discretionary permitting, although ministerial permits would be secured as required.

Shasta County General Plan

The Energy Element of the Shasta County General Plan does not include any goals, policies, mandates, or programs that directly apply to the Project (Shasta County 2004). The General Plan includes multiple objectives and policies related to energy savings and increasing the utilization of renewable energy resources.

Butte County General Plan

The Conservation and Open Space Element of the Butte County General Plan includes the following goal and policy designed to conserve energy in the county (Butte County 2010):

Goal COS-4: Conserve energy and fuel resources by increasing energy efficiency.

***Policy COS-P4.4*:** Site and structure designs for new development projects shall maximize energy efficiency.

3.6.3 Applicant Proposed Measures and PG&E Construction Measures

There are no Applicant proposed measures or PG&E construction measures (avoidance and minimization measures or best management practices) that address energy.

3.6.4 Environmental Impacts

Methodology and Assumptions

The following analysis uses the criteria from Appendix G of the CEQA Guidelines to identify direct and indirect effects related to energy. The analysis considers both the Fern Road Substation Facilities and the PG&E Facilities.

a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation: *Less than Significant*.

Direct and Indirect Effects

Construction and Decommissioning

Construction and the future decommissioning of the Project would result in fuel consumption from the use of construction tools and equipment, vendor truck trips, and vehicle trips generated from workers traveling to and from the site. Project construction activities would not involve the consumption of natural gas, nor would they involve consumption of jet fuel or aviation gas for helicopters. As part of CPUC's application review process, the Applicant provided fuel use estimates associated with the Project based on its greenhouse gas (GHG) emissions estimates (LSPGC 2022); however, after developing the fuel use estimates, the Applicant revised its GHG emissions estimates (see Section 3.7). Therefore, CPUC's environmental consultant, Environmental Science Associates (ESA), revised the fuel use estimates for the Project using the new GHG emissions estimates applying the same methods the Applicant used in its original estimate.

The Applicant estimates that construction of the Project would take 22 months to complete. The volume of diesel and gasoline fuels consumed during construction of the Project was calculated to be approximately 28,000 gallons of gasoline and approximately 309,000 gallons of diesel fuel (ESA 2022). Total Project fuel use during the 22-month construction period would represent approximately 0.04 percent of the gasoline and 0.7 percent of the diesel sold in Shasta County in 2021, and 0.04 percent of the gasoline and 1.2 percent of the diesel sold in Butte County in 2021

(CEC 2018b; ESA 2022). Overall, fuel use during construction would be minimal in comparison to the overall fuel use in the counties.

Construction and operation activities would utilize electrical energy from the existing distribution system to power construction trailers, lighting, heating, ventilation, and air conditioning, and other equipment. Temporary construction power would be provided from an existing distribution line near the Fern Road Substation site. The short-term electricity usage that would be associated with construction of the Project would be minimal.

Project-specific construction-related energy demands would not be expected to have a significant adverse effect on energy resources. The amount, form, and use of energy required for construction and decommissioning activities would not be wasteful, inefficient, or unnecessary. Therefore, energy consumption by Project construction activities would result in less-than-significant impacts pertaining to wasteful, inefficient, or unnecessary consumption of energy.

Operation and Maintenance

Operation and maintenance (O&M) would require long-term use of gasoline for worker motor vehicle trips. O&M of the Fern Road Substation would utilize approximately 623 gallons of gasoline per year. There would be no additional O&M activities associated with the PG&E Facilities portion of the project. The Project's minimal O&M energy usage would represent less than 0.001 percent of the total volume of gasoline consumed in each of Shasta County and Butte County on an annual basis (CEC 2022d). Regarding long-term electricity use for O&M activities, the total Fern Road Substation Facilities demand on-site would be 22 kilowatts (kW) for the gas insulated substation enclosure, and 87 kW for each of the two static synchronous compensator enclosures; this would equate to roughly 105,120 kWh per year (Ldn Consulting 2022). This amount is nominal and represents less than 0.01 percent of the total energy used in each of Shasta County and Butte County.

The Project would provide support to the existing power grid by providing voltage support and grid stability, thus reducing dynamic stability issues. This is important when considering the potential for increased voltage fluctuations as described in Chapter 2, *Project Description*. The Project would not create barriers or waste energy for any existing transmission line, but instead would allow for more efficient transmission and use of energy already being generated within the PG&E system, including renewable sources in the area. By upgrading the existing system to be more reliable, the Project would improve the efficiency of the system's ability to transfer and deliver electricity to California's end users and result in a net benefit relative to the efficient use of energy within the PG&E service area.

Operation of the Project would comply with all applicable federal, state, and local energy use conservation requirements and would not result in significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources. Impacts would be less than significant.

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency: *No Impact.*

Energy standards mentioned in Section 3.6.2, *Regulatory Setting*, such as the Energy Policy Act of 2005, RPS, and Title 24, promote strategic planning and building standards that reduce consumption of fossil fuels, increase use of renewable resources, and enhance energy efficiency. In general, these regulations and policies specify strategies to reduce fuel consumption and increase fuel efficiencies and energy conservation. If the Project were to use energy resources in a wasteful manner, it would conflict with state energy standards. Construction, operations, and maintenance would be conducted in a manner consistent with the goals and strategies of state energy standards. Compliance with the state's regulation for in-use off-road diesel vehicles that requires idling limitations to no more than 5 minutes would ensure that fuel energy consumed in the construction phase would not be wasted through unnecessary idling. Project construction would be short-term and would not result in a permanent increase in use of nonrenewable energy resources.

There would be a minor increase in demand for electricity during the construction and operation phases of the Project. However, this would not conflict with long-term goals of the RPS Plan, as the energy utilized on-site would be provided by PG&E, which is required to comply with the RPS. Overall, the Project would increase the efficiency of the existing transmission network while utilizing the energy generated for the PG&E system that would be compliant with the RPS. Increasing the efficiency of the existing transmission network would improve California's ability to supply renewable energy to end-use customers specifically within the greater PG&E service area and to achieve statewide renewable energy goals. Additionally, when considering the implementation of the state RPS program, the Project would not prevent renewable energy sources from being used as a source of electricity in the future.

Project operation would include ongoing maintenance activities that would require the use of trucks and equipment that use nonrenewable fuels. Fuel use for Project operation and maintenance would be minimal, requiring a negligible percentage of the overall fuel supplied to the areas of Shasta County and Butte County. Operation and maintenance fuel use that would be associated with the Project would not conflict with current energy conservation standards. No impact would occur.

3.6.5 References

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3.7 Geology and Soils

Issues:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
VII. GEOLOGY AND SOILS — Would the project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d) Be located on expansive or corrosive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect 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?	☐	☐	☐	☒
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐

3.7.1 Environmental Setting

This section discusses existing conditions for geologic and paleontological resources in the Project vicinity and evaluates the potential for the Project to result in geologic and paleontological resource impacts. As described in Chapter 2, *Project Description,* the Project consists of two major components: the Fern Road Substation Facilities and the Pacific Gas and Electric Company (PG&E) interconnection and distribution modification facilities. The term "Project" or "Project site" in this section is inclusive of these components. Where necessary, the components are discussed individually as the Fern Road Substation Facilities, the PG&E interconnection facilities, and the PG&E distribution modifications. The other PG&E facilities—the Round Mountain Substation, Table Mountain Substation, Cascade Substation, and PG&E Redding Service Center—are discussed separately.

The following analysis is based partly on the analyses prepared for the Project provided in the Geologic Engineering Draft Report by Terracon Consultants, Inc. (Terracon 2021) and the

Paleontological Resource Technical Report by the Department of PaleoServices, San Diego Natural History Museum (PaleoServices 2022).

3.7.1.1 Regional Geology

The Project site is located within the Cascade Range Geomorphic Province in eastern Shasta County. The Cascade Range is a chain of volcanic cones extending from Washington to Oregon and into California. Lassen Peak is approximately 20 miles southeast of the Project site, and Mount Shasta is approximately 55 miles north-northwest of the northern portion of the Project site.

3.7.1.2 Local Geology

The Project site sits at an elevation of approximately 2,000 feet above mean sea level. The site's topography is variable, generally sloping to the southwest at a grade of approximately 3 percent. There is approximately 15 feet of topographic relief across the Fern Road Substation site (Terracon 2021). The Fern Road Substation Facilities and PG&E interconnection and distribution modification sites are mapped within the volcaniclastic rocks of the Pliocene-age[3] Tuscan Formation and the nonmarine sedimentary deposits of the Eocene-age[4] Montgomery Creek Formation. The PG&E Redding Service Center and the Table Mountain Substation overlie different geologic units: the PG&E Redding Service Center overlies the Pleistocene-age Red Bluff Formation (Dupras 1997) and the Table Mountain Substation overlies the Pliocene-age Tuscan Formation and the Miocene-age Lovejoy Basalt (Saucedo and Wagner 1992).

The late Pliocene–age Tuscan Formation consists of dominant tuff breccia and lapilli tuff with minor lava flows, volcanic pebble conglomerate, sandstone, and siltstone (Terracon 2021; PaleoServices 2022). According to geotechnical borings, the upper portion of the middle Eocene–age Montgomery Creek Formation consists of fine- to coarse-grained sandstone with interbedded claystone and is approximately 10–40 feet thick (Terracon 2021; PaleoServices 2022). The lower conglomeratic portions of the formation consist of poorly sorted gravel and cobbles in a matrix of coarse-grained sandstone; this portion is approximately 25.5 to 27.7 feet thick (Terracon 2021; PaleoServices 2022). In general, the Montgomery Formation consists of sandstone, pebble conglomerate, silty carbonaceous shale, and seams of lignite (Terracon 2021; PaleoServices 2022).

Soils

Soil Expansion

Expansive soils are soils that possess a characteristic called *shrink-swell* or *linear extensibility*. Shrink-swell is the cyclic change in volume (expansion and contraction) that occurs in fine-grained clay sediments from the process of wetting and drying; the volume change is reported as a percent change for the whole soil. Changes in soil moisture can result from rainfall, landscape irrigation, utility leakage, roof drainage, or perched groundwater.[5] Expansive soils are typically very fine-grained and have a high to very high percentage of clay. Structural damage may occur

[3] Pliocene time is from 2.6 million to 5.3 million years ago.

[4] Eocene time is from 34 million to 56 million years ago.

[5] *Perched groundwater* is a local saturated zone above the water table that typically exists above an impervious layer (such as clay) of limited extent.

incrementally over a long period of time, usually as a result of inadequate soil and foundation engineering or the placement of structures directly on expansive soils.

2The U.S. Natural Resources Conservation Service (NRCS) relies on measurements of linear extensibility to determine the shrink-swell potential of soils. If the linear extensibility is more than 3 percent, shrinking and swelling may cause damage to buildings, roads, and other structures (NRCS 2018a).

Much of the southern half of the Project site is underlain by soils with a high expansion potential (linear extensibility rating of 6.3 percent), and some minor patches of soils in the northern portions of the Project site have moderate expansion potential (linear extensibility rating of 3.6 to 3.8 percent) (NRCS 2021a). The geotechnical investigation prepared for the Project acknowledges the presence of expansive soils at the Project site (Terracon 2021).

3.7.1.3 Geologic Hazards

Earthquake Faults and Seismicity

There are no known Holocene-active[6] faults or pre-Holocene[7] faults within the Project sites (CGS 2010). However, fault systems lie within the region at a distance from the Fern Road Substation site (**Table 3.7-1**). The most significant of these fault systems, considering their proximity to the site, are the Rocky Ledge and Hat Creek fault zones. These fault zones have been designated by the State Geologist as *Earthquake Fault Zones* (EFZs), meaning that there is evidence of displacement sometime in the last 11,700 years (i.e., the Holocene Epoch) and the fault zones are considered active (CGS 2018a).

The McCumber Flat fault, a Pre-Holocene fault, is the nearest fault to the Fern Road Substation site. Other Pre-Holocene faults in the area and their proximity to the site are listed below.

TABLE 3.7-1
FAULTS NEAR THE FERN ROAD SUBSTATION SITE

Fault Name	Approximate Distance from Fern Road Substation Site
Holocene-Active Faults (EFZs)	
Rocky Ledge fault zone	23 miles to the northeast
Hat Creek fault zone	28 miles to the west
Pre-Holocene Faults	
McCumber Flat fault	9 miles to the southeast
Peavine Gulch fault	11 miles to the west
Huckleberry Meadows fault	14 miles to the west
Hatchet Mountain fault	15 miles to the northeast

NOTES: EFZ = Earthquake Fault Zone
SOURCES: CGS 2010, 2022

6 Faults that have evidence of displacement within the Holocene Epoch (the last 11,700 years) are considered active (CGS 2018a).

7 Faults that have *not* shown evidence of displacement in the last 11,700 years (CGS 2018a).

Fault Rupture

The California Earthquake Hazards Zone Application (EQ Zapp) is an interactive map available on the California Geological Survey (CGS) website. The EQ Zapp allows users to view all available earthquake hazard zone data, including EFZs, liquefaction, and earthquake-induced landslide zones.

The Project sites are not within an established EFZ. The nearest EFZs to the Fern Road Substation site are the Rocky Ledge and Hat Creek fault zones are located approximately 23 miles to the west and 28 miles the northeast, respectively (Table 3.7-1) (CGS 2022).

Ground Shaking

Ground shaking occurring as a result of a seismic event can endanger human life, cause extensive property damage, and potentially affect areas hundreds of miles from the earthquake's epicenter. The extent of damage varies by event and is determined by factors such as earthquake magnitude and depth, distance from the epicenter, the duration and intensity of shaking, underlying soil and rock types, and the degree of structural integrity.

Shasta County has a low level of historic seismic activity (Shasta County 2018); however, all of Northern California, including the Project sites, could be subject to strong ground shaking during earthquakes. The 2014 Working Group on California Earthquake Probabilities concluded that there is a 95 percent probability that a moment magnitude (M_W) 6.7 earthquake or higher will strike somewhere in Northern California over the next 30 years (Field et al. 2015).

ShakeMap is a product of the U.S. Geological Survey (USGS) Earthquake Hazards Program; the earthquake scenarios on ShakeMap represent one realization of a potential future earthquake by assuming a particular magnitude and location (USGS 2020). According to the ShakeMap scenario that corresponds with an estimated 7.2 M_W earthquake on the Hat Creek fault zone, the Project sites would be subjected to moderate to strong seismic ground shaking. No ShakeMap earthquake scenario has been generated for the Rocky Ledge fault zone, but an earthquake equal to or greater in magnitude than the Hat Creek fault zone scenario would presumably produce ground shaking of equal or greater magnitude.

Lassen Peak in the Cascade Range is considered an active volcano with historic activity and is part of the Lassen Volcanic Center. The Lassen Volcanic Center last erupted during 1914–1917, with the largest event occurring in May 1915 (CGS 2018b). USGS and CGS have identified seven volcanoes in California as having a high to very high threat potential.

There is currently no method for predicting when volcanic eruptions will occur, although increased seismicity and ground deformation are often the first indication of a potential eruption in volcanically active areas. Increased seismicity may provide the earliest indication that a volcanic system is being recharged and could be evolving toward an eruption (Clynne et al. 2012).

Volcanic eruptions are not analyzed under CEQA. However, the increased seismicity associated with the Lassen Volcanic Center could contribute to strong seismic ground shaking at the Project sites, and to other geologic hazards that could result from seismic ground shaking (i.e., liquefaction and landslides).

Liquefaction and Lateral Spreading

Liquefaction is a phenomenon in which unconsolidated, water-saturated sediments become unstable as a result of strong seismic shaking. During an earthquake, these sediments can behave like a liquid, potentially causing severe damage to overlying structures. *Lateral spreading* is a variety of minor landslide that occurs when unconsolidated liquefiable material breaks and spreads as a result of gravity, usually down gentle slopes. *Liquefaction-induced lateral spreading* is the finite, lateral displacement of gently sloping ground as a result of pore-pressure buildup or liquefaction in a shallow underlying deposit during an earthquake. The occurrence of this phenomenon is dependent on many complex factors, including the intensity and duration of ground shaking, particle-size distribution, and density of the soil.

The potential damaging effects of liquefaction include differential settlement, loss of ground support for foundations, ground cracking, heaving and cracking of structure slabs caused by sand boiling, and buckling of deep foundations as a result of ground settlement. *Dynamic settlement* (pronounced consolidation and settlement from seismic shaking) may also occur in loose, dry sands above the water table, resulting in settlement of and possible damage to overlying structures. In general, a relatively high potential for liquefaction exists in loose, sandy soils that lie within 50 feet of the ground surface and are saturated (below the groundwater table). Lateral spreading can move blocks of soil, placing strain on buried pipelines that can lead to leaks or pipe failure.

According to EQ Zapp, the Project sites are not within an established liquefaction hazard zone (CGS 2022; Terracon 2021). This is likely based on the area's shallow bedrock and absence of groundwater, and on the distance between the Project sites and causative faults (Terracon 2021).

Landslides

A landslide is one of the types of downslope movement in which rock, soil, and other debris are displaced via the effects of gravity. The potential for materials to detach and move downslope depends on factors such as the type of material, water content, and steepness of terrain. CGS has not mapped the regions of the Project sites for susceptibility to landslide risks under the Seismic Hazards Mapping Act (Public Resources Code Section 2690 et seq.).

Because of the relatively gentle sloping topography at the Project sites and their distance from faults that could cause an earthquake-induced landslide, the risk of landslide at the Project sites is low (Terracon 2021).

The Shasta County General Plan, however, mentions that landslides are known to occur throughout the county and are especially prevalent in its northern and eastern areas. Although landslides are known to occur throughout Shasta County, seismically induced landslides are not considered a significant hazard in the county (Shasta County 2004).

3.7.1.4 Paleontological Resources

Paleontological resources are the fossilized remains or impressions of plants and animals, including vertebrates (animals with backbones, such as mammals, birds, and fish), invertebrates (animals without backbones, such as starfish, clams, and coral), and microscopic plants and

animals (microfossils). They are valuable, nonrenewable scientific resources used to document the existence of extinct life forms and to reconstruct the environments in which they lived. Fossils can be used to determine the relative ages of the depositional layers in which they occur and of the geologic events that created those deposits. The age, abundance, and distribution of fossils depend on the geologic formation in which they occur and the topography of the area in which they are exposed. The geologic environments within which the plants or animals became fossilized usually were quite different from the present environments in which the geologic formations now exist.

The paleontological resources technical report for the Project (PaleoServices 2022) identifies and summarizes paleontological resources that may occur on and in the vicinity of the Fern Road Substation site. The report also evaluates the potential for Project construction activities to result in impacts on paleontological resources, and recommends mitigation measures to minimize any potential negative effects. The report's analysis is based on a review of the available paleontological literature and geologic maps, and on a record search of the paleontological collections at the San Diego Natural History Museum (SDNHM) and the University of California Museum of Paleontology (UCMP).

The surficial geology at the site of the proposed substation consists of unmapped recent alluvial deposits and topsoil that extends approximately 2–3 feet below ground surface (bgs). Underlying the recent deposits are the volcaniclastic rocks of the late Pliocene–age Tuscan Formation and the nonmarine sedimentary deposits of the middle Eocene–age Montgomery Creek Formation (PaleoServices 2022). The PG&E Redding Service Center overlies the sedimentary deposits of the Pleistocene-age Red Bluff Formation, and the Table Mountain Substation overlies the Pliocene-age Tuscan Formation and the igneous (volcanic) Miocene-age Lovejoy Basalt.

The records search from the SDNHM and the UCMP indicates that there are no paleontological resources within the Project sites. However, there is one documented fossil locality from the Montgomery Creek Formation in the vicinity of the Fern Road Substation site. The locality, listed as "Phillips Sawmill," is approximately 6 miles north of the Fern Road Substation site along Bullskin Ridge Road in Oak Run (PaleoServices 2022). Elsewhere in Shasta County, there have been numerous discoveries of plant fossils from within the Montgomery Creek Formation (PaleoServices 2022). According to the UCMP database, there are no recorded fossil localities from the Red Bluff Formation in Shasta County (UCMP 2022).

Although no records of paleontological resources were identified within the Project sites, the presence of nearby fossil discoveries indicates that the potential exists to encounter paleontological resources. As mentioned previously, Holocene-age deposits generally have a low potential to contain significant paleontological resources, so the recent deposits underlying the Fern Road Substation site have a low potential (PaleoServices 2022). The volcanic rocks from the Tuscan Formation have low potential to contain significant paleontological resources, as the processes under which igneous rocks form would destroy any remains. The sedimentary deposits of the Tuscan Formation have an undetermined potential, based on the poorly documented and scattered plant fossils and freshwater diatoms (PaleoServices 2022). Because of the previous fossil

discoveries from within the Montgomery Creek Formation, it is considered to have a high potential to contain significant paleontological resources.

3.7.2 Regulatory Setting

3.7.2.1 Federal

There are no federal regulations related to geology, soils, or paleontological resources that are applicable to the Project.

3.7.2.2 State

Alquist-Priolo Earthquake Fault Zoning Act

The California Legislature enacted the Alquist-Priolo Earthquake Fault Zoning Act in 1972 to mitigate the hazard of surface faulting to structures for human occupancy. In accordance with this law, the State Geologist established regulatory zones, called *earthquake fault zones*, around the surface traces of active faults and published maps showing these zones. Within these zones, buildings for human occupancy cannot be constructed across the surface trace of active faults. Each earthquake fault zone extends approximately 200–500 feet on either side of the mapped fault trace, because many active faults are complex and consist of more than one branch. The potential exists for ground surface rupture along any of the branches.

Seismic Hazards Mapping Act

The Legislature enacted the Seismic Hazards Mapping Act in 1990, after the Loma Prieta earthquake, to reduce threats to public health and safety and minimize property damage caused by earthquakes. This law requires the State Geologist to delineate various seismic hazard zones, and requires cities, counties, and other local permitting agencies to regulate certain development projects within these zones. For projects that would locate structures for human occupancy within designated Zones of Required Investigation, the Seismic Hazards Mapping Act requires project applicants to perform site-specific geotechnical investigations to identify the potential site-specific seismic hazards and corrective measures, as appropriate, before they receive building permits.

The CGS *Guidelines for Evaluating and Mitigating Seismic Hazards* (Special Publication 117A) provide guidance for evaluating and mitigating seismic hazards (CGS 2008). CGS is in the process of producing official maps based on USGS topographic quadrangles. To date, the CGS has not completed a delineation for the USGS quadrangle in which the Project components are proposed.

California Building Code

The California Building Code (CBC) (California Code of Regulations Title 24, Part 2) was promulgated to safeguard the public health, safety, and general welfare by establishing minimum standards for structural strength, means of entering and exiting facilities, and the general stability of buildings. The purpose of the CBC is to regulate and control the design, construction, quality of materials, use/occupancy, location, and maintenance of all buildings and structures within its jurisdiction. The California Building Standards Commission administers CBC Title 24. Under state law, all building standards must be centralized in Title 24 or they are not enforceable. The CBC applies to the construction, alteration, movement, replacement, location, and demolition of every

building or structure in California, or any appurtenances connected or attached to such a building or structure, and would apply to the structures proposed on the Project sites.

Relevant to the Project, CBC Chapter 18 covers the requirements of geotechnical investigations, including expansive soils (Section 1803); excavation, grading, and fills (Section 1804); load bearing of soils (Section 1806); and foundations (Section 1808), shallow foundations (Section 1809), and deep foundations (Section 1810). Chapter 18 requires that geotechnical investigations analyze slope instability, liquefaction, and surface rupture attributable to faulting or lateral spreading, and evaluate lateral pressures on basement and retaining walls, liquefaction and loss of soil strength, and lateral movement or reduction in foundation soil-bearing capacity. It also addresses measures to be considered in structural design, which may include ground stabilization, selection of appropriate foundation type and depths, selection of appropriate structural systems to accommodate anticipated displacements, or any combination of these measures. The potential for liquefaction and soil strength loss must be evaluated for site-specific peak ground acceleration magnitudes and source characteristics consistent with the design earthquake ground motions.

For a given project, a preliminary geotechnical report based on the initial design is prepared and may be considered as part of the CEQA process. The preliminary geotechnical report prepared for the Project (i.e., the Geologic Engineering Draft Report) has been prepared by Terracon Consulting, Inc. (Terracon 2021).

California Public Utilities Commission General Orders 95 and 128

California Public Utilities Commission (CPUC) General Orders 95 and 128 apply to construction and reconstruction of overhead electric lines in California. The replacement of poles, towers, or other structures is considered reconstruction and must adhere to all strength and clearance requirements of these orders. Because the Project would include replacement of two existing towers, General Orders 95 and 128 would directly apply to the Project. To recognize relative hazards, lines are segregated into classes defined in CPUC Rule 20.6. These classes of lines and the relationship of lines to each other and to objects over which they are constructed determine construction requirements.

The design of transmission lines must adhere to the National Electric Safety Code. Guidance documents are published by the Institute of Electrical and Electronics Engineers and ASCE, including ASCE 74, *Guidelines for Electrical Transmission Line Structural Loading*, which states, “Transmission structures are not typically designed for vibration caused by earthquakes because these loads are less than that of wind/ice combinations.” The exception to this general rule occurs if the tower is built in liquefiable materials, in which case the materials may not support the weight of the tower and tower foundation during a seismic event.

National Pollutant Discharge Elimination System Construction General Permit

Project construction would disturb more than 1 acre of land surface, affecting the quality of stormwater discharges into waters of the United States. The Project would therefore be subject to the National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit) (Order 2009-0009-DWQ, NPDES No. CAS000002; as amended by Orders 2010-0014-

DWQ and 2012-006-DWQ). The Construction General Permit regulates discharges of pollutants in stormwater associated with construction activity to waters of the United States from construction sites that disturb 1 acre or more of land surface, or that are part of a common plan of development or sale that disturbs more than 1 acre of land surface. The permit regulates stormwater discharges associated with construction or demolition activities, such as clearing and excavation; construction of buildings; and underground foundations, including those that would be associated with the Project.

The Construction General Permit requires that construction sites be assigned a Risk Level of 1 (low), 2 (medium), or 3 (high), based on both the risk of sediment transport at the site and the risk to receiving waters during periods of soil exposure (e.g., grading and site stabilization). The sediment risk level reflects the relative amount of sediment that could potentially be discharged to receiving water bodies and is based on the nature of the construction activities and the location of the site relative to receiving water bodies. The receiving-waters risk level reflects the risk to the receiving waters from the sediment discharge. Depending on the risk level, the construction projects could be subject to the following requirements:

- Effluent standards.
- Good site management "housekeeping."
- Non-stormwater management.
- Erosion and sediment controls.
- Run-on and runoff controls.
- Inspection, maintenance, and repair.
- Monitoring and reporting requirements.

The Construction General Permit requires the development and implementation of a storm water pollution prevention plan (SWPPP). The SWPPP must be prepared before the construction begins. The SWPPP must contain a site map(s) that delineates the construction work area, existing and proposed buildings, parcel boundaries, roadways, stormwater collection and discharge points, general topography both before and after construction, and drainage patterns across the Project sites.

A project's SWPPP must list best management practices (BMPs) that the applicant would use to protect surface water quality. BMPs are intended to prevent sediment and pollutants from entering stormwater and moving off-site into receiving waters. The BMPs fall into several categories—erosion control, sediment control, waste management, and good housekeeping—and must undergo routine inspection.

The SWPPP must also contain a visual monitoring program; a chemical monitoring program for "non-visible" pollutants, to be implemented if any BMPs fail; and a sediment monitoring plan would be required if the site discharges directly to a water body state listed as impaired the for sediment.

Examples of typical construction BMPs include scheduling or limiting certain activities to dry periods, installing sediment barriers such as silt fences and fiber rolls, and maintaining construction equipment and vehicles. Non-stormwater management measures include installing discharge controls during activities such as paving operations, vehicle and equipment washing, and fueling. The Construction General Permit also requires that BMPs be implemented to reduce pollutants in stormwater discharges from the site after construction.

The Central Valley Regional Water Quality Control Board would implement and enforce the Construction General Permit at the Project sites. To obtain coverage under the Construction General Permit, dischargers must electronically submit a notice of intent and permit registration documents. They must notify the Central Valley Regional Water Quality Control Board of violations or incidents of non-compliance and must submit annual reports identifying deficiencies in the BMPs and explaining how the deficiencies were corrected. The risk assessment and SWPPP must be prepared by a State Qualified SWPPP Developer, and a State Qualified SWPPP Practitioner must oversee implementation of the SWPPP. A legally responsible person authorized to sign and certify permit registration documents obtains the permit coverage.

California Public Utilities Commission General Order 131-D

CPUC has sole and exclusive state jurisdiction over the siting and design of the Project. As stated in CPUC General Order 131-D, Section XIV.B, "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction." Thus, such projects are exempt from local land use and zoning regulations and discretionary permitting; they do not require discretionary approval by a local decision-making body such as a planning commission, county board of supervisors, or city council. However, Section XIV.B of General Order No. 131-D requires that in locating a project, "the public utility shall consult with local agencies regarding land use matters." The public utility would be required to obtain any required non-discretionary local permits.

3.7.2.3 Local

As noted above, the Project is not subject to local discretionary regulations; the following details regarding local regulations are provided for informational purposes only. These local laws are superseded by CPUC General Order 131-D and thus do not govern CPUC's evaluation of Project impacts under CEQA.

Shasta County General Plan

The following policy from the Water Resources section of the Shasta County General Plan is included for informational purposes (Shasta County 2004).

> ***Policy W-a:*** Sedimentation and erosion from proposed developments shall be minimized through grading and hillside development ordinances and other similar safeguards as adopted and implemented by the County.

Shasta County Code, Chapter 12.12: Grading Excavation and Filling

Section 12.12.070 of the Shasta County Code identifies permit requirements for grading, excavating, and filling activities in Shasta County. The grading permit must include a grading plan and identify terms and conditions of grading operations that conform to Shasta County standards. A permanent erosion plan must be implemented upon completion of a project. Additional engineering requirements apply if the project will disturb more than 5 acres, or if the director of the department of resource management or public works determines that the project may adversely affect a watercourse. The Shasta County Code establishes seasonal limits for wet-weather/wet-season construction and requires that erosion control measures be maintained for the duration of project construction and three years thereafter (Shasta County 2022).

3.7.3 Applicant Proposed Measures and PG&E Construction Measures

3.7.3.1 Applicant Proposed Measures

The following Applicant Proposed Measures (APMs) have been identified by LSPGC to address impacts of the Fern Road Substation Facilities related to geology, soils, seismicity, and paleontological resources.

APM GEO-1: The following measures would be implemented during construction to minimize impacts from geological hazards and disturbance to soils:

- Keep vehicle and construction equipment within the limits of the Project and in approved construction work areas to reduce disturbance to topsoil;
- Prior to grading, salvage topsoil to a depth of six inches or to actual depth if shallower (as identified in site-specific geotechnical investigation report) to avoid mixing of soil horizons;
- Avoid construction in areas with saturated soils, whenever practical, to reduce impacts to soil structure and allow safe access. Similarly, avoid topsoil salvage in saturated soils to maintain soil structure;
- Keep topsoil material on-site in the immediate vicinity of the temporary disturbance or at a nearby approved work area to be used in restoration of temporary disturbed areas. Temporary disturbance areas would be re-contoured following construction to match pre-construction grades. Areas would be allowed to re-vegetate naturally or would be reseeded with a native seed mix from a local source if necessary. On-site material storage would be sited and managed in accordance with all required permits and approvals; and
- Keep vegetation removal and soil disturbance to a minimum and limited to only the areas needed for construction. Removed vegetation would be disposed of off-site to an appropriate licensed facility or can be chipped on-site to be used as mulch during restoration.

APM GEO-2: The structural requirements of the CBC are applicable to certain structural components of the Project, including the control enclosures. LSPGC and/or its contractors would design such structures to comply with such CBC standards and shall adhere to and implement all design recommendations and parameters established in the Project's

Supplemental Geotechnical Engineering Report to be prepared and submitted to the CPUC upon completion.

APM PALEO-1: Prior to the issuance of grading permits, a qualified paleontologist shall be retained to prepare and oversee the PRMMP[8] for the Proposed Project. The PRMMP shall contain monitoring procedures, define areas and types of earthwork to be monitored, and provide methods for determining the significance of fossil discoveries. The PRMMP shall direct that a qualified paleontological monitor (working under the supervision of the qualified paleontologist) shall monitor all excavations or grading at depths exceeding two feet bgs in sedimentary deposits of the Montgomery Creek Formation and the sedimentary portions of the Tuscan Formation. Determination of whether or not the Tuscan Formation on the Proposed Project site contains sedimentary deposits would be made based either on results of any new geotechnical information or on observations of fresh exposures during initial earthwork in the northern portion of the Proposed Project site. The duration and timing of paleontological monitoring shall be determined by the qualified paleontologist based on the grading plans and construction schedule and may be modified based on the initial results of monitoring. The PRMMP shall state that any fossils that are collected shall be prepared to the point of curation, identified to the lowest reasonable taxonomic level, and curated into a recognized professional repository (e.g., SDNHM, UCMP), along with associated field notes, photographs, and compiled fossil locality data. Donation of the fossils shall be accompanied by financial support for initial specimen curation and storage.

Following the completion of the above tasks, the qualified paleontologist shall prepare a final mitigation report that outlines the results of the mitigation program. This report shall include discussions of the methods used, stratigraphic section(s) exposed, fossils collected, and significance of recovered fossils. The report shall be submitted to appropriate agencies, as well as to the designated repository.

APM PALEO-2: If paleontological resources are encountered during ground disturbing activities when the qualified paleontologist (or paleontological monitor) is not on site (an inadvertent discovery), earthwork within the vicinity of the discovery shall immediately halt, and the qualified paleontologist shall evaluate the significance of the fossil discovery. If the fossil discovery is deemed significant, the fossil shall be recovered using appropriate recovery techniques based on the type, size, and mode of preservation of the unearthed fossil. Earthwork may resume in the area of the fossil discovery once the fossil has been recovered and the qualified paleontologist deems the site has been mitigated to the extent necessary.

APM WQ-1: Because the Project involves more than an acre of soil disturbance, a SWPPP would be prepared as required by the state NPDES General Permit for Discharges of Stormwater Associated with Construction Activity. This plan would be prepared in accordance with the Water Board guidelines and other applicable erosion and sediment control BMPs. Implementation of the plan would help stabilize disturbed areas and would reduce erosion and sedimentation. The SWPPP would designate BMPs that would be followed during and after construction of the Project, examples of which may include the following erosion-minimizing measures:

- Using drainage control structures (e.g., straw wattles or silt fencing) to direct surface runoff away from disturbed areas;
- Strictly controlling vehicular traffic;

[8] The PRMMP refers to a Paleontological Resources Mitigation and Monitoring Plan.

- Implementing a dust-control program during construction;
- Restricting access to sensitive areas;
- Using vehicle mats in wet areas; or
- Revegetating disturbed areas, where applicable, following construction.

In areas where soils are to be temporarily stockpiled, soils would be placed in a controlled area and would be managed with similar erosion control techniques. Where construction activities occur near a surface waterbody or drainage channel and drainage from these areas flows towards a waterbody or wetland, stockpiles would be placed at least 100 feet from the waterbody or would be properly contained (such as beaming or covering to minimize risk of sediment transport to the drainage). Mulching or other suitable stabilization measures would be used to protect exposed areas during and after construction activities. Erosion-control measures would be installed, as necessary, before any clearing during the wet season and before the onset of winter rains. Temporary measures, such as silt fences or wattles intended to minimize erosion from temporarily disturbed areas, would remain in place until disturbed areas have stabilized.

APM WQ-2: Groundwater encountered during construction would be handled and discharged in accordance with all state and federal regulations including the following:

- Recovered groundwater would be contained on site and tested prior to discharge;
- If testing determines water is suitable for land application, discharge may be applied to flat, vegetated, upland areas, used for dust control, or used in other suitable construction operations (e.g., concrete mixing);
- Land application would be made in a manner that discharge does not result in substantial erosion and would not be made directly to receiving waters or storm drains;
- Water unsuitable for land application would be disposed of at an appropriately permitted facility; and
- Discharge to surface waters or storm drains may occur only if permitted by the agency(ies) with jurisdiction over the resource (e.g., USACE [U.S. Army Corps of Engineers], RWQCB [Regional Water Quality Control Board], and/or CDFW [California Department of Fish and Wildlife], as applicable).

3.7.3.2 PG&E Construction Measures

PG&E proposes to implement the following Avoidance and Minimization Measures (AMMs) and BMPs to address impacts related to geology, soils, seismicity, and paleontological resources attributable to PG&E Facilities construction and operation:

AMM-11: Utilize standard erosion and sediment control BMPs (pursuant to the most current version of PG&E's Stormwater Field Manual for Construction Best Management Practices) to prevent construction site runoff into waterways. All covered aquatic species

AMM-12: Stockpile soil within established work site boundaries and locate stockpiles so as not to enter water bodies, stormwater inlets, other standing bodies of water. Cover stockpiled soil prior to precipitation events.

BMP-12: Stormwater Measures. For PG&E-owned substations, the Project EFS [Environmental Field Specialist] will provide the Stormwater Group with the following upon completion of the PER: Stormwater Needs Request Form, Soil Disturbance Calculation Spreadsheet, and a KMZ file showing the proposed work area. These documents shall be sent by the Project EFS, via email, to: stormwater@pge.com (if applicable). [Note: LSPGC will obtain the Stormwater Pollution Prevention Plan (SWPPP) for Fern Road Substation and the area immediately adjacent to it containing PG&E's monitoring facilities.]

BMP-13: PG&E Good Housekeeping. Stockpile Management, and Small Area Substation Construction Stormwater Management Activity Specific Erosion Sediment Control Plan (A-ESCPs) measures shall be implemented.

BMP-17: Worker Awareness Training. Prior to the start of any ground-disturbing activity, PG&E's Cultural Resource Specialist (CRS) shall prepare archeological, historical and paleontological resources sensitivity training materials for use during a Project-wide Worker Environmental Awareness Training (WEAP), or equivalent. The CRS shall make the training materials available for review and comment by the Native American group that expressed interest in the project. The WEAP shall be conducted by a qualified environmental trainer working under the supervision of the CRS. In the event construction crews are phased, additional trainings shall be conducted for new construction personnel. The training session shall focus on the recognition of the types of resources that could be encountered within the Project site and the procedures to be followed if they are found. PG&E and/or its contractor shall retain documentation demonstrating that all construction personnel attended the training prior to the start of work on the site, which documentation shall be made available upon request.

3.7.4 Environmental Impacts

3.7.4.1 Methodology and Assumptions

The following impact analysis considers the potential impacts related to geology, soils, seismicity, and paleontological resources from construction, operation, and maintenance of the Project. Impacts related to geologic and seismic hazards would be significant if they would result in injury, structural collapse, unrepairable facility or utility damage, or severe service disruption. Impacts on paleontological resources would be significant if construction of the Project would disturb or destroy significant paleontological resources.

This analysis assumes that construction and design of the Project components would use standard site preparation practices, engineering designs, and seismic safety techniques required by the CBC and other state and local regulations related to geologic hazards. The analysis also assumes that the Project would comply with applicable federal, state, and local laws and regulations, and that state and local agencies would continue to enforce applicable requirements to the extent that they do so now. Compliance with many of the regulations would be a condition of permit approval.

3.7.4.2 Direct and Indirect Effects

ai) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving 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): *No Impact.*

The Project sites are not within an established EFZ. Further, the Project would not include the construction or operation of any habitable structures. The Project would not directly or indirectly cause substantial adverse effects related to surface fault rupture. Therefore, no impact would occur.

aii) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking: *Less than Significant.*

Shasta County has a low level of historic seismic activity. However, given the proximity of the Project sites to the Rocky Ledge and Hat Creek fault zones, the Project sites may be subject to strong seismic ground shaking. If strong seismic ground shaking were to occur at the Project sites, Project structures could be damaged.

APMs GEO-1 and APM GEO-2 require that specific measures be implemented during construction of the Fern Road Substation Facilities to minimize impacts from geological hazards and soil disturbance, and that all structural components comply with CBC requirements.

The Project would be subject to the CBC's seismic design criteria, which require constructing all components to withstand anticipated ground shaking from regional fault sources. The CBC requires a project applicant to retain a licensed geotechnical engineer to design the project components to withstand probable seismically induced ground shaking and to consolidate the geotechnical engineer's recommendations into a site-specific geotechnical report.

The Geotechnical Engineering Draft Report for the Project provides specific soil engineering and design parameters that would be implemented during construction of the Fern Road Substation Facilities to reduce the impacts of strong seismic ground shaking. As required by the CBC, a final geotechnical investigation would be conducted after Project design plans are finalized and before construction. (In this case, the Applicant would fulfill this requirement for the Fern Road Substation Facilities through completion of the Supplemental Geotechnical Engineering Report discussed in APM GEO-2.) All construction would follow the final design plans' specifications, procedures, and site conditions, which would comply with the seismic recommendations of a California-registered, professional geotechnical engineer, as identified in the geotechnical report in accordance with the CBC.

With implementation of APMs GEO-1 and, APM GEO-2, and the applicable CBC requirements and local agency enforcement, the Project would not directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking. Therefore, impacts related to ground shaking during construction, operation, and

maintenance, or decommissioning of the Fern Road Substation Facilities would be less than significant.

aiii) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction: *Less than Significant.*

Available data suggest that the risk of soil liquefaction at the Project sites is low, given the absence of groundwater and the nature of the sediments underlying the Project sites. Additionally, data from CGS's EQ Zapp indicate that the Project sites are not located within a liquefaction hazard zone.

As discussed under Criterion aii), APMs GEO-1 and APM-GEO-2 would be implemented during construction of the Fern Road Substation Facilities. Implementing these measures would reduce soil liquefaction impacts in the unlikely event that strong seismic ground shaking would cause liquefaction at the substation site. In addition, the Supplemental Geotechnical Engineering Report would reevaluate conditions at the Fern Road Substation site before construction to ensure that its structures have been designed to withstand impacts related to liquefaction and other seismic-related ground failure. All modifications proposed at the Round Mountain Substation, PG&E Redding Service Center, Cascade Substation, and Table Mountain Substation sites would be subject to the CBC's design requirements.

Because the Project would comply with the design recommendations provided in the Supplemental Geologic Engineering Report and CBC requirements, the impact related to risks of liquefaction and seismic-related ground failure would be less than significant.

aiv) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides: *No Impact.*

Because of the lack of steep slopes and relatively flat topography at the Project sites, there is no risk of Project activities causing a landslide at or near the sites. Therefore, the Project would not directly or indirectly cause substantial adverse effects related to landslides. No impact would occur.

b) Result in substantial soil erosion or the loss of topsoil: *Less than Significant*.

Project construction would include ground-disturbing activities such as soil excavation, grading, trenching, and soil stockpiling. These activities could increase the risk of erosion or sediment transport. Because the footprint of construction activities would exceed 1 acre, the Project would be required to comply with the Construction General Permit (see Section 3.7.2, *Regulatory Setting*, and in Chapter 2, *Project Description*). This state requirement was developed to ensure that stormwater is managed and erosion is controlled on construction sites. The Construction General Permit requires that a project applicant prepare and implement a SWPPP, which requires implementing BMPs to control stormwater run-on and runoff from construction work sites. BMPs implemented for this Project may include such measures as installing physical barriers to prevent erosion and sedimentation; constructing sedimentation basins; limiting work periods during storm events; using infiltration swales; protecting stockpiled materials; and implementing other

measures, to be identified by a Qualified SWPPP Developer, that would substantially reduce or prevent erosion during construction.

As discussed in Chapter 2, *Project Description*, the construction contractor would install stormwater management features (e.g., silt fence, fiber rolls) before clearing and grubbing in preparation for construction of the proposed Fern Road Substation. In addition, APMs WQ-1 and WQ-2 would be implemented during construction of the Fern Road Substation Facilities, and AMM-11, AMM-12, BMP-12, and BMP-13 would be implemented during construction of the PG&E Facilities (i.e., Round Mountain Substation, Redding Service Center, Cascade Substation, and Table Mountain Substation). Implementing these measures would reduce the impacts of soil erosion and soil loss.

Because the Project would comply with these independently enforceable existing requirements, APMs, and construction measures, the Project's potential impacts related to soil erosion and loss of topsoil during construction would be less than significant.

c) Be located on 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.*

As discussed previously, the impact of the Project related to liquefaction or other seismic-related ground failure would be less than significant, and no impact would occur related to landslides. The Project sites are relatively flat, with no evidence of landslides. The geotechnical investigation performed in the vicinity of the Fern Road Substation site did not indicate that land subsidence was occurring at the site. Further, groundwater pumping or dewatering activities are not anticipated as part of the Project and would not contribute to land subsidence.

Nonetheless, given Project compliance with APMs GEO-1 and GEO-2 and the CBC's design requirements, impacts associated with the Fern Road Substation Facilities related to unstable soils would be less than significant. Additionally, the Project would adhere to CBC design requirements during construction activities at the PG&E Facilities sites. Because the Project would adhere to these requirements, potential impacts during construction at the PG&E Facilities sites would be less than significant.

d) Be located on expansive soil, creating substantial direct or indirect risks to life or property: *Less than Significant*.

Based on NRCS Web Soil Survey data and an on-site geotechnical investigation for the Fern Road Substation site, expansive soils underlie the site.

As stated, the CBC requires the preparation of a supplemental geotechnical report, including further site investigations. If such investigations find expansive soils at the Project sites, the Project's supplemental geotechnical report would include recommendations intended to ensure that any structural impacts resulting from expansive soils on-site would be avoided, removed, or engineered to be suitable. By adhering to the requirements of the CBC and the geotechnical investigation, the Project would avoid impacts related to potentially expansive soils at the Project sites. The Project would not create substantial direct or indirect risks to life or property related to expansive soils. This impact would be less than significant.

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: *No Impact.*

During construction, workers would use portable sanitary systems that would not be connected to the local wastewater system. Sanitary waste from the portable sanitary systems would be pumped routinely and transported by a licensed sanitary waste service for off-site disposal. Because the Project would not use septic tanks or alternative wastewater disposal systems, it would not require soils capable of adequately supporting such systems. Therefore, no impact would occur.

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature: *Less than Significant.*

Geologic mapping indicates that the surficial deposits in the vicinity of the Fern Road Substation site consist of unmapped recent alluvial deposits and topsoil that extends approximately 2–3 feet bgs. Below the alluvial deposits and topsoil are the Pliocene-age Tuscan Formation and the Miocene-age Montgomery Creek Formation. The PG&E Redding Service Center overlies the sedimentary deposits of the Pleistocene-age Red Bluff Formation, and the Table Mountain Substation overlies the Pliocene-age Tuscan Formation and the igneous (volcanic) Miocene-age Lovejoy Basalt.

Recent to early Holocene-age deposits have low potential to contain significant paleontological resources, as the sediments are too young to contain fossil remains. The volcanic rocks of the Tuscan Formation and Lovejoy Basalt also have low potential to contain significant paleontological resources, as the processes under which volcanic rocks form would destroy any fossil remains. The sedimentary deposits of the Tuscan Formation have preserved fossil plant and diatom remains, but fossil discoveries from with the Tuscan Formation are poorly documented; for this reason, the Tuscan Formation has an undetermined potential to contain significant paleontological resources. Lastly, as a result of the previous fossil discovery near the Fern Road Substation site and the previous discoveries throughout Shasta County, the Montgomery Creek Formation is considered to have high potential to contain significant paleontological resources. Thus, excavation associated with construction at the Project sites has the potential to encounter unique, significant paleontological resources.

The risks of uncovering or destroying paleontological resources increase with the amount of ground disturbance associated with a project. Ground-disturbing activities that would not require mass excavation of soil (e.g., driving posts into the ground, auguring, or constructing tower foundations) would have a minimal impact on paleontological resources, as there would be little to no material to observe. Whether or not a site has been previously disturbed can also influence the potential for a significant paleontological resource to be encountered during excavations. Previously disturbed sites have no potential to contain significant resources because any resources that may have been encountered either have already been recovered or have been removed from their context and no longer hold scientific value.

Project construction would require varying degrees of ground disturbance, including excavations for the proposed Fern Road Substation and the PG&E Facilities sites. All major equipment at the substation (e.g., power transformers, power circuit breakers, reactors, insulated gate bipolar transistor value/control enclosures, cooling equipment) would be installed on concrete

foundations. Foundations would be either slab or drilled pier. The microwave towers and take-off tower foundations would be approximately 8–10 feet in diameter and set approximately 20–25 feet bgs. Below-grade facilities at the proposed Fern Road Substation would include equipment foundations, oil containment for transformers, the grounding grid, low-voltage cable needed for the gas insulated substation equipment and static synchronous compensator equipment, conduit, and erection of the control enclosures. Below-grade facilities at the PG&E Facilities would be primarily limited to equipment and tower foundations.

Because the Fern Road Substation Facilities site lies directly on deposits that have high or undetermined potential to contain significant paleontological resources, excavations during Project construction at this site would have the potential to encounter these resources. If Project construction activities were to encounter and inadvertently destroy a significant paleontological resource, this impact would be significant. According to Chapter 2, *Project Description*, any proposed excavations at the Round Mountain Substation, PG&E Redding Service Center, or Table Mountain Substation would occur entirely within the existing properties. These properties have all been previously disturbed; therefore, there would be no potential to encounter significant paleontological resources.

APMs PALEO-1 and PALEO-2 would be implemented to avoid any significant impacts on paleontological resources during construction of the Fern Road Substation Facilities. These measures require that all earthwork halt in the event of a fossil discovery and that a qualified paleontologist assess the discovery. If the qualified paleontologist determines the discovery to be significant, the discovery would be recovered using appropriate recovery techniques, identified, catalogued, and prepared for storage in a recognized paleontological repository. In the event of a discovery, the qualified paleontologist may recommend paleontological resource monitoring on an as-needed basis.

Although construction activities at the Round Mountain Substation, PG&E Redding Service Center, and Table Mountain Substation would likely include excavations, these sites have been previously disturbed and there would be no potential to encounter significant paleontological resources. However, during construction activities at the PG&E Facilities, BMP-17 would still be implemented, requiring paleontological resource sensitivity training materials before the start of any ground-disturbing activity.

The Project would implement APMs PALEO-1 and PALEO-2 (as well as BMP-17 for all PG&E Facilities sites) to prevent inadvertent destruction of significant paleontological resources as a result of the Fern Road Substation Facilities. Therefore, the impact on paleontological resources would be less than significant.

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3.8 Greenhouse Gas Emissions

Issues:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
VIII. GREENHOUSE GAS EMISSIONS — Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

3.8.1 Environmental Setting

3.8.1.1 Climate Change

According to the U.S. Environmental Protection Agency (EPA), the term *climate change* refers to any significant change in measures of the climate (such as temperature, precipitation, or wind) that lasts for an extended period (several decades or longer). There is scientific consensus that climate change is occurring, and that human activity contributes in some measure—perhaps substantially—to that change. Gases that trap heat in the atmosphere are often called *greenhouse gases* (GHGs). GHG emissions, if not sufficiently curtailed, are likely to contribute further to increases in global temperatures.

The potential effects of climate change in California include sea level rise and reductions in snowpack, as well as an increased number of extreme-heat days per year, high-ozone days, large forest fires, and drought years (CARB 2017). Globally, climate change could affect numerous environmental resources through potential, though uncertain, changes in future air temperatures and precipitation patterns. According to the Intergovernmental Panel on Climate Change, the projected effects of climate change are likely to vary regionally, but the following direct effects are expected to occur (IPCC 2021):

- Higher maximum temperatures and more hot days over nearly all land areas.
- Higher minimum temperatures (fewer cold days and frost days over nearly all land areas).
- Reduced diurnal temperature range over most land areas.
- Increase in the heat index over most land areas.
- More intense precipitation events.

Climate change is also projected to result in secondary effects, including a global rise in sea level, ocean acidification, impacts on agriculture, changes in disease vectors, and changes in habitat and biodiversity. The possible outcomes and feedback mechanisms involved are not fully understood, and much research remains to be done; however, the potential exists for substantial environmental, social, and economic consequences over the long term.

Both natural processes and human activities emit GHGs. The accumulation of GHGs in the atmosphere regulates the earth's temperature; however, emissions from human activities—such as fossil fuel–based electricity production and the use of motor vehicles—have elevated GHG concentrations in the atmosphere. This accumulation of GHGs has contributed to an increase in the temperature of the earth's atmosphere and to global climate change.

3.8.1.2 Greenhouse Gas Emissions

Carbon dioxide (CO_2) is the primary GHG emitted during human activities. Other GHGs emitted, in much smaller amounts, include nitrous oxide; methane, often from unburned natural gas; sulfur hexafluoride, from high-voltage power equipment; and hydrofluorocarbons and perfluorocarbons, from refrigeration/chiller equipment.

Each of these GHGs has a different *global warming potential (GWP)*, defined as the amount of heat trapped in the atmosphere by a certain mass of the gas. CO_2 is used as the reference gas for climate change. Therefore, GHG emissions are quantified and reported as CO_2-equivalent (CO_2e) emissions based on the reference gas. For example, sulfur hexafluoride (SF_6) represents a small fraction of the total annual GHGs emitted worldwide, but this gas is very potent, with 23,900 times the GWP of CO_2. Therefore, an emission of 1 metric ton of SF_6 would be reported as 23,900 metric tons CO_2e. The GWPs of methane (CH_4) and nitrous oxide (N_2O) are respectively 25 times and 298 times the GWP of CO_2 (CARB 2022a).

The principal GHGs resulting from human activity that enter and accumulate in the atmosphere are described below.

Carbon Dioxide

CO_2 is a naturally occurring gas that enters the atmosphere through both natural and anthropogenic (human) sources. Key anthropogenic sources include the burning of fossil fuels (e.g., oil, natural gas, coal), solid waste, trees, wood products, and other biomass, as well as industrially relevant chemical reactions such as those that occur when manufacturing cement. CO_2 is removed from the atmosphere when it is absorbed by plants as part of the biological carbon cycle.

Methane

Like CO_2, CH_4 is emitted by both natural and anthropogenic sources. Key anthropogenic sources of CH_4 include gaseous emissions from landfills, operational releases in the mining and materials extraction industries (particularly coal mining), and fugitive releases during the extraction and transport of natural gas and crude oil. CH_4 is also emitted by livestock and agricultural practices. Small quantities of CH_4 are released during fossil fuel combustion.

Nitrous Oxide

N_2O is also emitted by both natural and anthropogenic sources. Important anthropogenic sources include industrial activities, agricultural activities (primarily the application of nitrogen fertilizer), the use of explosives, combustion of fossil fuels, and the decay of solid waste.

Fluorinated Gases

Hydrofluorocarbons, perfluorocarbons, and SF_6 are synthetic gases emitted by a variety of industrial processes. Pound for pound, these gases contribute substantially more to the greenhouse effect than the GHGs described previously. Fluorinated gases are often substituted for ozone-depleting substances (i.e., chlorofluorocarbons, hydrochlorofluorocarbons, and halons). These gases are typically emitted in small quantities, but because of their potency, they are sometimes referred to as "high-GWP gases." Fluorinated gases, in the form of SF_6 are used in electrical equipment that would be associated with the Project, such as circuit breakers.

3.8.1.3 Greenhouse Gas Sources

Anthropogenic GHG emissions in the United States are derived mostly from the combustion of fossil fuels for transportation and power production. Energy-related CO_2 emissions from fossil fuel exploration and use account for approximately three-quarters of the nation's human-generated GHG emissions. More than half of the energy-related emissions come from large stationary sources, such as power plants; approximately one-third derive from transportation sources; and the remaining sources are mainly industrial processes, agriculture, commercial, and residential (EPA 2022a).

Table 3.8-1 summarizes statewide emissions of GHG from relevant source categories for 2014 through 2020. Specific contributions from individual air basins such as the Sacramento Valley Air Basin, which encompasses the Project sites, are included in the emissions inventory but are not itemized by air basin. In 2020, California produced 369.1 million gross metric tons of CO_2e emissions, which was a 9 percent drop in emissions compared to 2019 driven by the Covid-19 pandemic-related shutdown. Transportation was the source of 37 percent of the state's GHG emissions, followed by industrial at 20 percent, electricity generation at 16 percent, commercial and residential sources at 11 percent, agriculture at 9 percent, high global warming potential at 6 percent, and recycling and waste comprising the remaining 2 percent (CARB 2022b).

TABLE 3.8-1
CALIFORNIA GREENHOUSE GAS EMISSIONS (MILLION METRIC TONS CO_2E)

Emissions Inventory Category	2014	2015	2016	2017	2018	2019	2020	
Transportation	157.7	161.5	165.2	166.6	165.3	162.4	135.8	36.8%
Electric Power	89.8	86.0	70.4	64.2	65.0	60.2	59.5	16.1%
Industrial	85.2	83.2	81.6	81.7	81.9	80.4	73.3	19.9%
Commercial & Residential	35.6	36.3	37.2	37.6	37.4	40.5	38.7	10.5%
Agriculture	33.9	32.6	32.2	31.7	32.2	31.4	31.6	8.6%
High GWP	17.7	18.6	19.4	20.1	20.5	20.7	21.3	5.8%
Recycling and Waste	8.3	8.4	8.5	8.6	8.7	8.8	8.9	2.4%
Total Gross Emissions	**428.2**	**426.6**	**414.5**	**410.5**	**411.0**	**404.4**	**369.1**	**100.0%**

NOTE: CO_2e = carbon dioxide equivalent

SOURCE: CARB 2022b.

3.8.2 Regulatory Setting

3.8.2.1 Federal

Clean Air Act

On April 2, 2007, in *Massachusetts v. USEPA* (549 US 497), the U.S. Supreme Court ruled that GHGs are air pollutants covered by the Clean Air Act. On April 17, 2009, the EPA Administrator signed proposed "endangerment" and "cause or contribute" findings for GHGs under Section 202(a) of the Clean Air Act. EPA found that six GHGs, taken in combination, endanger both the public health and the public welfare of current and future generations. Pursuant to Code of Federal Regulations (CFR) Title 40, Part 52, Proposed Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule, EPA has mandated that Prevention of Significant Deterioration and Title V requirements apply to facilities whose stationary-source CO_2e emissions exceed 100,000 tons per year (EPA 2021). The Project would not trigger Prevention of Significant Deterioration or Title V permitting under this regulation because it would generate less than 100,000 tons of CO_2e emissions per year.

40 CFR Part 98, Use of Electric Transmission and Distribution Equipment

Pursuant to federal regulations (40 CFR Part 98, Subpart DD), operators of certain electrical facilities, such as SF_6 containing circuit breakers, are required to report SF_6 emissions to EPA (EPA 2022b). Circuit breakers associated with the Project that contain SF_6 would be subject to reporting under this regulation.

3.8.2.2 State

A variety of statewide rules and regulations require that GHG emissions be quantified and, if emissions exceed established thresholds, that they be reduced. CEQA requires Lead Agencies to evaluate projects' GHG emissions and potential to contribute to climate change. When the Lead Agency determines that a project would result in a significant addition of GHGs to the atmosphere, the Lead Agency must provide appropriate mitigation.

California Renewable Energy Programs

In 2002, California established its Renewables Portfolio Standard (RPS), with the goal of increasing the percentage of renewable energy in the state's electricity mix to 20 percent by 2017. State energy agencies recommended accelerating that goal. California Executive Order S-14-08, issued in November 2008, required California utilities to reach the goal of 33 percent renewable electricity by 2020, consistent with the Assembly Bill (AB) 32 Climate Change Scoping Plan (Scoping Plan) described below.

In April 2011, Senate Bill (SB) 2 of the First Extraordinary Session (SB X1-2) was signed into law. SB X1-2 expressly applied the new 33 percent RPS by December 31, 2020, to all retail sellers of electricity and established renewable energy standards for interim years before 2020. In 2018, SB 100, the California Clean Energy Act of 2017, was signed into law. This bill established a target to supply the state with 100 percent renewable and zero-carbon energy resources by 2045.

Executive Order S-3-05

In June 2006, Governor Arnold Schwarzenegger signed Executive Order S-3-05, which established targets to reduce statewide GHG emissions through the year 2050 to the following levels:

- By 2010, to 2000 levels.
- By 2020, to 1990 levels.
- By 2050, to 80 percent below 1990 levels.

This executive order does not contain any requirements that directly pertain to the Project. However, future actions taken by the State of California to implement these goals may affect the Project, depending on the specific implementation measures that are developed.

Assembly Bill 32

AB 32, the Global Warming Solutions Act of 2006, required the California Air Resources Board (CARB) to establish a statewide GHG emissions cap for 2020 based on 1990 emissions levels. AB 32 required CARB to adopt regulations that identify and require selected sectors or categories of GHG emitters to report and verify their statewide GHG emissions. CARB is authorized to enforce compliance with the program.

Under AB 32, CARB was also required to adopt a statewide limit on GHG emissions equivalent to statewide GHG emissions levels in 1990. The limit had to be achieved by 2020. In December 2007, CARB adopted a limit of 427 million metric tons of CO_2e. This limit was approximately 30 percent below forecasted "business-as-usual" emissions of 596 million metric tons of CO_2e in 2020, and about 10 percent below average annual GHG emissions during the period 2002 through 2004 (CARB 2008).

In the interest of achieving the maximum technologically feasible and cost-effective GHG emissions reductions, AB 32 permits the use of market-based compliance mechanisms. CARB is required to monitor compliance with and enforce any rule, regulation, order, emissions limitation, emissions reduction measure, or market-based compliance mechanism that it adopts.

Climate Change Scoping Plan

In December 2008, CARB approved the AB 32 Scoping Plan, outlining the State of California's strategy to achieve the 2020 GHG emissions limit. The Scoping Plan estimates a reduction of 174 million metric tons CO_2e (about 191 million tons) from the transportation, energy, agriculture, forestry, and high-climate-change-potential sectors. It proposes a comprehensive set of actions designed to reduce overall GHG emissions in California, improve the environment, reduce dependence on oil, diversify California's energy sources, save energy, create new jobs, and enhance public health. The Scoping Plan must be updated every 5 years to evaluate the mix of AB 32 policies to ensure that California is on track to achieve the 2020 GHG emissions reduction goal.

Appendices C and E of the adopted 2008 AB 32 Scoping Plan include a list of 39 recommended action measures to reduce GHG emissions (CARB 2008). Of these measures, only one is directly relevant to the Project. Measure H-6, "High GWP Gases," is designed to reduce emissions of SF_6 within the electric utility sector and at particle accelerators. This measure requires the use of best achievable control technology for the detection and repair of leaks, and the recycling of SF_6.

CARB released its first Scoping Plan Update in May 2014, its second in November 2017, and its third in November 2022 (CARB 2014, 2017, 2022c). On December 14, 2017, CARB approved the final version of California's 2017 Climate Change Scoping Plan (2017 Scoping Plan Update), which outlines the proposed framework for achieving the target of reducing GHG emissions to 40 percent below 1990 levels by 2030 (CARB 2017).

The 2017 Scoping Plan Update identifies key sectors of the implementation strategy, which includes improvements in the low-carbon energy industry and increased transportation sustainability. A statewide 2030 emissions limit of 260 million metric tons CO_2e is identified. The 2017 Scoping Plan Update specifies that further commitments will need to be made to achieve an additional reduction of 50 million metric tons CO_2e beyond current policies and programs. The cornerstone of the 2017 Scoping Plan Update is an expansion of the Cap-and-Trade Program to meet the aggressive 2030 GHG emissions goal represented by SB 32 and ensure achievement of the 2050 limit set forth by Executive Order B-30-15.

The 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan) lays out a path to achieve targets for carbon neutrality and reduce anthropogenic GHG emissions by 85 percent below 1990 levels no later than 2045. The actions and outcomes in the plan are intended to achieve significant reductions in fossil fuel combustion by deploying clean technologies and fuels, further reductions in short-lived climate pollutants, support for sustainable development, increased action on natural and working lands to reduce emissions and sequester carbon, and the capture and storage of carbon. The 2022 Scoping Plan identities a construction equipment sector action for the Scoping Plan Scenario that commits to 25 percent of energy demand to be electrified by 2030 and 75 percent electrified by 2045 (CARB 2022c). Since construction of the Project would be completed prior to 2030, this construction equipment sector action is not directly applicable to the Project.

None of the recommended actions identified in the Scoping Plan Updates are directly applicable to the Project.

Mandatory Reporting Requirements

Pursuant to California Code of Regulations (CCR) Title 17, Sections 95100–95158, operations of large industrial stationary combustion and process emissions sources that emit 10,000 metric tons CO_2e or more per calendar year must report and verify their GHG emissions to CARB. Reporting of GHG emissions from the generation of electricity traveling through power transmission facilities and substations is completed by the generation facility operators.

As indicated in Table 3.8-4 in Section 3.8.4, *Environmental Impacts* (see the discussion of item a), the total amortized GHG emissions for the Project would be approximately 1,013 metric tons

CO_2e per year, which is below the AB 32 reporting threshold. Therefore, the Project would not be subject to the AB 32 mandatory reporting requirements.

Market-Based "Cap-and-Trade" Compliance Mechanism

AB 32 allows the use of market-based compliance mechanisms to achieve the maximum technologically feasible and cost-effective GHG emissions reductions. As mentioned previously, AB 32 also requires CARB to monitor compliance with and enforce any rule, regulation, order, emissions limitation, emissions reduction measure, or market-based compliance mechanism that it adopts. In response, CARB adopted a cap-and-trade program that covers major sources of GHG emissions, such as refineries and power plants. The program includes an annual emissions cap that declines over time. CARB's cap-and-trade program applies to facilities that would emit 10,000 metric tons or more of CO_2e per year. Because the Project's total amortized GHG emissions are estimated at 1,013 metric tons CO_2e per year, the cap-and-trade program would not apply to the Project. (See Section 3.8.4, *Environmental Impacts*, for a discussion and breakdown of the construction-related and operational GHG emissions associated with the Project.)

Senate Bill 97

In 2007, the California Legislature passed SB 97, which required that the CEQA Guidelines be amended to incorporate analysis and mitigation of GHG emissions from projects subject to CEQA. The amendments took effect March 18, 2010. The amendments added Section 15064.4 to the CEQA Guidelines, specifically addressing the potential significance of GHG emissions. Section 15064.4 calls for a "good-faith effort" to "describe, calculate, or estimate" GHG emissions and indicates that the analysis of the significance of any GHG impacts should include consideration of the extent to which projects would do any of the following:

- Increase or reduce GHG emissions.
- Exceed a locally applicable threshold of significance.
- Comply with "regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions."

The CEQA Guidelines also state that a project may be found to have a less-than-significant impact related to GHG emissions if it complies with an adopted plan that includes specific measures to sufficiently reduce GHG emissions (14 CCR Section 15064[h][3]). Importantly, however, the CEQA Guidelines do not require or recommend a specific analytical methodology or provide quantitative criteria for determining the significance of GHG emissions.

Executive Order B-30-15

In April 2015, Governor Edmund G. Brown Jr. issued an executive order establishing a California GHG emissions reduction target of 40 percent below 1990 levels by 2030. Reaching this target will enable California to reach its ultimate goal of reducing emissions 80 percent under 1990 levels by 2050, as identified in Executive Order S-3-05. Executive Order B-30-15 also specifically addresses the need for climate adaptation and directs state government to take the following actions (Office of Governor Edmund G. Brown Jr. 2015):

- Incorporate climate change impacts into the state's 5-Year Infrastructure Plan.
- Update the *Safeguarding California Plan*, the state climate adaption strategy that identifies how climate change will affect California infrastructure and industry and what actions the state can take to reduce the risks posed by climate change.
- Factor climate change into state agencies' planning and investment decisions.
- Implement measures under existing agency and departmental authority to reduce GHG emissions.

Executive Order B-30-15 required CARB to update the AB 32 Climate Change Scoping Plan to incorporate the 2030 target. On September 8, 2016, Governor Brown signed SB 32, which codified the 2030 reduction target (i.e., 40 percent below 1990 levels) called for in Executive Order B-30-15. CARB's 2017 Scoping Plan update (discussed above) addresses the 2030 target.

Senate Bill 32 and Assembly Bill 197

Signed into law on September 8, 2016, SB 32 (Amendments to California Global Warming Solutions Act of 2006: Emission Limit) amended Division 25.5 of the Health and Safety Code and codified the 2030 target in Executive Order B-30-15, establishing a new climate pollution reduction target of 40 percent below 1990 levels by 2030. The 2030 target is intended to ensure that California remains on track to achieve the goal set forth by Executive Order B-30-15, to reduce statewide GHG emissions by 2050 to 80 percent below 1990 levels. SB 32 states the legislature's intent to continue reducing GHG emissions for the protection of all areas of the state, especially the state's most disadvantaged communities, which are disproportionately affected by the deleterious effects of climate change on public health.

AB 197 included provisions to ensure that the benefits of state climate policies include disadvantaged communities.

Regulation for Reducing SF_6 Emissions from Gas Insulated Switchgear

The purpose of this regulation (17 CCR Section 95350 et seq.) is to achieve GHG emissions reductions by reducing SF_6 emissions from gas-insulated switchgear. Owners of such switchgear must not exceed maximum allowable annual emissions of 1.0 percent of the total SF_6 capacity of all of the owner's active gas-insulated switchgear equipment.

As defined by the regulation, the annual emissions rate equals the gas-insulated switchgear owner's total annual SF_6 emissions from all active gas-insulated switchgear equipment divided by the average annual SF_6 nameplate capacity of all active gas-insulated switchgear equipment. Owners must regularly inventory gas-insulated switchgear equipment, measure quantities of SF_6, and maintain records of these for at least 3 years. Additionally, by June 1 of each year, owners must submit an annual report to CARB's Executive Officer for emissions that occurred during the previous calendar year (CARB 2011).

Forest Carbon Plan

In 2018, the Forest Climate Action Team, made up of California agencies including the California Natural Resources Agency, California Environmental Protection Agency, and California Department of Forestry and Fire Protection, prepared the Forest Carbon Plan. The Forest Carbon Plan describes forest conditions across California and projects future conditions given the ongoing and expected impacts of climate change. The plan also describes goals and related specific actions to improve overall forest health, enhance carbon storage resilience, increase sequestration, and reduce GHG emissions, and provides principles and policies to guide and support those actions.

A key finding of the plan is that reducing carbon losses from forests, particularly the extensive carbon losses that occur during and after extreme wildfires in forests and through uncharacteristic tree mortality, is essential to meeting the state's long-term climate goals (FCAT 2018).

3.8.2.3 Local

The California Public Utilities Commission (CPUC) has exclusive jurisdiction over the siting, design, and construction of the Project; therefore, the Project is not subject to local discretionary regulations. CPUC General Order (GO) 131-D, Section XIV.B, states that "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters" (CPUC 1995). Public utilities are directed to consider local regulations and consult with local agencies, but county regulations are not applicable, as Shasta County and Butte County do not have jurisdiction over the Project.

Because CPUC has exclusive jurisdiction, the Project is not subject to local land use and zoning regulations or discretionary permits. The following details regarding local regulations are provided for informational purposes and to assist with CEQA review. Although the Applicant and Pacific Gas and Electric Company (PG&E) are not subject to local discretionary permitting, ministerial permits would be secured as required.

Shasta Regional Climate Action Plan

In 2010, the Shasta County Air Quality Management District (AQMD) initiated the regional climate action plan (RCAP) process. The primary objectives of the RCAP are to contribute to the State's climate protection efforts and includes emission reduction measures. Chapter 2 of the RCAP serves as the climate action plan (CAP) for the unincorporated areas within the county.

The CAP identifies GHG emissions reduction targets relative to Shasta County's 2008 GHG Jurisdictional Inventory. The inventory includes emissions from several sectors, including energy (i.e., use of electricity and natural gas in residential, commercial, and industrial buildings), transportation, water, waste, and off-road/recreation, but does not include emissions associated with the stationary source, agriculture, or forestry sectors. Unincorporated Shasta County's targets for reducing community GHG emissions are as follows:

- 15 percent below 2008 levels by 2020 (i.e., 485,567 metric tons CO_2e per year).
- 49 percent below 2008 levels by 2035 (i.e., 291,340 metric tons CO_2e per year).
- 83 percent below 2008 levels by 2050 (i.e., 97,113 metric tons CO_2e per year).

The RCAP describes measures to achieve the 2020 reduction target and work toward the 2035 target. Focus on the 2050 reduction target was reserved for future reevaluation of long-term GHG emissions reduction efforts to reflect future conditions and adjustment of emissions reduction measures accordingly. The RCAP relies on the state RPS goals that will lead to an increase in renewable electricity, reduce the community energy-related emissions in unincorporated Shasta County, and make it easier for the community to achieve the 2020 and 2035 emissions reduction goals (Shasta County 2012).

Although the RCAP was not ultimately adopted by the AQMD's Board, it was designed in part to provide CEQA streamlining benefits for new residential and commercial development projects in the community. However, as described above, the RCAP does not address stationary sources, which would be the Project's primary source of long-term operational GHG emissions; therefore, the RCAP's GHG emissions reduction targets described above are not directly applicable to the Project.

Butte County General Plan

The Conservation and Open Space Element of the Butte County General Plan includes the following goals and policies designed to reduce GHG emissions in the county (Butte County 2010):

Goal COS-1: Reduce greenhouse gas emissions to 1990 levels by 2020.

***Policy COS-P1.1*:** Greenhouse gas emission impacts from proposed development projects shall be evaluated as required by the California Environmental Quality Act.

Goal COS-2: Promote green building, planning, and business.

***Policy COS-P2.1*:** County staff shall work cooperatively with the municipalities to ensure consistent standards for green building codes and other methods to reduce greenhouse gas emissions throughout the county.

3.8.3 Applicant Proposed Measures and PG&E Construction Measures

3.8.3.1 Applicant Proposed Measures

The following Applicant Proposed Measure (APM) pertaining to GHG emissions has been proposed by the Applicant and would be implemented as part of the Fern Road Substation Facilities portion of the Project.

APM GHG-1: The following measures shall be implemented to minimize greenhouse gas emissions from all construction sites:

- If suitable park-and-ride facilities are available in the Project vicinity, construction workers shall be encouraged to carpool to the job site.
- Demolition debris shall be recycled for reuse to the extent feasible.
- The contractor shall use line power instead of diesel generators at all construction sites where line power is available.
- The contractor shall maintain construction equipment per manufacturing specifications.

3.8.3.2 PG&E Construction Measures

PG&E would implement the following best management practice (BMP) to address impacts of GHG emissions attributable to construction and operation of the PG&E Facilities.

BMP-10: Sulfur Hexafluoride (SF_6) Gas Material/Waste Management. Before accessing any equipment that may contain SF_6 gas byproduct waste, contact your local Environmental Field Specialist (EFS) at least two weeks in advance for assistance in arranging cleanup, transportation and disposal. PSC will retrieve, package, label and transport SF_6 byproducts. All SF_6 waste that is removed from a Substation must have proper shipping papers which could include a remote waste shipping paper or a manifest (manifests require a temporary EPA ID number).

- Substation personnel shall contact PSC to retrieve, package, label, and transport SF_6 byproduct waste (i.e., fluorides of sulfur, metallic fluorides, etc.). All SF_6 byproduct waste that is removed must have proper shipping papers, which could include a remote waste shipping paper or a manifest (manifests require a permanent or temporary EPA ID number).
- SF_6 cylinder tracking and facility inventory shall be managed in accordance with Utility Procedure TD-3350P-001. Advanced Specialty Gas (ASG) provides sole-source service in supplying, replacing, removal and recycling of SF_6 in all facilities. ASG provides 24-hour service in response to events involving SF_6 as well as delivery and removal of all SF_6 cylinders. Contact information: https://www.advancedspecialtygases.com.

3.8.4 Environmental Impacts

3.8.4.1 Methodology and Assumptions

Significance Criteria

Neither CEQA Guidelines Section 15064.4 nor any other law requires or endorses a specific analytical methodology or quantitative criteria for determining the significance of GHG emissions.[9] Instead, Lead Agencies are to make a "good-faith effort" to "describe, calculate, or estimate" GHG emissions, and to consider the extent to which the project would either increase or reduce GHG emissions, exceed a locally applicable threshold of significance, or comply with "regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or

[9] See *Center for Biological Diversity v. Department of Fish and Wildlife* (2015) 62 Cal.4th 204, which identifies three "potential options" for Lead Agencies evaluating the cumulative significance of a proposed land use development's GHG emissions and explicitly stating that none of the three options came with a "guarantee" that it would be sufficient if later challenged.

mitigation of greenhouse gas emissions." A project may be found to have a less-than-significant impact related to GHG emissions if it complies with an adopted plan that includes specific measures to sufficiently reduce GHG emissions (14 CCR Section 15064[h][3]).

As noted in Section 3.8.2, *Regulatory Setting*, Shasta County's RCAP includes a GHG emissions inventory and forecast, emissions reduction measures, and an implementation and monitoring program for unincorporated Shasta County. The RCAP was finalized in 2012; however, the plan was not ultimately adopted by the AQMD Board and the reduction targets were not developed relative to stationary sources, which would be the Project's primary operational sources (i.e., fugitive emissions of SF_6 from gas insulated circuit breakers). Therefore, this analysis does not use the RCAP's emissions reduction targets to determine the impact significance of Project GHG emissions. However, for informational purposes, the analysis does compare Project emissions to business-as-usual (BAU) emissions that represent the Project as if it were to have occurred in 2008, consistent with Shasta County's RCAP baseline inventory year.

No numerical bright-line value exists for determining significance based solely on Shasta County or Butte County emissions sources. However, development conditions in Shasta County and Butte County are similar to those in Sacramento County. The Sacramento Metropolitan Air Quality Management District (SMAQMD) has established recommended thresholds intended to ensure that 90 percent of emissions from projects in the region are reviewed to determine the need for additional mitigation to achieve compliance with SB 32. According to SMAQMD's methodology, a land use development project (i.e., residential or commercial project) with operational emissions of less than 1,100 metric tons CO_2e per year, or a stationary-source project with operational emissions of less than 10,000 metric tons CO_2e per year, would not result in a significant impact and would not require mitigation.

The Project is not a land use project, and its long-term operational emissions would be primarily stationary-source emissions of fugitive SF_6 from circuit breakers at the Fern Road Substation. Therefore, this analysis uses SMAQMD's stationary-source threshold of 10,000 metric tons CO_2e per year to gauge the significance of the Project's GHG emissions. SMAQMD's threshold represents a level that would result in sufficiently low GHG emissions to be less than cumulatively considerable without mitigation. The SMAQMD threshold is appropriate to use for the Project because the Project sites and SMAQMD's jurisdictional area are located within the Sacramento Valley Air Basin and SMAQMD is the closest air quality management district to the Project sites that have adopted GHG significance thresholds.

SMAQMD's recommended threshold for construction emissions is 1,100 metric tons CO_2e per year; however, this threshold was developed for infrastructure projects (levees, pipelines, and roadways) and land use development projects (e.g., residential and commercial) based on emissions data for those types of projects (SMAQMD 2014). The Project is not a levee, pipeline, roadway, residential, or commercial project, and is more closely aligned as a stationary source. Therefore, the SMAQMD significance threshold for construction emissions is not applicable to Project-related construction emissions.

However, the SMAQMD staff report that provided substantial evidence and documentation supporting adoption of the SMAQMD significance thresholds indicates that amortizing construction emissions over the life of a project and adding the emissions to operational GHG emissions may be considered (SMAQMD 2014, 2021). Therefore, the Project's construction-generated GHG emissions have been amortized over the estimated life of the Project and included with operational emissions for comparison to the stationary source significance threshold. As stated in Chapter 2, *Project Description,* Section 2.5.3.7, the expected life of the Project facilities is 40 years. Construction-related GHG emissions, operational emissions, and the loss of carbon sequestration capacity from tree removal were combined to determine the Project's GHG emissions.

The potential for the Project to conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions was assessed by examining any potential conflicts of the Project with the GHG reduction measures related to implementation of SB 32, including the potential conflict with CARB's Climate Change Scoping Plan.

Approach to Analysis

Project-related GHG emissions would fall into two categories: short-term emissions during construction and decommissioning, and long-term emissions during Project operation. As part of its application package to CPUC, the Applicant provided GHG emissions calculations and estimates for the Project's construction activities (LSPGC 2022; see Proponent's Environmental Assessment [PEA] Appendix 4.8-A). The Applicant's emissions calculations were independently reviewed by CPUC's consultant, Environmental Science Associates (ESA), and were found to be technically adequate, with the exception that there were some inconsistencies in construction equipment assumptions between the project description and the emissions calculations. Based on input from CPUC (CPUC 2022), the Applicant had the emissions estimates revised to correct the inconsistencies and resubmitted PEA Appendix 4.8-A (Ldn Consulting 2022).

The Applicant-provided emissions estimates were modeled using the California Emissions Estimator Model (CalEEMod) (Version 2020.4.0) emissions model for both the BAU scenario (2006 through 2008) and the Project (2023 through 2025). Construction emissions were amortized over the expected usable life of the Project, estimated to be approximately 40 years. As described in the *Approach to Analysis* discussion in Section 3.3, *Air Quality,* Section 3.3.4.1, emissions were estimated for construction of both the LSPGC Fern Road Substation Facilities and PG&E Facilities components of the Project.

In addition, the Applicant estimated fugitive SF_6 emissions associated with the nine circuit breakers proposed for the Fern Road Substation, for both the BAU scenario and Project emissions. Emissions were estimated based on manufacturer's specifications for SF_6 volumes and CARB regulatory requirements for SF_6 leak rates for both the BAU scenario and Project emissions.

In addition, the Applicant's emissions estimates do not include an estimate for potential loss of carbon sequestration capacity. Therefore, the potential loss of carbon sequestration capacity

associated with tree removal was estimated by ESA and considered in the determination of whether the Project would result in substantial GHG emissions. CalEEMod's forestland biogenic carbon emissions rate was used to estimate the potential loss of sequestration capacity. Other methodologies for estimating carbon sequestration were considered, such as that contained in CARB's *Compliance Offset Protocol, U.S. Forest Projects*, but such methodologies may require on-site plot sampling to determine actual on-site carbon inventories (CARB 2015). Thus, CalEEMod values for forestland with trees were used to calculate sequestration capacity, which is more generalized but results in conservative modeling.

3.8.4.2 Direct and Indirect Effects

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment: *Less than Significant*.

Construction and Decommissioning Emissions

Construction activities for the Fern Road Substation Facilities would include site preparation and grading, below-grade work, above-grade work, and commissioning and testing. Construction activities for the PG&E Facilities would include substation modifications at the Round Mountain, Cascade, and Table Mountain substations and at the Redding Service Center, the 500-kilovolt (kV) interconnections, and distribution modifications. The Fern Road Substation Facilities portion of the Project would be constructed on approximately 75 acres and would require the grading of approximately 11 acres. The Fern Road Substation Facilities portion of the Project would require the import of roughly 19,000 cubic yards of suitable base material and the export of roughly 21,000 cubic yards of excavated materials.

Construction of the Fern Road Substation Facilities portion of the Project was modeled for a 22-month period beginning in March 2023 and ending in December 2024. The schedule has since been revised to start construction in September 2023 and end construction in June 2025, but the schedule change is not anticipated to result in a substantial change to the estimated total construction emissions. Construction would occur 6 days per week. Information was provided by the Applicant's engineer regarding material hauling/trucks, worker trips, and anticipated construction equipment and durations for the Fern Road Substation Facilities portion of the Project. Construction emissions were amortized over 40 years based on the projected operational life of the Project facilities.

Table 3.8-2 presents construction GHG emissions under both the BAU scenario and the Project scenario.

As shown in Table 3.8-2, annual amortized average emissions for the BAU and Project construction scenarios would be approximately 101 and 86 metric tons CO_2e per year, respectively. Decommissioning emissions are assumed to be similar to but less than the Project construction emissions listed in Table 3.8-2 because additional emissions reduction technologies and practices presumably would be in place when decommissioning would occur, approximately 40 years after Project operations begin. The emissions reductions between the construction BAU scenario and the Project scenario are attributable primarily to the much greater efficiency of Northern California's construction equipment and vehicle inventories in 2023 and 2024, compared to the

average equipment and vehicle inventories used in 2006 and 2007. The emissions estimates assume the implementation of APM GHG-1, proposed by the Applicant to minimize GHG emissions associated with the Fern Road Substation Facilities portion of the Project through low-cost emissions reduction measures that are common for construction projects in California.

TABLE 3.8-2
BUSINESS AS USUAL AND PROJECT CONSTRUCTION GHG EMISSIONS

Construction Year	CO_2e metric tons
Business as Usual	
2006	2,496.90
2007	1,562.25
Subtotal	4,059.15
Amortized (over 40 years)	101.48
Project	
2023	2,082.48
2024	1,357.54
Subtotal	3,440.03
Amortized (over 40 years)	86.00

SOURCE: Based on Ldn Consulting 2022; see revised Appendix 4.8-A.

Operational Emissions

During operations, exhaust emissions would be generated primarily during vehicle visits to the Project site for periodic operation and maintenance activities. CalEEMod was used to estimate annual operational emissions for both the 2008 BAU scenario and the Project scenario, which would occur for the first year in 2025. Additionally, the Fern Road Substation would include installation and operation of nine 500 kV gas insulated circuit breakers and switchgear, which would contain SF_6 used for insulation. Based on CARB's 2010 regulations, the allowable SF_6 leak rate for circuit breakers was 10 percent in the year 2011. To be conservative, the BAU scenario (defined as year 2008) was assumed to have the same SF_6 leakage rate as allowed in 2011 under CARB's regulations. CARB's regulations also dictate that the maximum allowable SF_6 leak rate for year 2020 and beyond is one percent. Therefore, operations under the Project scenario are assumed to achieve the currently required maximum leak rate of one percent. This comparison is considered conservative because SF_6 leak rates in 2008 could have been greater than 10 percent and the Project's actual SF_6 leak rates may be less than the regulatory requirement of one percent.

In addition to generating emissions, the Project would permanently convert up to 65 acres of blue oak woodland to develop facilities that would be used throughout the Fern Road Substation's operational time frame. Based on a forestland biogenic carbon emissions rate of 111 metric tons CO_2 per acre, the Project could result in the loss of up to 7,215 metric tons CO_2 in carbon sequestration capacity for the 40-year duration of Project operations.

Table 3.8-3 presents the Project's estimated annual GHG emissions under both the BAU scenario and the Project scenario.

TABLE 3.8-3
BUSINESS AS USUAL AND PROJECT OPERATION GHG EMISSIONS

Operational Source	CO_2e metric tons per year
Business as Usual (2008)	
Energy	480.10
Mobile	7.53
SF_6 Insulation Leaks	5,805.27
Amortized Loss of Carbon Sequestration over 40 Years	180.38
Total	6,473.28
Project (2025)	
Energy	160.42
Mobile	5.57
SF_6 Insulation Leaks	580.53
Amortized Loss of Carbon Sequestration over 40 Years	180.38
Total	926.90

SOURCE: Based on Ldn Consulting 2022; see revised Appendix 4.8-A.

As shown in Table 3.8-3, annual amortized emissions for the BAU and Project operation scenarios would be approximately 6,473 and 927 metric tons CO_2e per year, respectively. The emissions reductions between the operational BAU scenario and the Project scenario are attributable primarily to the decreased leak rates for SF_6-containing equipment that are mandated by existing state regulations, compared to equipment requirements under the BAU scenario.

Impact Conclusion

As shown in **Table 3.8-4**, average annual GHG emissions, comprising amortized construction and operational emissions under both the BAU scenario and the Project scenario, would be 6,575 and 1,013 metric tons CO_2e per year, respectively. This represents an approximately 85 percent reduction in Project emissions compared to BAU scenario emissions, a greater reduction than unincorporated Shasta County's reduction threshold of 49 percent below 2008 levels by 2035. As discussed in the preceding *Significance Criteria* discussion, Project emissions are compared to BAU emissions for informational purposes only, and Project significance is determined by comparing Project emissions (i.e., 1,013 metric tons CO_2e) to the significance threshold of 10,000 metric tons. Therefore, the Project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. This impact would be less than significant.

TABLE 3.8-4
BUSINESS AS USUAL AND PROJECT GHG EMISSIONS

Operational Source	CO_2e metric tons per year
BAU Amortized Construction Emissions	101.48
BAU Amortized Operation Emissions	6,473.28
BAU Total Amortized Emissions	**6,574.76**
Project Amortized Construction Emissions	86.00
Project Amortized Operation Emissions	926.9
Project Total Amortized Emissions	**1,012.90**
Percent Reduction Project under Business as Usual	85%
Percent Reduction Threshold (for informational purposes only)	49%
Project Total Amortized Emissions Significance Threshold	10,000
Significant Impact?	No

NOTE: BAU = business as usual

SOURCE: Based on Ldn Consulting 2022; see revised Appendix 4.8-A.

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases: *Less than Significant.*

Shasta County's RCAP describes measures to achieve the 2020 reduction target and work toward the 2035 target. The RCAP relies on the state RPS goals that will lead to an increase in renewable electricity, reduce the community energy-related emissions in unincorporated Shasta County, and make it easier for the community to achieve the 2020 and 2035 emissions reduction goals (Shasta County 2012). However, as described in Section 3.8.2, *Regulatory Setting*, the RCAP does not address stationary sources, which would be the Project's primary source of long-term operational GHG emissions; therefore, the RCAP's GHG emissions reduction targets are not directly applicable to the Project.

The 2017 Scoping Plan Update adopted by CARB establishes the framework for achieving the California GHG emissions reduction target of 40 percent below 1990 levels by 2030. The plan update details local actions that land use development projects and municipalities can implement to support the statewide goal. For project-level CEQA analyses, the 2017 Scoping Plan Update states that projects should implement feasible mitigation, preferably measures that can be implemented on-site. APM GHG-1, which would be implemented by the Applicant for the Fern Road Substation Facilities, represents such measures. In addition, SMAQMD's project-level GHG CEQA thresholds are designed to require a project to demonstrate consistency with CARB's 2017 Climate Change Scoping Plan, which identifies the framework for achieving the target of reducing GHG emissions to 40 percent below 1990 levels by 2030.

The 2022 Scoping Plan identities a construction equipment sector action for the Scoping Plan Scenario that commits to 25 percent of energy demand to be electrified by 2030 and 75 percent electrified by 2045. A similar commitment is not proposed for the Project-related construction equipment. However, construction of the Project would be completed prior to the 2030

compliance date associated with the construction equipment sector action; therefore, it would not be directly applicable to the Project.

As described under Criterion a), the Project would not exceed SMAQMD's stationary-source operational significance threshold; therefore, Project emissions would not be considered significant and would not conflict with statewide emissions reduction goals identified in the 2017 Scoping Plan Update or the 2022 Scoping Plan Update. For these reasons, the Project's impact related to a potential conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions would be less than significant.

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3.9 Hazards and Hazardous Materials

Issues:		*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
IX.	**HAZARDS AND HAZARDOUS MATERIALS —** Would the project:				
a)	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b)	Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c)	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d)	Be located on a site 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 or excessive noise for people residing or working in the project area?	☐	☐	☒	☐
f)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
g)	Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	☐	☐	☒	☐

3.9.1 Environmental Setting

Materials and waste may be considered hazardous if they are poisonous (toxic), ignitable (can be ignited by open flame); corrosive (corrode other materials), or reactive (react violently, explode, or generate vapors when mixed with water). As defined in Section 25501(p) of the California Health and Safety Code, a *hazardous material* is any material that, because of quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment.

In some cases, past industrial or commercial uses on a site can cause hazardous materials and petroleum products to spill or leak into the environment, contaminating the soil and groundwater. Under federal and state law, soils containing concentrations of contaminants such as lead, gasoline, or industrial solvents that exceed certain acceptable levels must be handled and disposed of as hazardous waste during excavation, transportation, and disposal. California Code of Regulations (CCR) Title 22, Sections 66261.20 through 66261.24 (22 CCR Sections 66261.20 through 66261.24) contain technical descriptions of characteristics that would cause soil to be classified as a hazardous waste.

Federal and state laws require that hazardous materials be specially managed. California regulations are consistent with federal regulations and in most cases, are more stringent. Regulations also govern the management of potentially hazardous building materials, such as asbestos-containing materials, lead-based paint, and polychlorinated biphenyls (commonly known as PCBs), during demolition activities that could potentially disturb existing building materials.

3.9.1.1 Records Search of Hazardous Materials Databases

A Phase I environmental site assessment (Phase I assessment) was conducted for the vicinity of the Fern Road Substation site in conformance with ASTM International (ASTM) Practice E1527-13, Standard Practice for Environmental Site Assessments (Mathis & Associates 2020). The objective of the Phase I assessment was to determine the presence or absence of recognized environmental conditions (RECs), controlled recognized environmental conditions (CRECs), and historical recognized environmental conditions (HREC), as defined in ASTM Practice 1527-13. The Phase I assessment used several search methods: regulatory file searches, historic-use research, interviews, and on-site observations.

The Phase I assessment included a search of hazardous materials databases. Environmental databases maintained by federal, state, and local agencies were reviewed to identify sites that have used or use hazardous materials. The search also involved identifying sites with spills or releases of hazardous materials. The assessment found that there are no known activities in the vicinity of the Fern Road Substation site or at neighboring properties that would indicate significant potential for RECs; no evidence of RECs, CRECs, or HRECs exists; and the site is not listed on any of the databases reviewed.

An independent review of two state-run hazardous materials databases—the California Department of Toxic Substances Control (DTSC) EnviroStor and State Water Resources Control Board (State Water Board) GeoTracker—confirmed the findings of the database search included in the Phase I assessment: There are no active or closed hazardous materials sites in the vicinity of the Fern Road Substation site. The closest hazardous materials site is a closed (as of December 3, 1999) leaking underground storage tank (LUST) site at the Whitmore General Store, 30560 Whitmore Road, Whitmore. The Whitmore General Store is approximately 1.5 miles southeast of the Fern Road Substation site (DTSC 2022; State Water Board 2022).

The DTSC EnviroStor and State Water Board GeoTracker databases were reviewed relative to the Pacific Gas and Electric Company (PG&E) Round Mountain Substation, Table Mountain Substation, and Redding Service Center sites. According to these databases, there is a closed LUST cleanup site at both the Round Mountain Substation and the PG&E Redding Service Center; there are no hazardous materials sites at or near the Table Mountain Substation (DTSC 2022; SWRCB, 2022).

The LUST site at the Round Mountain Substation site was remediated and closed in 1990 and the LUST site at the PG&E Redding Service Center was remediated and closed in 2003. In both cases, an underground storage tank containing fuel leaked into the surrounding soil, groundwater, or drinking water, and the affected soil was removed and water quality monitored until actionable levels of contaminants were no longer detected (Central Valley RWQCB 1990, 2003).

3.9.1.2 Schools and Day Care Centers

A total of 25 public school districts serve 26,297 students in Shasta County (SCOE n.d.). Public primary education is overseen by the Shasta County Office of Education. The Fern Road Substation Facilities and the PG&E Facilities in the vicinity of the substation site are within the Shasta Union High School District and Whitmore Union Elementary School District (SCOE n.d.). The nearest public school to the substation site is Whitmore Elementary School, approximately 1.7 miles to the southeast.

The Round Mountain Substation is also located within the Shasta Union High School District and Whitmore Union Elementary School District. The PG&E Redding Service Center is located within the Pacheco Union Elementary School District and Anderson Union High School District (SCOE n.d.). The nearest public school to the service center is Pacheco Elementary School, approximately 1.5 miles to the northwest.

The Butte County School District has 14 school districts with 91 public schools and 18 charter schools. The Table Mountain Substation is located in the Oroville City Elementary and Oroville Union High School districts. The nearest school is Hearthstone School, approximately 4 miles to the southeast.

There are also several private schools throughout Shasta and Butte counties; however, there are no private schools within a mile of the Fern Road Substation site.

3.9.1.3 Airports

Except for the PG&E Redding Service Center, the Project sites are not located within 2 miles of a private or public use airport. The PG&E Redding Service Center is immediately west of the Redding Municipal Airport and lies within the Airport Influence Area. According to the *Comprehensive Land Use Plan for the Redding Municipal Airport and Surrounding Area* and the *Draft Airport Master Plan for Redding Municipal Airport*, the PG&E Redding Service Center site is not within any safety zones or noise contours (Shasta County ALUC 1984; City of Redding 2015).

3.9.1.4 Emergency Response

Shasta County's Office of Emergency Services has prepared an emergency operations plan that describes the county's planned response to extraordinary emergency situations resulting from large-scale disasters that affect Shasta County. The plan is based on the functions and principles of the California Standardized Emergency Management System, National Incident Management System, and California Incident Command System. It identifies how Shasta County's emergency operational system fits into the California and national risk-based, all-hazard emergency response and recovery operations plan. The emergency operations plan does not identify specific emergency response or evacuation routes; the routes used will depend on the nature and location of the emergency (Shasta County 2014).

3.9.1.5 Wildfire Hazards

The California Department of Forestry and Fire Protection (CAL FIRE) Forest Resource Assessment Program has published maps that delineate Fire Hazard Severity Zones in State Responsibility Areas (SRAs) and Local Responsibility Areas (LRAs).

Based on CAL FIRE mapping, the Fern Road Substation and Round Mountain Substation sites and vicinity are within a Very High Fire Hazard Severity Zone (VHFHSZ) in the SRA; the sites are not mapped within an LRA (CAL FIRE 2007a, 2008a). Additionally, the vicinity of the Fern Road Substation site is surrounded by areas mapped as a VHFHSZ. The PG&E Redding Service Center is not within a VSFHSZ in either an SRA or an LRA (CAL FIRE 2007a, 2008a). The Table Mountain Substation site is not within a VHFHSZ; however, it is within an area mapped as a moderate fire hazard severity zone (FHSZ) in an SRA (CAL FIRE 2007b, 2008b).

The report *Wildfire Behavior Modeling for the Fern Road Electrical Substation* was prepared to assess the site's wildfire risk (TSS Consultants 2021). The report's analysis concludes that the vicinity of the Fern Road Substation site would be buffered by a landscape that would generate a low to moderate fire risk, and that the location of Fern Road would provide immediate access and a strategic point from which to implement fire control actions. These conditions suggest a low to moderate wildfire risk. Regarding the risks of on-site ignition, there would be a high to very high wildfire hazard risk to the area and resources east of the Fern Road Substation site.

3.9.2 Regulatory Setting

3.9.2.1 Federal

Hazardous Materials Management

The federal agencies with primary responsibility for management of hazardous materials are the U.S. Environmental Protection Agency (EPA), the U.S. Occupational Safety and Health Administration (OSHA), and the U.S. Department of Transportation. State and local agencies' regulations governing hazardous materials are often either parallel to or more stringent than those of federal agencies. In most cases, state law mirrors or overlaps federal law, and enforcement of these laws is the responsibility of the state or of a local agency to which enforcement powers are delegated.

Resource Conservation and Recovery Act

Under the Resource Conservation and Recovery Act of 1976 (RCRA), individual states may implement their own hazardous waste programs in lieu of the RCRA as long as the states' programs are at least as stringent as federal RCRA requirements and is approved by EPA. EPA approved California's RCRA program, referred to as the Hazardous Waste Control Law, in 1992.

Toxic Substance Control Act

Congress enacted the Toxic Substances Control Act of 1976 to give EPA the ability to track the 75,000 industrial chemicals produced or imported into the United States. EPA repeatedly screens these chemicals and can require reporting or testing of those that may pose a hazard to the

environment or human health. EPA can ban the manufacture and import of those chemicals that pose an unreasonable risk.

Hazardous Materials Transportation

The U.S. Department of Transportation regulates the transport of hazardous materials on all interstate roads. In California, the state agencies primarily responsible for enforcing federal and state regulations and responding to transportation emergencies are the California Highway Patrol (CHP) and California Department of Transportation (Caltrans). Together, federal and state agencies determine driver-training requirements, load labeling procedures, and container specifications. Although special requirements apply to the transport of hazardous materials, requirements for transporting hazardous waste are more stringent, and haulers must be licensed to transport hazardous waste on public roads.

Occupational Safety

OSHA is responsible for assuring that workers stay safe when handling and using chemicals in the workplace. The federal regulations pertaining to worker safety are contained in Code of Federal Regulations (CFR) Title 29, as authorized in the Occupational Safety and Health Act of 1970. They provide standards for safe workplaces and work practices, including standards for handling hazardous materials. At sites known or suspected to have soil or groundwater contamination, construction workers must receive training in hazardous materials operations and a site health and safety plan must be prepared. The health and safety plan establishes policies and procedures for protecting workers and the public from exposure to potential hazards at the contaminated site.

Oil Pollution Prevention

The Code of Federal Regulations (40 CFR 112) establishes procedures for preventing discharges from non-transportation-related facilities into or upon navigable waters of the United States, or discharges that may affect natural resources belonging to or under the exclusive management authority of the United States. These regulations require facilities with a single tank or cumulative aboveground petroleum storage capacities of 1,320 gallons or more to prepare and implement a spill prevention, control, and countermeasure plan (SPCCP) (40 CFR 112.1). The purpose of an SPCCP is to form a comprehensive federal/state spill prevention program that minimizes the potential for discharges. The SPCCP must address all relevant measures necessary at the specific facility for which the plan is written.

Emergency Planning and Community Right-to-Know Act

The Emergency Planning and Community Right-to-Know Act, from Title III of the Superfund Amendments and Reauthorization Act, improved community access to information regarding chemical hazards and facilitated the development of business chemical inventories and emergency response plans. This law also established reporting obligations for facilities that store or manage specified chemicals. The Emergency Planning and Community Right-to-Know Act applies to the Project because the contractors that conduct cleanup, remove hazardous materials from the Project sites, and construct remediation systems would be required to prepare and

implement written emergency response plans to properly manage hazardous materials and respond to accidental spills.

3.9.2.2 State

California Code of Regulations

The California Code of Regulations (22 CCR Sections 66261.20 through 66261.24) contains technical descriptions of characteristics that would classify wasted material, including soil, as hazardous waste. When excavated, soils with contaminant concentrations exceeding certain acceptable levels must be handled and disposed of as hazardous waste.

California Department of Toxic Substances Control

DTSC is responsible for regulating the use, storage, transport, and disposal of hazardous substances in California. DTSC maintains a list of hazardous waste and substances sites for site cleanup, commonly referred to as the Cortese List. Government Code Section 65962.5 requires the California Environmental Protection Agency (CalEPA) to update the 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 are required to provide additional information about hazardous material releases for the Cortese List.

State Water Resources Control Board

The State Water Board and the nine regional water quality control boards (RWQCBs) administer the requirements of the Clean Water Act that regulate pollutant discharges into waterways of the United States.

Project construction would disturb more than 1 acre of land surface, affecting the quality of stormwater discharges into waters of the United States. The Project would therefore be subject to the National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities, known as the "Construction General Permit" (Order 2009-0009-DWQ, NPDES No. CAS000002; as amended by Orders 2010-0014-DWQ and 2012-006-DWQ). The Construction General Permit regulates construction sites' discharges of pollutants in stormwater to waters of the United States that disturb 1 or more acres of land surface, or that are part of a common plan of development or sale that disturbs more than 1 acre of land surface. The permit regulates stormwater discharges associated with construction or demolition activities, such as clearing and excavation; construction of buildings; and linear facilities, including installation of power and other utility lines. For additional details regarding the NPDES Construction General Permit, see Section 3.10, *Hydrology and Water Quality*.

Unified Hazardous Waste and Hazardous Materials Management Regulatory Program

In January 1996, CalEPA adopted regulations implementing the Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program). The program has six elements:

- Hazardous waste generators and hazardous waste on-site treatment.
- Underground storage tanks.
- Aboveground storage tanks.
- Hazardous materials release response plans and inventories.
- Risk management and prevention programs.
- Unified Fire Code hazardous materials management plans and inventories.

The plan is implemented at the local level. The Certified Unified Program Agency (CUPA) is the local agency responsible for implementing the Unified Program. The Shasta County Environmental Health Division is the certified CUPA for the Project components located in Shasta County; the Butte County Environmental Health Division is the certified CUPA for the Table Mountain Substation site.

Hazardous Materials Release Response Plans and Inventory Law

The California Hazardous Materials Release Response Plan and Inventory Law of 1985, also known as the Business Plan Act, requires businesses that store hazardous materials on-site to prepare a hazardous materials business plan (HMBP) and submit the plan to local health and fire departments. The HMBP must include details regarding the facility and business conducted at the site; an inventory of hazardous materials handled and stored on-site; an emergency response plan; and a safety and emergency response training program for new employees with an annual refresher course.

Hazardous Waste Handling

DTSC regulates the generation, transportation, treatment, storage, and disposal of hazardous waste. Federal and state laws require hazardous materials users to conduct detailed planning to properly handle, use, store, and dispose of such materials, and to prevent or mitigate injury to health or the environment in the event of an accidental release. Users must store hazardous materials appropriately and train employees to manage them safely.

As specified in the RCRA (described previously in Section 3.9.2.1, *Federal*), individual states may implement their own hazardous waste programs in lieu of the RCRA, as long as the states' programs are at least as stringent as federal RCRA requirements. In California, DTSC regulates the generation, transportation, treatment, storage, and disposal of hazardous waste. The regulations establish criteria for identifying, packaging, and labeling hazardous wastes; prescribe management of hazardous waste; establish permit requirements for hazardous waste treatment, storage, disposal, and transportation; and identify hazardous waste that cannot be disposed of in landfills.

Transport of Hazardous Materials

The State of California has adopted U.S. Department of Transportation regulations for the intrastate movement of hazardous materials. The state also regulates the transport of hazardous waste originating in and passing through California. Both sets of regulations are contained in CCR Title 26.

In California, the CHP and Caltrans are the state agencies primarily responsible for enforcing federal and state regulations and responding to hazardous materials transportation emergencies. The CHP enforces regulations requiring that hazardous materials and hazardous waste be labeled and packed to prevent leakage and spills when in transit, which allows for detailed information to be provided to cleanup crews in the event of an accident. In addition, the CHP regularly inspects licensed transporters to assure their compliance with regulations related to shipment preparation, container identification, and shipping documentation. Caltrans has emergency chemical spill identification teams at as many as 72 locations throughout the state that can respond quickly in the event of a spill.

. Section 32000 of the California Vehicle Code requires the licensing of every motor (common) carrier that transports, for a fee, more than 500 pounds of hazardous materials at one time, and of every carrier, if not for hire, that carries more than 1,000 pounds of a hazardous material of the type requiring placards. Common carriers are licensed by the CHP.

Every hazardous waste package type used by a hazardous materials shipper must undergo tests that imitate some of the possible rigors of travel. Every package is not put through every test. However, most packages must be able to be kept under running water for a time without leaking, dropped fully loaded onto a concrete floor, compressed from both sides for a period of time, subjected to low and high pressure, and frozen and heated alternately.

Occupational Safety

The California Division of Occupational Safety and Health (Cal/OSHA) assumes primary responsibility for developing and enforcing workplace safety regulations in California. Because California has a federally approved OSHA program, it is required to adopt regulations at least as stringent as those found in CFR Title 29.

Cal/OSHA regulations governing the use of hazardous materials in the workplace require employee safety training, use of safety equipment, implementation of accident and illness prevention programs, warnings against exposure to hazardous substances, and preparation of emergency action and fire prevention plans. Cal/OSHA enforces hazard communication program regulations. These regulations contain procedures for identifying and labeling hazardous substances and for communicating information about the hazards related to hazardous substances and their handling. The hazard communication program also requires employers to make material safety data sheets (MSDSs) available to employees and document their employee information and training programs. They also must prepare emergency action plans (identifying escape and evacuation procedures and rescue and medical duties, providing alarm systems, and conducting emergency evacuation training).

Emergency Response

Pursuant to the Emergency Services Act, California has developed a plan to coordinate emergency services provided by federal, state, and local government agencies and private entities. Response to hazardous materials incidents is one part of the State Emergency Plan, which is administered by the Governor's Office of Emergency Services. The Governor's Office of Emergency Services coordinates the responses of other agencies, including EPA, the CHP, the

California Department of Fish and Wildlife (CDFW), the RWQCBs (in this case the Central Valley RWQCB, Redding Branch), the local air districts (in this case, the Shasta County Air Quality Management District), and other local agencies. The State Emergency Plan defines the "policies, concepts, and general protocols" for proper implementation of the California Standardized Emergency Management System, an emergency management protocol that agencies in California must follow during multi-agency response efforts whenever state agencies are involved.

California Public Utilities Code

Section 21658 of the California Public Utilities Code prohibits structural hazards associated with utility poles and lines near airports. If a structure such as a power line or microwave dish tower would be located near an airport or exceed 200 feet in height, a Notice of Proposed Construction or Alteration (Form 7460-1) is required by the Federal Aviation Administration in accordance with Federal Aviation Regulations Part 77, "Objects Affecting Navigable Airspace."

Fire Protection

Based on the International Fire Code, the California Fire Code (CCR Title 24, Chapter 9) was created by the California Building Standards Commission and regulates the use, handling, and storage requirements for hazardous materials at fixed facilities. Like the International Fire Code, the California Fire Code and the California Building Code use a hazards classification system to determine the appropriate measures to incorporate to protect life and property.

The California Public Resources Code includes fire safety regulations that apply to SRAs during the time of year designated as having hazardous fire conditions. During the fire hazard season, these regulations restrict the use of equipment that may produce a spark, flame, or fire; require the use of spark arrestors on equipment that has an internal combustion engine; specify requirements for the safe use of gasoline-powered tools in fire hazard areas; and identify the fire-suppression equipment that must be provided on-site for various types of work in fire-prone areas.

PRC, Sections 4292-4293 require that any person who owns, controls, operates, or maintains any electrical transmission or distribution line maintain a firebreak clearance around and adjacent to any pole, tower, and conductors that carry electric current. The state's Fire Prevention Standards for Electric Utilities (14 CCR Sections 1250–1258) provide specific exemptions from the standards for electric pole and tower firebreaks and electric conductor clearance and identifies when and where the standards apply.

3.9.2.3 Local

CPUC has exclusive jurisdiction over the siting, design, and construction of the Project; therefore, the Project is not subject to local discretionary regulations.

Certified Unified Program Agency

As described previously (see "Unified Hazardous Waste and Hazardous Materials Management Regulatory Program"), the Unified Program is a consolidation of six environmental programs at

the local level. The CUPAs for Shasta and Butte counties are the Shasta County Environmental Health Division and the Butte County Environmental Health Division, respectively.

3.9.3 Applicant Proposed Measures and PG&E Construction Measures

3.9.3.1 Applicant Proposed Measures

The Applicant proposes to implement the following Applicant Proposed Measures (APMs) for hazards and hazardous materials as part of the Fern Road Substation Facilities component of the Project:

APM HAZ-1: A site-specific Spill Prevention, Control, and Countermeasure Plan (SPCCP) would be prepared prior to the initiation of construction. In the event of an accidental spill, the Proposed Project would be equipped with secondary containment that meets SPCCP Guidelines. The secondary containment would be sufficiently sized to accommodate accidental spills.

APM HAZ-2: A Hazardous Materials Management Plan (HMMP) would be prepared and implemented for the Proposed Project. The plan would be prepared in accordance with relevant state and federal guidelines and regulations (e.g., Cal/OSHA). The plan would include the following information related to hazardous materials and waste, as applicable:

- A list of hazardous materials present on-site during construction and O&M to be updated as needed along with product Safety Data Sheets and other information regarding storage, application, transportation, and disposal requirements;
- A Hazardous Materials Communication (i.e., HAZCOM) Plan;
- Assignments and responsibilities of Proposed Project health and safety roles;
- Standards for any secondary containment and countermeasures required for hazardous materials;
- Spill response procedures based on product and quantity. The procedures would include materials to be used, location of such materials within the Proposed Project area, and disposal protocols; and
- Protocols for the management, testing, reporting, and disposal of potentially contaminated soils or groundwater observed or discovered during construction. This would include termination of work within the area of suspected contamination sampling by an OSHA trained individual and testing at a certified laboratory.

The Project would also be equipped with lead-acid batteries to provide backup power for monitoring, alarm, protective relaying, instrumentation and control, and emergency lighting during power outages. Secondary containment would be constructed around and under the battery racks, and the HMMP would address containment from a battery leak.

The plan would be provided to the CPUC prior to construction for recordkeeping. Plan updates would be made and submitted as needed if construction activities change whereas the existing plan does not adequately address the Project.

APM HAZ-3: In the event that soils suspected of being contaminated (on the basis of visual, olfactory, or other evidence) are removed during site grading activities or excavation activities, the excavated soil shall be tested, and if contaminated above hazardous waste levels, shall be contained and disposed of at a licensed waste facility. The presence of known or suspected contaminated soil shall require testing and investigation procedures to be supervised by a qualified person, as appropriate, to meet state and federal regulations.

APM HAZ-4: LSPGC shall implement ongoing fire patrols during the fire season as defined each year by local, state, and federal fire agencies. These dates vary from year to year, generally occurring from late spring through dry winter periods. During Red Flag Warning events, as issued daily by the National Weather Service, all construction/maintenance activities shall cease, with an exception for transmission line testing, repairs, unfinished work, or other specific activities which may be allowed if the facility/equipment poses a greater fire risk if left in its current state. The Proposed Project area is located within an area designated as a Very High or High Fire Hazard Severity Zone; thus, LSPGC will prepare a Construction Fire Prevention Plan prior to construction.

All construction/maintenance crews and inspectors shall be provided with radio and cellular telephone access that is operational in all work areas and access routes to allow for immediate reporting of fires. Communication pathways and equipment shall be tested and confirmed operational each day prior to initiating construction/maintenance activities at each work site. All fires shall be reported to the fire agencies with jurisdiction in the area immediately upon discovery of the ignition. All construction/maintenance personnel shall be trained in fire-safe actions, initial attack firefighting, and fire reporting. All construction/maintenance personnel shall be trained and equipped to extinguish small fires in order to prevent them from growing into more serious threats. All construction/maintenance personnel shall carry at all times a laminated card and be provided a hard hat sticker that list pertinent telephone numbers for reporting fires and defining immediate steps to take if a fire starts. Information on laminated contact cards and hard hat stickers shall be updated and redistributed to all construction/maintenance personnel and outdated cards and hard hat stickers shall be destroyed prior to the initiation of construction/maintenance activities on the day the information change goes into effect.

Construction/maintenance personnel shall have fire suppression equipment on all construction vehicles. Construction/maintenance personnel shall be required to park vehicles away from dry vegetation. Water tanks, fire extinguishers, and/or water trucks shall be sited or available at active project sites for fire protection during construction. The Applicant shall coordinate with applicable local fire departments prior to construction/maintenance activities to determine the appropriate amounts of fire equipment to be carried on vehicles and, should a fire occur, to coordinate fire suppression activities.

APM WQ-1: Because the Proposed Project involves more than an acre of soil disturbance, a SWPPP would be prepared as required by the state NPDES General Permit for Discharges of Stormwater Associated with Construction Activity. This plan would be prepared in accordance with the Water Board guidelines and other applicable erosion and sediment control BMPs. Implementation of the plan would help stabilize disturbed areas and would reduce erosion and sedimentation. The SWPPP would designate BMPs that would be followed during and after construction of the Proposed Project, examples of which may include the following erosion-minimizing measures:

- Using drainage control structures (e.g., straw wattles or silt fencing) to direct surface runoff away from disturbed areas;

- Strictly controlling vehicular traffic;
- Implementing a dust-control program during construction;
- Restricting access to sensitive areas;
- Using vehicle mats in wet areas; or
- Revegetating disturbed areas, where applicable, following construction.

In areas where soils are to be temporarily stockpiled, soils would be placed in a controlled area and would be managed with similar erosion control techniques. Where construction activities occur near a surface waterbody or drainage channel and drainage from these areas flows towards a waterbody or wetland, stockpiles would be placed at least 100 feet from the waterbody or would be properly contained (such as beaming or covering to minimize risk of sediment transport to the drainage). Mulching or other suitable stabilization measures would be used to protect exposed areas during and after construction activities. Erosion-control measures would be installed, as necessary, before any clearing during the wet season and before the onset of winter rains. Temporary measures, such as silt fences or wattles intended to minimize erosion from temporarily disturbed areas, would remain in place until disturbed areas have stabilized.

APM WQ-2: Groundwater encountered during construction would be handled and discharged in accordance with all state and federal regulations including the following:

- Recovered groundwater would be contained on site and tested prior to discharge;
- If testing determines water is suitable for land application, discharge may be applied to flat, vegetated, upland areas, used for dust control, or used in other suitable construction operations (e.g., concrete mixing);
- Land application would be made in a manner that discharge does not result in substantial erosion and would not be made directly to receiving waters or storm drains;
- Water unsuitable for land application would be disposed of at an appropriately permitted facility; and
- Discharge to surface waters or storm drains may occur only if permitted by the agency(ies) with jurisdiction over the resource (e.g., USACE, RWQCB, and/or CDFW, as applicable).

APM PS-1: LSPGC would coordinate construction activities with local law enforcement and fire protection agencies. Emergency service providers would be notified of the timing, location, and duration of construction activities.

APM TRA-1: LSPGC would prepare a Traffic Control Plan to describe measures to be taken to guide traffic (such as signs and workers directing traffic), safeguard construction workers, provide safe passage, and minimize traffic impacts. LSPGC would follow its standard safety practices as needed, including installing appropriate barriers between work zones and transportation facilities, posting adequate signs, and using proper construction techniques. LSPGC would follow the recommendations in this manual regarding basic standards for the safe movement of traffic on highways and streets in accordance with Section 21400 of the California Vehicle Code. If required for obtaining a local encroachment permit, LSPGC would establish a Traffic Management Plan (TMP) to address haul routes, timing of heavy equipment and building material deliveries, potential street and/or lane closures, signing, lighting, and traffic control device placement. Construction activities would be coordinated

with local law enforcement and fire protection agencies. Emergency service providers would be notified as required by the local permit of the timing, location, and duration of construction activities.

APM FIRE-1: Construction Fire Prevention Plan. A Proposed Project-specific Construction Fire Prevention Plan (Plan) for construction of the Proposed Project shall be submitted for review prior to initiation of construction. A draft copy of the Plan shall be provided to the CPUC and state and local fire agencies at least 90 days before the start of any construction activities in areas designated as Very High or High Fire Hazard Severity Zones. Plan reviewers shall also include federal, state, or local agencies with jurisdiction over areas where the Proposed Project is located. The final Plan shall be approved by the CPUC no more than 60 days after receipt from the applicant. The Plan shall be fully implemented throughout the construction period and include the following at a minimum:

- The purpose and applicability of the Plan
- Responsibilities and duties
- Preparedness training and drills
- Procedures for fire reporting, response, and prevention that include:
  - Identification of daily site-specific risk conditions
  - The tools and equipment needed on vehicles and to be on hand at sites
  - Reiteration of fire prevention and safety considerations during tailboard meetings
  - Daily monitoring of the red-flag warning system with appropriate restrictions on types and levels of permissible
- Coordination procedures with federal and local fire officials
- Crew training, including fire safety practices and restrictions
- Method(s) for verifying that all Plan protocols and requirements are being followed

A project fire marshal or similar qualified role shall be established to enforce all provisions of the Construction Fire Prevention Plan as well as perform other duties related to fire detection, prevention, and suppression for the Proposed Project. Construction activities shall be monitored to ensure implementation and effectiveness of the Plan.

Fire Prevention Practices (Construction and Maintenance). The Applicant shall implement ongoing fire patrols during the fire season as defined each year by local, state, and federal fire agencies. These dates vary from year to year, generally occurring from late spring through dry winter periods. During Red Flag Warning events, as issued daily by the National Weather Service, all construction/maintenance activities shall cease, with an exception for transmission line testing, repairs, unfinished work, or other specific activities which may be allowed if the facility/equipment poses a greater fire risk if left in its current state.

All construction/maintenance crews and inspectors shall be equipped with radio or cellular telephone access that is operational in all work areas and access routes to allow for immediate reporting of fires. Communication pathways and equipment shall be tested and confirmed operational each day prior to initiating construction/maintenance activities at each work site. All fires shall be reported to the fire agencies with jurisdiction in the area immediately upon discovery of the ignition.

All construction/maintenance personnel shall be trained in fire-safe actions, initial attack firefighting, and fire reporting. All construction/maintenance personnel shall be trained and equipped to extinguish small fires in order to prevent them from growing into more serious threats. All construction/maintenance personnel shall carry at all times a laminated card and be provided a hard hat sticker that list pertinent telephone numbers for reporting fires and defining immediate steps to take if a fire starts. Information on laminated contact cards and hard hat stickers shall be updated and redistributed to all construction/maintenance personnel, and outdated cards and hard hat stickers shall be destroyed prior to the initiation of construction/maintenance activities on the day the information change goes into effect.

Construction/maintenance personnel shall have fire suppression equipment on all construction vehicles. Construction/maintenance personnel shall be required to park vehicles away from dry vegetation. Water tanks and/or water trucks shall be sited or available at active project sites for fire protection during construction. The Applicant shall coordinate with applicable local fire departments prior to construction/maintenance activities to determine the appropriate amounts of fire equipment to be carried on vehicles and, should a fire occur, to coordinate fire suppression activities.

APM FIRE-2: Fires shall be prevented or minimized by exercising care when operating utility vehicles within the right-of-way and access roads and by parking vehicles away from dry vegetation where hot catalytic converters could present the potential to ignite a fire. Fire protective mats or shields would be used during grinding or welding to prevent or minimize the potential for fire. In addition, the following fire prevention measures would be implemented:

- Because of the isolated nature of this site, the Proposed Project would develop on-site emergency water storage for fire suppression. The water storage system would include an aboveground metallic tank with no less than 1,000 gallons of storage capacity, as well as a pump and hose to dispense water in an emergency situation.
- Livestock grazing, that would be allowed to continue on the property and surround area, prevents fires by reducing flammable fuels in the Proposed Project vicinity. As practicable, livestock grazing programs should be designed and implemented so as to remove grass and forb vegetation immediately adjacent to the Proposed Project site prior to the commencement of fire season (March to September).
- Vegetation that is capable of generating flame lengths greater than 12 feet would be evaluated annually and removed from the surface of the transmission line corridor as appropriate. This would include all woody vegetation types whose maximum average canopy exceeds six feet.

APM FIRE-3: In response to the need for fire mitigation during prolonged emergency response times, any Proposed Project facilities would be designed and constructed with resistance to wildfire ignition and consummation where feasible.

APM FIRE-4: All construction crews and inspectors shall be equipped with radio or cellular telephone access that is operational within the Proposed Project work area to allow for immediate reporting of fires. Fires shall be reported to the fire agencies with jurisdiction in the area upon discovery of the ignition. All construction personnel shall be trained in immediate steps to take if a fire starts, including fire reporting.

APM FIRE-5: LSPGC and/or its contractors shall notify applicable local fire departments of construction activities associated with the Proposed Project prior to construction and

coordinate with emergency service providers regarding potential ingress and egress constraints that may occur.

Prior to construction, an agreement would be in place with agencies providing wildfire response services to the Proposed Project area that would ensure they have access through the gated entrance off Fern Road in case of emergency.

3.9.3.2 PG&E Construction Measures

PG&E would implement the following general (impact) Avoidance and Minimization Measures (AMMs) and BMPs as part of the PG&E Facilities components of the Project.

AMM-9: In designated State Responsibility Areas, equip all motorized equipment with federally or state-approved spark arrestors. Ensure a backpack pump filled with water and a shovel and fire-resistant mats and/or windscreens is onsite during welding. During fire "red flag" conditions as determined by the California Department of Forestry and Fire Protection, prohibit welding. Each fuel truck will carry a large fire extinguisher with a minimum rating of 40 B:C.[10] Clear parking and storage areas of all flammable materials.

BMP-5: Asbestos. If any loadbearing structure (poles, towers, concrete pads, etc.) is to be removed by PG&E, this work may require asbestos testing and notification to the local Air District or California Air Resource Board (CARB). Notify the Environmental Field Specialist (EFS) at least 45 calendar days prior to work commencing. The Air District must be notified at least 10 working days prior to work (demolition) commencing, some districts require 14 days. If the construction start date changes, notify the EFS immediately as notification to the Air District may need to be resubmitted. EFS is responsible for obtaining any necessary permits from the air district prior to start of work.

BMP-6: Combustion Sources. If project or work involves the installation of a combustion source that may require a local air district permit, please work with the EFS and Air SME to evaluate compliance requirements. Combustion sources, depending on HP or MMBtu rating may require an Authority to Construct Permit prior to any installation activities and a Permit to Operate prior to operating.

Typical Combustion Sources that require permits are:

- Engines ≤50 HP;
- Boilers/Heaters that combust natural gas; and
- Flares

BMP-8: Hazardous Materials Business Plan. The Environmental Field Specialist (EFS) shall be notified 30 days prior to a threshold exceeding hazardous material/waste being placed on-site. Threshold limits are: 200 cubic feet of compressed gases (1000 cubic feet for simple asphyxiation or the release of pressure only; carbon dioxide), 500 pounds of solids, or 55 gallons of liquids for more than 30 non-consecutive days. The following jurisdictions require notification for any amount of hazardous material/waste:

Counties: Nevada, San Bernardino (waste only), San Francisco, Santa Clara (call for city specific details), Santa Cruz, Yuba (waste only). *Cities:* Bakersfield (waste only), Berkeley, Healdsburg, Sebastopol, Petaluma, Santa Clara (call for city specific details)

[10] Class B is for flammable liquid fires; Class C is for energized electrical fires.

NOTE: The Project EFS will develop an HMBP if it is required.

BMP-9: Hazardous Waste Management Hazardous Materials Storage. This project may involve the storage of hazardous materials and they must be managed according to regulations and best management practices.

- All releases of hazardous materials must be immediately addressed. Maintain a spill kit onsite during the length of the project. Contact the project EFS for spills of hazardous materials/wastes to determine if agency notifications will be required and/or if additional resources are needed.
- Hazardous materials, greater than 440 lbs. and less than 1001 lbs. can be transported on PG&E vehicles if the proper MOT shipping paper/MSDS accompanies the load. Contact the project EFS for additional guidance in these areas.
- All hazardous materials containers must be marked correctly.
- All hazardous materials signs must be displayed as required.
- Non saturated oily rags (to be laundered) stored in non-combustible containers.
- Emergency equipment such as fire extinguisher, eye wash, MSDS, etc. on-site.
- Hazardous material containers must be in good condition.
- All hazardous materials must be compatible with containers.
- Hazardous materials containers are kept closed.
- Immediately contact the local EFS and stop work if any of the following conditions occur. After hours or if the local EFS is unavailable, please call the Environmental Hotline at 800-874-4043.
  - Discharge or spill of hazardous substance;
  - If an Environmental Regulator visits the site;
  - Visually cloudy/muddy water is observed leaving the work area;
  - An underground storage tank is discovered; or
  - A subsurface component related to site remediation activities (e.g., monitoring well, recovery well, injection well) is discovered. No subsurface components may be impacted.
- If during excavation unanticipated evidence of contamination is identified (e.g., staining, odors), work must cease and when safe to do so, cover the trench with steel plates. In order to minimize impacts to public safety and the environment, place contaminated soil on a polyethylene sheet (4 ml) and cover or place the contaminated soil in lined covered containers. Then contact your local/support EFS to determine the next steps.
- If any subsurface components related to site remediation activities (e.g., monitoring well, recovery well, injection well) are discovered in the path of excavation, work must cease in that location and your EFS must be notified to determine the next steps. No subsurface components may be impacted.

BMP-10: Sulfur Hexafluoride (SF_6) Gas Material/Waste Management. Before accessing any equipment that may contain SF_6 gas byproduct waste, contact your local Environmental Field Specialist (EFS) at least two weeks in advance for assistance in arranging cleanup, transportation and disposal. PSC will retrieve, package, label and transport SF_6 byproducts. All SF_6 waste that is removed from a Substation must have proper shipping papers which could include a remote waste shipping paper or a manifest (manifests require a temporary EPA ID number).

- Substation personnel shall contact PSC to retrieve, package, label, and transport SF_6 byproduct waste (i.e. fluorides of sulfur, metallic fluorides, etc.). All SF_6 byproduct waste that is removed must have proper shipping papers, which could include a remote waste shipping paper or a manifest (manifests require a permanent or temporary EPA ID number).

- SF_6 cylinder and facility inventory shall be managed in accordance with Utility Procedure TD-3350P-001. Advanced Specialty Gas (ASG) provides sole-source service in supplying, replacing, removal and recycling of SF_6 in all facilities. ASG provides 24-hour service in response to events involving SF_6 as well as delivery and removal of all SF_6 cylinders. Contact information: https://www.advancedspecialtygases.com.

BMP-11: SPCC. The local/support EFS shall be notified 30 days prior to an SPCC triggering event occurs (modification to existing or new storage of >1,320 gallons of oil in containers >55 gallons). If the oil volume is contained in anything greater than 55 gallons, the SPCC Plan must be certified by an engineer. The SPCC containment must be installed prior to moving onsite of quantities requiring containment. The PM number must remain open until the local/support EFS notifies you that the plan is certified by an engineer, and any necessary modifications are complete.

BMP-12: Stormwater Measures. For PG&E-owned substations, the Project EFS will provide the Stormwater Group with the following upon completion of the PER: Stormwater Needs Request Form, Soil Disturbance Calculation Spreadsheet, and a KMZ file showing the proposed work area. These documents shall be sent by the Project EFS, via email, to: stormwater@pge.com (if applicable). [Note: LSPGC will obtain the Stormwater Pollution Prevention Plan (SWPPP) for Fern Road Substation and the area immediately adjacent to it containing PG&E's monitoring facilities.]

3.9.4 Environmental Impacts and Mitigation Measures

3.9.4.1 Methodology and Assumptions

The following impact analysis considers potential impacts related to hazards and hazardous materials associated with the construction, operation, and maintenance of the Project. An impact would be considered significant if the Project would result in a release of hazardous materials, the handling of hazardous materials near schools, safety concerns relative to airports, interference with emergency access, or risks of wildland fires.

The Project would be regulated by the various laws and regulations summarized in Section 3.9.2, *Regulatory Setting*. This analysis assumes that the Project would comply with applicable federal, state, and local laws and regulations, and state and local agencies would be expected to continue to enforce applicable requirements to the extent that they do so now. Note that compliance with many of the regulations is a condition of permit approval.

3.9.4.2 Direct and Indirect Effects

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials: *Less than Significant*.

During the construction phase, construction equipment and materials would include fuels, oils and lubricants, solvents and cleaners, cements and adhesives, paints and thinners, degreasers, cement and concrete, and asphalt mixtures, all of which are commonly used in construction. The Project would also include transformers containing mineral oil, which is considered a hazardous material by the State of California. Additional hazardous wastes that could be encountered during construction include contaminated soils, incidental spill waste, and concrete washout. Although none is expected, if preexisting hazardous waste is encountered on the site of the proposed Fern Road Substation or any of the other Project sites, it would be removed and disposed of in a manner consistent with all federal and state regulations. Herbicides and/or pesticides are not proposed for use during construction.

The Project proposes the replacement of approximately eight existing PG&E distribution wood poles. The wood poles to be removed may have been treated with chemicals (e.g., pentachlorophenol oil, creosote, chemonite, and/or chromated copper, depending on the year of installation), which for certain uses and quantities can be considered regulated hazardous materials. Therefore, disposal of the wood poles would require specific testing and handling procedures prescribed by federal and state regulations.

In accordance with APMs HAZ-1 and HAZ-2 (for the Fern Road Substation Facilities) and BMP-8, BMP-9, and BMP-11 (for the PG&E Facilities), a SPCC plan and HMMP would be prepared for the Fern Road Substation Facilities before the start of construction. The plans would be prepared in accordance with relevant federal and state guidelines and regulations (i.e., the Health and Safety Code and California Code of Regulations). All hazardous materials would be stored, handled, and used in accordance with applicable regulations. Safety data sheets would be made available at the construction site for all crew workers. Based on the anticipated volume of hazardous liquid materials, such as fuel, that would be stored and dispensed at the Project's staging area, a SPCCP would be required (in accordance with 40 CFR 112.1 through 112.7 and APM HAZ-1).

Although none is expected, if preexisting hazardous waste is encountered during construction of the Fern Road Substation Facilities, it would be removed and disposed of in a manner consistent with all federal and state regulations, in accordance with APM HAZ-2. Additionally, if any contaminated soils are encountered during construction of the Fern Road Substation Facilities, implementation of APM HAZ-3 would be required, to ensure that the soil was tested, contained, and disposed of at a licensed facility if contamination is present.

The HMMP would include protocols to follow to ensure that wastes generated or encountered during construction of the Fern Road Substation Facilities would be handled, contained, and disposed of according to federal, state, and local regulations. The plan would also describe protocols for the use, transport, storage, management, and disposal of hazardous materials. These protocols could include containment and transport in U.S. Department of Transportation–

approved vessels, use of secondary containment, and training of material handlers to ensure worker safety and reduce cross contamination. Project construction activity would be subject to the Construction General Permit and its required SWPPP, which would include BMPs to control hazardous materials used for construction. (See the details of APM WQ-1, which would be implemented during construction of the Fern Road Substation Facilities.)

Construction waste would be disposed of properly and in accordance with all applicable federal, state, and local laws regarding solid and hazardous waste including, but not limited to, the California Integrated Waste Management Act of 1989, which has set reduction rates for solid waste sent to landfills.

Given compliance with these regulations, APMs, AMMs, and BMPs, any potential impact during Project construction would be less than significant.

Fewer hazardous materials would be transported, stored, used, or disposed of during Project operation and maintenance than during construction. During operation, relatively limited quantities of hazardous materials (e.g., mineral oil for the transformers) would be stored on-site in accordance with regulatory requirements and the HMBP. Given compliance with applicable federal, state, and local regulations and the applicable BMPs and HMBP, any potential impact during Project operation and maintenance would be less than significant.

Implementing APMs HAZ-1, HAZ-2, HAZ-3, and WQ-1 would reduce impacts associated with the Fern Road Substation Facilities related to the transport, use, and disposal of hazardous materials. Implementing BMP-8, BMP-9, and BMP-11 would reduce these impacts as associated with the PG&E Facilities. Additionally, given compliance with applicable federal, state, and local requirements and related BMPs and plans, the Project would not create a significant hazard to the public through the routine transport, use, or disposal of hazardous materials. Therefore, this impact would be less than significant.

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: *Less than Significant.*

During the Project's construction phase, equipment and materials would include fuels, oils and lubricants, solvents and cleaners, cements and adhesives, paints and thinners, degreasers, cement and concrete, and asphalt mixtures, all of which are commonly used in construction. During Project operations, hazardous materials used would include mineral oil for the transformers. The SPCCP and HMMP (required by APMs HAZ-1 and HAZ-2) would include BMPs for all activities at the Fern Road Substation Facilities, as well as spill control and spill response measures. In the unlikely event of a spill at the Fern Road Substation, the SPCCP would include appropriate measures requiring workers to cease work activities, contain the release, and enact cleanup protocols, which would include notifying appropriate agencies and using materials stored on-site (e.g., absorbent pads) to minimize the spread or exposure. Additionally, BMP-8, BMP-9, and BMP-11 would be implemented to address similar construction impacts at the PG&E Facilities.

Accidents or mechanical failure of heavy equipment could result in the accidental release of fuel, lubricants, hydraulic fluid, or other hazardous substances. When they occur on construction sites, these types of spills are typically small, localized, and cleaned up in a timely manner. Construction contractors are contractually responsible for their hazardous materials and are required under their contract to store and dispose of these materials properly in compliance with federal and state laws, including through implementation of an SPCCP and HMMP.

As discussed previously, the Project would require coverage under the Construction General Permit (also a requirement of APM WQ-1). Thus, the Project would be subject to a SWPPP, which would outline BMPs (e.g., erosion control, sediment control, and waste management) to contain a potential release and prevent any such release from reaching an adjacent waterway or stormwater collection system. Therefore, implementation of the SWPPP would minimize potential adverse effects on the environment.

By implementing APMs HAZ-1, HAZ-2, and WQ-1 (for the Fern Road Substation Facilities) and BMP-8, BMP-9, and BMP-11 (for the PG&E Facilities), the Project would comply with applicable federal, state, and local regulations and the applicable BMPs, SPCCP, and HMMP. Given this compliance, the Project would not result in significant hazards to the public or environment related to an accidental release of hazardous materials. Impacts related to the potential for an accidental release of hazardous materials would be less than significant.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school: *No Impact.*

The Project sites are not located within 0.25 mile of a school. The nearest school to the Fern Road Substation site is Foothill High School in the town of Montgomery Creek, approximately 14 miles to the northeast. The Project would not emit hazardous emissions or handle hazardous materials within 0.25 mile of a school. No impact would occur.

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: *Less than Significant.*

The Phase I assessment indicated that the vicinity of the Fern Road Substation site is not included on the list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 (Cortese List), nor is it near any such site. An independent review of the EnviroStor and GeoTracker hazardous materials databases confirms that the Fern Road Substation site and the Table Mountain Substation are not included on the Cortese List.

However, according to GeoTracker and EnviroStor, the Round Mountain Substation and the PG&E Redding Service Center are included on the Cortese List, listed as closed LUST sites. The nearest hazardous materials site to the Fern Road Substation site is a closed LUST site, approximately 1.5 miles to the southeast. As discussed in Section 3.9.1.1, *Records Search of Hazardous Materials Databases*, both sites are former (closed) LUST cleanup sites where a fuel leak occurred on-site. The Round Mountain Substation LUST site was remediated and closed in 1990 and the PG&E Redding Service Center site was remediated and closed in 2003.

Because the contamination associated with the LUST cleanup sites has been remediated and/or removed and closed, Project activities at these sites are not expected to encounter any residual contamination. Therefore, the Project would not result in a significant hazard to the public or the environment, and the impact would 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 two miles of a public airport or public use airport, result in a safety hazard or excessive noise for people residing or working in the project area: *Less than Significant.*

The Project sites are not located within 2 miles of a public or public use airport, except for the PG&E Redding Service Center. The PG&E Redding Service Center is immediately west of the Redding Municipal Airport and lies within the Airport Influence Area.

As discussed in Chapter 2, *Project Description*, a new microwave tower or monopole would be constructed at the existing PG&E Redding Service Center and would range in height from approximately 30 to 100 feet. Section 21658 of the California Public Utilities Code states that:

> *7. No public utility shall construct any pole, pole line, distribution or transmission tower, or tower line, or substation structure in the vicinity of the exterior boundary of an aircraft landing area of any airport open to public use, in a location with respect to the airport and at a height so as to constitute an obstruction to air navigation, as an obstruction is defined in accordance with Part 77 of the Federal Aviation Regulations, Federal Aviation Administration, or any corresponding rules or regulations of the Federal Aviation Administration, unless the Federal Aviation Administration has determined that the pole, line, tower, or structure does not constitute a hazard to air navigation.*

According to the *Comprehensive Land Use Plan for the Redding Municipal Airport and Surrounding Area* and the *Draft Airport Master Plan for Redding Municipal Airport*, the Project sites are not within any safety zone, noise contours, or aircraft landing area. The Project would not result in a safety hazard or excessive noise for people residing or working in the area. The impact would be less than significant.

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan: *Less than Significant.*

The emergency operations plans for Shasta County and Butte County do not delineate specific evacuation routes. Should an incident occur, emergency personnel would determine evacuation routes at the time of the incident, based on its location and extent.

Primary access to the proposed Fern Road Substation site for construction, operation, and maintenance would be from Fern Road, an existing public road that provides access to the Project site from Whitmore Road via Old 44 Drive, from State Route 44 and Interstate 5. No improvements or road closures along Fern Road are expected to be required as part of the Project.

Nonetheless, these roads are public ground transportation routes, and Project construction could affect traffic in these areas by adding congestion or reducing the capacity of a given roadway. To

ensure that construction of the Fern Road Substation Facilities would not affect nearby roadways, implementation of APMs PS-1 and TRA-1 would be required. APM PS-1 requires the Applicant to coordinate with local law enforcement and fire protection agencies and notify emergency service providers of construction activities. APM TRA-1 requires the preparation of a traffic control plan and traffic management plan, which would include protocols for minimizing traffic impacts and would address haul routes and potential closures, all to be coordinated with law enforcement and emergency service providers. Lane closures are not anticipated during construction activities at the PG&E Round Mountain Substation, Table Mountain Substation, Cascade Substation, or Redding Service Center; therefore, construction activities would not result in an impact related to impairment of or interference with an adopted emergency response or evacuation plan.

Given proper implementation of APMs PS-1 and TRA-1 during construction activities for the Fern Road Substation Facilities and PG&E Facilities, impacts of the Project related to impairment of or interference with emergency response or evacuations plans would be less than significant.

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires: *Less than Significant.*

Based on mapping by CAL FIRE, the Fern Road Substation and Round Mountain Substation sites and vicinity are within a VHFHSZ in the SRA; the sites are not mapped within an LRA. Additionally, the vicinity of the Fern Road Substation site is surrounded by areas mapped as a VHFHSZ. The PG&E Redding Service Center is not within a VSFHSZ in either an SRA or an LRA. The Table Mountain Substation site is not within a VHFHSZ; however, it is within an area mapped as a moderate FHSZ in an SRA.

The use of construction equipment and the possible temporary on-site storage of fuels and/or other flammable construction chemicals could pose an increased fire risk, which could result in injury to workers or the public during construction.

To reduce potential fire hazards during construction, a Project-specific construction fire prevention plan would be prepared for the Fern Road Substation Facilities pursuant to APMs HAZ-4 and FIRE-1, which include minimization and response measures to help reduce the risk of ignition of a fire and to establish protocols for suppressing a fire. Additionally, AMM-9 would be implemented during construction activities at the PG&E Facilities, which would include minimization and response measures to further help reduce the risk of ignition of a fire.

Under Section 35 of General Order 95, CPUC regulates all aspects of design, construction, and O&M of electrical power lines and fire safety hazards for utilities subject to its jurisdiction. In addition, the Fire Prevention Standards for Electric Utilities (14 CCR Sections 1250–1258) provide definitions, maps, specifications, and clearance standards for projects under the jurisdiction of California Public Resources Code Sections 4292 and 4293 in state responsibility zones. The Applicant would create a fire break around the Fern Road Substation in accordance with all applicable federal and state regulations.

Additionally, the Applicant would implement APMs FIRE-2 through FIRE-5 during operations of the Fern Road Substation Facilities. These APMs require enhanced measures to prevent and minimize the potential for vehicles to ignite a fire; enhanced resistance to wildfire ignition and consummation; cellular and radio contact between personnel for immediate fire reporting; and coordination with emergency service providers.

Implementing APM HAZ-4 and APMs FIRE-1 through FIRE-5, which include the preparation and implementation of a construction fire prevention plan, and Project compliance with fire safety regulations and hazardous materials storage requirements, would minimize the potential for fire creation. Given implementation of these measures, the impacts related to the risk of wildland fires during construction and operation of the Fern Road Substation Facilities would be less than significant. Additionally, AMM-9 would be implemented during construction activities at all of the Project's PG&E Facilities sites. Therefore, impacts related to wildfire would be less than significant.

3.9.5 References

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3.10 Hydrology and Water Quality

Issues	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
X. HYDROLOGY AND WATER QUALITY — Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i) result in substantial erosion or siltation on- or off-site;	☐	☐	☒	☐
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	☒	☐
iii) 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; or	☐	☐	☒	☐
iv) impede or redirect flood flows?	☐	☐	☒	☐
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

3.10.1 Environmental Setting

This section discusses the existing hydrologic and water quality conditions in the vicinity of the Project sites and evaluates the potential hydrologic and water resource impacts associated with the Project. As described in Chapter 2, *Project Description,* the Project consists of two major components: the Fern Road Substation Facilities and the Pacific Gas and Electric Company (PG&E) Facilities. The Fern Road Substation Facilities site and some of the PG&E Facilities sites (e.g., interconnection facilities, distribution modifications) are located in the vicinity of Fern Road. The Project components at the other PG&E Facilities sites (i.e., Round Mountain Substation, Cascade Substation, Table Mountain Substation, Redding Service Center) would be smaller in scope and located at existing PG&E industrial sites in Shasta and Butte counties. Where necessary, the components are discussed individually as the Fern Road Substation Facilities or the PG&E Facilities.

3.10.1.1 Regional Setting

Climate, Precipitation, and Site Topography

Shasta County has a Mediterranean climate, characterized by hot, dry summers and cold winters. Annual precipitation falling in the form of rain and snow measured at Round Mountain is 63 inches on average, based on a 40-year data set (WRCC 2010). The Project sites are in the southern portion of the Cascade Range, in the northern Sacramento River Hydrologic Region. Shasta County is located at the headwaters of California's largest watershed, the Sacramento River Basin. As noted in the Shasta County General Plan, about 6.5 percent of all surface runoff in California originates in Shasta County, amounting to more than one-fourth of the total surface runoff within the Sacramento River system, the state's largest source of domestic and agricultural water supplies (Shasta County 2004). The Fern Road Substation site, as well as the PG&E interconnection and distribution modification sites, sit at an elevation of approximately 2,000 feet above mean sea level (amsl). The topography at those sites is variable and generally slopes to the southwest at an approximate grade of 3 percent. There is approximately 15 feet of topographic relief across the Fern Road Substation site (Terracon 2021).

The other PG&E Facilities sites in Shasta County include the Redding Service Center and the Round Mountain Substation. The Round Mountain Substation is approximately 10 miles north of the proposed Fern Road Substation site at an elevation of 2,140 feet amsl, and the PG&E Redding Service Center is within the city of Redding and is located at an elevation of 148 feet amsl. The PG&E Table Mountain Substation is in Butte County at an elevation of 181 feet amsl.

Surface Water Hydrology

The Fern Road Substation site is located in the Cow Creek watershed, east of the city of Redding. The watershed contains five main tributaries of the Sacramento River: Little Cow Creek, Oak Run Creek, Clover Creek, Old Cow Creek, and South Cow Creek. The closest of these waterways to the Fern Road Substation site is Old Cow Creek, located approximately 0.5 mile to the south.

Although there are no waterways within the PG&E Facilities sites, there are several waterways close by. The PG&E Redding Service Center is approximately 0.5 mile east of Clover Creek (an ephemeral waterway) and the Table Mountain Substation is approximately 800 feet west of Cottonwood Creek.

Groundwater

Groundwater basins underlying the Fern Road Substation site and associated facilities are undefined. The closest defined groundwater basin is the Redding Groundwater Basin, Enterprise Subbasin, which is described by the California Department of Water Resources (DWR) as a medium-priority subbasin. Redding and the surrounding communities utilize both surface water and groundwater in varying proportions, depending on availability and drought conditions.

Depth to groundwater in an undefined groundwater basin can be difficult to determine. A geotechnical report prepared for the Project did not encounter groundwater in any of its borings, some of which extended 62 feet below the ground surface (Terracon 2021).

Water Quality

Surface waters and groundwater in Shasta County have been described as generally having high quality from a drinking water perspective (Shasta County 2004).

Flooding and Inundation Hazards

The Federal Emergency Management Agency (FEMA) has developed mapping of flood hazard risk areas through the National Flood Insurance Program (NFIP). The Fern Road Substation site and proposed PG&E interconnection and distribution modification sites are located in Zone X, classified by FEMA as an area of minimal flood hazard (FEMA 2011).

The California Department of Water Resources Division of Safety of Dams (DSOD) maintains a list of jurisdictional dams in California (DSOD 2021) and maintains dam breach inundation maps (DSOD 2022). The Project sites are not located in areas subject to tsunamis, seiches, or dam inundation. The closest dam to the Fern Road Substation site is Truett Dam, located more than 10 miles to the south. In the unlikely event of a dam failure, projected inundation would be confined to the channel of Ash Creek and flow to the southwest, away from the Fern Road Substation site (DSOD 2022). The Table Mountain Substation is the closest of the proposed PG&E Facilities to an inundation zone. At its closest boundary, the substation is approximately 0.6 mile northeast of the inundation zone of Oroville Dam. However, the substation is upgradient and outside of the inundation zone (DSOD 2022). There are no other proposed PG&E facilities modifications near nor within an identified inundation zone.

3.10.2 Regulatory Setting

3.10.2.1 Federal

Clean Water Act

The Clean Water Act (CWA), enacted by Congress in 1972 and amended several times since its inception, is the primary federal law regulating water quality in the United States and forms the basis for several state and local laws throughout the country. Its objective is to reduce or eliminate water pollution in the nation's rivers, streams, lakes, and coastal waters. The CWA authorizes the U.S. Environmental Protection Agency (EPA) to implement federal water pollution control programs, such as setting water quality standards for contaminants in surface water, establishing wastewater and effluent discharge limits for various industry categories, and imposing requirements for controlling nonpoint-source pollution. At the federal level, the CWA is administered by EPA and the U.S. Army Corps of Engineers (USACE). At the state and regional levels, the act is administered and enforced by the State Water Resources Control Board (State Water Board) and the nine regional water quality control boards (regional water boards). The relevant sections of the CWA are summarized below.

CWA Section 402: National Pollutant Discharge Elimination System

The National Pollutant Discharge Elimination System (NPDES) permit program under Section 402 of the CWA is one of the primary mechanisms for controlling water pollution through the regulation of sources that discharge pollutants into waters of the United States. EPA has delegated authority for issuing NPDES permits in California to the State Water Board, which has

nine regional water boards. The NPDES permit program is discussed in detail below in the *State* section.

Federal Emergency Management Agency

Under Executive Order 11988, FEMA is responsible for management of floodplain areas, defined as the lowland and relatively flat areas adjoining inland and coastal waters subject to a 1 percent or greater chance of flooding in any given year (the 100-year floodplain). FEMA is a federal agency whose overall mission is to support citizens and first responders to ensure that the United States builds, sustains, and improves capabilities to prepare for, protect against, respond to, recover from, and mitigate all hazards. With regard to flooding, FEMA provides information, guidance, and regulation associated with flood prevention, mitigation, and response. Under Executive Order 11988, FEMA requires that local governments covered by the federal flood insurance program pass and enforce a floodplain management ordinance that specifies minimum requirements for any construction within the 100-year floodplain. Through its Flood Insurance and Mitigation Administration, FEMA manages the NFIP, which includes flood insurance, floodplain management, and flood hazard mapping functions. FEMA determines flood elevations and floodplain boundaries and distributes the flood insurance rate maps used in the NFIP. These maps identify the locations of special flood hazard areas, including 100-year floodplains (i.e., areas that would have a 1 percent annual chance of flooding).

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 NFIP to adopt certain flood hazard reduction standards for construction and development in 100-year floodplains. The Project sites are not located in a floodway or in an identified flood hazard area (FEMA 2011).

3.10.2.2 State

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act) (Division 7 of the California Water Code) provides for protection of the quality of waters of the State of California for use and enjoyment by the people of California. The act also establishes provisions for a statewide program for the control of water quality, recognizing that waters of the state are increasingly influenced by interbasin water development projects and other statewide considerations, and that factors such as precipitation, topography, population, recreation, agriculture, industry, and economic development vary regionally within the state. The statewide program for water quality control is therefore administered most effectively on a local level with statewide oversight. Within this framework, the act establishes the authority of the State Water Board and the nine regional water boards. The State Water Board administers water rights, sets state policy for water pollution control, and implements various water quality functions throughout the state, while the regional water boards conduct planning, permitting, and most enforcement activities.

Waters within the Central Valley Region, including those in Shasta and Butte counties, are under the jurisdiction of the Central Valley Regional Water Board. Regional water quality in Shasta

County is administered through the Redding office. The Central Valley Regional Water Board prepares and periodically updates the *Water Quality Control Plan for the Sacramento River Basin and San Joaquin River Basin* (Basin Plan). Pursuant to the CWA NPDES program, the Porter-Cologne Act also delegates the authority to the regional water boards to issue NPDES permits.

Water Quality Control Plan—Sacramento River Basin and the San Joaquin River Basin

The Basin Plan is the effective water quality control plan for the Central Valley Region. The Central Valley Regional Water Board establishes regulatory standards and objectives for water quality in the Central Valley Region. Because beneficial uses, together with their corresponding water quality objectives, are defined pursuant to federal regulations as water quality standards, the Basin Plan provides a regulatory reference for meeting federal and state requirements for water quality control and is the basis for standards outlined in discharge permits. Adoption or revision of surface water standards is subject to approval by EPA.

Beneficial uses of Cow Creek (the closest surface water to the Fern Road Substation site) include municipal and domestic supply, irrigation, stock watering, industrial power, contact and noncontact recreation, cold water habitat, cold water migration, spawning, and wildlife habitat. Existing beneficial uses of the Sacramento River from Shasta Dam to the Colusa Drain Basin (which passes through Redding) include municipal and domestic supply, irrigation, stock watering, service supply (industrial), power, contact and noncontact recreation, warm and cold freshwater habitat, warm and cold water migration and spawning, wildlife habitat, and navigation (Central Valley Regional Water Board 2019).

NPDES General Permit for Discharges of Stormwater Associated with Construction Activities (Order 2009-0009-DWQ)

The NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Order 2009-0009-DWQ, NPDES No. CAS000002; as amended by Orders 2010-0014-DWQ and 2012-006-DWQ), commonly referred to as the Construction General Permit, is required for projects that would result in disturbance of 1 or more acres of soil during construction. The permit regulates stormwater discharges associated with construction or demolition activities, such as clearing and excavation; construction of buildings; and linear projects, including installation of power lines and other utility lines. Because the Project would result in the disturbance of more than 1 acre of soil, it would be subject to the Construction General Permit.

The Construction General Permit requires the development and implementation of a storm water pollution prevention plan (SWPPP) that includes specific best management practices (BMPs) designed to prevent sediment and other pollutants from contacting stormwater and from moving off-site into receiving waters. The BMPs fall into several categories, including erosion control, sediment control, waste management and good housekeeping, and are intended to protect surface water quality by preventing the off-site migration of eroded soil and construction-related pollutants from the construction area. Routine inspection of all BMPs is required under the provisions of the Construction General Permit. In addition, the SWPPP is required to contain a visual monitoring program for visible constituents (such as silt and suspended sediment) and a

chemical monitoring program for non-visible pollutants. Additional details regarding the Construction General Permit are provided in Section 3.7, G*eology and Soils*.

Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act (SGMA) of 2014 (Water Code Section 10723) provides a framework for sustainable management of groundwater resources. In groundwater basins designated by DWR as medium and high priority, local public agencies and locally controlled groundwater sustainability agencies are required to develop and implement groundwater sustainability plans (GSPs) or alternatives to GSPs. Each GSP or alternative must include measurable objectives and interim milestones for achieving sustainability goals for the given groundwater basin. Plans must also include a physical description of the basin, including information on groundwater levels, groundwater quality, subsidence and groundwater/surface water interaction, historical and projected water demand and supply data, monitoring and management provisions, and a description of how the plan would affect other plans.

The site of the proposed Fern Road Substation is not in a location with a defined groundwater basin, and therefore, is not subject to the SGMA. However, it is likely that water used for construction would be sourced from the City of Redding, drawn in part from groundwater sources in the Enterprise subbasin. Furthermore, activities proposed as part of the PG&E Facilities would take place at off-site locations at the Redding Service Center and at the Round Mountain and Table Mountain substations and may also utilize water from the Enterprise subbasin, which is a groundwater basin subject to the SGMA. The Enterprise subbasin GSP is discussed in the context of local regulations.

3.10.2.3 Local

The California Public Utilities Commission (CPUC) has exclusive jurisdiction over the siting, design, and construction of the Project; therefore, the Project is not subject to local discretionary regulations. The details below that relate to local regulations are provided for informational purposes.

Shasta County General Plan

The following policies from the water resources and flood protection sections of the Shasta County General Plan are included for informational purposes (Shasta County 2004).

> ***Policy W-a:*** Sedimentation and erosion from proposed developments shall be minimized through grading and hillside development ordinances and other similar safeguards as adopted and implemented by the County.
>
> ***Policy W-b:*** Septic systems, waste disposal sites, and other sources of hazardous or polluting materials shall be designed to prevent contamination to streams, creeks, rivers, reservoirs, or groundwater basins in accordance with standards and water resource management plans adopted by the County.
>
> ***Policy FL-h:*** The impacts of new development on the floodplain or other downstream areas due to increased runoff from that development shall be mitigated. In the case of the urban or suburban areas, and in the urban and town centers, the County may require urban

or suburban development to pay fees which would be used to make improvements on downstream drainage facilities in order to mitigate the impacts of upstream development.

Shasta County Code Chapter 12.12 Grading Excavation and Filling

The Shasta County Code, Chapter 12.12.070, contains provisions and permit requirements for grading, excavating, and filling activities in Shasta County. The (grading) permit shall include a grading plan and set forth terms and conditions of grading operations that conform to the county's standards. The permit requires a permanent erosion plan to be implemented upon completion of a project. For a plan that disturbs more than 5 acres, or where the director of the department of resource management or public works determines that a project may adversely affect a watercourse, additional engineering requirements apply. The code contains seasonal limits on wet-weather/season construction and requirements for ongoing maintenance of erosion control measures during the duration of the project and for 3 years after completion of a project (Shasta County 2022).

Enterprise Anderson Groundwater Sustainability Agency City of Redding

Enterprise Groundwater Sustainability Plan

The City of Redding and Shasta County, along with various other member agencies, formed the Enterprise Anderson Groundwater Sustainability Agency for the sustainable management of groundwater resources in the basin. The Enterprise subbasin is located in the Redding Area Groundwater Basin (in the northernmost portion of the Sacramento River Basin) and was determined by DWR to be a medium-priority groundwater basin; therefore, the subbasin is subject to the SGMA. The Enterprise subbasin has two water source types: surface water and groundwater. Throughout the subbasin, groundwater is used by rural residents via small community systems; however, during times of drought, water districts in the subbasin are more reliant on groundwater (EAGSA 2022). Because the water required for the majority of the Project's construction would likely be supplied by the City of Redding, the Enterprise GSP would likely be applicable to the Project.

3.10.3 Applicant Proposed Measures and PG&E Construction Measures

3.10.3.1 Applicant Proposed Measures

The following Applicant Proposed Measures (APMs) have been proposed to reduce or avoid potential impacts on hydrology and water quality, as applicable to the Fern Road Substation Facilities portion of the Project.

APM WQ-1: Because the Project involves more than an acre of soil disturbance, a SWPPP would be prepared as required by the state NPDES General Permit for Discharges of Stormwater Associated with Construction Activity. This plan would be prepared in accordance with the Water Board guidelines and other applicable erosion and sediment control BMPs. Implementation of the plan would help stabilize disturbed areas and would reduce erosion and sedimentation. The SWPPP would designate BMPs that would be followed during and after construction of the Project, examples of which may include the following erosion-minimizing measures:

- Using drainage control structures (e.g., straw wattles or silt fencing) to direct surface runoff away from disturbed areas;
- Strictly controlling vehicular traffic;
- Implementing a dust-control program during construction;
- Restricting access to sensitive areas;
- Using vehicle mats in wet areas; or
- Revegetating disturbed areas, where applicable, following construction.

In areas where soils are to be temporarily stockpiled, soils would be placed in a controlled area and would be managed with similar erosion control techniques. Where construction activities occur near a surface waterbody or drainage channel and drainage from these areas flows towards a waterbody or wetland, stockpiles would be placed at least 100 feet from the waterbody or would be properly contained (such as berming or covering to minimize risk of sediment transport to the drainage). Mulching or other suitable stabilization measures would be used to protect exposed areas during and after construction activities. Erosion-control measures would be installed, as necessary, before any clearing during the wet season and before the onset of winter rains. Temporary measures, such as silt fences or wattles intended to minimize erosion from temporarily disturbed areas, would remain in place until disturbed areas have stabilized.

APM WQ-2: Groundwater encountered during construction would be handled and discharged in accordance with all state and federal regulations including the following:

- Recovered groundwater would be contained on site and tested prior to discharge;
- If testing determines water is suitable for land application, discharge may be applied to flat, vegetated, upland areas, used for dust control, or used in other suitable construction operations (e.g., concrete mixing);
- Land application would be made in a manner that discharge does not result in substantial erosion and would not be made directly to receiving waters or storm drains;
- Water unsuitable for land application would be disposed of at an appropriately permitted facility; and
- Discharge to surface waters or storm drains may occur only if permitted by the agency(ies) with jurisdiction over the resource (e.g., USACE, RWQCB, and/or CDFW, as applicable).

APM HAZ-1: A site-specific SPCCP would be prepared prior to the initiation of construction. In the event of an accidental spill, the Project would be equipped with secondary containment that meets SPCCP Guidelines. The secondary containment would be sufficiently sized to accommodate accidental spills.

APM HAZ-2: A HMMP would be prepared and implemented for the Project. The plan would be prepared in accordance with relevant state and federal guidelines and regulations (e.g., Cal/OSHA). The plan would include the following information related to hazardous materials and waste, as applicable:

- A list of hazardous materials present on-site during construction and O&M to be updated as needed along with product Safety Data Sheets and other information regarding storage, application, transportation, and disposal requirements;
- A Hazardous Materials Communication (i.e., HAZCOM) Plan;
- Assignments and responsibilities of Project health and safety roles;
- Standards for any secondary containment and countermeasures required for hazardous materials;
- Spill response procedures based on product and quantity. The procedures would include materials to be used, location of such materials within the Proposed Project area, and disposal protocols; and
- Protocols for the management, testing, reporting, and disposal of potentially contaminated soils or groundwater observed or discovered during construction. This would include termination of work within the area of suspected contamination sampling by an OSHA trained individual and testing at a certified laboratory.

The Project would also be equipped with lead-acid batteries to provide backup power for monitoring, alarm, protective relaying, instrumentation and control, and emergency lighting during power outages. Secondary containment would be constructed around and under the battery racks, and the HMMP would address containment from a battery leak.

The plan would be provided to the CPUC prior to construction for recordkeeping. Plan updates would be made and submitted as needed if construction activities change whereas the existing plan does not adequately address the Project.

APM HAZ-3: In the event that soils suspected of being contaminated (on the basis of visual, olfactory, or other evidence) are removed during site grading activities or excavation activities, the excavated soil shall be tested, and if contaminated above hazardous waste levels, shall be contained and disposed of at a licensed waste facility. The presence of known or suspected contaminated soil shall require testing and investigation procedures to be supervised by a qualified person, as appropriate, to meet state and federal regulations.

3.10.3.2 PG&E Construction Measures

The following construction measures including avoidance and minimization measures (AMMs) and BMPs are applicable to water resources considerations and would be implemented by PG&E for the PG&E Facilities portion of the Project.

AMM-2: Park vehicles and equipment on pavement, existing roads, or other disturbed or designated areas (barren, gravel, compacted dirt).

AMM-3: Use existing access and ROW roads. Minimize the development of new access and ROW roads, including clearing and blading for temporary vehicle access in areas of natural vegetation.

AMM-11: Utilize standard erosion and sediment control BMPs (pursuant to the most current version of PG&E's Stormwater Field Manual for Construction Best Management Practices) to prevent construction site runoff into waterways.

AMM-12: Stockpile soil within established work site boundaries and locate stockpiles so as not to enter water bodies, stormwater inlets, other standing bodies of water. Cover stockpiled soil prior to precipitation events.

AMM-15: Prohibit vehicular and equipment refueling within 250 feet of the edge of wetlands, streams, or waterways. If refueling must be conducted closer to wetlands, construct a secondary containment area subject to review by an environmental field specialist and/or biologist. Maintain spill prevention and cleanup equipment in refueling areas.

AMM-16: Maintain a buffer of 50 feet from the edge of wetlands, ponds, or riparian areas. If maintaining the buffer is not practicable because the covered activity footprint is within the buffered area, other measures as prescribed by the biologist or the HCP administrator to minimize impacts such as flagging access routes or paths, requiring foot access, restricting work until the dry season, or requiring a biological monitor during the activity.

BMP-2: Identify wetlands, ponds, and riparian areas and establish and maintain a buffer of 50 feet around wetlands, ponds, and riparian areas. If maintaining the buffer is not practicable because the work sites are within any part of the buffered area, the field crew will implement other measures as prescribed by the biologist to minimize habitat impacts. These measures may include flagging access, requiring foot access, restricting work until the dry season, or requiring a biological monitor during the activity. Activities must maintain the hydrology necessary to support the wetland, pond, or riparian area (inclusive of downstream).

BMP-9: Hazardous Waste Management Hazardous Materials Storage. This project may involve the storage of hazardous materials and they must be managed according to regulations and best management practices: All releases of hazardous materials must be immediately addressed. Maintain a spill kit onsite during the length of the project. Contact the project EFS for spills of hazardous materials/wastes to determine if agency notifications will be required and/or if additional resources are needed. Hazardous materials, greater than 440 lbs and less than 1001 lbs can be transported on PG&E vehicles if the proper MOT shipping paper/MSDS accompanies the load. Contact the project EFS for additional guidance in these areas.

- All hazardous materials containers must be marked correctly.
- All hazardous materials signs must be displayed as required.
- Non saturated oily rags (to be laundered) stored in non-combustible containers.
- Emergency equipment such as fire extinguisher, eye wash, MSDS, etc. on-site.
- Hazardous material containers must be in good condition.
- All hazardous materials must be compatible with containers.
- Hazardous materials containers are kept closed.
- Immediately contact the local EFS and stop work if any of the following conditions occur. After hours or if the local EFS is unavailable, please call the Environmental Hotline at 800-874-4043.
  - Discharge or spill of hazardous substance.
  - If an Environmental Regulator visits the site;
  - Visually cloudy/muddy water is observed leaving the work area;

  - An underground storage tank is discovered; or
  - A subsurface component related to site remediation activities (e.g., monitoring well, recovery well, injection well) is discovered. No subsurface components may be impacted.

- If during excavation unanticipated evidence of contamination is identified (e.g., staining, odors), work must cease and when safe to do so, cover the trench with steel plates. In order to minimize impacts to public safety and the environment, place contaminated soil on a polyethylene sheet (4 ml) and cover or place the contaminated soil in lined covered containers. Then contact your local/support EFS to determine the next steps.
- If any subsurface components related to site remediation activities (e.g., monitoring well, recovery well, injection well) are discovered in the path of excavation, work must cease in that location and your EFS must be notified to determine the next steps. No subsurface components may be impacted.

BMP-11: SPCC. The local/support EFS shall be notified 30 days prior to an SPCC triggering event occurs (modification to existing or new storage of >1,320 gallons of oil in containers >55 gallons). If the oil volume is contained in anything greater than 55 gallons, the SPCC Plan must be certified by an engineer. The SPCC containment must be installed prior to moving onsite of quantities requiring containment. The PM number must remain open until the local/support EFS notifies you that the plan is certified by an engineer, and any necessary modifications are complete.

BMP-12: Stormwater Measures. For PG&E-owned substations, the Project EFS will provide the Stormwater Group with the following upon completion of the PER: Stormwater Needs Request Form, Soil Disturbance Calculation Spreadsheet, and a KMZ file showing the proposed work area. These documents shall be sent by the Project EFS, via email, to: stormwater@pge.com (if applicable). [LSPGC will obtain the Stormwater Pollution Prevention Plan (SWPPP) for Fern Road Substation and the area immediately adjacent to it containing PG&E's monitoring facilities.]

3.10.4 Environmental Impacts

3.10.4.1 Methodology and Assumptions

This impact analysis considers the potential impacts on hydrology and water quality associated with the construction, operation, and maintenance phases of the Project. The analysis considers potential direct, indirect, and cumulative impacts on water resources as well as any applicant proposed measures, construction measures, and/or mitigation measures that would be implemented to avoid or minimize such impacts, as appropriate. For the purposes of this analysis, water resources comprise surface waters, groundwater, and associated water quality considerations. This analysis draws from information provided in the aquatic resources' delineation included in the biological resources technical report prepared by the Applicant (Heritage Environmental 2022).

This analysis assumes that the Project would be compliant with the various laws, regulations, and policies governing water quality and hydrology as summarized in Section 3.10.2, *Regulatory Setting*. Compliance by the Project with applicable federal, state, and local laws and regulations is assumed in this analysis, and state and local agencies would be expected to continue to enforce

applicable requirements to the extent that they do so now. Note that compliance with many of the regulations would be a condition of permit approval.

3.10.4.2 Direct and Indirect Effects

a, e) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality, conflict with or obstruct a water quality control plan or sustainable groundwater management plan: *Less than Significant.*

During the construction phase, construction equipment and materials would include fuels, oils and lubricants, solvents and cleaners, cements and adhesives, paints and thinners, degreasers, cement and concrete, and asphalt mixtures, which are all commonly used in construction, and could be stored in limited quantities on-site. In the absence of proper controls, these construction activities could result in accidental spills or disposal of potentially harmful materials used during construction that could wash into and pollute surface waters on-site and/or worsen the water quality of downstream receiving waters. In addition, sediment and other pollutants could be mobilized and transported off-site by stormwater runoff, potentially degrading the water quality in off-site drainages, surface water, and groundwater bodies.

Because construction of the Project would involve more than 1 acre of soil disturbance, a SWPPP would be required for construction activities pursuant to the NPDES Construction General Permit. The SWPPP would describe BMPs for controlling site runoff and would specify other measures to ensure that pollutants do not contaminate surface and groundwater quality. BMPs would include a list of hazardous materials proposed for use during construction; a description of spill prevention and containment measures; requirements for equipment inspections; procedures for equipment maintenance and fuel storage; and protocols for responding immediately to spills.

Based on the available geotechnical information for the Fern Road Substation site, groundwater was not encountered at any point during the subsurface investigation. Site borings were conducted to a maximum depth of 62 feet below the ground surface (Terracon 2021). Construction of the Fern Road Substation could include 25 feet of excavation for the transformer foundations but would not require or include excavation to a depth that would be likely to encounter groundwater. Therefore, groundwater dewatering for the Fern Road Substation Facilities would not be likely be needed. As identified in Section 3.10.3, multiple measures proposed by the applicant and by PG&E would be implemented to reduce and/or avoid impacts on water resources during construction. In the unlikely event that dewatering of groundwater would be required for the Fern Road Substation Facilities, APM WQ-2 would be implemented to ensure that groundwater would be handled and discharged in a manner consistent with regulatory requirements.

With implementation of a SWPPP and the associated BMPs (APM WQ-1) in compliance with the NPDES Construction General Permit, impacts on groundwater and surface water quality associated with the Fern Road Substation sites would be less than significant. Adherence to regulatory requirements, including but not limited to appropriate measures for hazardous materials management (identified in APMs HAZ-2 and HAZ-3), spill prevention and containment (identified in APM HAZ-1) would limit contamination of surface water and groundwater during

construction, operation, and maintenance of the Fern Road Substation Facilities. The Fern Road Substation Facilities would not conflict with or obstruct the Basin Plan or a sustainable groundwater management plan, and the associated impacts would be less than significant.

BMP-9, which is applicable to the PG&E Facilities, would provide for protocols for management, handling, and storage of hazardous materials. PG&E also proposes to implement BMP-11, which would provide for spill prevention and countermeasure controls; as well as AMM-15, which contains site controls and establishes protocols for refueling and vehicular maintenance to limit contaminants from being transported off-site during storm events. These construction measures would be implemented to limit potential water quality impacts that could otherwise result in violations of surface water and groundwater quality standards. With these measures implemented, the PG&E Facilities would not conflict with or obstruct the Basin Plan or a sustainable groundwater management plan, and the associated impacts would be less than significant.

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin: *Less than Significant.*

As discussed in Chapter 2, *Project Description*, the Project would require 900,000 gallons of water for construction purposes. Decommissioning of the Project could also utilize water resources for dust control or other purposes. This water may be sourced from groundwater or surface water supplies in Redding or Red Bluff. Because these communities rely on various sources for their water supply portfolio, the Project's construction water requirements are not likely to substantially decrease groundwater supplies.

Once constructed, structures such as foundations supporting electrical infrastructure would add impervious surfaces to the Project sites, which would alter conditions for recharge. Although the Fern Road Substation site is not in a defined groundwater basin, the change in impervious surface area would not have a substantial effect such that the Project would impede the sustainable groundwater management of the basin. Rainwater falling on impervious surfaces would flow off to unpaved areas and infiltrate into the subsurface as it does now. The PG&E substation upgrades, interconnection facilities, and distribution modifications would not appreciably alter site drainage, add impervious surfaces to recharge areas, or otherwise substantially interfere with groundwater recharge. Furthermore, the Project would not require ongoing groundwater resources for its operation or maintenance. For these reasons, impacts would be associated primarily with construction and would be less than significant.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which : i) Result in substantial erosion or siltation on- or off-site; ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite; iii) 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; or iv) impede or redirect flood flows: *Less than Significant.*

The site of the proposed Fern Road Substation is currently undeveloped, with a mix of grasslands and oak woodlands on the site. Under existing conditions, the site drainage occurs as sheet flow

across the site to the southwest at a grade of approximately 3 percent. To construct the Fern Road Substation Facilities, the Project would result in alteration of the terrain, tree removal, and grading within the limits of construction, as described in Chapter 2, *Project Description*. In addition to the 7.5 acres of permanent disturbance associated with the Fern Road Substation, 2.9 acres would be graded for ancillary facilities, including an access road and parking. Temporary disturbance would include 1.4 acres associated with the construction staging area, which would be cleared, grubbed, and prepared for equipment staging. Drainage patterns would be altered in the vicinity of the Fern Road Substation site as a result of tree removal, grading, excavation, and other site work.

The addition of impervious surfaces associated with foundations for the Fern Road Substation static synchronous compensator (i.e., STATCOM) equipment and associated structures would also change the drainage patterns across the site compared to existing conditions. The Applicant has acknowledged that a Construction General Permit and associated SWPPP would be required to construct the Fern Road Substation; accordingly, the Applicant has committed to implementing BMPs to control erosion and manage runoff associated with construction (see APM WQ-1). Implementation of such measures and compliance with the regulatory requirements of the Construction General Permit would limit erosive conditions along with run-on and runoff across the site.

Because of the rural location, there are no constructed stormwater facilities on or near the Fern Road Substation site, and none are planned or required as part of the Project. The Fern Road Substation site would be graded such that stormwater would sheet flow to the adjacent land surface during storm events, as it does now. The site BMPs established as part of the SWPPP would remain in place and would be maintained until new vegetation would be established in temporarily disturbed areas. Because the Project would include grading over more than 5 acres of the site, preparation of an erosion control plan by a registered civil engineer/erosion control specialist would be required for the Project to obtain a grading permit from Shasta County. The Shasta County grading permit requires site restoration, implementation of permanent erosion control measures, and approval of a plan for ongoing maintenance of such measures, among other requirements.

No ground disturbance would be associated with the proposed installation of a box cable and antennae on existing facilities at the PG&E Cascade Substation. Drainage patterns at the PG&E Round Mountain Substation, Table Mountain Substation, and Redding Service Center would be minimally altered to accommodate the proposed modifications within the existing (disturbed) facilities. The proposed distribution modifications would include the installation of new poles, which would have a minor potential to increase site runoff in the immediate vicinity of the proposed activity. Although ground disturbance would be required to construct the PG&E Facilities, construction measures would be implemented by PG&E for the proposed PG&E Facilities, as noted in Section 3.10.3.2. AMM-2, AMM-3, AMM-11, and AMM-12 are proposed to limit disturbance and minimize runoff across the sites. AMM-16 and BMP-2 provide for a wetland buffer and/or set conditions for work associated with the PG&E Facilities in seasonal wetland areas.

With implementation of the APMs (for the Fern Road Substation Facilities) and AMMs and BMPs (as committed to by PG&E for the proposed PG&E Facilities), along with other state, regional, and county regulatory controls to which the Project would be required to adhere, construction and operation of the Project would not create conditions that would result in excessive runoff or contribute substantial additional sources of polluted runoff. Impacts would be less than significant.

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation: *No Impact.*

The Project locations are inland, and the Fern Road Substation site is more than 120 miles from the California coast and therefore not in a location susceptible to tsunami hazards. The Project sites, including the proposed Fern Road Substation site and the existing Redding Service Center, Table Mountain Substation, and Round Mountain Substation, are all in locations identified by FEMA as "Zone X," defined as a zone of minimal flood hazard (FEMA 2011). Because the Project would not be located in the coastal zone nor near a large body of water (that could be susceptible to seiches), or in a flood hazard zone identified by FEMA, there is no risk of inundation associated with such hazards. Therefore, no release of pollutants due to inundation would occur with construction or operation of the Project. No impact would occur.

3.10.5 References

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3.11 Land Use and Planning

Issues:		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XI.	**LAND USE AND PLANNING —** Would the project:				
a)	Physically divide an established community?	☐	☐	☐	☒
b)	Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

3.11.1 Environmental Setting

The study area for the analysis of potential impacts related to land use and planning is defined as the footprint of all Project components, including all areas of temporary and/or permanent ground disturbance and the surrounding land uses within which the Project would be constructed and operated.

The Fern Road Substation Facilities and the Pacific Gas and Electric Company (PG&E) interconnection facilities and distribution modification sites are located on approximately 40 acres of land in unincorporated south-central Shasta County. The unincorporated community of Whitmore lies approximately 1.6 miles southeast of the site, and the land directly surrounding the substation site is primarily open space area used as grazing land with minimal development.

The Round Mountain Substation is located off Sub Station Road between State Route 299 and White Pine Road, approximately 11 miles north of the Fern Road Substation site. The Table Mountain Substation is located off 945 Cottonwood Road in Oroville, approximately 77 miles south of the Fern Road Substation site. The Cascade Substation is located about 21 miles northwest of the Fern Road Substation site, at 12525 Old Oregon Trail in Redding. The Redding Service Center is also located about 22 miles northwest of the site, at 3600 Meadow View Drive in Redding.

The Fern Road Substation site is not located within a Shasta County–designated regional planning area, community planning area, or specific plan area, and is not located within the sphere of influence of the unincorporated community of Whitmore. The substation site is zoned HP-BA-80 (Habitat Protection District, 80-acre minimum lot size), as are adjacent land parcels south and east of the parcel (Shasta County n.d.). Surrounding land is designated under A-G (Agricultural-Grazing) to the north and west of the Fern Road Substation site. The land areas north, west, and directly east of the substation site are zoned EA (Exclusive Agricultural) and EA-AP (Exclusive Agricultural-Agricultural Preserve; Shasta County n.d.).

State Route 299 is located approximately 12.4 miles west of the Fern Road Substation site and State Route 44 is located approximately 9.3 miles south of the site. The Fern Road Substation site is located directly east of the PG&E Round Mountain–Table Mountain #1 and #2 500-kilovolt (kV) transmission line corridor. The Project would connect the proposed Fern Road Substation to

the existing regional PG&E transmission system, which includes the existing distribution line circuit located west of Fern Road.

The Fern Road Substation site lies within Shasta County's jurisdiction, and land uses on the site are governed by the Shasta County General Plan and Zoning Ordinance.

3.11.2 Regulatory Setting

3.11.2.1 Federal

Habitat Conservation Plans

The Project sites are located within the boundaries of the PG&E-proposed *Multiple Region Operations and Maintenance Habitat Conservation Plan* (2019). The Project is expected to implement the appropriate best management practices from the habitat conservation plan so that no listed or candidate species would be affected (see Section 3.4, *Biological Resources*).

3.11.2.2 State

California Public Utilities Commission General Order No. 131-D

The California Public Utilities Commission (CPUC) has sole and exclusive state jurisdiction over the siting and design of the Project. Pursuant to CPUC General Order (GO) 131-D, Section XIV.B, "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction." Although such projects are exempt from local land use and zoning regulations and discretionary permitting (i.e., they would not require discretionary approval from a local decision-making body such as a planning commission, county board of supervisors, or city council), General Order No. 131-D, Section XIV.B requires that, in locating a project, "the public utility shall consult with local agencies regarding land use matters." The public utility would be required to obtain any required non-discretionary local permits.

3.11.2.3 Local

As discussed above, CPUC has exclusive jurisdiction over the siting, design, and construction of the Project; therefore, the Project is not subject to local discretionary regulations. The discussion below presents local policies and regulations for informational purposes only; CPUC does not consider these regulations "applicable."

Shasta County

Shasta County General Plan

The Shasta County General Plan (2004) encourages the protection of lands having significant wildlife habitat values within the N-H land use designation. The following relevant Fish and Wildlife Habitat, Open Space and Recreation, and Public Facilities objectives and policies from the Shasta County General Plan (Shasta County 2004) were reviewed:

> **Objective FW-2:** Provide for a balance between wildlife habitat protection and enhancement and the need to manage and use resources.

Policy FW-a: Significant wildlife habitat resources, as discussed in the Plan text, when not otherwise classified as Timberland (T), Cropland (A-C), or Grazing (A-G) shall be classified on the General Plan maps as Natural Resources Protection-Habitat (N-H).

Objective OSR-1: Protection of the open space and recreation resources of Shasta County for the use and enjoyment by county residents both now and in the future.

Policy OSR-a: Protection of the open space resources under Shasta County jurisdiction shall be achieved primarily through policies recognizing the contributions of these resources to the economy of the county. Specifically, the Timber, Croplands, Grazing, and Small-Scale Croplands/Grazing, and Natural Resource Protection-Habitat land use designations shall be used for this purpose.

Policy PF-h: Public uses (e.g. schools, parks, waste disposal sites) and public utilities (e.g. substation, transmission lines) whose site-specific locations often cannot be identified in advance by the General Plan may be permitted throughout the county to serve the public need. Appropriate zoning on site-specific locations will be determined in response to the identified need as it occurs. Solid waste disposal facilities shall be conditionally permitted to ensure that the site is compatible with adjacent land uses. Surrounding land uses, to the extent feasible, shall be regulated to avoid incompatibility with the solid waste disposal facilities.

Butte County General Plan 2030

The Butte County General Plan 2030 (2010) outlines policies that aim to conserve and enhance the current livability and quality of life for Butte County Residents. The following Land Use and Conservation and Open Space Element goals and policies from the Butte County General Plan 2030 (Butte County 2010) were reviewed:

Goal LU-1: Continue to uphold and respect the planning principles on which the County's land use map is based.

Policy LU-P1.6: The County shall conserve important habitat and watershed areas, while protecting the public safety of County residents.

Goal COS-3: Promote a sustainable energy supply.

Policy COS-P3.3: Utility lines shall be constructed along existing utility corridors wherever feasible.

Zoning

The HP district on which the site is zoned is consistent with the Natural Resources Protection–Habitat (N-H) General Plan land use designation (Shasta County 1989). The Shasta County Municipal Code identifies special uses that are permitted in all districts and are subject to specified limitations and requirements (Shasta County 1989). Specifically, Section 17.88.100 of the municipal code includes public uses, public utilities, and high-voltage electrical transmission and distribution projects as part of these special uses (Shasta County 1989).

3.11.3 Applicant Proposed Measures and PG&E Construction Measures

No Applicant Proposed Measures or PG&E construction measures (avoidance and minimization measures or best management practices) have been identified to address potential impacts related to land use and planning that would be associated with the Project.

3.11.4 Environmental Impacts

3.11.4.1 Methodology and Assumptions

The following analysis uses the criteria from Appendix G of the CEQA Guidelines to identify direct and indirect effects on land use and planning. The analysis considers both the Fern Road Substation Facilities and the PG&E Facilities.

3.11.4.2 Direct and Indirect Effects

a) Physically divide an established community: *No Impact.*

The Fern Road Substation Facilities and the PG&E interconnection facilities and distribution modification sites are located in an unincorporated area of south-central Shasta County. These sites are designated under the Natural Resources Protection–Habitat land use, which provides for the protection of wildlife resources in the area. Therefore, these Project sites do not contain any residential uses. In addition, modifications at the PG&E Round Mountain Substation, Table Mountain Substation, Cascade Substation, and Redding Service Center would occur within the existing fence lines of those facilities, which do not contain any residential uses. Typically, the division of an established community would result from the construction of a physical barrier to neighborhood access or the removal of a means of access. Because there are no nearby community uses, the Project facilities would not physically divide an established community or otherwise impede pedestrian or vehicle access to community features or services. No impact would occur.

b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect: *No Impact.*

CPUC has regulatory authority over the Project; therefore, the Project is not subject to the local regulations of Shasta County. However, the Project would be implemented consistent with existing Shasta County General Plan policies as well as other policies protecting habitats. Shasta County Municipal Code Section 17.88.100 allows public uses, public utilities, and high-voltage electrical transmission and distribution projects within all districts, including the HP district in which the Fern Road Substation site is located, subject to approval of a use permit by the Shasta County Permit Counter. Pursuant to GO 131-D, the Project would be exempt from Shasta County Municipal Code Section 17.88.100 and therefore would not require a use permit from Shasta County.

The Project would be consistent with the outlined regulatory framework and would not adversely affect public health, safety, or general welfare in the area. The Project would improve the network

of service in the surrounding Project area and is an efficient use of land consistent with the existing transmission lines adjacent to the Fern Road Substation site. In addition, modifications at the PG&E Round Mountain Substation, Table Mountain Substation, Cascade Substation, and Redding Service Center would occur within the existing fence lines of those facilities, which would limit the environmental effects associated with those facilities. The Project is also consistent with land use and zoning in the area. It would not have a detrimental impact to the overall character of the site vicinity. The Fern Road Substation site is adequate in size to accommodate all necessary features of the project and would not contribute any operational traffic to local roadways.

The Fern Road Substation Facilities would not conflict with a plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect; thus, no impact would occur. In addition, the PG&E Facilities would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Project that has been adopted for the purpose of avoiding or mitigating an environmental effect. No impact would occur.

3.11.5 References

Butte County. 2010. *Butte County General Plan 2030.* Adopted October 26, 2010. Available: https://www.buttecounty.net/Portals/10/Planning/ButteCountyGeneralPlan2030_May2018red.pdf?ver=2019-12-18-141822-357. Accessed October 18, 2022.

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3.12 Mineral Resources

Issues:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XII. MINERAL RESOURCES — Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

This section describes the existing sources of mineral resources in the Project study area and evaluates the potential for construction, operation, and maintenance of the Project to result in the loss of availability of known or locally important mineral resources. For the purposes of the evaluation of mineral resources, the study area was defined as the footprint of all components of the Project including all areas of temporary and/or permanent ground disturbance.

3.12.1 Environmental Setting

3.12.1.1 Mineral Resources

Five important industrial mineral resources are currently being mined in the Project area: (1) alluvial aggregate, (2) crushed stone, (3) volcanic cinder, (4) limestone, and (5) diatomite.[11] These resources represent economically significant current and future industrial mineral commodities. Lands containing these five industrial minerals have been classified and are presented in the form of Mineral Resource Zones (MRZs) (Dupras 1997a).

Multiple sources of information were consulted to determine the presence of mineral resources within the Project area. These included the Mineral Resources Data System (MRDS), administered by the U.S. Geological Survey (USGS), which provides data describing mineral resources, including deposit name, location, commodity, deposit description, production status, and references, and which can be used to confirm the presence or absence of existing surface mines, closed mines, occurrences/prospects, and unknown/undefined mineral resources. According to the available MRDS data, there are no significant mineral resources at the Project sites or in the area (USGS 2022).

The California Geological Survey (CGS) maps and regulates the locations of potential mineral resources in California consistent with the Surface Mining and Reclamation Act (SMARA). To protect these potential mineral resources, the CGS has classified the regional significance of mineral resources into MRZs and mapped them (see Section 3.12.2, *Regulatory Setting*, for more

[11] Diatomite is a fine-grained sedimentary rock formed from consolidated diatomaceous earth, which consists of the preserved bodies of millions upon millions of tiny single-celled animals, called diatoms, that lived in the warm oceans millions of years ago.

details about SMARA and MRZs). The Project sites are not within an area that has been designated a MRZ (Dupras 1997b; Butte County 2018).

3.12.1.2 Oil, Gas, and Geothermal Resources

The California Geologic Energy Management Division (CalGEM)[12] provides oversight of the oil, natural gas, and geothermal industries, and regulates the drilling, operation, and permanent closure of energy resource wells. CalGEM's online mapping application, Well Finder, was reviewed to determine the presence of any oil, gas, or geothermal resources in and around the Project sites. Well Finder data indicate that there are no significant resources at or near the Project sites (CalGEM 2022).

3.12.2 Regulatory Setting

3.12.2.1 Federal

There are no federal regulations that apply to the Project related to mineral resources.

3.12.2.2 State

Surface Mining and Reclamation Act

SMARA (Public Resources Code Sections 2710–2796) and its implementing regulations (California Code of Regulations Title 14, Section 3500 et seq. [14 CCR Section 3500 et seq.]) establish a comprehensive state policy for the conduct of surface mining operations and for the reclamation of mined lands to a usable condition that is readily adaptable for alternative land uses. SMARA encourages the production, conservation, and protection of the state's mineral resources and recognizes that "the state's mineral resources are vital, finite, and important natural resources and the responsible protection and development of these mineral resources is vital to a sustainable California" (Public Resources Section 2711). Under SMARA, the term "minerals" includes "any naturally occurring chemical element or compound, or groups of elements and compounds, formed from inorganic processes and organic substances, including, but not limited to, coal, peat, and bituminous rock, but excluding geothermal resources, natural gas, and petroleum" (14 CCR Section 3501).

The CGS maps and regulates the locations of potential mineral resources in California consistent with SMARA. To protect these potential mineral resources, the CGS has classified the regional significance of mineral resources into MRZs and mapped them. Descriptions of the MRZ categories are provided in **Table 3.12-1**. As noted above, the Project sites are within areas that has not been given a MRZ designation.

[12] Formerly, the California Division of Oil, Gas, and Geothermal Resources (DOGGR).

TABLE 3.12-1
CALIFORNIA MINERAL LAND CLASSIFICATION SYSTEM CATEGORY DESCRIPTIONS

Mineral Resource Zone Category	Category Description	
MRZ-1	*Areas of No Mineral Resource Significance*	
MRZ-2	Demonstrated Reserves	*Areas of Identified Mineral Resource Significance*
MRZ-3	Known Mineral Occurrence	*Areas of Undetermined Mineral Resource Significance*
MRZ-4	No Known Mineral Occurrence	*Areas of Unknown Mineral Resource Significance*

NOTE: MRZ = Mineral Resource Zone

SOURCE: CGS n.d.

3.12.2.3 Local

The California Public Utilities Commission has exclusive jurisdiction over the siting, design, and construction of the Project; therefore, the Project is not subject to local discretionary regulations.

3.12.3 Applicant Proposed Measures and PG&E Construction Measures

No Applicant Proposed Measures, avoidance and minimization measures, or best management practices have been proposed to address the Project impacts on mineral resources.

3.12.4 Environmental Impacts

3.12.4.1 Methodology and Assumptions

To evaluate potential impacts of the Project on mineral resources, the locations of Project components were compared with maps of known mineral resources of value to the state, region, and local jurisdictions to determine whether Project components would occur on or otherwise limit access to these resources. The outcomes of this analysis are described below.

3.12.4.2 Direct and Indirect Effects

a, b) 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, or of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan: *No Impact*.

According to the review of available data from the USGS, CGS, CalGEM, Shasta County, and Butte County, there are no significant mineral resources at the Project sites, nor would the Project result in the loss of availability of any mineral resource in the area. Additionally, Project activities would not result in the loss of availability of any known mineral resources or locally-important mineral resources. Therefore, no impact would occur.

3.12.5 References

California Geologic Energy Management Division (CalGEM). 2022. Well Finder, interactive map. Available: https://maps.conservation.ca.gov/doggr/wellfinder/#openModal. Accessed July 1, 2022.

California Geological Survey (CGS). n.d. *Guidelines for Classification and Designation of Mineral Lands.* California Surface Mining and Reclamation Policies and Procedures Special Publication 51.

Dupras, D. 1997a. *Mineral Land Classification of Alluvial Sand and Gravel, Crushed Stone, Volcanic Cinders, Limestone, and Diatomite within Shasta County, California*. DMG Open-File Report 97-03. California Geological Survey.

———. 1997b. *Composite Mineral Land Classification Map Showing Areas Classified MRZ-2 for Alluvial Sand and Gravel, Crushed Stone, Volcanic Cinders, and Limestone Resources, and Areas Classified as MRZ-3 for Alluvial Sand and Gravel, and Limestone Resources in Western Shasta County, California*. California Geological Survey. Map. Scale 1:100,000.

U.S. Geological Survey (USGS). 2022. Mineral Resources Data System. Interactive map. Available: https://mrdata.usgs.gov/mrds/map-graded.html. Accessed July 1, 2022.

3.13 Noise and Vibration

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XIII. NOISE — Would the project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☒	☐	☐
c) For a project located within the vicinity of a private airstrip or 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?	☐	☐	☐	☒

3.13.1 Environmental Setting

3.13.1.1 Background Information on Noise and Vibration

Sound is energy transmitted by pressure waves through a medium such as air. *Noise* can be defined as unwanted sound. Sound is characterized by parameters that include the rate of oscillation of sound waves (frequency), the speed of propagation, and the pressure level or energy content (amplitude). In particular, the *sound pressure level* has become the descriptor most used to characterize the loudness of an ambient sound level. Sound pressure level is measured in decibels (dB), with 0 dB corresponding roughly to the threshold of human hearing and 120 to 140 dB corresponding to the threshold of pain.

Sound pressure fluctuations can be measured in units of hertz (Hz), which correspond to the frequency of a particular sound. Typically, sound does not consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude (sound power). When all audible frequencies of a sound are measured, a sound spectrum is plotted, consisting of a range of frequencies spanning 20 to 20,000 Hz. Therefore, the sound pressure level constitutes the additive force exerted by a sound corresponding to the sound frequency/sound power level spectrum.

The typical human ear is not equally sensitive to all frequencies of the audible sound spectrum. As a consequence, when assessing potential noise impacts, sound is measured using an electronic filter that deemphasizes the frequencies below 1,000 Hz and above 5,000 Hz, in a manner that corresponds to the human ear's decreased sensitivity to low and extremely high frequencies relative to mid-range frequencies. This method of frequency weighting is referred to as *A-weighting* and is expressed in units of A-weighted decibels (dBA).

Noise Exposure and Community Noise

An individual's noise exposure is a measure of the noise experienced by the individual over a period of time. A noise level is a measure of noise at a given instant in time; however, noise levels

rarely persist consistently over a long period of time. In fact, community noise varies continuously with time with respect to the contributing sound sources in the community noise environment. Community noise is primarily the product of many distant noise sources, which together constitute a relatively stable background noise exposure, with the individual contributors unidentifiable. Background noise levels change throughout a typical day but do so gradually as distant noise sources are added and subtracted and atmospheric conditions change. The addition of short-duration, single-event noise sources (e.g., flyovers by helicopters and other aircraft, horns, sirens) causes community noise levels to vary from instant to instant throughout the day.

For this reason, noise exposure must be measured over a period of time to legitimately characterize the community noise environment and properly evaluate cumulative noise impacts. This time-varying characteristic of environmental noise is described using statistical noise descriptors. This analysis uses the following noise descriptors:

L_{eq}: The *equivalent sound level*, which is used to describe noise over a specified period of time, expressed in terms of a single numerical value. The L_{eq} is the constant sound level that would contain the same acoustic energy as the varying sound level during the same time period (i.e., the average noise exposure level for the given time period).

DNL: The *day-night noise level* (DNL), or the energy average of the A-weighted sound levels occurring during a 24-hour period, which accounts for the greater sensitivity of most people to nighttime noise by weighting noise levels at night ("penalizing" nighttime noises). Noise occurring between 10:00 p.m. and 7:00 a.m. is weighted (penalized) by adding 10 dBA to take into account the greater annoyance caused by nighttime noises.

CNEL: The *community noise equivalent level* (CNEL), which, similar to the DNL, adds a 5-dBA penalty for noise occurring in the evening hours between 7:00 p.m. and 10:00 p.m. in addition to the 10-dBA penalty for noise generated between 10:00 p.m. and 7:00 a.m.

L_{max}: The *instantaneous maximum noise level* measured during the measurement period of interest.

Effects of Noise on People

There is no universally acceptable way to measure the subjective effects of noise or the corresponding reactions of annoyance and dissatisfaction. Individual thresholds of annoyance vary widely; different levels of tolerance to noise tend to develop based on an individual's past experiences with noise.

Thus, an important means of predicting humans' reaction to a new noise environment is to identify how the new noise compares to the existing noise levels to which one has adapted: the so-called "ambient noise" level. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise would be judged by those hearing it. With regard to increases in A-weighted noise levels, the following relationships occur (Caltrans 2013):

- Except in carefully controlled laboratory experiments, a change of 1 dB cannot be perceived.
- Outside of the laboratory, a 3-dB change is considered just perceivable: The change in noise is perceived but does not cause a human response.

- A noise level change of at least 5 dB is required before any noticeable change in human response is expected.
- A 10-dB change in the noise level is subjectively heard as an approximate doubling of loudness and can cause an adverse response.

These relationships occur in part because of the logarithmic nature of sound and the decibel system. A ruler is a linear scale: it has marks on it corresponding to equal quantities of distance. One way of expressing this is to say that the ratio of successive intervals is equal to 1. A logarithmic scale is different, in that the ratio of successive intervals is not equal to 1. Each interval on a logarithmic scale is some common factor larger than the previous interval. A typical ratio is 10, so that the marks on the scale read as 1, 10, 100, 1,000, 10,000, etc., doubling the variable plotted on the x-axis.

The decibel scale was developed because the human ear perceives sound in a nonlinear fashion. Because the decibel scale is based on logarithms, two noise sources do not combine in a simple additive fashion; rather, they combine logarithmically. For example, if two identical noise sources were to produce noise levels of 50 dBA, the combined sound level would be 53 dBA, not 100 dBA.

Noise Attenuation

Sound level naturally decreases as distance from the source increases. This basic attenuation rate is referred to as the *geometric spreading loss*. The basic rate of geometric spreading loss depends on whether a given noise source can be characterized as a point source or a line source. Point sources of noise, including stationary mobile sources such as idling vehicles or on-site construction equipment, attenuate (lessen) at a rate of 6 dB per doubling of distance from the source. In many cases, noise attenuation from a point source increases by 1.5 dB to 7.5 dB for each doubling of distance because of ground absorption and reflective wave canceling. These factors are collectively referred to as *excess ground attenuation*. The basic rate of geometric spreading loss (6 dB per doubling of distance) occurs when the ground surface between a noise source and a receiver is a reflective surface, such as a parking lot or a smooth body of water. The excess ground attenuation rate (7.5 dB per doubling of distance) occurs where the ground surface is absorptive, such as soft dirt, grass, or scattered bushes and trees.

Widely distributed noises, such as from vehicles moving along a street (a “line” source), typically attenuate at a lower rate: approximately 3 dB for each doubling of distance between the source and the receiver. If the ground surface between source and receiver is absorptive rather than reflective, the nominal rate increases by 1.5 dB to 4.5 dB for each doubling of distance. Atmospheric effects, such as wind and temperature gradients, can also influence rates of noise attenuation from both line and point sources of noise. However, unlike ground attenuation, atmospheric effects change constantly and are difficult to predict.

Vibration

Vibration is an oscillatory motion through a solid medium in which the motion’s amplitude can be described in terms of displacement, velocity, or acceleration. Several different methods are used to quantify vibration. The *peak particle velocity* (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration

impacts on buildings. Although PPV is appropriate for evaluating building damage, it is less suitable for evaluating human response. Sensitive receptors to vibration include people (especially residents, the elderly, and sick people), structures (especially older masonry structures), and vibration-sensitive equipment. Human response is better related to the average vibration amplitude. The root mean square (RMS) amplitude is most frequently used to describe the effect of vibration on the human body. The RMS amplitude is defined as the average of the squared amplitude of the signal. Decibel notation (VdB) is commonly used to express RMS. The decibel notation acts to compress the range of numbers required to describe vibration, as numbers can differ over several orders of magnitude. Typically, groundborne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration (FTA 2018). Vibration decibels are established relative to a reference quantity, typically 1 x 10^{-6} inches per second (in/sec). There are no substantial existing sources of vibration in the study area.

Blasting-Induced Noise and Vibration

When explosives are detonated in rock, the blast has been designed so that most of the energy is used to break and displace the rock mass. However, some of the energy also can be released in transient stress waves, which in turn cause temporary ground vibration. Detonating explosive charges also creates rock movement and the release of high-pressure gas, which in turn, induces air overpressure (blast noise).

The average person is quite sensitive to ground motion; the human body can detect vibration levels as low as 0.01 in/sec. Noise from blasting or "blast noise" is composed primarily of sound pressures at frequencies below the threshold of hearing for humans (16 to 20 Hz). Hence, the common industry term for blast-induced noise is *air overpressure*. As its name implies, air overpressure is a measure of the transient pressure changes above and below ambient atmospheric pressure.

Measurements of air overpressure are typically expressed in dB units, and when the scale is linear, the unit designation is "dB(L)." Regular acoustical noise measurements taken to monitor compliance with local noise ordinances almost always use weighted scales that discriminate against low-frequency noise. Thus, for a similar noise source, A-weighted and C-weighted scales will usually record significantly lower levels of noise.

When blasting occurs at long distances from sensitive structures, the primary concern is damage to the structures. Structural damage can be classified as cosmetic, such as paint flaking or minimal extension of cracks in building surfaces; minor, including limited surface cracking; or major, potentially threatening the building's structural integrity.

3.13.1.2 Sensitive Receptors

Human response to noise varies considerably from one individual to another. The effects of noise at various levels can include interference with sleep, concentration, and communication; physiological and psychological stress; and hearing loss. Given these effects, some land uses are considered more sensitive than others to ambient noise levels. In general, residences, schools, hotels, hospitals, and nursing homes are considered the most sensitive to noise. Places such as churches, libraries, and

cemeteries, where people tend to pray, study, and/or contemplate, are also sensitive to noise. Commercial and industrial uses are considered the least noise-sensitive.

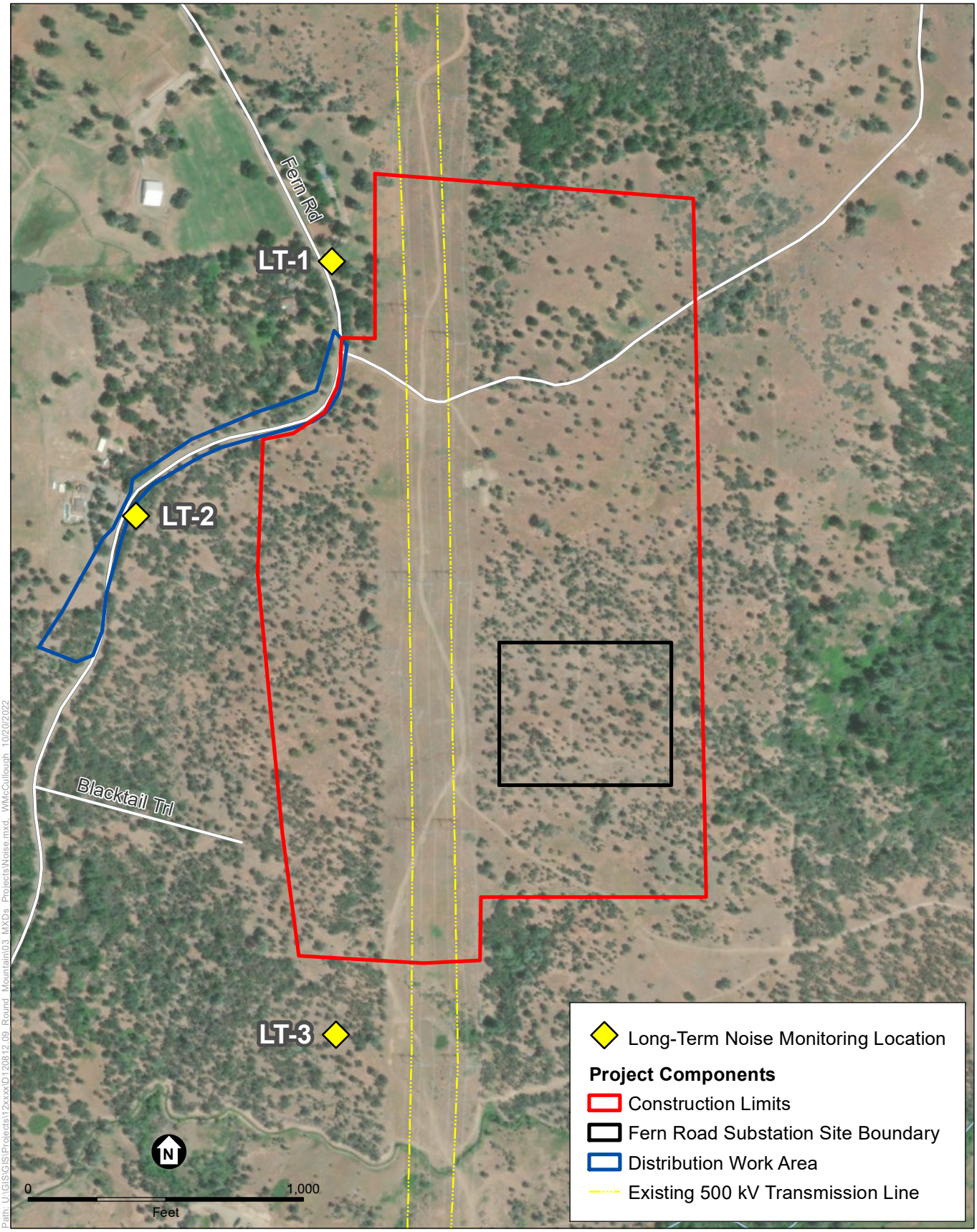
The area surrounding the Fern Road Substation Facilities site and the Pacific Gas and Electric Company (PG&E) interconnection and distribution modifications sites supports primarily agricultural and open space land uses. Scattered single-family residences are located west of the Fern Road Substation Facilities site along Fern Road. The closest sensitive receptors are five residences, which would be as close as approximately 1,500 feet west of the Fern Road Substation. Some of these residences would be as close as 250 feet from the access road improvements and PG&E distribution modifications along Fern Road. There are no nonresidential sensitive receptors in the vicinity of the Fern Road Substation Facilities site or the PG&E interconnection and distribution modifications sites.

The PG&E Round Mountain Substation is primarily surrounded by open space, with a few scattered residences located to the south. The nearest residence is approximately 850 feet south of the substation boundary. The PG&E Table Mountain Substation is surrounded by open space and there are no sensitive receptors in the vicinity. Single-family homes along Alpine Way are located approximately 120 feet west of the PG&E Redding Service Center boundary and approximately 700 feet from the proposed location of the monopole tower.

3.13.1.3 Existing Noise Environment

The primary sources of noise in the Project area are traffic on local roadways (e.g., Fern Road) and corona noise from existing transmission lines in the area. In addition, periodic aircraft operations are audible at the Project sites.

To characterize existing ambient noise conditions in the vicinity of the nearest sensitive receptors to the Fern Road Substation site, long-term (24-hour) noise measurements were conducted at three locations from April 5 to April 6, 2021. **Figure 3.13-1** shows the locations of the noise measurements and **Table 3.13-1** summarizes the results. At all measurement locations, the primary noise sources were likely vehicular traffic on Fern Road, corona noise from nearby power lines, and natural sounds (e.g., wind and wildlife).



SOURCE: LS Power Grid California LLC, 2022; ESRI, 2022; LSA, 2021

Round Mountain 500 kV Area Dynamic Reactive Support Project

Figure 3.13-1
Noise Monitoring Locations

ESA

TABLE 3.13-1
AMBIENT NOISE MEASUREMENTS IN THE VICINITY OF THE FERN ROAD SUBSTATION SITE

Measurement Location	Daytime L_{eq} (dBA)[a]	Evening L_{eq} (dBA)[b]	Nighttime L_{eq} (dBA)[c]	Day-Night Noise Level (dBA)
LT-1: 25 feet east of the centerline of Fern Road, representing the residential receptors at 12362 and 12377 Fern Road	46.2 to 57.8	38.4 to 46.8	36.2 to 47.5	51.6
LT-2: 40 feet east of the centerline of Fern Road, representing the residential receptor at 12318 Fern Road	43.9 to 58.2	41.1 to 45.2	35.7 to 44.5	50.5
LT-3: North of Stronghold Ranch buildings, at the approximate setback of structures at 12101 Fern Road	34.0 to 48.0	37.1 to 38.7	37.6 to 38.6	44.8

NOTES:

dBA = A-weighted decibels; L_{eq} = equivalent sound level; LT = long-term noise measurement.
a. Daytime noise levels = noise levels from 7:00 a.m. to 7:00 p.m.
b. Evening noise levels = noise levels from 7:00 p.m. to 10:00 p.m.
c. Nighttime noise levels = noise levels from 10:00 p.m. to 7:00 a.m.

SOURCE: LSA 2021.

3.13.2 Regulatory Setting

Federal, state, and local agencies regulate different aspects of environmental noise. Federal and state agencies generally set noise standards for mobile sources such as aircraft and motor vehicles, while local agencies regulate stationary sources. Local regulation of noise involves implementation of general plan policies and noise ordinance standards. Local general plans tend to identify general principles intended to guide and influence development plans; local ordinances establish standards and procedures for addressing specific noise sources and activities.

3.13.2.1 Federal

Federal Transit Administration and Federal Railroad Administration Standards

The impact assessment procedures and criteria in the Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018) are intended for federally funded mass transit projects. However, local jurisdictions that have not adopted their own vibration impact standards routinely use these standards during their project reviews. FTA and the Federal Railroad Administration have published guidelines for assessing the impacts of groundborne vibration from rail projects, which other jurisdictions have applied to other types of projects. For structures of conventional construction, FTA's threshold of architectural damage from groundborne vibration is 0.2 in/sec PPV or 94 VdB (dB units of 1 microinch per second). FTA's threshold for human annoyance at residential uses is 72 VdB for "Frequent Events," defined as more than 70 vibration events of the same kind per day.

U.S. Bureau of Mines Standard for Air Overpressure from Blasting

The regulatory limit defined by the former U.S. Department of the Interior, Bureau of Mines (U.S. Bureau of Mines) for air overpressure, as measured using 2-Hz response seismographs, is 133 dB(L) (USDI 2000). Damage to old or poorly glazed windows does not occur until air

overpressure reaches approximately 150 dB(L). Because the decibel scale is a logarithmic ratio, the actual overpressure at the 133 dB(L) limit is more than seven times lower than the threshold damage level at 150 dB(L).

Occupational Safety and Health Act

Under the Occupational Safety and Health Act of 1970 (U.S. Code Title 29, Section 651 et seq.), the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) adopted regulations designed to protect workers against the effects of occupational noise exposure. These regulations (Code of Federal Regulations [CFR] Title 29, Section 1910.95) identify limits on noise exposure levels as a function of the amount of time during which the worker is exposed. The regulations also specify requirements for a hearing conservation program (29 CFR 1910.95[c]), a monitoring program (29 CFR 1910.95[d]), an audiometric testing program (29 CFR 1910.95[g]), and hearing protection (29 CFR 1910.95[i]). There are no federal laws governing community noise.

Although no federal noise regulations exist, the U.S. Environmental Protection Agency (EPA) has published noise guidelines (EPA 1974). EPA's guidelines recommend a DNL of 55 dBA to protect the public from broadband environmental noise outdoors in residential areas, on farms, in other outdoor areas where people spend widely varying amounts of time, and in other places in which quiet is a basis for use (EPA 1974).

3.13.2.2 State

California Government Code Section 65302 encourages each county and city to implement a noise element as part of its general plan. In addition, the Governor's Office of Planning and Research has developed guidelines for preparing noise elements, which include recommendations for evaluating the compatibility of various land uses as a function of community noise exposure.

The California Occupational Safety and Health Administration has published occupational noise exposure regulations (California Code of Regulations Title 9, Sections 5095–5099) that set limits for employee noise exposure. These standards are equivalent to the federal OSHA standards described above.

Human Annoyance from Vibration

The California Department of Transportation (Caltrans) has developed and published a summary of criteria related to the potential for humans to perceive and become annoyed by groundborne vibration. Such human responses are dependent on whether the vibration source is continuous or transient. Transient sources create a single isolated vibration event, such as blasting. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, vibratory pile drivers, and vibratory compaction equipment. **Table 3.13-2** summarizes human response to and effects on buildings from vibration generated by both continuous and transient sources.

The damage criteria presented in Table 3.13-2 include several categories for ancient, fragile, and historic structures, the types of structures that are most at risk of damage. Most buildings are included in the categories ranging from "historic and some old buildings" to "modern

industrial/commercial buildings." Construction-induced vibration that can be detrimental to a building is very rare and has been observed only when the structure is in a high state of disrepair and the construction activity occurs immediately adjacent to the structure.

TABLE 3.13-2
SUMMARY OF HUMAN RESPONSE TO AND EFFECTS ON BUILDINGS FROM VIBRATION

Velocity Level, PPV (in/sec)	Human Reaction	Effect on Buildings
0.01	Barely perceptible	No effect.
0.04	Distinctly perceptible	Vibration unlikely to cause damage of any type to any structure.
0.08	Distinctly perceptible to strongly perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected.
0.1	Strongly perceptible	Threshold at which there is a risk of damage to fragile buildings with no risk of damage to most buildings.
0.25	Strongly perceptible to severe	Threshold at which there is a risk of damage to historic and some old buildings.
0.3	Strongly perceptible to severe	Threshold at which there is a risk of damage to older residential structures.
0.5	Severe, vibrations considered unpleasant	Threshold at which there is a risk of damage to new residential and modern commercial/industrial structures.

NOTES: in/sec = inches per second; PPV = peak particle velocity

SOURCE: Caltrans 2013.

The annoyance levels identified in Table 3.13-2 should be interpreted with care because lower levels of vibration than those shown may annoy some individuals, depending on the individuals' level of activity or sensitivity. Vibrations approaching the threshold of perception can be annoying to sensitive individuals. Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to an elevated human reaction, even though there is very little risk of actual structural damage.

3.13.2.3 Local

Local regulation of noise involves implementing general plan policies and noise ordinance standards. General plans tend to identify general principles intended to guide and influence development plans; noise ordinances and codes establish standards and procedures for addressing specific noise sources and activities. The California Public Utilities Commission (CPUC) has exclusive jurisdiction over the siting, design, and construction of the Project; therefore, the Project is not subject to local discretionary regulations. However, CPUC is using the following noise regulations as the basis of the significance thresholds used in this CEQA review.

Shasta County General Plan

The Health and Safety Element of the Shasta County General Plan contains the following goals and policies pertaining to noise.

Goal N-1: To protect County residents from the harmful and annoying effects of exposure to excessive noise.

Goal N-2: To protect the economic base of the County by preventing incompatible land uses from encroaching upon existing or programmed land uses likely to create significant noise impacts.

Goal N-3: To encourage the application of state-of-the-art land use planning methodologies in the area of managing and minimizing potential noise conflicts.

Policy N-b: Noise likely to be created by a proposed non-transportation land use shall be mitigated so as not to exceed the noise level standards of [General Plan] Table N-IV [shown here as **Table 3.13-3**] as measured immediately within the property line of adjacent lands designated as noise-sensitive. Noise generated from existing or proposed agricultural operations conducted in accordance with generally accepted agricultural industry standards and practices is not required to be mitigated.

Policy N-c: Where proposed non-residential land uses are likely to produce noise levels exceeding the performance standards of [General Plan] Table N-IV [shown here as Table 3.13-3] upon existing or planned noise-sensitive uses, an acoustical analysis shall be required as part of the environmental review process so that appropriate noise mitigation may be included in the project design. The requirements for the content of an acoustical analysis are given by [General Plan] Table N-V (shown here as the list below):

1. Be the financial responsibility of the applicant.
2. Be prepared by a qualified person experienced in the fields of environmental noise assessment and architectural acoustics.
3. Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions and the predominant noise sources.
4. Estimate existing and projected cumulative (20 years) noise levels in terms of L_{dn} [also known as DNL] or CNEL and/or the standards of [General Plan] Table I [which provides existing noise contour data for 1996], and compare those levels to the adopted policies of the Noise Element.
5. Recommend appropriate mitigation to achieve compliance with the adopted policies and standards of the Noise Element, giving preference to proper site planning and design over mitigation measures which require the construction of noise barriers or structural modifications to buildings which contain noise-sensitive land uses.
6. Estimate the noise exposure after the prescribed mitigation measures have been implemented.
7. Describe a post-project assessment program which could be used to evaluate the effectiveness of the proposed mitigation measures.

Policy N-e: New development of noise-sensitive land uses will not be permitted in areas exposed to existing or projected noise levels from transportation-related sources which exceed the levels specified in [General Plan] Table N-VI [shown here as **Table 3.13-4**] unless the project design includes effective mitigation measures to reduce both exterior and interior noise levels to satisfy the requirements in [General Plan] Table N-VI [shown here as Table 3.13-4].

Policy N-g: Existing noise-sensitive uses may be exposed to increased noise levels due to future roadway improvement projects as a result of increased traffic capacity and

volumes and increases in travel speeds. In these instances, it may not be practical to reduce increased traffic noise levels consistent with those contained in [General Plan] Table N-VI [shown here as Table 3.13-4]. Therefore, as an alternative, the following criteria may be used as a test of significance for increases in the ambient outdoor activity areas of the noise level of noise-sensitive uses created as a result of a new roadway improvement project:

- Where existing traffic noise levels are less than 60 dB DNL, a +5 dB DNL increase will be considered significant; and
- Where existing traffic noise levels range between 60 and 65 dB DNL, a +3 dB DNL increase will be considered significant; and
- Where existing traffic noise levels are greater than 65 dB DNL, a + 1.5 dB DNL increase will be considered significant.

Policy N-i: Where noise mitigation measures are required to achieve the standards of [General Plan] Tables N-IV and N-VI [shown here as Tables 3.13-3 and 3.13-4], the emphasis of such measures shall be placed upon site planning and project design. The use of noise barriers shall be considered a means of achieving compliance with the noise standards only after all other practical design-related noise mitigation measures have been integrated into the project.

TABLE 3.13-3
NOISE LEVEL PERFORMANCE STANDARDS FOR NEW PROJECTS AFFECTED BY OR INCLUDING NON-TRANSPORTATION SOURCES

Noise Level Descriptor	Daytime (7:00 a.m. to 10:00 p.m.)	Nighttime (10:00 p.m. to 7:00 a.m.)
Hourly L_{eq}, dBA	55	50

NOTES:

dBA = A-weighted decibels; L_{eq} = equivalent sound level

a. The noise levels specified above shall be lowered by 5 dB for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises. These noise level standards do not apply to residential units established in conjunction with industrial or commercial uses (e.g., caretaker dwellings).
b. The County can impose noise level standards which are more restrictive than those specified above based upon determination of existing low ambient noise levels.
c. In rural areas where large lots exist, the exterior noise level standard shall be applied at a point 100 feet away from the residence.
d. Industrial, light industrial, commercial, and public service facilities which have the potential for producing objectionable noise levels at nearby noise-sensitive uses are dispersed throughout the County. Fixed-noise sources which are typically of concern include, but are not limited to, the following:

HVAC Systems	Pile Drivers	Steam Turbines
Pump Stations	Drill Rigs	Fans
Emergency Generators	Welders	Heavy Equipment
Steam Valves	Outdoor Speakers	Transformers
Generators	Cooling Towers/Evaporative	Grinders Gas or Diesel Motors
Air Compressors	Condensers	Cutting Equipment
Conveyor Systems	Lift Stations	Blowers
Boilers		

e. The types of uses which may typically produce the noise sources described above include but are not limited to: industrial facilities including lumber mills, trucking operations, tire shops, auto maintenance shops, metal fabricating shops, shopping centers, drive-up windows, car washes, loading docks, public works projects, batch plants, bottling and canning plants, recycling centers, electric generating stations, race tracks, landfills, sand and gravel operations, and athletic fields.
f. For the purposes of the Noise Element, transportation noise sources are defined as traffic on public roadways, railroad line operations, and aircraft in flight. Control of noise from these sources is preempted by Federal and State regulations. Other noise sources are presumed to be subject to local regulations, such as a noise control ordinance. Non-transportation noise sources may include industrial operations, outdoor recreation facilities, HVAC units, loading docks, etc.

SOURCE: Shasta County 2004.

TABLE 3.13-4
MAXIMUM ALLOWABLE NOISE EXPOSURE FOR TRANSPORTATION SOURCES

Land Use	Outdoor Activity Areas[a] (DNL/CNEL, dBA)	Interior Spaces	
		DNL/CNEL, dBA	L_{eq}, dBA[b]
Residential	60[c]	45	–
Transient Lodging	60[d]	45	–
Hospitals, Nursing Homes	60[c]	45	–
Theaters, Auditoriums, Music Halls	–	–	35
Churches, Meeting Halls	60[c]	–	40
Office Buildings	–	–	45
Schools, Libraries, Museums	–	–	45
Playgrounds, Neighborhood Parks	70	–	–

NOTES:

CNEL = community noise equivalent level; dBA = A-weighted decibels; DNL = day-night noise level; L_{eq} = equivalent sound level

a. Where the location of outdoor activity areas is unknown, the exterior noise level standard shall be applied to the property line of the receiving land use. Where it is not practical to mitigate exterior noise levels at patio or balconies of apartment complexes, a common area such as a pool or recreation area may be designated as the outdoor activity area.
b. As determined for a typical worst-case hour during periods of use.
c. Where it is not possible to reduce noise in outdoor activity areas to 60 dB DNL/CNEL or less using a practical application of the best-available noise reduction measures, exterior noise levels of up to 65 dB DNL/CNEL may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table.
d. In the case of hotel/motel facilities or other transient lodging, outdoor activity areas such as pool areas may not be included in the project design. In these cases, only the interior noise level criterion will apply.

SOURCE: Shasta County 2004.

Shasta County Municipal Code

The Shasta County Municipal Code does not contain any regulations and standards pertaining to the Project (Shasta County 1978).

Butte County General Plan

The Health and Safety Element of the Butte County General Plan (Butte County 2019) contains the following goal and policies that would apply to the Project.

Goal HS-1: Maintain and acceptable noise environment in all areas of the county.

Policy HS-P1.7: Applicants for discretionary permits shall be required to limit noise generating construction activities located within 1,000 feet of residential uses to daytime hours between 7:00 a.m. and 6:00 p.m. on weekdays and non-holidays.

Policy HS-P1.9: The following standard construction noise control measures shall be required at construction sites in order to minimize construction noise impacts:

a. Equip all internal combustion engine driven equipment with intake and exhaust mufflers that are in good condition and appropriate for the equipment.

b. Locate stationary noise-generating equipment as far as possible from sensitive receptors when sensitive receptors adjoin or are near a construction project area.

c. Utilize quiet air compressors and other stationary noise generating equipment where appropriate technology exists and is feasible.

Butte County Municipal Code

The Butte County Municipal Code contains maximum allowable exterior and interior noise standards for daytime, evening, and nighttime hours; however, construction activities are exempt from these standards as long as construction is limited to daytime hours on weekdays and non-holidays with no construction occurring after 6:00 p.m. on Fridays, Saturdays, and holidays or prior to 8:00 a.m. on Saturdays and 10:00 a.m. on Sundays.

City of Redding General Plan

The City of Redding General Plan does not contain any noise standards or policies that would pertain to the Project.

City of Redding Municipal Code

The City of Redding Municipal Code contains daytime and nighttime exterior noise standards for various land uses. Construction or demolition activities taking place in or within five hundred feet of a residential district such that the sound creates a noise disturbance across a property line is prohibited during the following times:

i. May 15 through September 15: Between the weekday hours of 7 p.m. and 6 a.m. and weekends and holidays between 8 p.m. and 9 a.m.

ii. September 16 through May 14: Between the weekday hours of 7 p.m. and 7 a.m. and weekends and holidays between 8 p.m. and 9 a.m.

Further, public works construction projects such as street, utility and similar construction projects undertaken by or under contract to the city of Redding, county of Shasta or state of California or a public utility regulated by the CPUC are exempt from these standards.

3.13.3 Applicant Proposed Measures and PG&E Construction Measures

There are no Applicant Proposed Measures or PG&E construction measures (avoidance and minimization measures or best management practices) that address noise and vibration.

3.13.4 Environmental Impacts and Mitigation Measures

3.13.4.1 Significance Thresholds

Construction

Neither Shasta County nor the State of California specifies a quantitative threshold of significance for the impact of temporary noise level increases resulting from construction. In lieu of any regulatory guidance, this evaluation uses speech interference and sleep interference as indicators that construction noise could cause a substantial adverse impact on daytime and evening activities and nighttime activities, respectively. The speech and sleep interference criteria are based on objective research regarding speech and sleep interference (rather than subjective

surveys of annoyance) and can be used to evaluate a project's noise impacts. The speech and sleep interference criteria used in this analysis are defined below.

Speech Interference

A speech interference threshold, in the context of impact duration and time of day, is used to identify substantial noise level increases from temporary construction activities. This analysis assumes that peak noise levels generated by construction equipment could interfere with speech in nearby buildings if the interior building noise level exceeds 45 dBA. A typical building with the windows closed can reduce noise levels by approximately 25 dBA (EPA 1974). This noise reduction could be maintained only temporarily in some cases, because it assumes that windows must remain closed at all times. Assuming a 25 dBA reduction with the windows closed, an exterior noise level of 70 dBA L_{eq} would maintain an acceptable interior noise environment of 45 dBA during the day and evening hours.

In addition to the magnitude of noise, the duration of exposure at any given noise-sensitive receptor is an important factor in determining the significance of an impact. Generally, the impact of temporary construction noise occurring during the day for a relatively short period of time would not be significant. Most people of average sensitivity who live in suburban or rural agricultural environments are accustomed to a certain amount of construction activity or heavy equipment noise from time to time. The loudest construction noise would be sporadic rather than continuous because the Project would use different types of equipment throughout the construction process. Therefore, this analysis uses an exterior noise level exceeding 70 dBA L_{eq} during the daytime hours (7:00 a.m. to 10:00 p.m.) as the threshold for substantial construction noise where construction noise would last at least two weeks.

Sleep Interference

Based on available data, an interior nighttime noise level of 35 dBA is considered acceptable for sleeping (EPA 1974). Assuming a 25 dBA reduction with the windows closed, an exterior noise level of 60 dBA would maintain an acceptable interior noise environment of 35 dBA at night. Therefore, a significant impact would occur if the Project were to generate exterior noise levels exceeding the 60 dBA L_{eq} sleep interference threshold during the nighttime hours (10:00 p.m. to 7:00 a.m.) for one or more nights.

Blasting Noise

A noise impact from blasting would be considered significant if it would exceed the U.S. Bureau of Mines criterion for air overpressure of 133 dB(L).

Operation

Long-term noise impacts from Project-related non-transportation sources during operation and maintenance would be significant if noise levels at nearby receptors would exceed Shasta County's daytime and nighttime noise standards of 55 and 50 dBA L_{eq}, respectively (shown in Table 3.13-3 under Policy N-b). The Shasta County General Plan specifies CNEL-based community noise exposure levels that consider the contributions of daytime and nighttime noise. The maximum allowable noise exposure level for residential land uses is 60 dBA CNEL.

For increases in transportation noise during operations, according to Shasta County General Plan Policy N-g, a noise impact would be identified if operational noise generated by Project traffic would substantially increase noise levels at sensitive receivers in the vicinity. Shasta County defines noise level increases of 3 dBA DNL or greater as significant where exterior noise levels would exceed the generally acceptable noise level standard (60 dBA DNL for residential land uses). Where noise levels with the Project would remain at or below the normally acceptable noise level standard, the impact of noise level increases of 5 dBA DNL or more would be significant.

Vibration

CPUC and Shasta and Butte counties have not identified a quantitative vibration threshold for evaluating construction-related or operational vibration impacts. Therefore, this analysis assumes that Project construction would result in a significant vibration impact if buildings or sensitive individuals would be exposed to vibration levels equivalent to or higher than either of the following levels (FTA 2018):

- FTA's vibration threshold of 0.2 in/sec PPV for architectural damage of conventional sensitive structures.
- The threshold of human annoyance at residential uses of 72 VdB for "Frequent Events," defined as more than 70 vibration events of the same source per day.

FTA's impact assessment procedures and criteria are routinely used for projects being reviewed by other jurisdictions that have not adopted their own vibration impact standards.

With respect to blasting vibration, studies by the U.S. Bureau of Mines indicate no observations of "threshold damage" (referred to as *cosmetic damage*), "minor damage," or "major damage" at vibration levels of 0.4 in/sec PPV or less (Siskind et al. 1980). Caltrans recommends a vibration limit of 0.5 in/sec PPV for structurally sound buildings designed to modern engineering standards, and 0.3 in/sec PPV for buildings that are found to be structurally sound but where structural damage is a major concern. This analysis also uses FTA's more conservative limit (0.2 in/sec PPV) for the assessment of vibration impacts from blasting.

3.13.4.2 Approach to Analysis

This analysis evaluates the Project's potential noise and vibration impacts based on a review of sensitive receptor locations, existing ambient noise levels, and projected noise levels associated with construction, operation, and maintenance of the Project. The following impact discussions are based in part on the Applicant's noise and vibration analysis, as presented in the Proponent's Environmental Assessment prepared as part of the Project application. CPUC's consultant, Environmental Science Associates (ESA), independently reviewed the Applicant's analysis. ESA found the analysis to be adequate (in combination with other materials included in the formal record) but supplemented the information as needed to inform preparation of this analysis.

Construction

Short-term noise level increases from construction activities would cause significant impacts if the activities would conflict with local policies or standards. Construction-related noise levels

during the various Project phases were estimated using the Roadway Construction Noise Model (RCNM). Although the Federal Highway Administration developed this model, the RCNM is often used for non-roadway projects, because contractors also use the same types of equipment used for roadway projects when constructing other project types.

For this analysis, input variables used for the RCNM consisted of the following:

- Receiver/land use types.
- Equipment type and numbers (e.g., two graders, a loader, a tractor).
- The acoustical usage factor for each piece of equipment (e.g., the percentage of time during a construction activity that a piece of construction equipment is operating at full power).
- The distance between the construction activity and noise-sensitive receivers.

The modeling of construction noise assumed no topographical or structural shielding. To use a worst-case assumption, noise levels were modeled without obstacles to the travel of sound between the construction activity and the receiver location. Estimated noise levels at the receptors were compared to the significance thresholds for construction noise as identified above.

Operation and Maintenance

Operation and maintenance–related noise levels associated with the transformers, reactors, and heating, ventilation, and air conditioning (HVAC) units at the proposed Fern Road Substation were estimated using industry standard reference noise levels. The PG&E Facilities would not include any new operational sources of substantial noise.

3.13.4.3 Direct and Indirect Effects

a) Result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies: *Less than Significant with Mitigation*.

Construction

Project construction would begin in September 2023, and last approximately 22 months. Construction activities for the Fern Road Substation would consist of surveying; site and staging preparation; below-grade construction; above-grade construction; and commissioning and testing. Construction activities for the PG&E Facilities portion of the Project would include modifications to the PG&E Round Mountain Substation, Table Mountain Substation, Cascade Substation, and Redding Service Center; to PG&E distribution facilities along Fern Road and the proposed exterior access road; and to the PG&E interconnection facilities. The construction scenario assumptions used in this analysis, regarding Project phasing, equipment mix, and vehicle trips, were based on information presented in Chapter 2, *Project Description*, Section 2.5.2.

Construction of the Project would generate noise, temporarily increasing ambient noise levels in the Project vicinity. Construction noise would be generated by the operation of on-site equipment such as water trucks, graders, loaders, excavators, and drill rigs, and from on-road sources such as vehicles transporting workers, equipment, and materials to and from the Project sites. The

magnitude of the impact at receptors would depend on the type of construction activity, equipment used, duration of the construction phase, distance between the noise source and receiver, presence of intervening structures that enhance attenuation, and existing ambient noise levels at the receptors.

Construction Equipment Noise

Noise levels generated by construction equipment would vary depending on factors such as the type and age of equipment, specific equipment manufacturer and model, operations being performed, and the condition of the equipment and exhaust system mufflers. **Table 3.13-5** presents the maximum noise levels for the types of construction equipment used for Project construction, at a reference distance of 50 feet. As shown, Project construction equipment would generate L_{max} noise levels of up to 85 dBA at 50 feet. The typical operating cycles for construction equipment involve intermittent full-power operation followed by operation at lower power settings, which is accounted for in the acoustical usage factor, also shown in Table 3.13-5. Thus, average noise levels during operation of construction equipment over an hour (L_{eq}) would be lower than the maximum noise levels indicated in Table 3.13-5.

TABLE 3.13-5
NOISE LEVELS GENERATED BY TYPICAL CONSTRUCTION EQUIPMENT

Construction Equipment	Acoustical Use Factor (%)	Lmax at 50 Feet (dBA)	Leq at 50 Feet (dBA)
Augur Drill Rig	20	85	78
Backhoe	40	80	76
Blasting	NA	94	NA
Crane	16	85	77
Drill Rig Truck	20	84	77
Dump Truck	40	84	80
Excavator	40	85	81
Flatbed Truck	40	84	80
Forklift	20	85	78
Front-End Loader	40	80	76
Generator	50	82	79
Grader	40	85	81
Manlift	20	85	78
Pickup Truck	40	55	51
Rock Drill	20	85	78
Roller	20	85	78
Skid Steer Loader	40	80	76
Welder/Torch	40	73	69
All Other Equipment > 5 hp	50	85	82

NOTES: dBA = A-weighted decibels; hp = horsepower; L_{eq} = equivalent sound level (the average noise exposure level for the given time period); L_{max} = instantaneous maximum noise level measured during the measurement period of interest; NA = not applicable

SOURCE: FHWA 2017.

Construction equipment noise generally exhibits the acoustical characteristics of point sources; point-source noise attenuates at a rate of 6 to 7.5 dBA per doubling of distance from the source. Noise levels generated at the nearest noise-sensitive receptor during each construction phase were estimated, assuming an attenuation rate of 7.5 dBA per doubling of distance from the source for soft surfaces such as agricultural fields (**Table 3.13-6**). Consistent with the methodology recommended by FTA, the noise levels shown in Table 3.13-6 consider simultaneous operation of the two loudest pieces of construction equipment in the L_{eq} results. The modeling conservatively assumed that the two loudest pieces of construction equipment for an activity would operate simultaneously for the duration of that activity at the construction boundary closest to the receptor. The analysis assumed no additional attenuation from any shielding effects of intervening structures and buildings along the propagation path from the Project site to the nearest receptor.

TABLE 3.13-6
PROJECT CONSTRUCTION NOISE LEVELS BY PHASE AT THE CLOSEST NOISE-SENSITIVE RECEPTORS

Construction Phase	Equipment Used	Construction Duration	Estimated Construction Noise Level at Nearest Receptor (Leq)
Fern Road Substation Facilities			
Survey	Pickup trucks (2)	Six months	17.1 dBA at 1,500 feet
Site and Staging Preparation	Water trucks (4), pickup trucks (2), loaders (2), dump trucks (6), grader (1), roller (1)	Four months	46.6 dBA at 1,500 feet
Below-Grade Construction	Water trucks (2), excavators (2), forklifts (2), backhoes (2), pickup trucks (8), mini excavator (1), generators (2), loaders (2), pressure diggers (2), dump trucks (3), tool vans (6), trenchers (2), skid steer loaders (2)	Seven months	48.1 dBA at 1,500 feet
Above-Ground Construction	Pickup trucks (8), welding trucks (2), generators (2), cranes (2), forklifts (3), wire trailers/tensioners (2), wire pullers (2), manlifts (5)	Nine months	48.1 dBA at 1,500 feet
Commissioning and Testing	Pickup trucks (8), generators (2), manlifts (3), tool vans (6)	Five months	48.1 dBA at 1,500 feet
PG&E Facilities			
Substation Modifications at Round Mountain Substation	Manlift (1), forklift (1), mini excavator (1), loader (1), pressure diggers (2), pickup trucks (3), welding trucks (2)	19 months	54.2 dBA at 850 feet
Substation Modifications at Redding Service Center			56.3 dBA at 700 feet
Distribution Modifications along Fern Road	Pressure diggers (2), dump truck (1), pickup trucks (2), crane (1), forklift (1), manlifts (3), wire trailer/tensioner (1), wire puller (1)	Three months	67.5 dBA at 250 feet
Interconnection Facilities	Crane (2), pressure diggers (2), dump trucks (3), wire trailers/tensioners (2), manlifts (5), water trucks (4), pickup trucks (4)	Five months	65.5 dBA at 300 feet

NOTES: dBA = A-weighted decibels; L_{eq} = equivalent sound level (the average noise exposure level for the given time period); PG&E = Pacific Gas and Electric Company

SOURCE: ESA 2022.

As shown in Table 3.13-6, because a distance of more than 1,500 feet separates the location of the proposed Fern Road Substation Facilities from the nearest receptors, attenuated noise levels at the receptors nearest to construction activities at the Fern Road Substation would range from approximately 17 dBA to 48 dBA L_{eq}. Construction activities for the PG&E distribution modifications along Fern Road would take place as close as 250 feet from sensitive receptors and would generate noise levels up to approximately 68 dBA L_{eq} at the receptors. However, these noise levels would not persist for extended durations, as construction of the distribution modifications along Fern Road would progress linearly. Activities for the PG&E interconnection facilities would take place approximately 300 feet from the nearest receptors and would result in noise levels of approximately 66 dBA L_{eq}.

With respect to the modifications at the PG&E substations, there are no sensitive receptors in the vicinity of the Table Mountain Substation that would be affected by Project construction noise. Construction work for upgrades at the Round Mountain Substation would generate noise levels of approximately 54 dBA L_{eq} at the nearest receptors, located 850 feet from the site. Upgrades at the PG&E Redding Service Center would generate noise levels of approximately 56 dBA L_{eq} at the nearest receptors, approximately 700 feet from the location of the proposed monopole tower.

The attenuated noise levels at receptors listed in Table 3.13-6 are conservative: they assume that work would occur at the points closest to the residences. In reality, the use of construction equipment during each phase would be distributed both temporally and spatially, thereby further reducing the noise level (the L_{eq}) to which receptors would be exposed. Construction activities would generally be scheduled to occur from 7:00 a.m. to 7:00 p.m., six days per week (Monday through Saturday), which would reduce exposure by restricting construction during the noise-sensitive nighttime hours when people are home and resting. Night work is not anticipated to be necessary, but should it be required, CPUC approval would be obtained. Construction activities may be infrequently scheduled outside of these hours to avoid or reduce schedule delays, to enable the contractor to complete activities such as continuous concrete pours, to accommodate the schedule for system outages, or to address emergencies.

Given the existing ambient daytime noise levels in the vicinity of the Fern Road Substation site, which range from 34 to 58 dBA L_{eq}, construction noise may be audible at the nearby residence; however, as discussed previously, noise impacts from construction activities would be significant if attenuated noise levels at the receptors would exceed the outdoor daytime and nighttime thresholds of 70 dBA and 60 dBA, respectively. Attenuated noise levels at nearby receptors during all phases of construction for the proposed Fern Road Substation and PG&E facilities upgrades would be below the 70 dBA L_{eq} daytime threshold. Therefore, noise impacts associated with Project construction would be less than significant.

Blasting Noise

Blasting may possibly be required for the installation of foundations for tubular steel poles and other substation equipment associated with the Fern Road Substation Facilities. Such a scenario is unlikely but could occur if the contractor encounters rock that cannot be removed during excavation by either digging or using the hydraulic rock drilling and splitting (rock-splitting) procedure. Seismographs would be placed nearby to measure and record peak particle velocity

and air blast levels at various distances from the blast site. Construction of the PG&E Facilities would not include any blasting.

If blasting is found to be necessary, the blasting contractor would be required to obtain a blasting permit and explosives permit in accordance with applicable local regulatory ordinances. Best management practices would be used before, during, and after all Project-related blasting activities, where necessary. The Applicant and/or its construction contractor would prepare a blasting plan and submit the plan to CPUC before the start of any blasting activities. The blasting plan would identify the proposed blasting locations (with accompanying map), types and amounts of blasting agent to be used at each location, estimated impact radii, and noise and vibration estimates. However, the discussion of blasting provided in Chapter 2, *Project Description*, Section 2.5.2, includes no required actions should the estimated blasting noise levels exceed 133 dB(L). This impact would be significant.

Mitigation Measure NOI-1 would be implemented to reduce this impact. This measure requires that the blasting contractor use charge weights to reduce noise levels at the nearest structures to below the identified significance threshold.

> **Mitigation Measure NOI-1:** Based on the locations where blasting is needed, the blasting contractor shall estimate noise levels at nearby receptors from blasting events using methods established by the former U.S. Bureau of Mines. The charge weight used for blasting shall be adjusted such that predicted noise levels at nearby receptors shall be less than 133 dB(L), which is the regulatory limit defined by the U.S. Bureau of Mines for air-overpressure measured with 2-Hz response seismographs.

Implementing Mitigation Measure NOI-1 would reduce noise impacts from blasting, should it be determined to be required, to a less-than-significant level.

Construction Traffic Noise

In addition to noise from on-site construction equipment, construction-related vehicle trips would increase noise levels along roadways leading to the Project sites. These trips would consist of construction worker commute trips and haul truck trips to bring materials to and from the Project sites.

All construction traffic would access the Fern Road Substation site from Fern Road and the proposed exterior access road located off the east side of Fern Road. Peak construction is anticipated to require 50 workers per day, but the average daily workforce would typically be less. Additional maintenance and/or delivery trucks would travel to and from the staging areas between two and three times per week, and up to four times per week during peak activities. During this period, the total maximum daily vehicle trips (i.e., round trips) would be approximately 110 trips per day: approximately 50 truck trips and 60 worker trips. Annual average daily traffic levels are not available for Fern Road, the annual average daily traffic levels at the junctions of Fern Road with Old 44 Drive and Deschutes Road closest to the Fern Road Substation site are 3,450 vehicles and 4,850 vehicles, respectively.

Based on the significance thresholds identified previously, a transportation-related impact would occur if Project traffic would increase noise levels by more than 5 dBA at receptors where the existing noise environment is below 60 dBA DNL. The monitored existing noise levels at all three measurement locations near the Fern Road Substation Facilities and PG&E interconnections and distribution modifications sites are below 60 dBA DNL (Table 3.13-1). Generally, traffic levels must double to increase associated traffic noise levels by 3 dBA. Therefore, the addition of 90 vehicle trips spread out over the daytime hours during construction would have a minimal effect on daily traffic volumes along Fern Road. The short-term increase in traffic noise from Project construction would not cause a substantial increase over existing conditions. On average, construction activities for upgrades at the Table Mountain Substation, Round Mountain Substation, Cascade Substation, and Redding Service Center would generate six truck trips and six worker trips per day per site. These additional trips would not cause a substantial increase in traffic noise over existing conditions. Therefore, noise impacts from construction vehicle traffic would be less than significant.

Operation and Maintenance Equipment Noise

Once operational, the Fern Road substation would include two HVAC units, one for each static synchronous compensator (STATCOM) facility; three 500-kilovolt (kV) transformers, two of which would be active simultaneously; and two 60.9 kV reactors. Noise level data for the transformers and reactors were taken from the National Electrical Manufacturers Association's test results for transformers and reactors (NEMA 1993). The analysis used the following assumptions:

- Each proposed 500 kV transformer would have an unshielded noise rating of 78 dBA at 3 feet.
- Each proposed 60.9 kV reactor would have an unshielded noise rating of 76 dBA at 3 feet.
- Each STATCOM facility would include a 4,000-square-foot building requiring an estimated 7-ton HVAC unit. The HVAC units would be Carrier 48HC-D08, 7.5-ton HVAC units with a noise rating of 71 dBA at 3 feet (Carrier 2019).

Table 3.13-7 summarizes the noise levels associated with the Project's operational sources, as derived from the manufacturers' specification sheets.

TABLE 3.13-7
NOISE LEVELS FOR THE PROJECT'S OPERATIONAL SOURCES

Source	Sound Power Level (dBA)	Sound Pressure Level (dBA) at 3 Feet	Combined Noise Level at 1,500 Feet (Leq, dBA)
Three Phase 9.5–500 kV transformers*	89	78	27
Two 60.9 kV reactors	87	76	25
Two HVAC units (Carrier 48HC-D08)	82	71	20
Total			30

NOTES:

dBA = A-weighted decibels; HVAC = heating, ventilation, and air conditioning; kV = kilovolts; L_{eq} = equivalent sound level (the average noise exposure level for the given time period)

* Of the three transformers, only two would be operational simultaneously.

SOURCE: ESA 2022, based on NEMA 1993, Carrier 2019, and LSPGC 2022.

The combined noise level (L_{eq}) from operation of this equipment at the nearest residential receptor 1,500 feet away was estimated, assuming that all equipment would operate at 100 percent power. This assumption is conservative, as it is unlikely that all equipment would operate continuously at full power at the same time, assuming no additional attenuation from topography and intervening structures.

The combined attenuated noise level at the nearest residence was estimated to be approximately 30 dBA L_{eq}. This noise level is less than existing nighttime ambient noise levels in the vicinity of the Fern Road Substation facilities (36 to 48 dBA L_{eq}). It is also below Shasta County's long-term daytime and nighttime noise standards (55 dBA and 50 dBA, respectively) for operation and maintenance of Project-related non-transportation sources (shown in Table 3.13-3 under Policy N-b).

The PG&E distribution modifications and interconnection facilities portion of the Project would not include any new operational sources that would generate noise audible at nearby sensitive receptors. The Project would not introduce any new operational noise sources at the PG&E Round Mountain Substation, Table Mountain Substation, Cascade Substation, or Redding Service Center site. The existing staff would cover any maintenance activities at these sites. Thus, the noise impact of the Project's operational equipment would be less than significant.

Operation and Maintenance Traffic Noise

The Project would include no on-site staff, and the proposed Fern Road Substation would be remotely monitored by the Applicant's control centers, which are staffed by existing employees. Monthly and annual on-site inspection and maintenance activities would be conducted by small specialized teams at the Project sites. Such activities would require a negligible number of vehicle trips, which would be unlikely to have a substantive impact on traffic noise along roadways in the Project vicinity. A small, specialized crew of one to two high-voltage technicians and one to two personnel provided by the equipment vendor would conduct monthly and annual inspections at the Fern Road Substation, with support provided by the Applicant's staff.

Maintenance activities would generate approximately one trip per month. Routine operations would require one or two workers in a light utility truck to visit the substation site monthly. One annual major maintenance inspection would be conducted, lasting for a week, and requiring an estimated crew of two to four personnel. Nighttime maintenance activities are expected to occur no more than once per year.

Considering the small number of infrequent trips related to Project operation, inspection, and maintenance, the Project would have a negligible impact on noise levels in the vicinity. This impact would be less than significant.

b) Result in generation of excessive groundborne vibration or groundborne noise levels: *Less than Significant with Mitigation*.

Construction Equipment Vibration

The operation of heavy construction equipment would temporarily produce groundborne vibration and noise during grading, trenching, and other Project construction activities. The equipment types most likely to create vibration are drill rigs, large bulldozers, and loaded trucks.

Table 3.13-8 identifies the vibration levels generated by these pieces of equipment at a reference distance of 25 feet. The table also shows the distance at which noise generated by these pieces of equipment attenuate to FTA's thresholds for building damage and human annoyance at residential uses.

TABLE 3.13-8
CONSTRUCTION EQUIPMENT VIBRATION LEVELS

Construction Equipment	Reference Vibration Level at 25 Feet (PPV, in/sec)	Reference Vibration Level at 25 Feet (VdB)	Distance to Attenuate to FTA's Threshold for Building Damage (feet)	Distance to Attenuate to FTA's Threshold for Human Annoyance at Residential Uses (feet)
Drill rig	0.089	87	15	79
Large bulldozer	0.089	87	15	79
Loaded truck	0.076	86	13	73

NOTES: FTA = Federal Transit Administration; in/sec = inches per second; PPV = peak particle velocity; VdB = vibration decibels

SOURCE: ESA 2022, based on FTA 2018.

As shown in Table 3.13-8, the types of construction equipment that generate the highest vibration levels (large bulldozers or drill rigs) result in vibration levels of 0.089 PPV in/sec at a distance of 25 feet, while loaded trucks would generate 0.076 PPV in/sec at 25 feet. Groundborne vibration attenuates rapidly with distance and would not be perceptible beyond 100 feet from the Project boundaries. FTA's vibration threshold for building damage is 0.2 PPV in/sec, which the Project would not exceed even at the reference distance of 25 feet from the Project's most vibration-generating construction equipment. FTA's threshold for human annoyance at residential uses is 72 VdB; vibration from construction equipment would attenuate to below this level within 80 feet of the source and would not be perceptible at the residential receptors near any of the Project components.

Because of distance attenuation, Project construction would not have the potential to generate significant short-term groundborne vibration or groundborne noise at the nearest sensitive receptors. Therefore, the Project's impact related to construction-related vibration and groundborne noise would be less than significant.

Blasting Vibration

When blasting occurs at large distances from sensitive structures, the primary concern is the potential for cosmetic damage to structures. Cosmetic damage (e.g., minor cracking in plastered walls) can occur as a result of groundborne vibration or acoustic overpressures.

Blasting associated with the Fern Road Substation Facilities could occur as close as 1,300 feet from existing residential areas. As discussed under Criterion a) above, should blasting be necessary, the blasting contractor would be required to obtain a blasting permit and explosives permit in accordance with applicable local regulatory ordinances. Best management practices would be used before, during, and after all Project-related blasting activities, where necessary. The Applicant and/or its construction contractor would prepare a blasting plan and submit the plan to CPUC before the start of any blasting activities. The blasting plan would identify the proposed blasting locations (with accompanying map), types and amounts of blasting agent to be used at each location, estimated impact radii, and noise and vibration estimates. Mitigation Measure NOI-2 would be implemented to reduce this impact. This measure requires that the blasting contractor use charge weights to reduce vibration levels at the nearest structures to below the identified vibration threshold.

> **Mitigation Measure NOI-2:** Based on the location where blasting is needed, the blasting contractor shall estimate vibration levels at nearby receptors from blasting events using methods established by the former U.S. Bureau of Mines. The charge weight used for blasting shall be adjusted such that predicted vibration levels at receptors shall not exceed the more conservative limit of 0.3 in/sec PPV published by Caltrans.

Implementing Mitigation Measure NOI-2, in combination with measures proposed by the Project, would reduce vibration impacts from any blasting activities to a less-than-significant level.

Operations and Maintenance

The Project would not include the use of any large rotating equipment during its operation that would introduce any new sources of perceivable groundborne vibration. In addition, operation and maintenance activities at the Project sites would not require the use of heavy equipment that would generate high levels of vibration. Therefore, the Project has no potential to generate ground vibration levels greater than the 0.2 in/sec or 72 VdB significance criteria for vibration. Thus, the Project's operational vibration impacts would be less than significant.

c) For a project located with the vicinity of a private airstrip or 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, expose people residing or working in the project area to excessive noise levels: *No Impact.*

The sites of the proposed Fern Road Substation, the Round Mountain Substation, Cascade Substation, and the Table Mountain Substation are not located within 2 miles of a public airport or public use airport. The PG&E Redding Service Center is located approximately 0.5 mile southwest of Redding Municipal Airport but is located outside the airport's 65 dBA CNEL contours (City of Redding 2000). Therefore, the Project would not expose people working at the site to excessive noise levels from aircraft operations. No impact would occur.

3.13.5 References

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U.S. Department of the Interior, Office of Surface Mining (USDI). 2000. *Controlling the Adverse Effects of Blasting.* Western Regional Office, Office of Technology Transfer, Denver, CO. [Training module.]

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3.14 Population and Housing

Issues:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XIV. POPULATION AND HOUSING — Would the project:				
a) Induce substantial unplanned 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 people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

This section evaluates the potential for construction, operation, and maintenance of the Project to result in impacts related to population and housing in the study area. For the purposes of the evaluation of potential population and housing impacts, the study area was defined as the footprint of all components of the Project including the surrounding communities within which the Project would be constructed and operated.

3.14.1 Environmental Setting

The Fern Road Substation site is in an unincorporated area of south-central Shasta County directly east of, and adjacent to, the Pacific Gas and Electric Company (PG&E) Round Mountain–Table Mountain #1 and #2 500 kilovolt (kV) transmission line corridor. The site of the proposed substation is located approximately 1.6 miles northwest of the unincorporated community of Whitmore. The land surrounding the substation site is primarily open space area with minimal development, currently used as grazing land. The PG&E Facilities are located within Shasta County, except for the Table Mountain Substation, which is in Butte County.

The following historical population data were obtained from Shasta County (2020) in the Housing Element portion of the General Plan. Historical population data for Butte County was obtained from California Department of Finance (DOF) Report E-5 (DOF 2021b). Population data for 2022 were obtained from DOF Report E-1 (DOF 2022a). Population projections were obtained from DOF Report P-2A (DOF 2021a). Housing development data for Shasta and Butte counties were obtained from DOF Report E-5, Population and Housing Estimates for Cities, Counties, and the State (DOF 2022b).

3.14.1.1 Population

Population data from DOF and the Shasta County *2020–2028 Housing Element* are presented in **Table 3.14-1**, *Projected Population Growth, 2010–2060*. Between 2010 and 2019, Shasta County experienced a population increase of 0.9 percent, while the unincorporated part of the county experienced a 2.9 percent decrease (Shasta County 2020). According to DOF (2021a), the population of Shasta County is projected to increase approximately 0.9 percent each decade, similar to current trends, in 2030, 2040, 2050, and 2060, with the population in 2060 estimated to reach 185,208 (see Table 3.14-1). Therefore, the population growth in Shasta County over the next 40 years is projected to increase at the same consistent rate as it has for the past 10 years.

The unemployment rate in Shasta County, as of May 2022, was 3.4 percent (EDD 2022a). This rate is below the unemployment rate of 6.7 percent from a year ago (EDD 2022a). The Shasta County Housing Element estimated that as of 2016, the number of individuals employed in the construction industry in unincorporated Shasta County was 2,327 persons, accounting for approximately 9.4 percent of the county's total workforce (Shasta County 2020). According to the California Employment Development Department (EDD), as of May 2022, the mining, lodging, and construction industry had 4,900 workers and had increased 8.9 percent from the previous year (EDD 2022a).

TABLE 3.14-1
PROJECTED POPULATION GROWTH, 2010–2060

Area	2010 (Shasta County; DOF 2021b) Population	2019 (Shasta County; DOF 2021b) Population	2022 (DOF 2022a) Population	2030 (DOF 2021a) Projected Population	2040 Projected Population	2050 Projected Population	2060 Projected Population
Butte County	220,000	220,855	201,608	236,874	246,453	252,567	258,144
Shasta County	177,223	178,773	180,531	180,498	183,482	184,110	185,208
Unincorporated County	67,266	65,228	66,243				

NOTE: DOF = California Department of Finance

SOURCES: DOF 2021a, 2021b, 2022a; Shasta County 2020a

In Butte County between 2010 and 2019, the population increased by 855 persons (DOF 2021b). By 2060, the county is expected to have a population of 258,144 (DOF 2021a). The unemployment rate in Butte County, as of August 2022, was 4.1 percent. This rate is below the unemployment rate of 6.7 percent from a year ago (EDD 2022b). According to EDD, as of August 2022, the mining, lodging, and construction industry had 4,500 workers, an increase of 4.7 percent from the previous year (EDD 2022b).

3.14.1.2 Housing

Data on the numbers of occupied and vacant housing units and vacancy rates for Shasta County and the unincorporated portion of the county are presented in **Table 3.14-2**, *2022 Housing Data Estimates*. According to DOF Report E-5, as of 2022, Shasta County had 79,865 housing units and a vacancy rate of approximately 8 percent. The unincorporated county had 30,402 housing units and a vacancy rate of 12.2 percent, which is slightly higher than that of the county (DOF 2022b). Butte County, as of 2022, had 91,549 housing units and a vacancy rate of 8.1 percent (DOF 2022b).

The California Department of Housing and Community Development (HCD) allocates and distributes the Regional Housing Need Allocation (RHNA) to each jurisdiction in Shasta County by the following income categories: extremely low, very low, low, moderate, and above moderate. Shasta County currently has excess capacity for all income levels for the sixth-cycle RHNA and any carryover from the fifth-cycle RHNA (Shasta County 2020). For the sixth-cycle RHNA (2020 through 2028), the projected housing needs for unincorporated Shasta County

include: 412 units for very low income (some carryover from the fifth-cycle RHNA); 179 units for low income; 193 units for moderate income; and 460 units for above moderate income for a total of 1,259 needed units. Currently, Shasta County has the capacity for 567 very low, 666 low, 3,714 moderate, and 7,961 above moderate-income units. This includes the 385 units that have been permitted and/or are under construction (Shasta County 2020).

TABLE 3.14-2
2022 HOUSING DATA ESTIMATES

Area	Total Housing Units	Occupied Housing Units	Vacant Housing Units	Vacancy Rate (percent)
Butte County	91,549	84,157	7,392	8.1%
Shasta County	79,865	73,392	6,473	8.1%
Unincorporated Shasta County	30,402	26,702	3,700	12.2%

SOURCES: DOF 2022b

3.14.2 Regulatory Setting

3.14.2.1 Federal/State

No federal or state statutes, regulations, plans, or policies govern population and housing-related considerations on the Project site.

3.14.2.2 Local

California Public Utilities Commissions General Order 131-D

The California Public Utilities Commission (CPUC) has sole and exclusive state jurisdiction over the siting and design of the Project. Pursuant to CPUC General Order (GO) 131-D, Section XIV.B, "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters" (CPUC 1994). Consequently, public utilities are directed to consider local regulations and consult with local agencies, but county regulations are not applicable as Shasta County and Butte County do not have jurisdiction over the Project. This section includes a summary of local population and housing-related policies, plans or programs for informational purposes and to assist with CEQA review.

Shasta County General Plan

The following relevant Housing Plan objective and policies from the Shasta County General Plan, Housing Element (Shasta County 2020) are provided for informational purposes. The information below includes policies regarding Housing Supply (HS) and Housing Development Constraints (HC).

Objective H-1: Establish and implement policies and programs that will:

1. Contribute to the provision of an adequate supply and diversity of safe, healthy, and affordable housing in unincorporated areas of Shasta County for residents of all income levels and special needs.

2. Satisfy the requirements of the Regional Housing Need Determination and Plan for Shasta County for the 2020 through 2028 planning period.

***Policy HS-c*:** The County will seek to provide suitable areas in which to develop and maintain all types of housing consistent with public health and safety standards and which conserve natural resources without significantly increasing the cost of housing.

***Policy HC-d*:** The County will evaluate the need to revise current development standards, including Zoning Plan provisions, as part of an ongoing effort to expand the choice and locations of affordable residential housing types and designs.

Butte County General Plan

The following relevant Housing Element goal and policy from the Butte County General Plan, Housing Element (Butte County 2014) are provided for informational purposes.

Goal H-6: Promote energy conservation.

***Policy H-P6.1*:** Continue to implement state energy efficiency standards.

3.14.3 Applicant Proposed Measures and PG&E Construction Measures

No Applicant Proposed Measures or PG&E construction measures (avoidance and minimization measures or best management practices) have been proposed to address potential effects to population and housing.

3.14.4 Environmental Impacts

3.14.4.1 Methodology and Assumptions

The following analysis uses the criteria from Appendix G of the CEQA Guidelines to identify direct and indirect effects on population and housing.

3.14.4.2 Direct and Indirect Effects

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): *Less than Significant.*

The Project would not include any new homes or businesses and would not directly induce population growth. Construction of access roads or from other infrastructure interior to the Project sites would not indirectly induce population growth because these would not be accessible to the public.

The Project could have an indirect impact on population growth in the study area if it were to result in an increase in local population due to the workforce associated with the Project. Considerations for worker numbers and construction timeline are discussed in Chapter 2, *Project Description*. During the 22-month construction period, the Applicant expects the peak daily employment workforce associated with the Fern Road Substation Facilities to be approximately 40 workers, but on average the daily workforce would be less. Workers would likely commute

from the surrounding area of Redding and Red Bluff. The construction of the PG&E Facilities would require approximately five workers for the PG&E substation upgrades, 10 workers for the distribution modifications, and 15 workers for the interconnection facilities. It is anticipated that a daily maximum of up to approximately 20 workers would be required during overlap of the PG&E substation upgrades and the PG&E 500 kV interconnection. When combined with the Fern Road Substation Facilities portion of the Project, a total of 45 workers would be at the Project sites for the above-grade development, PG&E distribution modifications, and PG&E substation upgrade phases of the Project. Because the Project would only require a maximum of 45 construction workers during peak construction, there would be no need for a large number of workers to relocate to the area.

Once construction has been completed, the Fern Road Substation would not require on-site workers and would be remotely monitored by the Applicant's control center. Post-construction commissioning and testing would require about 24 on-site workers for approximately 5 months. Routine maintenance is expected to require approximately one trip per month by crews composed of two to four people, and routine operations would require one or two workers in a light service vehicle to visit the Project site monthly. It is anticipated that one annual major maintenance inspection would occur, requiring an estimated crew of two to four personnel. Because construction would be temporary (22 months) and construction workers would be sourced locally, the construction phase of the Project would not induce population growth in the area. For operations, the intermittent aspect of maintenance would not require full-time positions resulting in the need for technicians to relocate to the area. Maintenance would be conducted by technicians who are currently employed or contracted by the Applicant and would travel to the area to complete monthly and semiannual maintenance. No additional on-site workers would be required for operations of the proposed facilities at the PG&E Round Mountain Substation, Table Mountain Substation, Cascade Substation, or Redding Service Center. Given the small number of positions required for construction, operation, and maintenance of the Project and the anticipated short-term construction period, the Project would have a less-than-significant indirect impact on population growth associated with the Project's temporary workforce.

b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere: *No Impact*.

The Project would not displace any existing residents or housing, as the proposed Fern Road Substation Facilities and associated interconnection transmission lines would be located on undeveloped grazing land. The closest residents are located 1,500 feet from the Fern Road Substation site but would not be displaced as a result of the Project. Additionally, the construction, operation, and maintenance workforce for this Project is expected to be minimal, as discussed above, and would not require the construction of additional housing.

No people or housing would be displaced by construction or operation of the Project. Therefore, it would not be necessary to construct replacement housing elsewhere, and no impact would occur.

3.14.5 References

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California Public Utilities Commission (CPUC). 1994. *General Order No. 131-D.* Modified: August 11, 1995. Available: https://docs.cpuc.ca.gov/PUBLISHED/Graphics/589.PDF. Accessed October 18, 2022.

Shasta County. 2020. *Shasta County 2020–2028 Housing Element*. Adopted: July 28, 2020. Available: https://www.hcd.ca.gov/housing-elements/docs/shasta-county-6th-adopted081020.pdf. Accessed June 21, 2022.

3.15 Public Services

Issues:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XV. PUBLIC SERVICES —				
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 following public services:				
i) Fire protection?	☐	☐	☐	☒
ii) Police protection?	☐	☐	☐	☒
iii) Schools?	☐	☐	☐	☒
iv) Parks?	☐	☐	☐	☒
v) Other public facilities?	☐	☐	☐	☒

The study area for the analysis of potential impacts on public services consists of the service areas of the fire protection and law enforcement agencies, schools, parks, libraries, and medical providers that serve the region where the Project would be located.

3.15.1 Environmental Setting

The Fern Road Substation Facilities and the Pacific Gas and Electric Company (PG&E) distribution modifications and interconnection facilities are located in an unincorporated area of south-central Shasta County directly east of and adjacent to the PG&E Round Mountain–Table Mountain #1 and #2 500-kilovolt (kV) transmission line corridor. These Project components are located approximately 1.6 miles northwest of the unincorporated community of Whitmore. The land surrounding these Project components is primarily open space area with minimal development, currently being used as grazing land. The PG&E facilities are located in Shasta County, except for the Table Mountain Substation, which is in Butte County.

3.15.1.1 Fire Protection

The California Department of Forestry and Fire Protection (CAL FIRE) has a fire hazard severity classification system for California's wildlands that assesses the fire potential for wildlands based on fuel load, climate, and topography. According to the Shasta County General Plan, the Fern Road Substation site area is located within the Very High to High Fire Hazard Severity Zone (Shasta County 2004a). For additional information about fire hazard severity zones, see Section 3.20, *Wildfire*.

The Shasta County Fire Department (SCFD) is a full-service fire department that provides emergency services to residents of both incorporated and unincorporated areas of Shasta County (SCFD 2022). Fire agencies serving the unincorporated areas of Shasta County include 12 community fire districts, 19 volunteer fire companies, two Amador fire stations (Station 58 and

Station 78), and one SCFD station, Redding Station 43 (Shasta County 2004a). The 19 volunteer fire companies are operated under the jurisdiction of SCFD, as are the Amador stations and the county fire district station. The community fire districts are separate legal entities with legally drawn boundaries and budgets separate from SCFD (Shasta County 2004a).

The jurisdictions of many of the local fire agencies overlap that of CAL FIRE. Local agencies are responsible primarily for non-wildland fires, while federal and state agencies respond primarily to wildland fires. In practice, however, all agencies work together, and their duties overlap when the need is present.

Fire protection and emergency services for the Fern Road Substation Facilities and PG&E Facilities in the vicinity of the substation site would be provided by CAL FIRE's Whitmore Station #35, located 10 road miles to the southeast at 11787 Ponderosa Way in Whitmore, an approximately 12- to 15-minute drive from the Project site, and/or by CAL FIRE's Buckhorn Station #34, located 3 miles north of the site (5.1 miles by car) in the unincorporated community of Oak Run.

The nearest fire department to the Round Mountain Substation is Volunteer Fire Company Station #71, located approximately 0.5 mile to the west in the community of Montgomery Creek. The nearest fire station to the Redding Service Center is CAL FIRE's Redding Station 43, located approximately 1.5 miles to the north, and Redding Fire Station #7, located approximately 1 mile to the northeast. SCFD would be the designated first responder for all Project-related incidents in Shasta County.

The Butte County Fire Department and CAL FIRE work together to provide services to the unincorporated areas of Butte County; the cities of Oroville, Biggs, and Gridley; and the town of Paradise. There are 22 fire stations, some run by CAL FIRE and Butte County Fire Department separately, and some that are jointly run. The fire station nearest to the Table Mountain Substation is Fire Station 63, located approximately 4.5 miles to the southeast in Oroville. This station directly protects the Table Mountain Substation (Butte County 2022).

3.15.1.2 Police Services

The Shasta County Sheriff's Office (SCSO) provides law enforcement services to all unincorporated areas of Shasta County. Shasta County is a vast area with many small communities; therefore, patrol operations are conducted to protect and serve each community. SCSO's area of responsibility encompasses approximately 3,700 square miles of unincorporated Shasta County (SCSO 2022).

The main patrol operations station, in Redding, serves the many communities located within the north end of the Sacramento Valley, known locally as the Redding Basin (SCSO 2022). The South County Station is located approximately 24.3 miles west of the Fern Road Substation site (33 miles by car) and approximately 5.5 miles west of the PG&E Redding Service Center (8 miles by car). The second patrol operations station is the Burney Station, which serves the Intermountain Area and many other small intermountain communities (SCSO 2022). The Burney Station is located approximately 21.7 miles northeast of the Fern Road Substation site (39.7 miles by car).

SCSO does not provide average response times. Anecdotally, the maximum response time in rural Shasta County appears to be approximately 40 minutes (Shulman 2018). The Burney Police Station is the closest station to the Round Mountain Substation, located approximately 10 miles to the northeast (22 miles by car). Additionally, the Redding Police Department (RPD) is located approximately 23.9 miles west of the Fern Road Substation site (29.2 miles by car) and approximately 4 miles northwest of the Redding Service Center (8.5 miles by car). Because of its close proximity, RPD may also be called to assist in the area of the Fern Road Substation and Redding Service Center. As of 2017, RPD's average response time was approximately 14.5 minutes (City of Redding n.d.).

The Butte County Sheriff's Office has three stations that serve Butte County. The Sheriff's Office is the station nearest to the Table Mountain Substation, located approximately 4 miles to the southeast (6 miles by car).

3.15.1.3 Schools

In Shasta County, 25 public school districts serve 26,297 students (SCOE n.d.). Public primary education is overseen by the Shasta County Office of Education. The Fern Road Substation Facilities and PG&E Facilities in the vicinity of the substation site are within the service areas of the Shasta Union High School District and Whitmore Union Elementary School District (SCOE 2022). The public school nearest to the substation site is Whitmore Elementary School, located approximately 1.7 miles to the southeast. The Round Mountain Substation is also located within the Shasta Union High School District and Whitmore Union Elementary School District service areas. The Redding Service Center is located within the service areas of the Pacheco Union Elementary School District and Anderson Union High School District (SCOE 2022). The public school nearest to the service center is Pacheco Elementary School, located approximately 1.5 miles to the northwest.

Butte County has 14 school districts with 91 public schools and 18 charter schools. The Table Mountain Substation is located within the service areas of the Oroville City Elementary School District and Oroville Union High School District. The nearest school is the Hearthstone School, located approximately 4 miles to the southeast.

There are also several private schools throughout Shasta and Butte counties; however, there are no private schools within a mile of the Fern Road Substation site.

3.15.1.4 Libraries

The Shasta Public Libraries (SPL) has three branches, located in Anderson, Burney, and Redding. The three SPL branches serve 180,00 residents within an area of 3,847 square miles and act as a technological and educational center. The SPL also provides services such as a literacy center, a technology-based makerspace, and programs to support community needs (SPL 2022). The Redding Library is closest to the Fern Road Substation and PG&E Redding Service Center sites at approximately 25 miles to the southwest (30 miles by car) and 7 miles to the northwest (9 miles by car), respectively.

The Table Mountain Substation, located in Butte County, is near the Oroville Branch of the Butte County Library System. The Oroville Branch is located approximately 6 miles southeast of the Table Mountain substation (8 miles by car).

3.15.1.5 Parks

The Fern Road Substation Facilities and PG&E Facilities in the vicinity of the substation site are in an area composed of privately owned, mostly agricultural lands. There are no parks or other recreational areas within 0.5 mile of the substation site. The open space lands and low population density that characterize the Project area more readily facilitate passive recreation activities than activities confined to formally designated recreation areas (Shasta County 2004b).

The land surrounding the Round Mountain Substation is primarily open space area with very minimal development. There are currently no formal recreational opportunities in the vicinity of the substation, although the open space and forested areas in the vicinity provide informal recreational opportunities.

The Table Mountain Substation is located in the town of Cottonwood in Butte County, north of Oroville. Cottonwood Creek, located about 900 feet east of the substation, provides recreational opportunities such as fishing for Cottonwood residents. The nearest park, Hammon Park, is located approximately 4.7 miles to the southeast.

The Redding Service Center is located in an area of Redding adjacent to both residential and open space land uses. The Sacramento River is located approximately 1.5 miles west of the site, providing a variety of recreational opportunities. The nearest park to the Redding Service Center is Cascade Park, located approximately 3.4 miles to the northwest. For additional information about impacts on recreational resources, see Section 3.16, *Recreation*.

3.15.1.6 Emergency Medical Services

The nearest available emergency care center in Shasta County is Shasta Regional Medical Center, located in the city of Redding, approximately 24 miles west of the Fern Road Substation site (28 miles by car) and 8 miles northwest of the Redding Service Center (10 miles by car). The Hill Country Health and Wellness Center–Round Mountain is a full-service health center located approximately 11 miles north of the Fern Road Substation site (18.7 miles by car) and 0.2 mile southwest of the Round Mountain Substation (0.5 miles by car); the Shingletown Medical Center is located approximately 10.9 miles south of the Fern Road Substation site (33 miles by car).

The nearest emergency care center to the Table Mountain Substation is the Oroville Hospital, located approximately 6.5 miles to the southeast (10 miles by car).

3.15.2 Regulatory Setting

3.15.2.1 Federal

No federal statutes, regulations, or policies apply to the analysis of public services for the Project.

3.15.2.2 State

California Public Resources Code Sections 4292 and 4293

Public Resources Code (PRC) Section 4292 states:

> [A]ny person that owns, controls, operates, or maintains any electrical transmission or distribution line…shall, during such times and in such areas as are determined to be necessary by the director or the agency which has primary responsibility for fire protection of such areas, maintain around and adjacent to any pole or tower which supports a switch, fuse, transformer, lightening arrester, line junction, or dead end or corner pole, a firebreak which consists of a clearing of not less than 10 feet in each direction from the outer circumference of such a pole or tower.

PRC Section 4293 states:

> [A]ny person that owns, controls, operates, or maintains any electrical transmission or distribution line upon any mountainous land, or in forest-covered land, or grass-covered land shall, during such times and in such areas as are determined to be necessary by the director or the agency which has primary responsibility for the fire protection of such area, maintain a clearance of the respective distances which are specified in this section in all directions between all vegetation and all conductors which are carrying electric current:
>
> (a) For any line which is operating at 2,400 or more volts, but less than 72,000 volts, four feet.
>
> (b) For any line which is operating at 72,000 or more volts, but less than 110,000 volts, six feet.
>
> (c) For any line which is operating at 110,000 or more volts, 10 feet.
>
> In every case, such distance shall be sufficiently great to furnish the required clearance at any position of the wire, or conductor when the adjacent air temperature is 120 degrees Fahrenheit, or less. Dead trees, old decadent or rotten trees, trees weakened by decay or disease and trees or portions thereof that are leaning toward the line which may contact the line from the side or may fall on the line shall be felled, cut, or trimmed so as to remove such hazard.

Red Flag Fire Warning and Weather Watches

Similar to PRC Sections 4292 and 4293, Red Flag Warnings and Fire Weather Watches aim to prevent fire events and reduce the potential for substantial damage. When extreme fire weather or behavior is present or predicted in an area, a Red Flag Warning or Fire Weather Watch may be issued to advise local fire agencies that these conditions are present. The National Weather Service issues the Red Flag Warnings and Fire Weather Watches, and CAL FIRE provides safety recommendations for preventing fires, which include clearing and removing vegetation and ensuring the proper use of equipment.

3.15.2.3 Local

The California Public Utilities Commission (CPUC) has sole and exclusive state jurisdiction over the siting and design of the Project. Pursuant to CPUC General Order 131-D, Section XIV.B, "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities

shall consult with local agencies regarding land use matters" (CPUC 1995). Consequently, public utilities are directed to consider local regulations and consult with local agencies, but county regulations are not applicable because Shasta County does not have jurisdiction over the Project. This section includes a summary of local public services–related policies, plans, or programs for informational purposes and to assist with CEQA review.

Shasta County General Plan

The following objective and policies in Section 5.4, *Fire Safety and Fire Protection,* of the Shasta County General Plan (Shasta County 2004a) may be relevant to the Project:

> **Objective FS-1:** Protect development from wildland and non-wildland fires by requiring new development projects to incorporate effective site and building design measures commensurate with level of potential risk presented by such a hazard and by discouraging and/or preventing development from locating in high risk fire hazard areas.
>
> > ***Policy FS-a:*** All new land use projects shall conform to the County Fire Safety Standards.
> >
> > ***Policy FS-b:*** Known fire hazard information should be reported as part of every General Plan amendment, zone change, use permit, variance, building site approval, and all other land development applications subject to the requirements of the California Environmental Quality Act (CEQA).
> >
> > ***Policy FS-e:*** Development in areas requiring expanded levels of police and fire services shall participate in adopted County programs designed to offset the added costs for providing the expanded level of services.
> >
> > ***Policy FS-f:*** The Sheriff's Office and Shasta County Fire Department should annually review the County's standard development conditions as they relate to the provision of police and fire services created as a result of new land use projects and recommend to the Planning Commission appropriate changes including the need to implement equitable property tax assessments to help defray the costs of providing new and/or expanded services.

The following objective and policies in Section 7.5, *Public Facilities*, of the Shasta County General Plan (Shasta County 2004b) may be relevant to the Project:

> **Objective PF-4:** Development of a land use pattern which can be adequately served with community facilities such as schools, libraries, and community recreation.
>
> > ***Policy PF-a:*** Shasta County shall take appropriate actions for achieving objective PF-4. Every opportunity for interjurisdictional and interagency cooperation in other areas shall be encouraged to this end.
> >
> > ***Policy PF-g:*** Shasta County shall encourage the County Office of Education to work with all affected school districts to prepare and recommend to the County standards for preparation of individual school facilities master plans which set forth, in a uniform Countywide fashion to the extent possible, reasonable assumptions concerning student population growth, facility needs to accommodate growth generated by new development, and targets for use of alternative means of new facility financing consistent

with Government Code Section 65996, as may be amended, and other applicable laws and regulations.

Policy PF-h: Public uses (e.g., schools, parks, waste disposal sites) and public utilities (e.g., substation, transmission lines) whose site-specific locations often cannot be identified in advance by the General Plan may be permitted throughout the County to serve the public need. Appropriate zoning on site-specific locations will be determined in response to the identified need as it occurs. Solid waste disposal facilities shall be conditionally permitted to ensure that the site is compatible with adjacent land uses. Surrounding land uses, to the extent feasible, shall be regulated to avoid incompatibility with the solid waste disposal facilities.

Butte County General Plan

The following goals and policies in Chapter 6, *Public Facilities and Services Element,* of the Butte County General Plan (Butte County 2012) may be relevant to the Project:

Goal PUB-1: Maintain facilities and staff adequate to provide appropriate levels of government services and administration for the residents of Butte County.

***Policy PUB-P1.5*:** All service providers shall be offered appropriate opportunities to comment on pending development project applications.

Goal PUB-2: Provide adequate fire protection and emergency medical response services to serve existing and new development.

***Policy PUB-P2.2*:** The adopted Standards of Cover for fire protection shall be maintained and implemented.

Goal PUB-3: Provide adequate fire protection and emergency medical response services to serve existing and new development.

***Policy PUB-P3.1*:** The County supports the expansion of volunteer services for law enforcement.

Goal PUB-4: Support high-quality schools and educational facilities for all Butte County residents.

***Policy PUB-P4.1*:** Review of development proposals shall be coordinated with school districts to determine and plan for capacity issues over time.

***Policy PUB-P4.4*:** Infrastructure development projects shall be coordinated to minimize the cost to the public of building needed schools.

***Policy PUB-P4.7*:** New development projects shall be approved only if the County and the applicable School District finds that existing or planned schools will be adequate to serve it.

Goal PUB-12: Manage wastewater treatment facilities at every scale to protect the public health and safety of Butte County residents and the natural environment.

***PUB-P12.1*:** Applicants shall be allowed to make case-by-case assessments of septic and other wastewater treatment systems to determine appropriate system designs and densities and shall be allowed to utilize new technologies that are supported by State and County practices.

Goal PUB-13: Plan adequate wastewater infrastructure to serve new development.

***Policy PUB-P12.1*:** New development projects shall demonstrate the availability of a safe, sanitary and environmentally sound wastewater system.

***Policy PUB-P13.3*:** For development projects that will rely on on-site wastewater systems, applicants shall provide detailed plans demonstrating that the system will be adequate to serve the project.

3.15.3 Applicant Proposed Measures and PG&E Construction Measures

3.15.3.1 Applicant Proposed Measures

The following Applicant Proposed Measures (APMs) have been identified by LSPGC to address potential impacts on public services associated with the Fern Road Substation Facilities.

APM PS-1: LSPGC would coordinate construction activities with local law enforcement and fire protection agencies. Emergency service providers would be notified of the timing, location, and duration of construction activities.

APM GHG-1: If suitable park-and-ride facilities are available in the Project vicinity, construction workers shall be encouraged to carpool to the job site.

APM FIRE-1: Construction Fire Prevention Plan. A Proposed Project-specific Construction Fire Prevention Plan (Plan) for construction of the Proposed Project shall be submitted for review prior to initiation of construction. A draft copy of the Plan shall be provided to the CPUC and state and local fire agencies at least 90 days before the start of any construction activities in areas designated as Very High or High Fire Hazard Severity Zones. Plan reviewers shall also include federal, state, or local agencies with jurisdiction over areas where the Proposed Project is located. The final Plan shall be approved by the CPUC no more than 60 days after receipt from the applicant. The Plan shall be fully implemented throughout the construction period and include the following at a minimum:

- The purpose and applicability of the Plan
- Responsibilities and duties
- Preparedness training and drills
- Procedures for fire reporting, response, and prevention that include:
  - Identification of daily site-specific risk conditions
  - The tools and equipment needed on vehicles and to be on hand at sites
  - Reiteration of fire prevention and safety considerations during tailboard meetings
  - Daily monitoring of the red-flag warning system with appropriate restrictions on types and levels of permissible
- Coordination procedures with federal and local fire officials
- Crew training, including fire safety practices and restrictions
- Method(s) for verifying that all Plan protocols and requirements are being followed

A project fire marshal or similar qualified role shall be established to enforce all provisions of the Construction Fire Prevention Plan as well as perform other duties related to fire detection, prevention, and suppression for the Proposed Project. Construction activities shall be monitored to ensure implementation and effectiveness of the Plan.

Fire Prevention Practices (Construction and Maintenance). The Applicant shall implement ongoing fire patrols during the fire season as defined each year by local, state, and federal fire agencies. These dates vary from year to year, generally occurring from late spring through dry winter periods. During Red Flag Warning events, as issued daily by the National Weather Service, all construction/maintenance activities shall cease, with an exception for transmission line testing, repairs, unfinished work, or other specific activities which may be allowed if the facility/equipment poses a greater fire risk if left in its current state.

All construction/maintenance crews and inspectors shall be equipped with radio or cellular telephone access that is operational in all work areas and access routes to allow for immediate reporting of fires. Communication pathways and equipment shall be tested and confirmed operational each day prior to initiating construction/maintenance activities at each work site. All fires shall be reported to the fire agencies with jurisdiction in the area immediately upon discovery of the ignition.

All construction/maintenance personnel shall be trained in fire-safe actions, initial attack firefighting, and fire reporting. All construction/maintenance personnel shall be trained and equipped to extinguish small fires in order to prevent them from growing into more serious threats. All construction/maintenance personnel shall carry at all times a laminated card and be provided a hard hat sticker that list pertinent telephone numbers for reporting fires and defining immediate steps to take if a fire starts. Information on laminated contact cards and hard hat stickers shall be updated and redistributed to all construction/maintenance personnel, and outdated cards and hard hat stickers shall be destroyed prior to the initiation of construction/maintenance activities on the day the information change goes into effect.

Construction/maintenance personnel shall have fire suppression equipment on all construction vehicles. Construction/maintenance personnel shall be required to park vehicles away from dry vegetation. Water tanks and/or water trucks shall be sited or available at active project sites for fire protection during construction. The Applicant shall coordinate with applicable local fire departments prior to construction/maintenance activities to determine the appropriate amounts of fire equipment to be carried on vehicles and, should a fire occur, to coordinate fire suppression activities.

APM FIRE-3: In response to the need for fire mitigation during prolonged emergency response times, any Proposed Project facilities would be designed and constructed with resistance to wildfire ignition and consummation where feasible.

APM FIRE-4: All construction crews and inspectors shall be equipped with radio or cellular telephone access that is operational within the Proposed Project work area to allow for immediate reporting of fires. Fires shall be reported to the fire agencies with jurisdiction in the area upon discovery of the ignition. All construction personnel shall be trained in immediate steps to take if a fire starts, including fire reporting.

APM FIRE-5: LSPGC and/or its contractors shall notify applicable local fire departments of construction activities associated with the Proposed Project prior to construction and coordinate with emergency service providers regarding potential ingress and egress constraints that may occur.

Prior to construction, an agreement would be in place with agencies providing wildfire response services to the Proposed Project area that would ensure they have access through the gated entrance off Fern Road in case of emergency.

3.15.3.2 PG&E Construction Measures

PG&E would implement the following Avoidance and Minimization Measures (AMMs) to address potential effects associated with the PG&E Facilities on public services. No best management practices are directly applicable to the discussion of impacts.

AMM-2: Park vehicles and equipment on pavement, existing roads, or other disturbed or designated areas (barren, gravel, compacted dirt).

AMM-8: Prohibit trash dumping, firearms, open fires (such as barbecues), hunting, and pets (except for safety in remote locations) at work sites.

AMM-9: In designated State Responsibility Areas, equip all motorized equipment with federally or state-approved spark arrestors. Ensure a backpack pump filled with water and a shovel and fire-resistant mats and/or windscreens is onsite during welding. During fire "red flag" conditions as determined by the California Department of Forestry and Fire Protection, prohibit welding. Each fuel truck will carry a large fire extinguisher with a minimum rating of 40 B:C. Clear parking and storage areas of all flammable materials.

3.15.4 Environmental Impacts

3.15.4.1 Methodology and Assumptions

The following analysis uses the criteria from Appendix G of the CEQA Guidelines to identify direct and indirect effects on public services. The analysis considers both the Fern Road Substation Facilities and the PG&E Facilities.

3.15.4.2 Direct and Indirect Effects

a.) 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 fire or police protection, schools, parks, or other public facilities*: No Impact.*

Because no housing is proposed as part of the Project and no permanent staffing would be required for operation and maintenance at the Project sites, the Project would not result in a population increase that would require the provision of new or physically altered schools, parks, fire, or police protection facilities. No new or physically altered fire or police facilities are needed, nor are such facilities proposed as part of the Project. During peak employment, an estimated 40 workers may be needed to construct the Fern Road Substation Facilities portion of the Project and 20 workers may be needed to construct the PG&E Facilities portion of the Project. If workers come from other regions to perform this work, the temporary addition of construction workers to the region would not generate a substantial increase in population such that new public facilities would be needed as a result of this Project.

During the construction phase, increased traffic in the Project vicinity could temporarily increase the demand for fire protection, police, and emergency services. Incidents requiring these services could include vehicle accidents or construction-related fires. However, the temporary increase would persist only during the (anticipated 22-month) construction phase. To reduce increases in traffic levels near the Fern Road Substation Facilities during construction, APM GHG-1 would be implemented to encourage employees to carpool. Because carpooling would reduce the number of vehicles on the roadways, this measure would reduce the risk of accidents requiring emergency services. Furthermore, the Applicant would comply with fire break clearance requirements for the Fern Road Substation Facilities outlined in PRC Section 4292 and California Code of Regulations Title 14, Section 1252, as noted in APM FIRE-1. Consistent with these regulatory requirements, flammable vegetation in and around the Fern Road Substation would be trimmed or removed, which would reduce the potential for a fire during construction. APM FIRE-1 describes the Applicant's commitment to preparing a construction fire prevention plan and to implement fire prevention practices for the Fern Road Substation Facilities. All construction personnel associated with the Fern Road Substation Facilities would be trained in immediate steps to take if a fire starts, including fire reporting (see APM FIRE-4).

Should a construction-related fire start, workers would have the proper resources to prevent it from spreading. These resources include equipment for putting out small fires and information identifying which agency should be contacted for assistance. Implementing APMs FIRE-1 and FIRE-2 would reduce the chances of a fire starting during construction of the Fern Road Substation Facilities and would help avoid the need for an increase in fire protection services as a result of the Project.

Additionally, the Applicant would coordinate construction activities with local law enforcement and fire protection agencies. Emergency service providers would be notified of the timing, location, and duration of construction activities, pursuant to implementation of APM PS-1 for the Fern Road Substation Facilities. This would allow law enforcement and fire protection agencies and emergency service providers to evaluate the risk associated with each phase of construction of the Fern Road Substation Facilities. This APM would also increase the chances of a timely response in the event of an emergency, as the advanced coordination would allow for sharing of the exact locations of each construction activity for the Fern Road Substation Facilities.

The PG&E Facilities portion of the Project would implement Avoidance and Minimization Measures, or AMMs, to reduce the risk of fire and associated fire protection services. AMM-9 discusses fire prevention measures that would be implemented and outlines PG&E protocols to be followed during fire season. All construction crews and inspectors associated with the PG&E Facilities would be equipped with radio or cellular telephone access that is operational within the Project work areas to allow for immediate reporting of fires. Fires would be reported to the fire agencies with jurisdiction in the area upon discovery of the ignition. Additionally, PG&E would require workers to park vehicles and equipment on pavement, existing roads, or other disturbed or designated barren, gravel, or compacted dirt areas (see AMM-2). This would reduce the potential for equipment-related fires that may require the need for fire protection services. Implementing the PG&E fire prevention methods described in AMM-2 and AMM-9 would reduce fire risk

associated with the PG&E Facilities, and thus would reduce the chance that a fire protection response would be required.

In addition to implementation of APM PS-1, the Fern Road Substation would include physical security and remote monitoring through the Applicant's control center to reduce the potential need for police services. Once constructed, the Fern Road Substation would include an 8-foot-tall perimeter fence with around-the-clock monitoring, response, and control through the Applicant's control center. Indoor and outdoor security cameras would be placed throughout the substation site, with at least two of the cameras placed around the exterior of the control house. The security cameras would be routed through a network video recorder and communicated to the control center for monitoring, as discussed in Chapter 2, Section 2.5.3.4, *Security*. APM PS-1 and the security measures discussed above would keep the substation secure and reduce the need for police services. At the off-site locations of the existing PG&E facilities, personnel would continue to implement existing security features in accordance with PG&E policy.

Adverse impacts that would require the provision of new or altered schools, libraries, recreation, and hospitals are typically associated with an increase in population. Because no housing is proposed as part of the Project, the Project would not directly contribute to population growth. Neither the temporary construction workforce nor potential maintenance workers who may be called in to occasionally repair Project facilities would result in substantial population growth to the region such that additional fire stations, libraries, schools, hospitals, or recreation facilities would need to be constructed. Therefore, no impact on these public services would occur as a result of the Project.

3.15.5 References

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3.16 Recreation

Issues:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XVI. RECREATION —				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

3.16.1 Environmental Setting

Recreational opportunities within Shasta and Butte counties include regional and local parks and recreation areas, state parks and forests, national parks and forests, and other opportunities for court sports, field sports, and more.

The Fern Road Substation Facilities and the Pacific Gas and Electric Company (PG&E) distribution modifications and interconnection facilities would be located in an unincorporated area of south-central Shasta County, approximately 1.6 miles northwest of the unincorporated community of Whitmore and 31 miles northeast of Redding. The land surrounding these Project components is primarily open space area with minimal development and is currently used as grazing land. There are currently no designated community parks in Whitmore, as the open space lands lend themselves to informal recreation activities. The Fern Road Substation Facilities and the PG&E distribution modifications and interconnection facilities sites are located within the Cow Creek Watershed, a large tributary to the Sacramento River located in eastern Shasta County. The Cow Creek Watershed is not formally designated as a recreational facility by Shasta County but is used for various recreational activities that include sightseeing, camping, hiking, fishing, hunting, horseback riding, and nature appreciation.

The Round Mountain Substation is located in the unincorporated community of Round Mountain, approximately 12 miles north of the unincorporated community of Whitmore near the Fern Road Substation Facilities site. The land surrounding Round Mountain Substation is primarily open space area with very minimal development. There are currently no formal recreational opportunities in the vicinity of the substation, although there are informal recreational opportunities provided by the open space and forested areas in the vicinity.

The Table Mountain Substation is located in the town of Cottonwood in Butte County, north of Oroville. Cottonwood Creek is located about 900 feet east of the substation and provides recreational opportunities such as fishing for Cottonwood residents. The nearest park, Hammon Park, is located approximately 4.7 miles to the southeast.

The Redding Service Center is located in an area of Redding adjacent to both residential and open space land uses. The Sacramento River is located approximately 1.5 miles west of the site,

providing a variety of recreational opportunities. The nearest park to the Redding Service Center is Cascade Park, located approximately 3.4 miles northwest.

Based on the information available, there are no designated recreational resources within the Fern Road Substation site or within 3 miles of the site. The majority of recreational resources are located in the western portion of the county. There are no designated recreational resources within 3 miles of the Round Mountain Substation site, the Table Mountain Substation site, or the Redding Service Center. **Table 3.16-1** provides a list of the recreational facilities within 15 miles of the Project sites.

TABLE 3.16-1
RECREATION FACILITIES WITHIN 15 MILES OF THE PROJECT SITES

Nearest Project Component	Recreational Facility	Managing Agency	Approximate Distance from Nearest Project Component Site
Redding Service Center	Millville Preschool	Millville Elementary School District	8 miles northeast
Fern Road Substation	Latour State Forest	California Department of Forestry and Fire Protection	10 miles east
Redding Service Center	Millville Plains	Private Land	7 miles east
Round Mountain Substation	Montgomery Creek Park	Mountain Union Elementary School District	3.6 miles north
Table Mountain Substation	Hammon Park	City of Oroville	4.7 miles southeast
Table Mountain Substation	Bedrock Park	City of Oroville	5 miles southeast
Table Mountain Substation	Riverbend Park	Feather River Recreation and Park District	4.8 miles southeast
Table Mountain Substation	Hewitt Park	City of Oroville	5.7 miles southeast
Table Mountain Substation	Play Town Park	Feather River Recreation and Park District	5.4 miles southeast
Table Mountain Substation	Martin Luther King Park	Feather River Recreation and Park District	6.6 miles southeast
Redding Service Center	Cascade Park	City of Redding	3.4 miles northwest
Redding Service Center	Meadow Creek Park	City of Redding	3.9 miles northwest
Redding Service Center	East Oak Park	City of Redding	3.7 miles northwest
Redding Service Center	Enterprise Park	City of Redding	3.7 miles northwest
Redding Service Center	Western Oaks Park	City of Redding	3.43 miles northwest

SOURCE: Shasta County 2009

3.16.1.1 Federal Recreation Resources

There is no land under federal management or ownership within 10 miles of the Project sites. The nearest federal recreation site is the Whiskeytown National Recreation Area, located in Whiskeytown, approximately 14 miles northwest of the Redding Service Center site, 31 miles west of the Fern Road Substation site, and 32 miles southwest of the Round Mountain Substation site (Shasta County 2009).

3.16.1.2 State Recreation Resources

There are no state recreation areas on or within the vicinity of the Project sites. The nearest state park to the Project site is Lake Oroville State Recreation Area, located approximately 9.5 miles east of the Table Mountain Substation site. Additionally, Shasta State Historic Park in Redding is located approximately 12 miles northwest of the Redding Service Center site, 29 miles west of the Fern Road Substation site, and 31 miles southwest of the Round Mountain Substation site (Shasta County 2009). The closest state forest is Latour State Forest, located in Whitmore, approximately 10 miles east of the proposed substation site.

3.16.1.3 Local Recreation Resources

As mentioned above, there are a variety of recreational resources in Shasta and Butte counties, including regional and community parks and wilderness areas. Primary responsibility for the development and maintenance of the county park system lies upon the counties' Public Works Departments. The local parks nearest to the Project sites are identified in Table 3.16-1, above.

3.16.2 Regulatory Setting

3.16.2.1 Federal/State

No federal or state statutes, regulations, plans, or policies govern recreation-related considerations on the Project sites.

3.16.2.2 Local

The California Public Utilities Commission has exclusive jurisdiction over the siting, design, and construction of the Project; therefore, the Project is not subject to local discretionary regulations. Details below that relate to local regulations are provided for informational purposes.

Shasta County General Plan

The following Open Space and Recreation objectives and policy from the Shasta County General Plan are provided for informational purposes (Shasta County 2004).

> **Objective OSR-1:** Protection of the open space and recreation resources of Shasta County for the use and enjoyment by county residents both now and in the future.
>
> **Objective OSR-2:** Provision of public access to open space and recreation resources consistent with the need to protect these resources and the rights of private property owners.
>
> > ***Policy OSR-a*:** Protection of the open space resources under Shasta County jurisdiction shall be achieved primarily through policies recognizing the contributions of these resources to the economy of the county. Specifically, the Timber, Croplands, Grazing, and Small-Scale Croplands/Grazing, and Natural Resource Protection-Habitat land use designations shall be used for this purpose. Other open space resources generally with no known economic value for timber, croplands, or grazing shall be classified as Natural Resource Protection-Open Space (N-O).

Butte County General Plan 2030

The *Butte County General Plan 2030* (2010) Conservation and Open Space Element and Public Facilities and Services Element present information and policy guidance to ensure adequate protection and maintenance of Butte County facilities, services, and open space resources. The following applicable goals and policies are provided below for informational purposes.

Goal COS-7: Conserve and enhance habitat for protected species and sensitive biological communities.

***Policy COS-P7.3*:** Creeks shall be maintained in their natural state whenever possible, and creeks and floodways shall be allowed to function as natural flood protection features during storms.

Goal PUB-6: Support a comprehensive and high-quality system of recreational open space and facilities.

Goal PUB-7: Encourage local, regional, and State park providers to engage in coordinated and cooperative planning efforts.

***Policy PUB-P7.1*:** The County shall coordinate with the municipalities, park and recreation districts, and school districts to plan and develop additional regional and community parks, support and coordinate park master plans, coordinate financing for recreation and park facilities, and plan for the distribution of federal and State funds for recreation and park programs and facilities.

Goal PUB-8: Coordinate an interconnected multi-use trail system.

Policy PUB-P8.1: The County shall coordinate with the municipalities and park and recreation districts to connect trails between incorporated and unincorporated regions of Butte County.

Policy PUB-P8.7: New development projects should incorporate multi-use trails and connections to existing trail networks.

3.16.3 Applicant Proposed Measures and PG&E Construction Measures

No Applicant Proposed Measures or PG&E construction measures (avoidance and minimization measures or best management practices) have been proposed to address impacts on recreational resources.

3.16.4 Environmental Impacts

3.16.4.1 Methodology and Assumptions

The following analysis uses the criteria from Appendix G of the CEQA Guidelines to identify direct and indirect effects on recreational resources. The analysis considers both the Fern Road Substation Facilities and the PG&E Interconnection Facilities.

3.16.4.2 Direct and Indirect Effects

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: *No Impact.*

Increases in use of recreational facilities typically are associated with substantial increases in population or a substantial reduction in the availability of existing parks or other recreational facilities. The Project would not result in any population growth within the area, as described in Section 3.14, *Population and Housing*. Operation and maintenance activities at the Project sites would consist only of remote monitoring on a day-to-day basis and monthly inspections. Therefore, the Project would not result in a substantial increase in the existing demand for parks and recreation-related facilities and no deterioration of any recreational facilities would occur. No impact would occur.

b) 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 would not include the construction of any recreational facilities. The Project would be remotely monitored and would not have on-site staff under normal circumstances. Therefore, the Project would not result in a population increase in the area. Because there would be no construction or expansion of any recreational facilities as a result of the Project, there would be no adverse physical effects on the environment associated with such facilities. No impact would occur.

3.16.5 References

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3.17 Transportation

Issues:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XVII. TRANSPORTATION — Would the project:				
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☒	☐
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☒	☐
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
d) Result in inadequate emergency access?	☐	☐	☒	☐

3.17.1 Environmental Setting

There are no bicycle, pedestrian, transit, or rail facilities in the vicinity of the Fern Road Substation site or the Round Mountain Substation. The Table Mountain Substation is located approximately 2.4 miles north of the Brad B. Freeman Memorial Bike Trail. The Redding Service Center is located approximately 0.4 mile west of the Class 2 bike lane that exists on Airport Road, and 0.4 mile south of the Class 2 bike lane on Knighton Road. There are also no dedicated transit routes that provide service to the Project area. The nearest airfield to the Project sites is the Redding Airport, approximately 21 miles southwest of the Fern Road Substation site and 0.5 mile northeast of the Redding Service Center. The Project would not be anticipated to result in any impacts on this airport. Impacts would be anticipated to be limited to roadway facilities, which are described below.

3.17.1.1 Roadway Network

Regional transportation in the Project area is facilitated primarily by Interstate 5 (I-5), the primary regional travel facility. I-5 is located approximately 22 miles west of the Fern Road Substation site, 20 miles west of Round Mountain Substation, 30 miles west of Table Mountain Substation, and 1.5 miles west of the Redding Service Center. I-5 is a major north-south route of the Interstate Highway System that carries traffic along the West Coast of the United States from the Canadian border to the Mexican border.

State Route (SR) 299, which would be utilized by construction and operational vehicles and equipment, is located approximately 8 miles northwest of the Fern Road Substation site and runs approximately 64 miles northeast and 53 miles west of the site. SR 299 is located approximately 8.4 miles north of the Redding Service Center and just 500 feet west of the Round Mountain Substation. SR 44, which would also be utilized by construction and operational vehicles and equipment, is located approximately 9 miles south of the Fern Road Substation site. It runs approximately 22 miles west and 64 miles southeast of the site. SR 44 is located approximately 21 miles south of the Round Mountain Substation and 4.4 miles north of the Redding Service

Center. These roadways are under the jurisdiction of the California Department of Transportation (Caltrans).

The local transportation system in the majority of the Project areas includes roads maintained by Shasta County. The Fern Road Substation Facilities and Pacific Gas and Electric Company (PG&E) distribution modifications and interconnection sites would be accessed via Fern Road, a two-lane, north-south roadway with no posted speed limit. Construction and operational vehicles accessing these sites from SR 44 would enter Fern Road from Old 44 Drive and then Whitmore Road. From Fern Road, vehicles would turn right onto the all-weather exterior access road that would be improved to access the Fern Road Substation site.

The Round Mountain Substation would be accessed directly via Sub Station Road, a local road that extends both north and east from SR 299. White Pine Road, an unpaved road directly adjacent to the substation, which extends north from the eastward segment of Sub Station Road and runs parallel to SR 299 approximately 0.3 miles to the west, would also provide access to Round Mountain Substation.

The Table Mountain Substation would be accessible from Cottonwood Road, a local, two-lane roadway, which extends perpendicularly from its intersection with SR 99 approximately 2.2 miles to the west.

The Redding Service Center can be accessed from the south via Meadow View Drive, a two-lane collector road that extends about half a mile east of the site and approximately 0.7 mile west of the site. Additionally, Lockheed Drive provides access to the eastern edge of the service center and extends north from Meadow View Drive.

3.17.2 Regulatory Setting

3.17.2.1 State

California Department of Transportation

Caltrans has jurisdiction over state highways and sets maximum load limits for trucks and safety requirements for oversized vehicles that operate on highways. Shasta County is under the jurisdiction of Caltrans District 2 and Butte County is under the jurisdiction of Caltrans District 3. The following Caltrans regulations apply to potential transportation and traffic impacts of the Project:

California Vehicle Code, Division 15, Chapters 1 through 5 (Size, Weight, and Load). Includes regulations pertaining to licensing, size, weight, and load of vehicles operated on highways.

California Streets and Highways Code, Sections 660–711 and 670–695. Requires permits from Caltrans for any roadway encroachment during truck transportation and delivery, includes regulations for the care and protection of state and county highways and provisions for the issuance of written permits, and requires permits for any load that exceeds Caltrans weight, length, or width standards for public roadways.

3.17.2.2 Local

The California Public Utilities Commission has exclusive jurisdiction over the siting, design, and construction of the Project; therefore, the Project would not be subject to local discretionary regulations. Details below that relate to regional regulations are provided for informational purposes.

Shasta County General Plan

The Shasta County General Plan's Circulation Element provides a framework for a balanced, multimodal transportation system for the movement of people and goods within the unincorporated areas of the county (Shasta County 2004). The following objectives and policies are relevant to the transportation context of the Project:

Objective C-6: Formulate and adopt circulation design standards that:

- Are uniformly applied on a countywide basis according to development type;
- Respond to public safety and health considerations, especially vehicle and pedestrian safety, emergency access, evacuation routes, and the existing noise environments of communities;
- Address all modes of transportation; and
- Will not result in substantial deterioration of air quality.

Policy C-6b: In order to adequately plan for the future circulation network regarding highways, roads, and streets, the General Plan shall use the functional hierarchy and related policies in its circulation planning. Arterial and collectors are further divided into urban and rural roads. Urban roads generally require more right-of-way per lane, more lanes, and full urban improvements such as curbs, gutters, and sidewalks. All projects shall be evaluated as to their conformance with this circulation network.

Policy C-6j: New development shall provide circulation improvements for emergency access by police, fire, and medical vehicles; and shall provide for escape by residents/occupants in accordance with the Fire Safety Standards.

Shasta County Regional Transportation Plan

The Shasta Regional Transportation Agency (SRTA) is responsible for transportation planning in Shasta County. The SRTA Regional Transportation Plan (RTP) comprehensively assesses all modes of transportation available in Shasta County, as well as the mobility needs of goods and people throughout the region (Shasta County 2015). The purpose of the RTP is to "encourage and promote the safe and efficient management, operations, and development of a regional intermodal transportation system that, when linked with appropriate land use planning, will serve the mobility needs of goods and people" (CTC 2010). SRTA's RTP was adopted in 2015, and updates are published every 4 years per federal statutes containing refinements of the original and subsequent plans (Shasta County 2015).

Shasta County Bicycle Transportation Plan

The Shasta County Bicycle Transportation Plan (BTP) provides the long-term framework to improve and encourage bicycle transportation throughout the county (Shasta County 2010). As bicycles have become an important mode of transportation in urban areas as an alternative mode of travel to automobiles, the BTP supports the bicycle transportation goals within the general plans of Shasta County, and the cities of Anderson, Redding, and Shasta Lake. The overall goal of the BTP is to provide a safe, effective, efficient, balanced, and coordinated bicycling system that serves the needs of the people within the unincorporated region of Shasta County (Shasta County 2010).

Butte County General Plan

The Butte County General Plan's Circulation Element sets forth goals and policies describing the overall mobility program for the county, maintaining an approach consistent with the Government Code as well as the Caltrans Advances Transportation System Development Program (Butte County 2010). The following goals and policies are relevant to the transportation context of the Project:

Goal CIR-3: Design new neighborhoods, and improve existing neighborhoods, to accommodate and promote alternative modes of transportation.

Policy CIR-P3.3: Travel modes shall be interconnected to form an integrated, coordinated, and balanced multi-modal transportation system.

Policy CIR-P3.5: New development projects shall consider providing adequate pedestrian, bicycle, and multi-use facilities in a way that integrates circulation and recreational use.

Goal CIR-7: Develop a transportation system that is consistent with and will support existing and proposed patterns and densities of land use and that encourages efficient land utilization.

Policy CIR-P7.2: Existing road capacity available within the County road system shall be used to serve future development, unless construction of a new road will enhance circulation opportunities.

Goal CIR-8: Provide an adequate road system that is within the County's ability to finance and maintain.

Policy CIR-P8.3: Approval of new development projects shall be conditioned on payment of established traffic impact fees as a means to fund construction and improvement of affected roadways.

Butte County Transit & Non-Motorized Transportation Plan

The Butte County Transit & Non-Motorized Plan focuses on improving transportation networks for people who walk, bike, or take transit in Butte County. The plan recommends short-term changes and enhancements, as well as long-term improvements needed based on projected growth in Butte County (BCAG 2015).

2011 Butte County Bicycle Plan

The Bikeway Master Plan embodies Butte County's vision for making bicycling an integral part of the transportation system within its unincorporated limits. The purpose of the plan is to encourage the use of bicycling as a sensible, non-polluting, healthy, and affordable mode of transportation and recreation in the county's unincorporated areas through the provision of feasible improvements that promote interconnectivity between similar facilities in local communities, parks, and other recreational areas within the county (Butte County 2011).

3.17.3 Applicant Proposed Measures and PG&E Construction Measures

3.17.3.1 Applicant Proposed Measures

The Project includes the following Applicant Proposed Measures (APMs) that would be implemented to reduce transportation-related impacts associated with the Fern Road Substation Facilities:

APM GHG-1: The following measures shall be implemented to minimize greenhouse gas emissions from all construction sites:

- If suitable park-and-ride facilities are available in the Project vicinity, construction workers shall be encouraged to carpool to the job site.
- Demolition debris shall be recycled for reuse to the extent feasible.
- The contractor shall use line power instead of diesel generators at all construction sites where line power is available.
- The contractor shall maintain construction equipment per manufacturing specifications.

APM TRA-1: LSPGC would prepare a Traffic Control Plan to describe measures to be taken to guide traffic (such as signs and workers directing traffic), safeguard construction workers, provide safe passage, and minimize traffic impacts. LSPGC would follow its standard safety practices as needed, including installing appropriate barriers between work zones and transportation facilities, posting adequate signs, and using proper construction techniques. LSPGC would follow the recommendations in this manual regarding basic standards for the safe movement of traffic on highways and streets in accordance with Section 21400 of the California Vehicle Code. If required for obtaining a local encroachment permit, LSPGC would establish a Traffic Management Plan (TMP) to address haul routes, timing of heavy equipment and building material deliveries, potential street and/or lane closures, signing, lighting, and traffic control device placement. Construction activities would be coordinated with local law enforcement and fire protection agencies. Emergency service providers would be notified as required by the local permit of the timing, location, and duration of construction activities.

3.17.3.2 PG&E Construction Measures

There are no PG&E construction measures (avoidance and minimization measures or best management practices) proposed to address transportation impacts associated with the PG&E Facilities.

3.17.4 Environmental Impacts and Analysis

3.17.4.1 Methodology and Assumptions

The following analysis uses the criteria from Appendix G of the CEQA Guidelines to identify direct and indirect effects on transportation. The analysis considers both the Fern Road Substation Facilities and the PG&E Facilities.

3.17.4.2 Direct and Indirect Effects

a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities: *Less than Significant.*

As described in Section 3.17.1, *Environmental Setting*, there are no bicycle, pedestrian, rail facilities, or transit routes near the Fern Road Substation site or the Round Mountain Substation. The Table Mountain Substation and Redding Service Center are located near bicycle routes; however, bicycle access on these roads would not be affected by Project activities. Therefore, no impact would occur related to these modes of transportation. Project transportation impacts would be specific to vehicular trips, which would be associated with Project construction and operation.

Construction

Construction of the Project would have temporary effects on traffic and transportation facilities around the Project areas, resulting from an increase in vehicle trips, which would consist of haul trips to transport materials to and from the Project sites; transport of construction equipment; and access to the Project sites by construction workers' personal vehicles. Construction-related traffic would access the Fern Road Substation site via the proposed exterior access road located off the east side of Fern Road. The exterior access road would require the improvement and extension of an existing dirt road to connect the Fern Road Substation site to Fern Road.

Peak construction would be anticipated to require approximately 60 workers for both the Fern Road Substation Facilities and PG&E Facilities, but the average workforce on-site would typically be less. Worker trips are primarily anticipated to originate from the greater Redding and Red Bluff areas. It is anticipated that additional maintenance and/or delivery trucks would travel to and from the staging areas between two and three times per week, and up to four times per week during peak activities. The total maximum daily vehicle trips (i.e., round trips) during this period would be approximately 110 trips per day, consisting of approximately 50 truck trips and 60 worker trips.

The majority of the anticipated haul trips would use Fern Road. These trips would be spaced out during the day; they would not interfere with commuter traffic in the morning and evening, but would temporarily increase the number of vehicles accessing the Project areas. These effects would be short-term and temporary, with peak vehicle trips anticipated to occur from early fall 2023 through early summer 2024, based on construction quantities and staging information provided by the Applicant. Construction vehicles would be limited to predesignated routes to minimize the contribution of Project construction traffic to roadway congestion in the Project areas.

Construction of the Project would not require the full closure of any roadways. However, it is anticipated that intermittent closure of one lane along Fern Road would be required for the delivery of equipment and materials to the Fern Road Substation site and vicinity. No detours would be necessary as a result of this lane closure. No temporary easements would be required for construction activities associated with the Project.

Because most of the truck traffic would occur on a Shasta County–maintained roadway, a Shasta County Traffic Control Permit and traffic control plan may be required. The traffic control plan would be implemented pursuant to APM TRA-1 and would include measures to control construction traffic–related impacts associated with the Fern Road Substation Facilities, so as to minimize traffic congestion and potential vehicular conflicts and maintain traffic safety, in accordance with Shasta County policies. To reduce construction worker vehicle trips, APM GHG-1 includes a provision to encourage construction workers associated with the Fern Road Substation Facilities to utilize suitable park-and-ride facilities and carpool to the site. The implementation of these measures as part of the Project would be anticipated to limit roadway congestion and maintain traffic safety, in compliance with federal, state, and local policies and regulations related to transportation.

With implementation of APM TRA-1 and APM GHG-1, construction-related transportation impacts associated with the Fern Road Substation Facilities would not be anticipated to conflict with relevant federal, state, and local transportation policies, plans, and standards, and the resultant impact would be less than significant.

Activities associated with PG&E Facilities would use equipment similar to that used to construct the Fern Road Substation Facilities. Similar to the Fern Road Substation Facilities portion of the Project, the PG&E Facilities activities would generate vehicle trips for the transportation of supplies, equipment, and construction workers to and from the PG&E Facilities sites. Because of the shorter duration and dispersed nature of construction activities associated with the PG&E Facilities, the associated impacts would also be less than significant.

Operation and Maintenance

Project operation and maintenance would result in minor impacts on roadways. The Project would not require any on-site staff to operate or maintain the Fern Road Substation Facilities or new on-site staff to operation or maintain the PG&E Facilities. The Fern Road Substation would be remotely monitored by LSPGC's control center, which is staffed 24 hours a day, 7 days a week. Monthly and annual on-site inspection and maintenance activities would be conducted by small, specialized teams at the Project sites, resulting in a negligible number of vehicle trips that would not be anticipated to result in any noticeable change to traffic conditions on roadways in the vicinity of the Project sites. Inspection and maintenance of the Fern Road Substation Facilities would be performed by a small crew of one to two high-voltage technicians and one to two personnel provided by the equipment vendor, with support provided by LSPGC staff. Operation and maintenance of the Fern Road Substation Facilities and PG&E Facilities related to the Project would not result in a measurable increase in maintenance requirements or the addition of personnel. Therefore, with respect to vehicle traffic, maintenance and operation of the Project would be similar to existing conditions.

With consideration of the frequency at which the described teams would visit the Project sites, Project operations would be anticipated to have a negligible impact on local and regional roadways and would not conflict with relevant federal, state, or local transportation policies, plans, and standards. The impact would be less than significant.

b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b): *Less than Significant.*

Section 15064.3 was added to the CEQA Guidelines to provide guidance for determining the significance of transportation impacts. This section provides criteria for determining a project's transportation impacts, including for land use projects (Section 15064.3[b][1]) and transportation projects (Section 15064.3[b][2]). As noted in CEQA Guidelines Section 15064.3(a), "For the purposes of this section, 'vehicle miles traveled' refers to the amount and distance of automobile travel attributable to a project." Because the Project would not be a traditional land use or transportation project that would generate vehicle miles traveled (VMT) on a regular basis, Criteria 1 and 2 are not applicable. A qualitative analysis of transportation impacts is provided accordingly (Section 15064.3[b][3]).

As discussed previously, the peak employment is anticipated to be approximately 60 workers per day, but on average, the workforce on-site would be less. Total vehicle round trips during this construction period would be approximately 110 per day, consisting of approximately 50 truck trips and 60 automobile worker trips. Additionally, workers would commute to the Project sites from adjacent rural areas utilizing options such as vanpools and carpools, reducing their reliance on single-occupancy vehicles. The Governor's Office of Planning and Research's *Technical Advisory on Evaluating Transportation Impacts in CEQA* (OPR 2018) provides guidance on thresholds used to establish the significance of VMT impacts. That guidance indicates that projects that generate fewer than 110 automobile vehicle trips can be assumed to result in a less-than-significant VMT impact. Because construction of the Project would generate up to 60 automobile trips per day, it would fall below this threshold and potential impacts would be less than significant.

After Project construction is completed, the facilities would not result in a need for increased maintenance or additional personnel. The Project would include no on-site staff, and vehicle trips associated with Project operation and maintenance would be limited to monthly and annual on-site inspection and maintenance activities conducted by small, specialized teams at the Project sites. The Project would be operated remotely and would therefore generate a negligible amount of VMT. No long-term increase in VMT would occur, and increases in VMT resulting from Project construction would be temporary. The Project would not result in increased VMT in the Project area and would not conflict with CEQA Guidelines Section 15064.3(b). Therefore, this impact would be less than significant.

c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment): *Less than Significant.*

The Project includes construction of a new private road that would provide internal access to the Project site. This access road would be designed in accordance with all relevant Shasta County roadway design standards. Large construction trucks utilized for the Project at local intersections

would present temporary, limited-duration changes to driving conditions as they travel back and forth to the construction sites. Therefore, the Project would not increase hazards on existing roadway facilities related to transportation improvements. Furthermore, APM TRA-1 would be implemented to provide safe passage and minimize traffic impacts associated with the Fern Road Substation Facilities. The Project would expand energy utility–related uses in the Project area, adjacent to existing energy utility uses. Therefore, the Project would not result in the construction of a land use that would be incompatible with existing land uses in the Project area. This impact would be less than significant.

d) Result in inadequate emergency access: *Less than Significant.*

The Project would not require full closure of any roads during either construction or operation and maintenance. However, it is anticipated that intermittent closure of one lane along Fern Road would be required for the delivery of equipment to the Fern Road Substation Facilities, PG&E interconnection facilities, and distribution modifications sites. No detours would be necessary as a result of this lane closure. Implementation of the proposed traffic control plan, pursuant to APM TRA-1, would reduce traffic-related impacts associated with the construction of these facilities, so that emergency access would be maintained during Project construction. Lane closures are not anticipated to be required as a result of construction activities at the PG&E Round Mountain Substation, Table Mountain Substation, Cascade Substation, or the Redding Service Center. In the event of an emergency, vehicles inside the construction area would be able to access Fern Road and the all-weather access road north of the Fern Road Substation site. Access routes for emergency vehicles within and near the Project sites would be maintained. Additionally, the new substation facility would be unstaffed and remotely monitored, resulting in minimal impacts on surrounding roadways aside from occasional maintenance trips. Therefore, this impact would be less than significant.

3.17.5 References

Butte County. 2010. *Butte County General Plan 2030.* Circulation Element. Available: https://www.buttecounty.net/Portals/10/Planning/General%20Plan/2018%20Updated%20GP/9_Circulation_PRR.pdf. Accessed October 20, 2022.

Butte County Association of Governments. 2015. *Transit & Non-Motorized Transportation Plan.* Accessed October 20, 2022.

California Transportation Commission. 2010. *2010 California Regional Transportation Plan Guidelines*. Available: https://www.cakex.org/sites/default/files/documents/2010_RTP_Guidelines.pdf. Accessed June 28, 2022.

Governor's Office of Planning and Research (OPR). 2018. *Technical Advisory on Evaluating Transportation Impacts in CEQA*. December 2018. Available: https://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf

Shasta County. 2004. *Shasta County General Plan*. Available: https://www.co.shasta.ca.us/index/drm/planning/general-plan. Accessed June 21, 2022.

———. 2010. *Shasta County 2010 Bicycle Transportation Plan*. Adopted June 2010. Available: https://www.srta.ca.gov/DocumentCenter/View/3244/ShastaCountyBikePlan2010?bidId=. Accessed June 28, 2022.

———. 2015. *2015 Regional Transportation Plan for Shasta County*. Adopted June 30, 2015. Available: https://srta.ca.gov/DocumentCenter/View/1881/SRTA_2015_RTP_Final_Adopted_June_2015_with_appendices?bidId=. Accessed June 28, 2022.

3.18 Tribal Cultural Resources

Issues:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XVIII. TRIBAL CULTURAL RESOURCES —				
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources. Code Section 5020.1(k), or	☐	☐	☒	☐
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☐	☒	☐

3.18.1 Environmental Setting

Section 3.5, *Cultural Resources*, provides a summary of the prehistoric and ethnographic context of the study area and a summary of the cultural resources studies completed for the Project.

To determine the tribal cultural resources sensitivity of the study area, ESA submitted a Sacred Lands File request to the Native American Heritage Commission (NAHC) on January 10, 2022. The NAHC responded on April 27, 2022, with a list of 15 representatives from 10 tribes. One of the tribes on the NAHC list, Shasta Indian Nation, was also on the California Public Utilities Commission's (CPUC's) Assembly Bill (AB) 52 Tribe Master list. ESA sent the AB 52 consultation letter and the non-statutory tribal outreach letters to the tribal representatives between May 19 and June 23, 2022. No tribes responded to the tribal consultation efforts within 30 days and no responses have been received as of October 2022, the publication date of the IS/MND.

3.18.2 Regulatory Setting

3.18.2.1 Federal

No federal regulations specifically related to tribal cultural resources are applicable to the Project.

3.18.2.2 State

Public Resources Code

In September 2014, the California Legislature enacted AB 52, which added provisions to the Public Resources Code (PRC) regarding the evaluation of impacts on tribal cultural resources under CEQA, and requirements for consultation with California Native American tribes. In

particular, lead agencies must now analyze project impacts on "tribal cultural resources" separately from impacts on archaeological resources (PRC Sections 21074 and 21083.09). Lead agencies also must engage in additional consultation procedures with respect to California Native American tribes (PRC Sections 21080.3.1, 21080.3.2, and 21082.3).

Specifically, PRC Section 21084.3 states:

a) *Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource.*

b) *If the lead agency determines that a project may cause a substantial adverse change to a tribal cultural resource, and measures are not otherwise identified in the consultation process provided in Section 21080.3.2, the following are examples of mitigation measures that, if feasible, may be considered to avoid or minimize the significant adverse impacts:*

    1) *Avoidance and preservation of the resources in place, including, but not limited to, planning and construction to avoid the resources and protect the cultural and natural context, or planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.*

    2) *Treating the resource with culturally appropriate dignity taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:*

        (A) Protecting the cultural character and integrity of the resource.

        (B) Protecting the traditional use of the resource.

        (C) Protecting the confidentiality of the resource.

    3) *Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.*

    4) *Protecting the resource.*

Native American Heritage Commission

The NAHC identifies and manages a catalog of places of special religious or social significance to Native Americans. This database, known as the Sacred Lands File, is a compilation of information on known graves and cemeteries of Native Americans on private lands and other places of cultural or religious significance to the Native American community. The NAHC also performs other duties regarding the preservation and accessibility of sacred sites and burials and the disposition of Native American human remains and burial items.

CPUC Tribal Consultation Process

CPUC has two concurrent processes for tribal outreach: one for tribal entities that have requested AB 52 consultation from CPUC and one for non-statutory tribal outreach.

AB 52 Consultation

The AB 52 consultation process begins with CPUC's AB 52 Tribe Master list. The list is reviewed to determine which tribes (if any) are affiliated with the region where the project is proposed. An AB 52-compliant consultation letter is drafted and sent to the identified AB 52 tribal representatives. Tribal representatives have 30 days to respond to the AB 52 consultation letters. One tribe, the Shasta Indian Nation, was identified on the CPUC's AB 52 Tribe Master list within Shasta County.

Non-statutory Tribal Outreach

The non-statutory tribal outreach begins with a Sacred Lands File request to the NAHC for a list of tribes. A courtesy outreach letter is prepared and sent to the identified tribal representatives. Non-statutory tribal outreach is not required and CPUC has no obligation to notify non–AB 52 tribes, but this kind of outreach encourages a positive relationship and a better understanding of potential impacts proposed projects may have on tribal cultural resources (Gordon and Chang 2015).

3.18.2.3 Local

No local regulations specifically related to tribal cultural resources are applicable to the Project.

3.18.3 Applicant Proposed Measures and PG&E Construction Measures

3.18.3.1 Applicant Proposed Measures

LSPGC has proposed Applicant Proposed Measures (APMs) to address impacts on cultural resources attributable to construction, operations, and/or maintenance of the Fern Road Substation Facilities. The following APMs are listed in Section 3.5, *Cultural Resources*:

APM CUL-1: Development and Implementation of a Worker Environmental Awareness Program.

APM CUL-2: Cultural Resources Inventory.

APM CUL-3: Unanticipated Discovery of Potentially Significant Prehistoric and Historic Resources.

APM CUL-4: Unanticipated Discovery of Human Remains.

3.18.3.2 PG&E Construction Measures

PG&E would implement best management practices (BMPs) to address impacts on cultural resources attributable to construction, operations, and/or maintenance of the PG&E Facilities. The following BMPs are listed in Section 3.5, *Cultural Resources*:

BMP-15: Inadvertent Cultural Resources Discovery.

BMP-16: Human Remains Protocol.

BMP-17: Worker Awareness Training.

No avoidance and minimization measures for the Project are applicable to tribal cultural resources.

3.18.4 Environmental Impacts and Mitigation Measures

3.18.4.1 Methodology and Assumptions

The following analysis uses the criteria from Appendix G of the CEQA Guidelines to identify direct and indirect effects on tribal cultural resources. The analysis considers both the Fern Road Substation Facilities and the Pacific Gas and Electric Company (PG&E) Facilities and incorporates both APMs and PG&E BMPs for their respective facilities.

3.18.4.2 Direct and Indirect Effects

a) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources. Code Section 5020.1(k): *Less than Significant.*

No tribal cultural resources that are listed or eligible for listing in the California Register of Historical Resources have been identified in the vicinity of the Fern Road Substation site or the PG&E Facilities areas.

Although a discovery is unlikely, the Project would entail excavation that could encounter archaeological materials that qualify as tribal cultural resources. To reduce impacts on previously unknown tribal cultural resources that could be discovered during construction of the Fern Road Substation Facilities, LSPGC has proposed APMs CUL-1, CUL-3, and CUL-4, which require the implementation of worker environmental awareness training for cultural resources and consideration of avoidance, recovery, and documentation of any identified resources or human remains. In addition, PG&E has proposed BMP-15, BMP-16, and BMP-17, which together provide for a cultural resources awareness training and protocols to follow in the event of an inadvertent discovery of cultural resources or human remains during construction of the PG&E Facilities.

CPUC has determined that implementing these APMs and BMPs would reduce substantial adverse changes in the significance of a tribal cultural resource pursuant to CEQA Guidelines Section 15064.5 to below the level of significance. The associated impact would be less than significant.

b) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe: *Less than Significant.*

No tribal cultural resources that have been determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in Public Resources Code Section 5024.1(c) have been identified in the study area or the PG&E Facilities areas.

Although a discovery is unlikely, the Project would entail excavation that could encounter archaeological materials that qualify as tribal cultural resources. To reduce impacts on previously unknown tribal cultural resources, LSPGC has proposed APMs CUL-1, CUL-3, and CUL-4, which require implementation of worker environmental awareness training for cultural resources and consideration of avoidance, recovery, and documentation of any identified resources or human remains that could be discovered during construction of the Fern Road Substation Facilities. In addition, PG&E has proposed BMP-15, BMP-16, and BMP-17, which together provide for a cultural resources awareness training and protocols to follow in the event of an inadvertent discovery of cultural resources or human remains during construction of the PG&E Facilities.

CPUC has determined that implementing these APMs and BMPs would reduce substantial adverse changes in the significance of a tribal cultural resource pursuant to CEQA Guidelines Section 15064.5 to below the level of significance. The associated impact would be less than significant.

3.18.5 References

Gordon, N. H., and L. K. Chang. 2015. *Subject: AB 52 Guidance for the CPUC in General and the Circle City Project Specifically*. Prepared by The Sohagi Law Group, PLC. Prepared for California Public Utilities Commission.

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3.19 Utilities and Service Systems

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XIX. UTILITIES AND SERVICE SYSTEMS — Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐
c) 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?	☐	☐	☒	☐
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

3.19.1 Environmental Setting

For the purposes of this analysis, the study area is defined as all relevant utility or service systems (water supply, wastewater, stormwater, solid waste disposal, gas and electrical, and telecommunication utilities) that would provide service to the Project sites.

3.19.1.1 Water Services

The Fern Road Substation Facilities would be located within unincorporated Shasta County approximately 1.6 miles northwest of the community of Whitmore. The Pacific Gas and Electric Company (PG&E) interconnection facilities and distribution modifications would also be located predominantly within Shasta County, except for the Table Mountain Substation facility, which is located in central Butte County. Shasta County is located at the headwaters of the Sacramento River Basin. The Sacramento River Basin covers 27,000 square miles and is the state's largest watershed. The Fern Road Substation Facilities and the majority of the PG&E interconnection facilities and distribution modifications sites are in non-basin areas (DWR 2022). The closest groundwater basin is the Redding Groundwater subbasin, which underlies the PG&E Redding Service Center and Cascade Substation. This subbasin has an estimated storage capacity of 5.5 acre-feet of groundwater (Shasta County 2004).

3.19.1.2 Wastewater Services

There are 11 active water and sewer collection systems in Shasta County (Shasta County 2022). The Shasta County Public Works Department provides personnel and equipment to maintain the

wastewater treatment plants. The Fern Road Substation Facilities site is in the vicinity of community service area (CSA) #6, Jones Valley. The Project, including the PG&E interconnection facilities and distribution modifications, would be unstaffed and thus would not generate wastewater, nor would it require any connection to a wastewater collection system.

3.19.1.3 Stormwater

Stormwater in rural Shasta and Butte counties is not within a municipal stormwater service area. Creeks near the Project site, including Old Cow Creek, provide natural drainage. The Fern Road Substation and PG&E interconnection facilities and distribution modifications would not require any connections to a municipal or regional stormwater conveyance system.

3.19.1.4 Solid Waste and Recycling Services

The Richard W. Curry West Landfill is located west of Redding within the town of Igo, approximately 33 miles west of the Fern Road Substation site. It has a remaining capacity of approximately 6,489,044 cubic yards and is expected to reach its permitted capacity in 2032 (CalRecycle 2022a). The Waste Management Anderson Landfill, located in Anderson, California, approximately 25 miles southwest of the Project site, has a remaining capacity of 10,409,132 cubic yards. This landfill is expected to reach its capacity in 2093 (CalRecycle 2022b).

3.19.1.5 Gas and Electrical

PG&E is an investor-owned utility company that provides electricity and natural gas supplies and services throughout a 70,000-square-mile service area that includes Shasta County, Butte County, and the Project sites (PG&E 2022). PG&E operates transmission- and distribution-level lines in the immediate area of the Fern Road Substation Facilities site. The Fern Road Substation Facilities would be independently connected to the existing PG&E transmission system that runs east of Fern Road and tap into the existing PG&E distribution line that is west of Fern Road.

3.19.1.6 Telecommunications

Communications within the vicinity of the Project sites include service provided by Frontier Communications, Viasat, and HughesNet. These providers offer cable, cellular service, and internet. No telecommunication services are proposed as part of the Project. The Redding area (where the PG&E Service Center is located) is served through various DSL, cable, and satellite options through AT&T Spectrum and HughesNet, among others (HighSpeedInternet.com 2022).

3.19.2 Regulatory Setting

3.19.2.1 Federal

No federal regulations pertaining to utilities and service systems apply to the Project.

3.19.2.2 State

The California Integrated Waste Management Act

The Integrated Waste Management Act was initiated in 1989 as Assembly Bill (AB) 939 and codified into law through Public Resources Code Section 40050 et seq. The act required all California cities, unincorporated portions of counties, and approved regional solid waste management agencies to divert a minimum of 25 percent of solid waste from landfills by 1995 and 50 percent by the year 2000. Cities and counties were required to maintain the 50 percent diversion specified by AB 939 beyond the year 2000. Diversion includes waste prevention, reuse, and recycling. The act resulted in the creation of the California Integrated Waste Management Board, now known as the California Department of Resources Recycling and Recovery (CalRecycle). CalRecycle is under the umbrella of the California Environmental Protection Agency and is responsible for the implementation of AB 939. Under the Integrated Waste Management Act, jurisdictions also must submit solid waste planning documentation to CalRecycle. The act set into place a comprehensive statewide system of permitting, inspections, and maintenance for solid waste facilities, and authorized local jurisdictions to impose fees based on the types and amounts of waste generated (CalRecycle 2022d).

Title 22 California Code of Regulations Division 4.5

California Code of Regulations (CCR) Title 22 discusses an array of requirements with respect to the disposal and recycling of hazardous and universal wastes. Specific standards and requirements are included for the identification, collection, transport, disposal, and recycling of hazardous wastes. Additional standards are included for the collection, transport, disposal, and recycling of universal wastes. Universal wastes are defined as those wastes identified in 22 CCR Section 66273.9, including batteries, electronic devices, mercury-containing equipment, lamps, cathode ray tubes, and aerosol cans. Requirements include recycling, recovery, the return of spent items to the manufacturer, or disposal at an appropriately permitted facility. Division 4.5 of Title 22 also provides restrictions and standards relevant to waste destination facilities and provides authorization requirements for various waste handlers. Title 22 includes California's Universal Waste Rule, as well as other additional waste handling and disposal requirements.

California Code of Regulations (Title 27)

CCR Title 27 defines regulations for the treatment, storage, processing, and disposal of solid waste. The State Water Resources Control Board maintains and regulates compliance with CCR Title 27. The Project's compliance would be enforced by the Central Valley Regional Water Quality Control Board (Region 5).

California Health and Safety Code Section 25150.7

The state requirements for the use, reuse, handling, and disposal treated wood waste is identified in the California Health and Safety Code Section 25150.7 to ensure the protection of public health and the environment. The Fern Road Substation, PG&E interconnection facilities, and distribution modifications would be subject to these regulations in the event that modifications, removal, or disposal of treated wood poles is required.

California Government Code Regional Notification System (Section 4126)

Section 4216 of the California Government Code protects underground structures during excavation. Under this law, excavators are required to contact a regional notification center at least 2 days prior to excavation of any subsurface installations. In the Project area, Underground Service Alert, North (USA) is the regional notification center. USA notifies utility providers with buried lines within 1,000 feet of the excavation, and those providers are required to mark the specific location of their facilities prior to excavation. The code also requires excavators to probe and expose existing utilities, in accordance with state law, before using power equipment. CCR Title 20 (2014) contains statutes relating to power plant siting and certification.

California Public Utilities Commission General Order 131-D

The California Public Utilities Commission (CPUC) regulates services and utilities and assures California's access to safe and reliable utility infrastructure and services. The essential services regulated include electric, natural gas, telecommunications, water, railroad, rail transit, and passenger transportation companies. CPUC implements CEQA for utility construction by PG&E and the other public utilities under its jurisdiction, and regulates the location and relocation of power lines by investor-owned utilities, such as PG&E. Section XIV.B of General Order (GO) 131-D clarifies that local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to CPUC jurisdiction (CPUC 1995).

3.19.2.3 Local

CPUC has sole and exclusive state jurisdiction over the siting and design of the Project. Pursuant to CPUC GO 131-D, Section XIV.B, "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters" (CPUC 1995). Consequently, public utilities are directed to consider local regulations and consult with local agencies, but county regulations are not applicable, as Shasta County does not have jurisdiction over the Project. This section includes a summary of local utilities and service systems-related policies, plans, or programs for informational purposes.

Butte County Diversion Requirements for Construction Debris

Section 31-63 of the Butte County Code of Ordinances contains diversion requirements for construction demolition debris. During the duration of a project, the responsible party shall divert, at a minimum, 50 percent by weight of divertible (nonhazardous) materials from the solid waste stream when required as a condition of a Butte County–issued permit, unless the solid waste manager requires a lower percentage according to the permit conditions. The code also contains requirements for separation of on-site salvageable materials such as asphalt, concrete, scrap metal, vegetative water, and roofing material (Butte County 2022).

Shasta County

Title 17, Chapter 58.30 (Uses Requiring a Permit) of the Shasta County Code of Ordinances provides guidelines for removal and disposal of industrial waste materials, including fluids and

solid materials incidental to the construction and operation and maintenance (O&M) activities of projects in Shasta County. Title 18, Chapter 10.190 (Construction Sites), addresses stormwater runoff. Titles 16 and 17 contain building and construction guidelines.

Shasta County General Plan

The Public Facilities and Services Element of the Shasta County General Plan contains the following policy related to utilities and service systems (Shasta County 2004):

> ***Policy PF-h*:** Public uses (e.g., schools, parks, waste disposal sites) and public utilities (e.g., substation, transmission lines) whose site-specific locations often cannot be identified in advance by the General Plan may be permitted throughout the County to serve the public need. Appropriate zoning on site-specific locations will be determined in response to the identified need as it occurs. Solid waste disposal facilities shall be conditionally permitted to ensure that the site is compatible with adjacent land uses. Surrounding land uses, to the extent feasible, shall be regulated to avoid incompatibility with the solid waste disposal facilities.

3.19.3 Applicant Proposed Measures and PG&E Construction Measures

3.19.3.1 Applicant Proposed Measures

The following Applicant Proposed Measures (APMs) are proposed by the Applicant to address potential impacts related to utilities and service systems associated with the Fern Road Substation Facilities portion of the Project.

> **APM UTIL-1:** The Applicant shall notify all utility companies with utilities located within or crossing the proposed Fern Road Substation Facilities' Rights-of-Way (ROW) to locate and mark existing underground utilities along the entire length of the proposed Fern Road Substation Facilities at least 14 days prior to construction. No subsurface work shall be conducted that would conflict with (i.e., directly impact or compromise the integrity of) a buried utility. In the event of a conflict, areas of subsurface excavation or pole installation shall be realigned vertically and/or horizontally, as appropriate, to avoid other utilities and provide adequate operational and safety buffering. In instances where separation between third-party utilities and underground excavations is less than 5 feet, the Applicant shall submit the intended construction methodology to the owner of the third-party utility for review and approval at least 30 days prior to construction. Construction methods shall be adjusted as necessary to assure that the integrity of existing utility lines is not compromised.

3.19.3.2 PG&E Construction Measures

PG&E has proposed the following avoidance and minimization measures and best management practices (BMPs) to address potential effects on utilities and service systems that are applicable to the PG&E Facilities portion of the Project.

> **BMP-4: Generation of Spoil- Substation.** All spoils generated from within PG&E substations require sampling and shall only be disposed of PG&E approved landfills listed in ERTC Attachment Guide, Section 4, Part 1: ENV-4000P-01-JA15 'Job Aid- PG&E Authorized Disposal & Recycling Facilities'. Spoils from within substations are prohibited from give-away.

Copies of all manifests are required to be submitted to the Environmental Lead/Project Environmental Field Specialist (EFS).

BMP-12: Stormwater Measures. For PG&E-owned substations, the Project EFS will provide the Stormwater Group with the following upon completion of the PER: Stormwater Needs Request Form, Soil Disturbance Calculation Spreadsheet, and a KMZ file showing the proposed work area. These documents shall be sent by the Project EFS, via email, to: stormwater@pge.com (if applicable). [LSPGC will obtain the Stormwater Pollution Prevention Plan (SWPPP) for Fern Road Substation and the area immediately adjacent to it containing PG&E's monitoring facilities.]

3.19.4 Environmental Impacts

3.19.4.1 Methodology and Assumptions

The following analysis uses the criteria from Appendix G of the CEQA Guidelines to identify direct and indirect effects on utilities and service systems. The analysis considers the Fern Road Substation Facilities and the PG&E Facilities and assumes implementation of both the APM and PG&E-proposed construction measures described above for their respective facilities.

3.19.4.2 Direct and Indirect Effects

a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects: *Less than Significant*.

Water

Water would be used during construction and decommissioning for dust suppression and compaction requirements, as described in Chapter 2, *Project Description*. The Project would truck water from local sources within the cities of Redding or Red Bluff. Water use would be temporary and minimal. No ongoing water supply would be required after the construction phase. Therefore, the Project would not require or result in the relocation or construction of new or expanded water facilities, and the impact would be less than significant.

Wastewater

Construction activities would not be served by the local wastewater system; they would be served by portable sanitary sewer systems. Sanitary waste would be pumped routinely as described in Chapter 2*, Project Description*, and transported off-site by a licensed sanitary wastewater service provider. Because the Fern Road Substation Facilities would not require on-site staff to operate the facilities, ongoing wastewater service would not be needed during the operations phase. The PG&E Facilities would not generate wastewater or require additional ongoing wastewater service. Therefore, the Project would not require or result in the relocation or construction of new or expanded wastewater facilities, and the impact would be less than significant.

Stormwater

Runoff from the Project would be directed to sheet flow to adjacent land surface. Construction activities would be performed in accordance with a SWPPP that would incorporate BMPs for sediment and erosion control. Construction of the Fern Road Substation Facilities would require

clearing of approximately 7.5 acres of grazing land. Construction of the PG&E interconnection facilities and distribution modifications would permanently disturb approximately 0.2 acre of mostly grazing land, while construction activities at the Round Mountain Substation, Table Mountain Substation, Cascade Substation, and Redding Service Center would be conducted at already permanently disturbed industrial sites. For these reasons, the Project would not require or result in the construction or relocation of new or expanded stormwater facilities outside the Project footprint, nor would the Project cause any changes in stormwater flow that would cause an adverse environmental effect. Impacts associated with stormwater facilities would be less than significant.

Electric Power

The Project would involve construction of the Fern Road Substation Facilities, PG&E interconnection facilities, and the distribution modifications, which would provide backup power for the Fern Road Substation. The Project would not utilize long-term power during O&M, as it does not require electric power for itself to operate. With the exception of the distribution modifications, no electrical power services would be required during construction or decommissioning. The connections proposed as part of the Project could result in potential environmental impacts as discussed in the various resource sections of this IS/MND. However, the Project would not result in or require the construction or relocation of new or expanded electric facilities beyond those analyzed as part of the Project. For this reason, impacts associated with the need for new or expanded electrical facilities would be less than significant.

Natural Gas

No natural gas facilities are proposed or required as part of the Project, nor would the Project result in the relocation or construction of new or expanded natural gas facilities that would cause an adverse environmental effect. No impact would occur.

Telecommunications

As described in Chapter 2, *Project Description*, a supervisory control and data acquisition (i.e., SCADA) system with associated equipment, an approximately 199-foot-tall microwave tower at the Fern Road Substation, and an LTE cellular connection from control enclosures are proposed as part of the Project. To reduce environmental impacts on utilities and service systems, APM UTIL-1 would be implemented, requiring the Applicant to mark and notify all utility companies of utilities located within the Fern Road Substation Facilities' ROW. Work that would conflict with utilities would be realigned as appropriate to provide buffering and avoid other utilities. For this reason, construction required to expand telecommunications services for Project purposes would generate a less-than-significant impact.

b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years: *Less than Significant.*

Project construction, which is anticipated to last approximately 22 months, would require the temporary use of potable water for dust control and compaction requirements as described in Chapter 2, *Project Description*. Construction-period restroom facilities would not require water supply installations, as these would be provided through portable units. The Project would require

approximately 900,000 gallons of potable water for construction, which would be supplied by a local source (within the cities of Redding or Red Bluff) that has existing adequate supply to meet the Project's temporary requirements. Project O&M would not require potable water service because the substation and other facilities would be unstaffed.

Water demand during Project construction would be temporary and minor in comparison to available supplies in the cities of Redding and Red Bluff. The City of Redding obtains water from the Sacramento River, Whiskeytown Lake, and local wells, in the amount of approximately 9.76 billion gallons per year (City of Redding 2022). The City of Red Bluff obtains water from 14 wells and has two 3-million-gallon water storage facilities. The wells vary in capacity from 480 to 2,400 gallons per minute, translating into approximately 252 million to 1.16 billion gallons of water extraction per year (City of Red Bluff 2022). The estimated construction water requirements for the PG&E Facilities portion of the Project (for fugitive dust control [BMP-7] and other purposes) have not been quantified; however, given disturbance and construction would occur at a smaller scale for the PG&E Facilities than for the Fern Road Substation Facilities, a comparably smaller quantity of water would likely be needed for the PG&E Facilities. For these reasons, it is anticipated that there would be adequate water supply to serve the Project's overall construction needs. Operation of the Project would not require water; therefore, the Project would not preclude water needs for reasonably foreseeable future development during normal, dry, and multiple dry years. The impact (associated with construction) would be less than significant.

c) 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.*

The Project would not require new wastewater service connections during construction, operation, or decommissioning. As described previously, portable units for restrooms during construction would not require on-site water, and sanitary waste would be transported off-site by a licensed sanitary service provider. Because the Project would not require the ongoing use of wastewater treatment, capacity exceedances would not occur. Therefore, no impact would occur.

d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals: *Less than Significant.*

Approximately 500 cubic yards of solid waste would be generated during Project construction, and a minimal amount would be generated during the O&M and decommissioning phases because the Project would be unstaffed. Waste generated would be primarily nonhazardous, as described in Chapter 2, *Project Description*. To reduce waste, excavated material would be used as backfill when possible and recyclables would be transported to an approved facility. Nonrecyclable construction waste would be disposed of at the Richard W. Curry West Central Landfill, Waste Management Anderson Landfill, or another approved facility.

It is assumed that the Project would comply with the Shasta County General Plan and state standards for waste reduction including the California Integrated Waste Management Act, and the California Health and Safety Code Section 25150.7, described in Section 3.19.2, *Regulatory*

Setting. During Project construction, O&M, and decommissioning, Project waste materials that are routinely recycled would be recycled at an approved disposal facility as described in Chapter 2*, Project Description.*

The Project would dispose of waste at the Richard W. Curry West Central Landfill, Waste Management Anderson Landfill, or another approved facility. As described in Section 3.19.1, *Environmental Setting*, each approved landfill has more than 5 million cubic yards of remaining capacity and is not expected to close until after the year 2032. The landfills would have adequate capacity to accept the Project's solid waste even if the anticipated 500 cubic yards generated during construction were delivered in a single day. The total construction waste generated by the Project would not exceed the remaining capacity for these landfills. If the Project were decommissioned after closure of Richard W. Curry West Landfill, waste would be hauled to the other facility.

For these reasons, the Project would not generate waste in excess of state or local standards or contribute significantly to the impairment of solid waste reduction goals. Therefore, the impact would be less than significant.

e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste: *Less than Significant.*

The Project would be required to comply with state standards intended to achieve solid waste reduction goals. As described in Chapter 2, *Project Description*, waste generated during construction would be primarily nonhazardous. Waste would be transported to an approved recycling facility when feasible, and nonrecyclables would be disposed of at approved landfills. Although the Fern Road Substation and other Project facilities would be unstaffed, a minimal amount of waste could be generated during O&M activities, as workers could be called in to perform O&M activities periodically, such as to repair equipment. Project construction and operation would comply with the local requirements related to federal, state, and local regulations related to solid waste. Therefore, the impact would be less than significant.

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3.20 Wildfire

Issues:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
3.20. WILDFIRE — If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☒	☐
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☒	☐
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

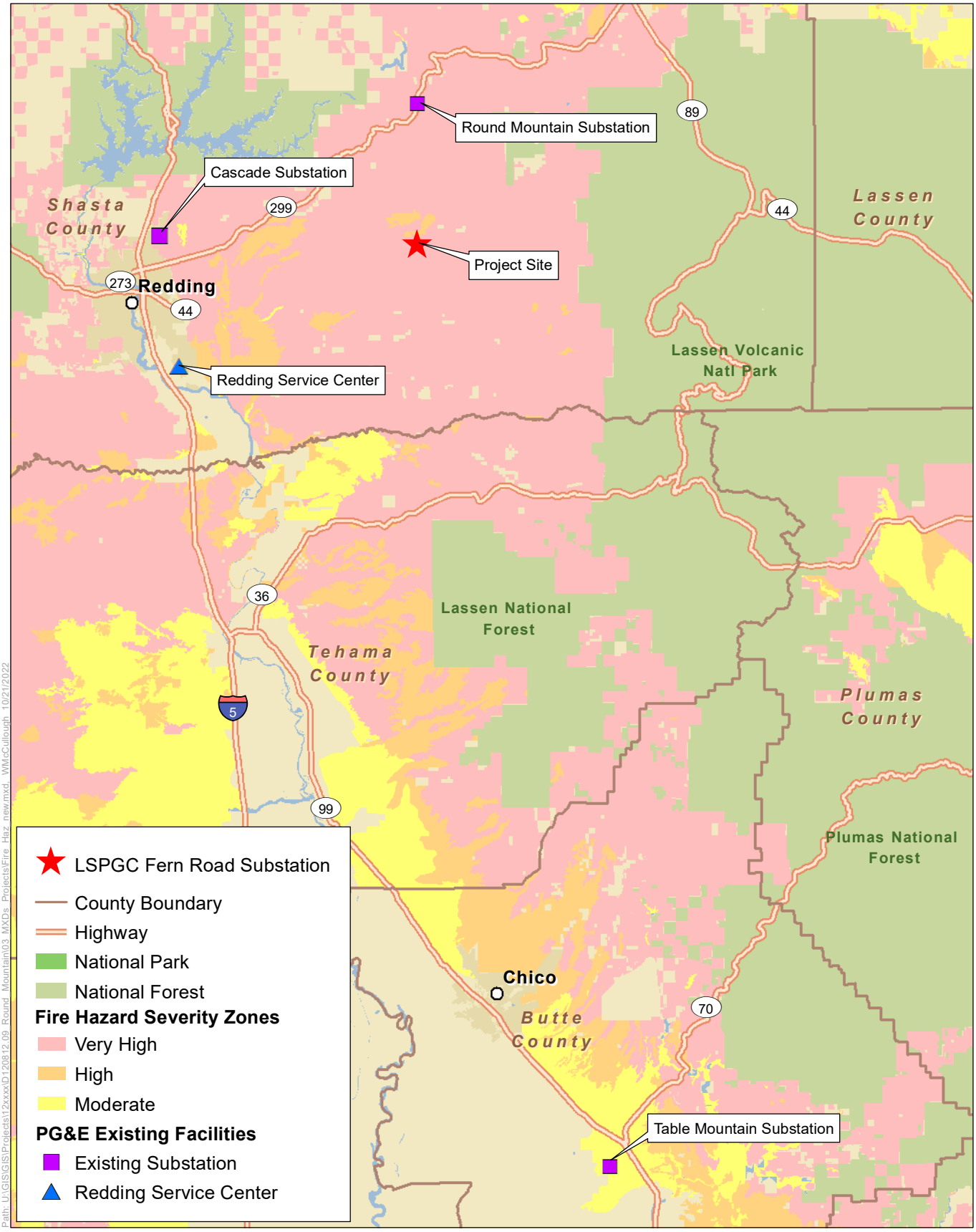
This section identifies and evaluates issues related to wildfire in the context of the Project. It describes designated wildfire hazard zones within which the Project would be located and discusses the existing fire environment. In addition, this section discusses applicable state, regional, and local plans and programs and evaluates potential impacts of implementing the Project. For the purposes of this analysis of wildfire risk, the study area is defined as the Project boundaries, existing access roads, and areas downstream or downslope of the Project sites.

3.20.1 Environmental Setting

3.20.1.1 CAL FIRE Fire Hazard Severity Zone Designations

The State of California (through the California Department of Forestry and Fire Protection [CAL FIRE]) has primary legal and financial responsibility for the prevention and suppression of wildland fires in State Responsibility Areas (SRAs). Local Responsibility Areas (LRAs) consist of incorporated cities and more densely populated areas where fire protection is typically provided by city fire departments, fire protection districts, or counties, and/or through joint agreements with CAL FIRE. With the exception of the Pacific Gas and Electric Company (PG&E) Redding Service Center, which is in the LRA, the Project sites are located entirely within the SRA.

CAL FIRE has published Fire Hazard Severity Zone (FHSZ) maps for lands in SRAs. Fire hazard severity maps evaluate hazard (not risk) based on physical conditions that contribute to likelihood and expected fire behavior over a 30- to 50-year period, without considering hardening, recent wildfires, or fuel reduction efforts (CAL FIRE 2022a). As shown in **Figure 3.20-1**, the Fern Road Substation site and the majority of the PG&E interconnection facilities, Round Mountain



SOURCE: LS Power Grid California LLC, 2022; ESRI, 2022; CalFire

Round Mountain 500 kV Area Dynamic Reactive Support Project

Figure 3.20-1
Fire Hazard Severity Zones

ESA

Substation, and distribution modification sites are located within a high to very high FHSZ within the SRA (CAL FIRE 2022b). The Table Mountain Substation is in a moderate FHSZ in the SRA (Figure 3.20-1). Although portions of Redding within the LRA are in a very high FHSZ (as recommended by CAL FIRE), the PG&E Redding Service Center is not located in such a zone.

3.20.1.2 California Public Utilities Commission–Designated Wildfire Hazard Zones

Pursuant to its Fire Safety Rulemaking, the California Public Utilities Commission (CPUC) has mapped high-fire-threat areas. In these areas, more stringent inspection, maintenance, vegetation clearance, and wire clearance requirements would be implemented to address the elevated risk of power line fires. (See the discussion of CPUC General Orders [GOs] 95, 165, and 166 in Section 3.20.2, *Regulatory Setting.*)

The CPUC High Fire Threat District Map identifies elevated fire risk associated with utilities, based on criteria such as fire hazards related to historical power line–caused wildfires and current fuel conditions. The map assigns fire risk scores to geographic areas based on where fires start, rather than where potential fires may cause impacts.

As shown in **Figure 3.20-2**, with the exception of the Table Mountain Substation (which is not located in a fire threat district), the Project sites are all located in a CPUC-designated Tier 2 High Fire Threat District (HFTD) (CPUC 2022). Tier 2 fire-threat areas are locations at elevated risk of wildfires associated with overhead utility power lines, or overhead utility power-line facilities that also support communications facilities.

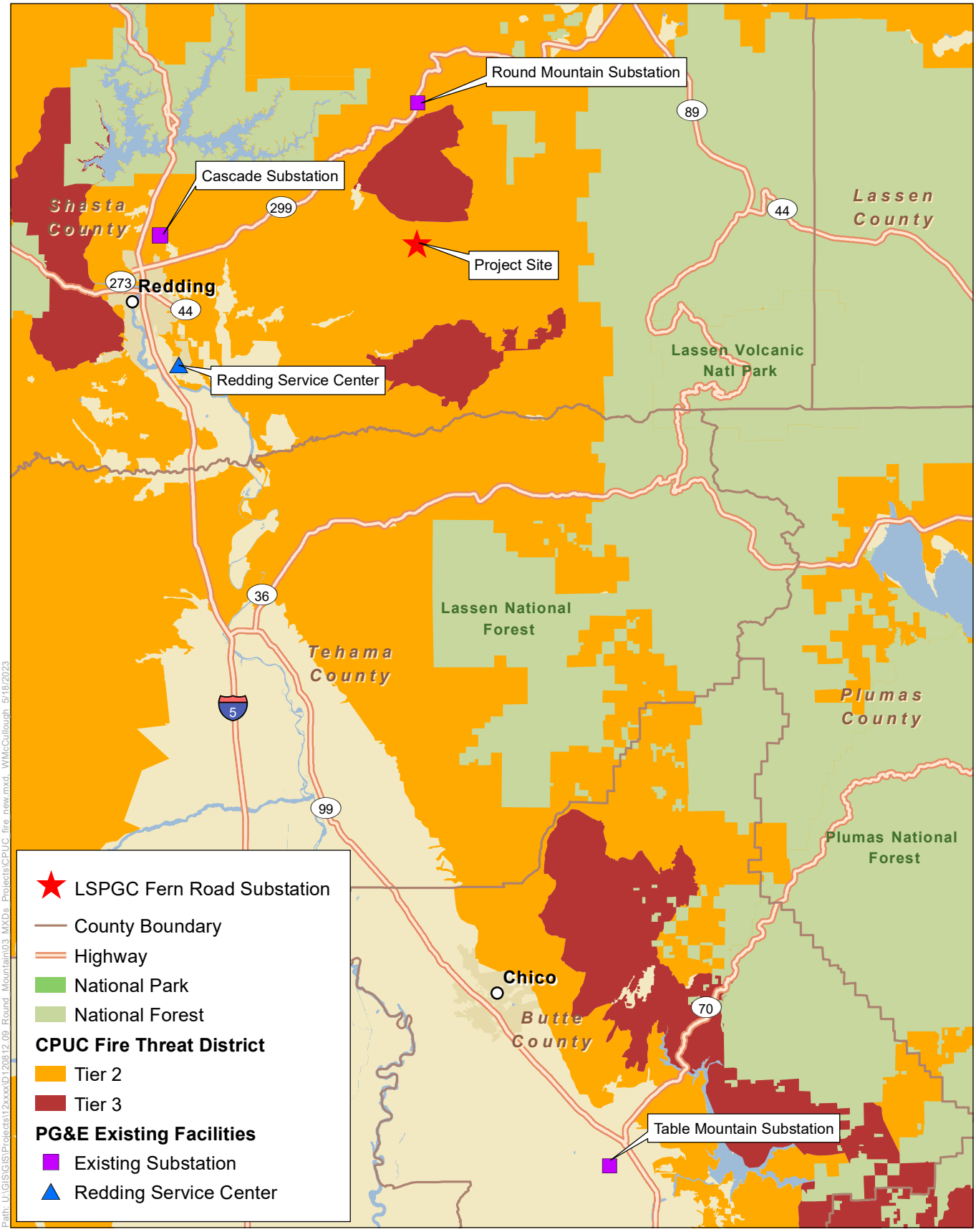
3.20.1.3 Fire Protection Services

In the vicinity of the Project sites in the SRA in Shasta County, fire protection is provided by the CAL FIRE Shasta-Trinity Unit and the Shasta County Fire Department. The closest fire station to the Fern Road Substation site is CAL FIRE's Whitmore Station #35, which is located 10 road miles to the southeast at 11787 Ponderosa Way in Whitmore, an approximately 12- to 15-minute drive from the Project site, and/or by CAL FIRE's Buckhorn Station #34, located 3 miles north of the site (5.1 miles by car) in the unincorporated community of Oak Run..

Fire protection in the LRA in Redding would be provided by the Redding Fire Department, most likely deployed from Station #7, which is approximately 1 mile from the PG&E Redding Service Center. Fire protection in the vicinity of the Table Mountain Substation (located in Butte County) would be provided by CAL FIRE and the Butte County Fire Department in Oroville. Section 3.15, *Public Services,* provides additional details regarding local and regional fire protection services.

3.20.1.4 Fire Environment

The wildfire modeling technical report prepared for the Project evaluated wildfire risk in the study area, encompassing the immediate geography (on the Whitmore Quadrangle) surrounding the site of the proposed Fern Road Substation. The technical report considered six factors, similar



SOURCE: LS Power Grid California LLC, 2022; ESRI, 2022; CPUC

Round Mountain 500 kV Area Dynamic Reactive Support Project

Figure 3.20-2
CPUC Fire Threat Districts

ESA

to those described below, in its assessment of the site's potential wildfire risk: prevailing wind, topography, fire behavior in mapped vegetation and land use categories, the distribution of the vegetation and land uses across the landscape, location of potential ignition sources, and emergency response times. The report concluded that essentially all of the lands adjacent to the study area are occupied by vegetation and land uses in the low-risk category, and that the site would be buffered by a landscape that poses no more than a low to moderate risk. Although wildfire would be most likely to come from the west given the prevailing winds and topography, the location of Fern Road would provide immediate access and a strategic point from which to implement direct fire control or response actions (TSS Consultants 2021).

Fire behavior depends primarily on three factors: fuels (e.g., vegetation), weather (e.g., wind, temperature, and humidity), and topography (e.g., slope, elevation, and aspect). The combination of these factors, described in more detail below, can either help or hinder the spread of a wildfire.

Vegetation/Fuels

Fuel is the material that feeds combustion and is a key factor in wildfire behavior. Fuel sources are diverse, consisting of dead tree leaves, twigs, branches, and standing trees; live trees; brush; and dry grasses. Additional fuel sources can include human-made structures such as homes and buildings, and other associated combustible materials.

Fuel types in the vicinity of the Fern Road Substation site and PG&E interconnection facilities are made up primarily of blue oak woodland, annual grassland, and/or disturbed land cover types, with some seasonal wetland vegetation. The wildfire hazard risk assessment prepared for the Fern Road Substation site indicates that these vegetation types result in low fuel loading within the landscape; that is, they do not generate a substantial amount of fuels available to burn at any given time, as might be the case for denser vegetation that creates more litter (TSS Consultants 2021). Fires within these vegetation types produce flames ranging from about 6 inches to 8 feet in height, suggesting that wildfires in these vegetation types can be mostly contained using hand tools, but may sometimes need dozers and engines for containment (TSS Consultants 2021). These vegetation types also have low potential for sustained production of embers, reducing the risk of the rapid spread of wildfire.

The PG&E Redding Service Center, Round Mountain Substation, Cascade Substation, and Table Mountain Substation sites are previously disturbed, existing industrial facilities, with no vegetation within their boundaries. See Section 3.4, *Biological Resources*, for more detail on vegetation communities in the vicinity of the Project sites.

Weather/Climate

Weather conditions such as wind, temperature, and humidity also contribute to fire behavior. Fuels located in hot, dry areas are more susceptible to ignition and catch fire more readily than fuels located in moister and/or cooler areas.

In Shasta and Butte counties, summers are hot, dry, and mostly clear while the winters are cold, wet, and partly cloudy. Typically, temperatures in Shasta County range from 34 to 97 degrees Fahrenheit over the course of the year, with a slightly more moderate range experienced in Butte

County. The average hourly wind speed ranges from 0.3 to 4.4 miles per hour (mph) in Shasta County and between 5.7 and 6.9 mph in Butte County (Weather Spark 2022). As indicated by the wildfire hazard risk assessment for the Fern Road Substation site, during the typical fire season (March to September), prevailing winds originate from the west and exhibit a fairly constant low rate of speed (2–5 mph), while during the non-fire season (October to February), prevailing winds are from the north-northeast and vary more in speed (2–10 mph) (TSS Consultants 2021).

Topography

Topography describes the shape of the land: its elevation (height above sea level), slope (the land's steepness or gradient), aspect (the orientation of a slope face), and other land features such as canyons and valleys. Topography can strongly influence fire behavior, including the speed at which a fire moves through an area; fire typically travels uphill more quickly than either downhill or across flat terrain. As heat rises in front of the fire, it preheats and dries upslope fuels, resulting in their rapid combustion (Bennett n.d.).

The Fern Road Substation site sits at an elevation of approximately 2,000 feet above sea level and is relatively flat. Most of the site has a slope gradient of less than 5 percent.

Fire History

Shasta County has experienced several major fires in the last 30 years:

- The largest recent fire in the county was the Dixie Fire in 2021, which encompassed an area of 963,309 acres in five counties, including Shasta and Butte (CAL FIRE 2022c).
- The Carr Fire, which burned 229,651 acres in 2018, occurred outside of the study area west of Redding (CAL FIRE 2022d).
- The Camp Fire, also in 2018, destroyed the town of Paradise just south of Shasta County in Butte County.
- In the "Timber East" area of Shasta County, large wildfires in recent history include the 1992 Fountain Fire (60,290 acres), the 1998 Burney Fire (3,264 acres), the 2012 Ponderosa Fire (27,676 acres), and the 2014 Eiler Fire (32,416 acres) (CAL FIRE and SCFD 2018). The Fountain Fire originated approximately 1.5 miles north of the Fern Road Substation site and approximately 9.5 miles south of the Round Mountain Substation site.

As evidenced by the fire history of this portion of Shasta County, with heavy fuel loading, hot temperatures, critically low humidity, and strong north winds, the study area has the potential to face a major wildfire threat, even if the Fern Road Substation site has characteristics that suggest a low to moderate risk level (Shasta County 2016).

The continued urbanization of the Shasta-Trinity Unit's wildland areas is expected to significantly increase both the ignition potential of and damage from wildfires. About 90 percent of major fires in Shasta County have human-related ignition sources: burning of debris, equipment use, vehicles, and arson. Lightning causes the remaining 10 percent of the county's wildfires (Shasta County 2018). Periodic droughts contribute to the increase in fires by causing drier than normal fuel conditions. The heavy fuel loading, hot temperatures, critically low humidity, and strong

north winds characteristic of Shasta County contribute to the area's ongoing major wildfire potential (Shasta County 2016).

Impacts of Wildfire on Air Quality

As wildfires burn fuel, large amounts of carbon dioxide, particulate matter, and ozone precursors are released into the atmosphere. Additionally, wildfires emit substantial amounts of volatile and semi-volatile organic materials and nitrogen oxides that form ozone and organic particulate matter. These emissions can lead to harmful exposures for first responders, nearby residents, and even populations in regions farther from wildfires (NOAA n.d.). Exposure to these pollutants can cause asthma attacks, coughing, and shortness of breath. Chronic exposure to these pollutants can increase the risk of developing chronic health conditions such as heart disease, diabetes, and cancer (Hamers 2018; Milman 2018). These pollutants are described in more detail in Section 3.3, *Air Quality.*

3.20.2 Regulatory Setting

3.20.2.1 Federal

North American Electric Reliability Corporation Standards

The North American Electric Reliability Corporation (NERC) is a not-for-profit international regulatory authority comprising 10 regional reliability councils. NERC's overarching goal is to ensure the reliability of North America's bulk power system. To achieve its goal, NERC develops and enforces reliability standards, monitors bulk power systems, and educates, trains, and certifies industry personnel.

To improve the reliability of regional electric transmission systems, and in response to the massive widespread power outage that occurred on the Eastern Seaboard, NERC developed a vegetation management program applicable to all transmission lines operated as 200 kilovolts and higher, and to lower voltage lines designated by the Regional Reliability Organization as critical to the reliability of the region's electric system (NERC 2022). The elements of the program—such as NERC Standard FAC-003, Transmission Vegetation Management—apply to PG&E's transmission line–related vegetation management activities in the Project area.

The transmission vegetation management program requires identifying and documenting clearances between vegetation and any overhead supply conductors, while considering transmission line voltage, effects of ambient temperature on conductor sag under maximum design loading, fire risk, line terrain and elevation, and effects of wind velocities on conductor sway. The clearances identified must be no less than those set forth in Institute of Electrical and Electronics Engineers Standard 516-2003 (*Guide for Maintenance Methods on Energized Power Lines),* which establishes minimum vegetation-to-conductor clearances to maintain the integrity of the electrical system (IEEE 2003).

3.20.2.2 State

2019 Strategic Fire Plan for California

Developed by the California State Board of Forestry and Fire Protection, the Strategic Fire Plan outlines goals and objectives to implement CAL FIRE's overall policy direction and vision. The

2019 Plan demonstrates CAL FIRE's focus on improving its core capabilities, enhancing its internal operations, ensuring health and safety, and building an engaged, motivated, and innovative workforce. CAL FIRE provides direction for fire prevention and enforcement within the SRA using fire resource assessments, available data, mapping, and other tools. Guided by program managers, CAL FIRE units conduct pre-fire management activities, which consist of prescribed burning, fuel breaks, forest health treatments, and removal of hazardous vegetation. Through the 2019 Strategic Plan, CAL FIRE also delivers Land Use Planning and Defensible Space Inspection programs to the local level across the state (CAL FIRE 2019).

The California Strategic Fire Plan outlines 21 operational units. The Shasta County components of the Project would be located within the Shasta-Trinity Unit and would follow the goals and objectives outlined in the Shasta-Trinity Unit's 2021 Strategic Fire Plan, which was completed in a collaborative effort with various stakeholders. The unit's Strategic Fire Plan is updated each year with addenda that reflect the unit's progress toward meeting statewide and unit priority goals and objectives, as identified in the Strategic Fire Plan for California.

The Shasta-Trinity Unit's Strategic Fire Plan is divided into battalions (geographical boundaries), where fuel, weather, topography, and fire history specific to each area are identified. The Project sites, except for the Redding Service Center and Table Mountain Substation sites, are located within the jurisdictional area of Shasta-Trinity Unit Battalion 2. The unit's Battalion 2 service area is generally located east of Shasta Lake, north of Whitmore Road, south of the Pit River, and west of Hatchet Mountain (CAL FIRE 2022e).

California Emergency Response Plan

Pursuant to the Emergency Services Act (Government Code Section 8550 et seq.), California has developed the California Emergency Response Plan to coordinate emergency services provided by federal, state, and local governmental agencies and private persons. Response to hazardous-materials incidents is one part of this plan.

This plan is administered by the California Governor's Office of Emergency Services (OES). OES coordinates the responses of other agencies: the U.S. Environmental Protection Agency, California Highway Patrol, the California Department of Fish and Wildlife, the nine regional water quality control boards (including, as relevant to this Project, the Central Valley Regional Water Quality Control Board), the local air districts (including the Shasta County Air Quality Management District), and local agencies.

The California Emergency Response Plan defines the "policies, concepts, and general protocols" for proper implementation of the California Standardized Emergency Management System (SEMS). SEMS is an emergency management protocol that agencies in California must follow during multi-agency response efforts whenever state agencies are involved.

Fire Protection in the California Fire Code and Public Resources Code

The California Fire Code is contained in California Code of Regulations (CCR) Title 24, Chapter 9. Based on the International Fire Code, the California Fire Code is created by the California Buildings Standards Commission and regulates use, handling, and storage requirements for

hazardous materials at fixed facilities. Similar to the International Fire Code, the California Fire Code and the California Building Code use a hazards classification system to determine the appropriate measures to incorporate to protect life and property.

The California Public Resources Code includes fire safety provisions that are deemed necessary by the director or agency with primary responsibility for fire protection in the area. During the fire hazard season, these regulations restrict the use of equipment that may produce a spark, flame, or fire; require the use of spark arrestors on equipment that has an internal combustion engine; specify requirements for the safe use of gasoline-powered tools in fire hazard areas; and specify fire-suppression equipment that must be provided on-site for various types of work in fire-prone areas.

Additionally, Public Resources Code Sections 4294–4296 require that any owners or operators of electrical transmission or distribution lines on grass-covered land, such as found at and near the Project sites, maintain a firebreak clearing around and adjacent to poles, towers, and conductors. Pursuant to Section 4292, LSPGC and PG&E must maintain a 10-foot firebreak clearance around the base of each of their utility poles; tree limbs up to 8 feet above ground that are within the 10-foot radius of poles must be removed. The State's Fire Prevention Standards for Electric Utilities (14 CCR Sections 1250–1258) provide specific exemptions from electric pole and tower firebreak and electric conductor clearance standards and specifies when and where the standards apply.

California Public Utilities Commission General Orders

General Order 95

CPUC GO 95 applies to work conducted by investor-owned utilities (IOUs), including the construction and reconstruction of overhead electric lines. The replacement of poles, towers, or other structures is considered reconstruction and requires adherence to all strength and clearance requirements of GO 95.

CPUC has promulgated the following rules to implement the fire safety requirements of GO 95 (CPUC 2020):

- *Rule 18A,* which requires that utility companies take appropriate corrective action to remedy safety hazards and nonconformance with GO 95. Additionally, Rule 18A requires that each utility company establish an auditable maintenance program.
- *Rule 31.2,* which requires that lines be inspected frequently and thoroughly.
- *Rule 35,* which requires that vegetation management activities be performed to establish necessary and reasonable clearances. These requirements apply to all overhead electrical supply and communication facilities covered by GO 95.
- *Rule 38,* which establishes minimum vertical, horizontal, and radial clearances of wires from other wires.

General Order 165

CPUC GO 165 establishes requirements for the inspection of electric distribution and transmission facilities that are not contained within substations. Utilities must perform "patrol" inspections—simple visual inspections to identify obvious structural problems and hazards—at

least once per year for each piece of equipment and structure. Detailed inspections, involving careful examination of individual pieces of equipment and structures, are required every 5 years for all overhead conductor and cables, transformers, switching/protective devices, and regulators/capacitors. By July 1 of each year, each utility subject to GO 165 must submit an annual report of its inspections for the previous year under penalty of perjury (CPUC 2017a).

General Order 166

CPUC GO 166 requires utilities to prepare fire prevention plans and emergency response plans, as described below.

Fire Prevention Plan

GO 166, Standard 1.E, requires each IOU to develop a fire prevention plan describing measures that the utility will implement to mitigate the general threat of power line fires. Each IOU must also outline a plan for reducing the threat of a power line fire when wind conditions exceed the line's structural design standards during a Red Flag Warning[13] event in a high-fire-threat area. The fire prevention plan formulated by an IOU must identify specific parts of the utility's service territory where Red Flag Warnings and high-wind events may occur simultaneously. Standard 11 requires that utilities report annually to CPUC regarding compliance with GO 166 (CPUC 2017b).

In compliance with Standard 1.E of GO 166, PG&E adopted a fire prevention plan on September 30, 2017. LSPGC is not yet an IOU but would become one if CPUC approves the Project.

PG&E Company Emergency Response Plan

GO 166, Standard 1, also requires that each utility prepare an emergency response plan. PG&E's Emergency Response Plan, prepared in compliance with Standard 1, describes and formalizes PG&E's in-place plans and protocols for responding to emergencies. The plan identifies potential hazards, resources available to respond to emergencies, internal communication protocols, and an operational structure. Additionally, PG&E's Wildfire Safety Operations Center operates 24 hours per day during wildfire season (PG&E 2019).

Senate Bill 1028 and Senate Bill 901

Senate Bill (SB) 1028 (2016) requires each electrical corporation to construct, maintain, and operate its electrical lines and equipment in a manner that will minimize the risks of catastrophic wildfire posed by those electrical lines and equipment. A violation of these provisions by an electrical corporation is a crime under state law. SB 1028 also requires each electrical corporation to prepare a wildfire mitigation plan (WMP) annually and submit the plan to CPUC for review. The plan must present a statement of objectives, discuss preventive strategies and programs for minimizing risks associated with electric facilities, and describe the metrics used by the electric corporation to evaluate its performance relative to the WMP, along with the assumptions that underlie the use of the metrics.

[13] A "Red Flag Warning" is issued by the National Weather Service to alert fire departments of the onset, or possible onset, of critical weather and dry conditions that could lead to rapid or dramatic increases in wildfire activity.

SB 901 (2018) expanded on the requirements of SB 1028 with several provisions related to wildfire risk and management in California. For example, SB 901 increased the maximum penalties that CPUC can issue to a public utility that fails to comply with CPUC requirements. The legislation also specified that utilities' WMPs must now include the following elements:

- Consideration of dynamic climate change risks.
- Protocols for disabling reclosers,[14] and for de-energizing portions of the electrical distribution system, that consider the associated impacts on public safety.
- Protocols for mitigating the impacts of those disabling and de-energizing protocols on critical first responders and health and communication infrastructure.
- Particular topography- and climate-related risks and risk drivers present in the different parts of the electrical corporation's service territory.

These plans must be reviewed by an independent evaluator.

PG&E Wildfire Mitigation Plan

On February 5, 2021, PG&E submitted its 2021 WMP in compliance with SB 901, Assembly Bill 1054, and direction from CPUC's Wildfire Safety Division. The 2021 WMP provides updated details on PG&E's comprehensive Community Wildfire Safety Program, incorporates lessons learned from the 2020 wildfire season, and outlines PG&E's additional programs planned to continue to reduce the risk of catastrophic wildfires.

PG&E's updated 2021 WMP has three overarching goals: (1) Reduce wildfire ignition risk, (2) enhance situational awareness of wildfire risk, and (3) reduce the impact of Public Safety Power Shutoff events. The WMP benefits from both detailed historical data (e.g., weather patterns and previous ignitions, outages, and other risk events) and state-of-the-art tools, such as fire-spread technology that shows where specific infrastructure failures can lead to ignitions that have the worst consequences for specific communities. Wildfire mitigation workstreams, system hardening, and enhanced vegetation management are the main focus for the updated 2021 WMP in higher risk circuit segments and in fire rebuild areas (PG&E 2021).

3.20.2.3 Local

Local jurisdictions are preempted from regulating the Project with respect to land use. The land use plans, policies, and regulations described below are provided for informational purposes to assess whether the Project would conflict with these plans, policies, and regulations.

Shasta County

Shasta County General Plan

The Fire Safety and Sheriff Protection Element of the Shasta County General Plan establishes objectives and policies to protect the community from risks related to emergency management

[14] Reclosing devices, such as circuit breakers, are used to isolate circuit segments when abnormal system conditions are detected.

and response, including fire hazards. The following objective and policies in the Shasta County General Plan address wildfire risk (Shasta County 2018):

> **Objective FS-1:** Protect development from wildland and non-wildland fires by requiring new development projects to incorporate effective site and building design measures commensurate with level of potential risk presented by such a hazard and by discouraging and/or preventing development from locating in high risk fire hazard areas.
>
> > ***Policy FS-a:*** All new land use projects shall conform to the County Fire Safety Standards.
> >
> > ***Policy FS-b:*** Known fire hazard information should be reported as part of every General Plan amendment, zone change, use permit, variance, building site approval, and all other land development applications subject to the requirements of CEQA.
> >
> > ***Policy FS-c:*** Fire Hazard Maps shall be kept on file by the County and used in conjunction with the adopted County Fire Safety Standard and other County development standards.

Shasta County Fire Safety Standards

The Shasta County Board of Supervisors has adopted fire safety standards for development projects in the county. The standards meet or exceed the state's standards and include the "State Responsibility Area Fire Safe Regulations." These development standards address access, road widths, bridges, building construction, and hydrant and water systems and include a section describing mitigation measures. All standards would be administered and implemented by the Shasta County Fire Warden, any designees, and as otherwise authorized by the Board of Supervisors (Shasta County 2017).

2016 Shasta County Community Wildfire Protection Plan

In 2015, Shasta County worked with the Western Shasta Resource Conservation District to update existing strategic fuel management plans or community wildfire protection plans in the county and consolidate them into a single countywide plan. The Shasta County Community Wildfire Protection Plan is the result of consultation with stakeholders—fire-safe councils, the watershed group, landowners, and agencies—to review existing projects and priorities, classify completed projects as maintenance projects, identify new projects, identify wildland/urban interface areas, conduct risk assessments, and establish a revised list of priority projects for Shasta County. The plan addresses values at risk, landowner objectives, types of fuel treatments, the road system, potential funding sources, and fuel-break locations.

Shasta County Multi-Jurisdictional Hazard Mitigation Plan

The Shasta County Multi-Jurisdictional Hazard Mitigation Plan (Shasta County and City of Anderson 2017) includes resources and information to assist in planning for hazards. This plan provides a list of actions that may assist participating jurisdictions in reducing risk and preventing loss from future hazard events, and addresses wildfire hazards.

Shasta County Emergency Operations Plan

The Shasta County Emergency Operations Plan was prepared in September 2014. This all-hazard plan describes how Shasta County will respond to emergencies and disasters in the community,

and how agencies and organizations in the county will coordinate resources and activities with other federal, state, and local agencies; tribal community organizations; faith-based organizations; and private-sector partners. The plan is compatible with applicable federal, state, and local laws, regulations, plans, and policies.

Butte County

Butte County Community Fire Protection Plan

The Butte County Community Wildfire Protection Plan, implemented by the Butte County Cooperative Fire Protection Agencies, contains multiple goals and objectives for fire protection and management. Among the goals of this plan is to integrate implementation of fire and vegetative fuels management practices (BCCFPA 2022. The goals are applicable to activities proposed at the PG&E Table Mountain Substation, located in Butte County.

Butte County Local Hazard Mitigation Plan

The Butte County Local Hazard Mitigation Plan (as updated in 2019) assesses hazards that pose risks to Butte County communities. Of the natural disasters that pose a risk, wildfire is identified as being highly likely to occur with catastrophic severity over an extensive geographic range (Butte County 2019). The following applicable goals in the plan that pertain to wildfire are identified for informational purposes.

Goal 1: Minimize risk and vulnerability of the community to hazards and reduce damages and protect lives, properties, and public health in Butte County.

Goal 2: Provide protection for critical facilities, infrastructure, and services from hazard impacts.

Goal 3: Increase public awareness of the risk and vulnerability of the community to hazards and promote personal awareness and responsibility.

Goal 4: Increase communities' ability to be prepared for, respond to, and recover from a disaster event.

Goal 5: Reduce fire severity and intensity in Butte County and surrounding lands.

3.20.3 Applicant Proposed Measures and PG&E Construction Measures

3.20.3.1 Applicant Proposed Measures

Applicable Applicant Proposed Measures (APMs) related to wildfire risk (i.e., emergency evacuation plans, fire safety, and erosion control) are identified below. All of these APMs would be implemented as part of the Fern Road Substation Facilities components of the Project. The APMs specific to fire incorporate the recommendations of the Fern Road Wildfire Hazard Risk Assessment (TSS Consultants 2021).

APM HAZ-4: LSPGC shall implement ongoing fire patrols during the fire season as defined each year by local, state, and federal fire agencies. These dates vary from year to year, generally occurring from late spring through dry winter periods. During Red Flag Warning events, as issued daily by the National Weather Service, all construction/maintenance

activities shall cease, with an exception for transmission line testing, repairs, unfinished work, or other specific activities which may be allowed if the facility/equipment poses a greater fire risk if left in its current state. Although the Proposed Project area is not located within an area designated as a Very High or High Fire Severity Zone, LSPGC will prepare a Construction Fire Prevention Plan prior to construction.

All construction/maintenance crews and inspectors shall be provided with radio and cellular telephone access that is operational in all work areas and access routes to allow for immediate reporting of fires. Communication pathways and equipment shall be tested and confirmed operational each day prior to initiating construction/maintenance activities at each work site. All fires shall be reported to the fire agencies with jurisdiction in the area immediately upon discovery of the ignition. All construction/maintenance personnel shall be trained in fire-safe actions, initial attack firefighting, and fire reporting. All construction/maintenance personnel shall be trained and equipped to extinguish small fires in order to prevent them from growing into more serious threats. All construction/maintenance personnel shall carry at all times a laminated card and be provided a hard hat sticker that list pertinent telephone numbers for reporting fires and defining immediate steps to take if a fire starts. Information on laminated contact cards and hard hat stickers shall be updated and redistributed to all construction/ maintenance personnel and outdated cards and hard hat stickers shall be destroyed prior to the initiation of construction/maintenance activities on the day the information change goes into effect.

Construction/maintenance personnel shall have fire suppression equipment on all construction vehicles. Construction/maintenance personnel shall be required to park vehicles away from dry vegetation. Water tanks, fire extinguishers, and/or water trucks shall be sited or available at active project sites for fire protection during construction. The Applicant shall coordinate with applicable local fire departments prior to construction/maintenance activities to determine the appropriate amounts of fire equipment to be carried on vehicles and, should a fire occur, to coordinate fire suppression activities.

APM WQ-1: Because the Project involves more than an acre of soil disturbance, a SWPPP [storm water pollution prevention plan] would be prepared as required by the state NPDES General Permit for Discharges of Stormwater Associated with Construction Activity. This plan would be prepared in accordance with the Water Board guidelines and other applicable erosion and sediment control BMPs [best management practices]. Implementation of the plan would help stabilize disturbed areas and would reduce erosion and sedimentation. The PG&E Construction Measures SWPPP would designate BMPs that would be followed during and after construction of the Project, examples of which may include the following erosion-minimizing measures:

- Using drainage control structures (e.g., straw wattles or silt fencing) to direct surface runoff away from disturbed areas;
- Strictly controlling vehicular traffic;
- Implementing a dust-control program during construction;
- Restricting access to sensitive areas;
- Using vehicle mats in wet areas; or
- Revegetating disturbed areas, where applicable, following construction.

In areas where soils are to be temporarily stockpiled, soils would be placed in a controlled area and would be managed with similar erosion control techniques. Where construction

activities occur near a surface waterbody or drainage channel and drainage from these areas flows towards a waterbody or wetland, stockpiles would be placed at least 100 feet from the waterbody or would be properly contained (such as beaming or covering to minimize risk of sediment transport to the drainage). Mulching or other suitable stabilization measures would be used to protect exposed areas during and after construction activities. Erosion-control measures would be installed, as necessary, before any clearing during the wet season and before the onset of winter rains. Temporary measures, such as silt fences or wattles intended to minimize erosion from temporarily disturbed areas, would remain in place until disturbed areas have stabilized.

APM PS-1: LSPGC would coordinate construction activities with local law enforcement and fire protection agencies. Emergency service providers would be notified of the timing, location, and duration of construction activities.

APM TRA-1: LSPGC would prepare a Traffic Control Plan to describe measures to be taken to guide traffic (such as signs and workers directing traffic), safeguard construction workers, provide safe passage, and minimize traffic impacts. LSPGC would follow its standard safety practices as needed, including installing appropriate barriers between work zones and transportation facilities, posting adequate signs, and using proper construction techniques. LSPGC would follow the recommendations in this manual regarding basic standards for the safe movement of traffic on highways and streets in accordance with Section 21400 of the California Vehicle Code. If required for obtaining a local encroachment permit, LSPGC would establish a Traffic Management Plan (TMP) to address haul routes, timing of heavy equipment and building material deliveries, potential street and/or lane closures, signing, lighting, and traffic control device placement. Construction activities would be coordinated with local law enforcement and fire protection agencies. Emergency service providers would be notified as required by the local permit of the timing, location, and duration of construction activities.

APM FIRE-1: *Construction Fire Prevention Plan.* A Proposed Project-specific Construction Fire Prevention Plan (Plan) for construction of the Proposed Project shall be submitted for review prior to initiation of construction. A draft copy of the Plan shall be provided to the CPUC and state and local fire agencies at least 90 days before the start of any construction activities in areas designated as Very High or High Fire Hazard Severity Zones. Plan reviewers shall also include federal, state, or local agencies with jurisdiction over areas where the Proposed Project is located. The final Plan shall be approved by the CPUC no more than 60 days after receipt from the applicant. The Plan shall be fully implemented throughout the construction period and include the following at a minimum:

- The purpose and applicability of the Plan
- Responsibilities and duties
- Preparedness training and drills
- Procedures for fire reporting, response, and prevention that include:
  - Identification of daily site-specific risk conditions
  - The tools and equipment needed on vehicles and to be on hand at sites
  - Reiteration of fire prevention and safety considerations during tailboard meetings
  - Daily monitoring of the red-flag warning system with appropriate restrictions on types and levels of permissible

- Coordination procedures with federal and local fire officials
- Crew training, including fire safety practices and restrictions
- Method(s) for verifying that all Plan protocols and requirements are being followed

A project fire marshal or similar qualified role shall be established to enforce all provisions of the Construction Fire Prevention Plan as well as perform other duties related to fire detection, prevention, and suppression for the Proposed Project. Construction activities shall be monitored to ensure implementation and effectiveness of the Plan.

Fire Prevention Practices (Construction and Maintenance). The Applicant shall implement ongoing fire patrols during the fire season as defined each year by local, state, and federal fire agencies. These dates vary from year to year, generally occurring from late spring through dry winter periods. During Red Flag Warning events, as issued daily by the National Weather Service, all construction/maintenance activities shall cease, with an exception for transmission line testing, repairs, unfinished work, or other specific activities which may be allowed if the facility/equipment poses a greater fire risk if left in its current state.

All construction/maintenance crews and inspectors shall be equipped with radio or cellular telephone access that is operational in all work areas and access routes to allow for immediate reporting of fires. Communication pathways and equipment shall be tested and confirmed operational each day prior to initiating construction/maintenance activities at each work site. All fires shall be reported to the fire agencies with jurisdiction in the area immediately upon discovery of the ignition.

All construction/maintenance personnel shall be trained in fire-safe actions, initial attack firefighting, and fire reporting. All construction/maintenance personnel shall be trained and equipped to extinguish small fires in order to prevent them from growing into more serious threats. All construction/maintenance personnel shall carry at all times a laminated card and be provided a hard hat sticker that list pertinent telephone numbers for reporting fires and defining immediate steps to take if a fire starts. Information on laminated contact cards and hard hat stickers shall be updated and redistributed to all construction/maintenance personnel, and outdated cards and hard hat stickers shall be destroyed prior to the initiation of construction/maintenance activities on the day the information change goes into effect.

Construction/maintenance personnel shall have fire suppression equipment on all construction vehicles. Construction/maintenance personnel shall be required to park vehicles away from dry vegetation. Water tanks and/or water trucks shall be sited or available at active project sites for fire protection during construction. The Applicant shall coordinate with applicable local fire departments prior to construction/maintenance activities to determine the appropriate amounts of fire equipment to be carried on vehicles and, should a fire occur, to coordinate fire suppression activities.

APM FIRE-2: Fires shall be prevented or minimized by exercising care when operating utility vehicles within the right-of-way and access roads and by parking vehicles away from dry vegetation where hot catalytic converters could present the potential to ignite a fire. Fire protective mats or shields would be used during grinding or welding to prevent or minimize the potential for fire. In addition, the following fire prevention measures would be implemented:

- Because of the isolated nature of this site, the Proposed Project would develop on-site emergency water storage for fire suppression. The water storage system would include an

aboveground metallic tank with no less than 1,000 gallons of storage capacity, as well as a pump and hose to dispense water in an emergency situation.

- Livestock grazing, that would be allowed to continue on the property and surround area, prevents fires by reducing flammable fuels in the Proposed Project vicinity. As practicable, livestock grazing programs should be designed and implemented so as to remove grass and forb vegetation immediately adjacent to the Proposed Project site prior to the commencement of fire season (March to September).
- Vegetation that is capable of generating flame lengths greater than 12 feet would be evaluated annually and removed from the surface of the transmission line corridor as appropriate. This would include all woody vegetation types whose maximum average canopy exceeds six feet.

APM FIRE-3: In response to the need for fire mitigation during prolonged emergency response times, any Proposed Project facilities would be designed and constructed with resistance to wildfire ignition and consummation where feasible.

APM FIRE-4: All construction crews and inspectors shall be equipped with radio or cellular telephone access that is operational within the Proposed Project work area to allow for immediate reporting of fires. Fires shall be reported to the fire agencies with jurisdiction in the area upon discovery of the ignition. All construction personnel shall be trained in immediate steps to take if a fire starts, including fire reporting.

APM FIRE-5: LSPGC and/or its contractors shall notify applicable local fire departments of construction activities associated with the Proposed Project prior to construction and coordinate with emergency service providers regarding potential ingress and egress constraints that may occur.

Prior to construction, an agreement would be in place with agencies providing wildfire response services to the Proposed Project area that would ensure they have access through the gated entrance off Fern Road in case of emergency.

3.20.3.2 PG&E Construction Measures

PG&E would implement the following Avoidance and Minimization Measures (AMMs) to address potential effects on wildlife considerations associated with the PG&E Facilities. No BMPs are directly applicable to the discussion of impacts.

AMM-2: Park vehicles and equipment on pavement, existing roads, or other disturbed or designated areas (barren, gravel, compacted dirt).

AMM-8: Prohibit trash dumping, firearms, open fires (such as barbecues), hunting, and pets (except for safety in remote locations) at work sites.

AMM-9: In designated State Responsibility Areas, equip all motorized equipment with federally or state-approved spark arrestors. Ensure a backpack pump filled with water and a shovel and fire-resistant mats and/or windscreens is onsite during welding. During fire "red flag" conditions as determined by the California Department of Forestry and Fire Protection, prohibit welding. Each fuel truck will carry a large fire extinguisher with a minimum rating of 40 B:C. Clear parking and storage areas of all flammable materials.

AMM-11: Utilize standard erosion and sediment control BMPs (pursuant to the most current version of PG&E's Stormwater Field Manual for Construction Best Management Practices) to prevent construction site runoff into waterways. All covered aquatic species.

3.20.4 Environmental Impacts

3.20.4.1 Methodology and Assumptions

The following analysis uses the criteria from Appendix G of the CEQA Guidelines to identify direct and indirect effects related to wildfire risk. The analysis considers both the Fern Road Substation Facilities and the PG&E Facilities and incorporates both APMs and PG&E construction measures for their respective facilities.

3.20.4.2 Direct and Indirect Effects

a) Substantially impair an adopted emergency response plan or emergency evacuation plan: *Less than Significant.*

No specifically designated evacuation routes are described in the community wildfire protection plans for Shasta and Butte counties or in the Shasta County General Plan. However, because the Project would be developed in a rural area, the number of access roads to and exit routes from the sites is limited. The main access road and potential evacuation route would be Fern Road, which provides access to the Fern Road Substation Facilities site from Whitmore Road via Old 44 Drive, from State Route 44 and Interstate 5. As discussed in Chapter 2, *Project Description*, access to the site from Fern Road would be provided by an existing access road that would be upgraded, and by a new access road to be developed around the inside perimeter of the proposed Fern Road Substation. These access roads would allow for adequate ingress and egress to, through, and from the site in the event of an on-site emergency.

According to Section 3.9, *Hazards and Hazardous Materials,* and Section 3.17, *Transportation,* Project construction would result in a temporary increase in vehicle trips, to haul and transport equipment and materials to and from the Project site. Any vehicle trips would be limited to predesignated routes to minimize the contribution of Project construction traffic to roadway congestion in the Project area. Construction would not require the full closure of any roadways, but one lane of Fern Road would be closed intermittently to allow the delivery of equipment and materials to the Fern Road Substation site and vicinity. No detours would be necessary as a result of this lane closure. Additional vehicle trips and temporary lane closures could increase congestion on publicly used and county-maintained roadways surrounding the Project site. Therefore, the Applicant would implement the proposed traffic control plan, pursuant to APM TRA-1 as described above, to control construction-related traffic and congestion and limit any potential closures that could impede an emergency response plan or emergency evacuation route.

Operation and maintenance would result in minor roadway impacts and would be conducted by small specialized teams that would contribute a negligible number of vehicle trips. See Section 3.17, *Transportation,* for additional details regarding inspection and maintenance impacts from additional crew members during operation. Impacts during the decommissioning phases would be similar to construction impacts and would be reduced with the implementation of APM TRA-1, which would ensure through traffic and reduce congestion.

Therefore, the Project would have a less-than-significant impact on emergency response and evacuation plans during the construction, operation and maintenance, and decommissioning phases.

b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire: *Less than Significant.*

According to CAL FIRE, most of the Project sites are identified as being in a high to very high FHSZ, which indicates a high level of concern, and all of those areas are classified by CPUC as Tier 2 HFTDs. The Table Mountain Substation is in a moderate FHSZ and not in a CPUC HFTD. The CPUC Tier 2 HFTD indicates that there is elevated risk of a wildfire associated with overhead utility power lines and overhead utility power lines that also support communication facilities. The Project structures are not intended for and would not be used for occupation and therefore would not expose occupants to an increased risk of wildfire. The Project could, however, incrementally exacerbate existing wildfire risks that could affect Project workers if they are present on-site during a fire emergency.

The wildfire modeling technical report prepared for the Project's Fern Road Substation site concluded that essentially all of the lands adjacent to the site are occupied by vegetation and land uses in the low-risk category, and that the site would be buffered by a landscape that poses no more than a low to moderate risk (TSS Consultants 2021). Although wildfire would be most likely to come from the west because of the prevailing winds and topography, the location of Fern Road would provide immediate access and a strategic point from which to implement direct fire control or response actions. The report identified a moderate to high risk to resources and lands to the east and northeast, in the event of an ignition related to the Fern Road substation or connecting lines (TSS Consultants 2021). The report included six specific recommendations for wildfire risk–reducing actions that have been incorporated as APMs to reduce wildfire risk, as discussed in Section 3.20.3.1 and below.

Construction

The primary fire hazards during construction of the Fern Road Substation Facilities would be from the use of heavy vehicles and equipment on dry terrain. Heat or sparks from construction vehicles and equipment could ignite dry vegetation and cause a fire, particularly during dry, hot conditions. Construction activities that could result in sparks, such as welding or grinding, could also generate new sources of ignition. Seasonality may affect climate conditions, prevailing winds, and vegetation/fuels. Therefore, depending on the time of year and the location of construction activities, the increase in potential ignition sources during Project construction could exacerbate the area's existing wildfire risks. As discussed in Section 3.20.1, *Environmental Setting,* wildfires release large amounts of air pollutants, which can lead to harmful exposure for first responders, nearby communities, and remote populations. Therefore, because of the increase in potential ignition sources, Project construction without measures to protect surrounding communities could increase the risk of exposure to pollution from wildfire and could contribute to the uncontrolled spread of wildfire, a potentially significant impact.

Fire prevention measures would be implemented as part of the Project to ensure that the Project would not contribute to an uncontrollable spread of wildfire. As discussed in Section 2.5.2,

Construction of Proposed Fern Road Substation Facilities, in Chapter 2, *Project Description,* the Applicant would implement a 10-foot buffer around any construction activities considered "hot work" (e.g., welding, grinding, or any other activity that creates sparks) and vegetation would be cleared. Additionally, a Project-specific construction fire prevention plan (CFPP) for the Fern Road Substation Facilities would be prepared pursuant to APM FIRE-1, which includes minimization and response measures that would further reduce fire hazards during construction. For activities that would not produce any sparks but could still cause a fire hazard, such as installing ground rods or ground wires, the Applicant would designate a 5-foot buffer to be cleared of vegetation, and the CFPP would provide additional details (i.e., on handling sparks). Creating associated fire breaks, clearing vegetation, and implementing the Project-specific CFPP (APM FIRE-1) would help to reduce risks of a potential ignition during construction activities for the Fern Road Substation Facilities that could otherwise contribute to the spread of a wildfire.

Furthermore, the Applicant would implement additional measures to reduce fire risk during construction of the Fern Road Substation Facilities:

- APM FIRE-3 requires that Project facilities be designed and constructed with resistance to wildfire ignition and consummation where feasible.
- APM FIRE-4 requires that construction crews and inspectors at the Fern Road Substation Facilities be equipped with radio or cellular telephone access within the work area to allow for immediate reporting of fires, that fires be reported to fire agencies with jurisdiction in the area upon discovery of the ignition, and that all construction personnel be trained in immediate steps to take if a fire starts.
- APM FIRE-5 requires that LSPGC and/or its contractors notify applicable local fire departments of construction activities at the Fern Road Substation Facilities before construction and coordinate with emergency service providers regarding potential constraints on ingress and egress. Pursuant to APM FIRE-5, before construction, an agreement would be reached with agencies providing wildfire response services to the Project to ensure that responder access is available through the gated entrance to the Fern Road Substation site off of Fern Road in case of an emergency.

With implementation of APMs FIRE-1 through FIRE-5 for construction of the Fern Road Substation, and of the PG&E construction measures (as described in Section 3.20.3), construction impacts would be less than significant.

Operation

Once operational, the Fern Road Substation would include elements such as the take-off towers that could contribute to potential ignition sources and increase wildfire risks. Under Section 35 of GO 95, CPUC would regulate all aspects of design, construction, and operation and maintenance of electrical power lines and fire safety hazards for utilities subject to CPUC jurisdiction, which would include the Project. The Project would comply with CPUC GOs 95, 165, and 166 and CPUC Decision 12-01-023, in addition to the clearance standards identified in California Public Resources Code Sections 4292 and 4293. The Applicant would implement a fire break around the entire Fern Road Substation in accordance with all applicable federal and state regulations. Given compliance with these independently enforceable regulatory requirements, the potential fire risk

impacts associated with the substation and associated electrical infrastructure would be less than significant.

Additionally, the Project site would be unstaffed, and operation of the Fern Road Substation Facilities would be remotely monitored by the Applicant's control center. As discussed in Section 2.5.3.3 in Chapter 2, *Project Description*, routine maintenance of the Project would be minimal and would typically consist of approximately one round trip per month by crews of two or four people. As part of the routine maintenance and inspection, the Applicant would inspect and clear vegetation near the Fern Road Substation Facilities, and PG&E would inspect and clear vegetation near the interconnection facilities and distribution modification corridors on an annual basis to comply with the clearance requirements of Public Resources Code Section 4292 and 14 CCR Section 1254.

Furthermore, APM FIRE-1 includes fire prevention measures that would be applicable to and implemented as part of maintenance of the Fern Road Substation Facilities and would reduce wildfire risks during operation. APM FIRE-2 contains additional ongoing fire prevention measures including the provision of an emergency water tank, reduction of fuel loads by maintaining a regime of grazing the surrounding landscape, and a required annual evaluation of vegetation near the Fern Road Substation Facilities. Therefore, with implementation of APMs FIRE-1 and FIRE-2 during operation, potential impacts related to wildfires during operation and maintenance of the Fern Road Substation Facilities would be less than significant.

PG&E Facilities

As discussed in Section 2.6 in Chapter 2, *Project Description,* Project activities at the PG&E Facilities would consist of the operation of transmission line interconnections, distribution modifications, and electrical infrastructure within the PG&E Round Mountain and Table Mountain substations. Therefore, Project construction and operation at the PG&E Facilities could increase the risk of wildfire by increasing the risk of ignition.

Given the inherent potential for ignition risk associated with power lines, PG&E's Fire Prevention Plan would be applied to the PG&E Facilities, as required by CPUC GO 166. Implementing the operational risk management programs identified in PG&E's Fire Prevention Plan and Wildfire Safety Plan would reduce the risk of an ignition during operation. Relevant programs include enhanced weather monitoring, the Wood Pole Test and Treat Program, Pro-Active Responses to Fire Incidents, enhancements to PG&E's Storm Outage Prediction Model, the Wildfire Reclosing Disable Program, and the implementation of the Public Safety Power Shutoff program (PG&E 2019).

Additionally, vegetation along the 500-kilovolt PG&E interconnection lines would be managed in compliance with NERC Standard FAC-003, Transmission Vegetation Management. The Project also would be subject to CPUC's vegetation management and clearance requirements (GO 95, GO 165, and GO 166).

By complying with these operational and vegetation clearance requirements, the Project would effectively manage the risk of exposing surrounding communities to the uncontrolled spread of a

wildfire during construction and operation of the PG&E Facilities. In addition to the regulatory compliance measures described above, PG&E would implement AMM-2, AMM-8, and AMM-9 to reduce the risk of wildfire ignition by prohibiting specific activities (such as welding or parking in unpaved areas) that could otherwise introduce ignition sources in fire-prone areas. AMM-9 requires that fire prevention/protection equipment (such as fire extinguishers, shovels, and water backpacks) be onsite.

With implementation of these AMMs along with standard regulatory requirements, wildland fire impacts from construction or operations of the PG&E Facilities would be less than significant.

Decommissioning

During decommissioning, the risk of ignition from vehicle and equipment use at the Project sites would be similar to the risk during the construction period. With routine maintenance and vegetation clearance during operation and maintenance, all required fire breaks would be in compliance with applicable regulatory requirements at the time of decommissioning, and thus the amount of available fuels would be low. As a result, the impact related to the potential for decommissioning-related ignition to exacerbate the risk of wildfire would be less than significant.

c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment: *Less than Significant.*

The Project would involve the installation and/or maintenance of fuel breaks, power lines, and other electrical utilities that could exacerbate the fire risk. The proposed fire and/or fuel breaks, power lines, and electrical utility infrastructure all are considered part of the Project, and the potential environmental impacts of implementing these components are analyzed throughout this document on a resource-by-resource basis. Fuel breaks and vegetation clearances, discussed above, would assist with fire prevention and thus would not exacerbate fire risk. In addition, construction and maintenance crews at the Fern Road Substation Facilities would have emergency water sources on-site to respond to fires as required by APMs FIRE-1 and FIRE-2.

To reduce the fire risk associated with the PG&E Facilities, PG&E would comply with CPUC vegetation clearance requirements and other regulatory requirements and would implement AMM-2, AMM-8, and AMM-9, as described under Criterion b). Additional impacts associated with power lines and electrical utilities are discussed under Criterion b), and would be less than significant. Therefore, the Project would not require the installation or maintenance of infrastructure that has not been considered in the analysis of this Project. Associated impacts would be less than significant.

d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes: *No Impact.*

The Project does not include any housing; therefore, it would not expose people to increased risks of flooding, landslides, or post-fire slope instability by locating housing near such hazards.

As identified in Section 3.10, *Hydrology and Water Quality,* Criterion c), and as noted in APM WQ-1, implementing a SWPPP and BMPs related to erosion control during Project construction would reduce potential construction impacts related to runoff and slope stability to a less-than-significant level. Furthermore, because no structures or residents are present in the immediate vicinity of the proposed Fern Road Substation Facilities, the Project would not result in changes to runoff or drainage patterns that could exacerbate downslope or downstream flooding and thereby expose people or structures to associated risks.

As discussed under Criterion b), Project construction would have a less-than-significant impact on wildfire risk given the Project's implementation of required fuel breaks, vegetation clearances, APMs FIRE-1 and FIRE-2, and AMM-11 for the PG&E Facilities. As noted in the geotechnical investigation, the Fern Road Substation site has a 3 percent slope across the site. Therefore, the Project would not be located on a gradient that could be at risk for landslides or flooding. Additionally, because the Project would have a low potential to exacerbate wildfire risk, it would also not pose a substantial risk of causing post-fire slope instability. Therefore, no impact related to such hazards would occur.

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3.21 Mandatory Findings of Significance

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XXI. MANDATORY FINDINGS OF SIGNIFICANCE —				
a) Does 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 a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☒	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

3.21.1 Mandatory Findings of Significance Discussion

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 a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory: *Less than Significant with Mitigation*.

The analysis presented in this IS/MND has identified, in various sections of this document, potentially significant environmental effects that would be attributable to the Project. To reduce such effects, specific mitigation measures are recommended and are included in the Project's Mitigation Monitoring, Compliance, and Reporting Program (MMCRP; see Section 5) that would be implemented upon adoption of the IS/MND. As required by CEQA, these mitigation measures, along with the Applicant Proposed Measures (APMs) and Pacific Gas and Electric Company (PG&E)'s proposed Construction Measures, would be implemented as described in the MMRCP. With the mitigation measures identified in this IS/MND, the Project would not have the potential to substantially degrade the quality of the environment.

As described in Section 3.4.4.2, implementation of the Project would result in no impact to riparian habitat or other sensitive natural communities; local ordinances; or habitat conservation plans (HCPs) and natural community conservation plans (NCCPs); and less than significant impacts to protected wetlands. Moreover, as noted in Section 3.4, *Biological Resources*, the Fern Road Substation site and surrounding region lie outside of *Natural Landscape Blocks* and *Essential Connectivity Areas* mapped as part of the California Essential Habitat Connectivity Project (Heritage Environmental 2022). Indirect impacts to habitat areas and direct and indirect

impacts to animal species are addressed through implementation of APM BIO-1 through APM BIO-13; APM WQ-1, PG&E Construction Measures AMM-1 through AMM-7, BMP-1 through BMP-3; and CEQA Mitigation Measure BIO-1. With respect to special status species, specific measures such as APM BIO-4, APM BIO-5, APM BIO-9, AMM-6, AMM-14, BMP-1, and BMP-3 are proposed. These would be implemented by the Applicant and by PG&E during construction to protect biological resources.

As discussed in Section 3.5, *Cultural Resources*, although there are no known archaeological resources at the Project site, the Project could result in unanticipated discovery of unrecorded subsurface archaeological materials during ground disturbing construction activities. However, with implementation of the APMs (AMP-CUL 1, 2, 3 and 4) and PG&E Best Management Practices (BMP-15, BMP-16, and BMP-17), the impact would be less than significant.

Implementation of APM PALEO-1 and APM PALEO-2, BMP-15, and BMP-16 would ensure that significant paleontological resources are not inadvertently destroyed as a result of the Project, and the impact on paleontological resources would be less than significant.

b) Have impacts that are individually limited, but cumulatively considerable: *Less than Significant*.

CEQA Guidelines Section 15130 requires a discussion of the cumulative impacts of a project when the project's incremental contribution to a significant cumulative effect is "cumulatively considerable." This means that the project's incremental effects are considerable when viewed in connection with the effects of past, current, and probable future projects. An incremental, project-specific contribution to a cumulative impact is less than cumulatively considerable and is not significant if, for example, the project is required to implement or fund its fair share of a mitigation measure(s) designed to alleviate the cumulative impact.

Consistent with CEQA Guidelines Section 15130(b), the CPUC has prepared a list of past, present, and reasonably foreseeable future projects that could result in related or cumulative impacts. This list includes projects outside the control of CPUC (the Lead Agency). The analysis of cumulative impacts also considers projections contained in planning documents designed to evaluate regional or area-wide conditions. Specifically, this "projections approach" is used at least in part in the cumulative analyses for air quality, greenhouse gas emissions, noise, and transportation. Resource areas (such as agriculture and forestry resources, land use and planning, mineral resources, public services, and recreation) for which the Project was determined through the analysis in this IS/MND to not result in an impact, would also not contribute any incremental impact under the cumulative scenario, and are not discussed further in this section. Less than significant impacts are considered in the cumulative scenario on a case-by-case basis depending on the baseline conditions and the potential incremental contribution. Existing conditions within the cumulative impacts' area of effect reflect a combination of the natural condition and the effects of past actions in the affected area. The following factors also were used to determine an appropriate list of projects to be considered in this cumulative analysis:

- **Similar Environmental Impacts** – The analysis considers "reasonably foreseeable" projects that would contribute to effects on resources also affected by the Project. These include, for example, other electric transmission, or public utility-related projects.
- **Geographic Scope** – The appropriate geographic area of cumulative analysis is identified on a resource-by-resource basis as dictated by relevant physical and/or environmental boundaries (such as the extent of the groundwater basin or the roadways traveled by Project vehicles).
- **Timing and Temporal Scope** – Incremental impacts of the Project could combine with the incremental impacts of other projects to cause or contribute to cumulative effects if the Project's construction, operation, and maintenance periods coincide in terms of timing with the effects of the other projects.

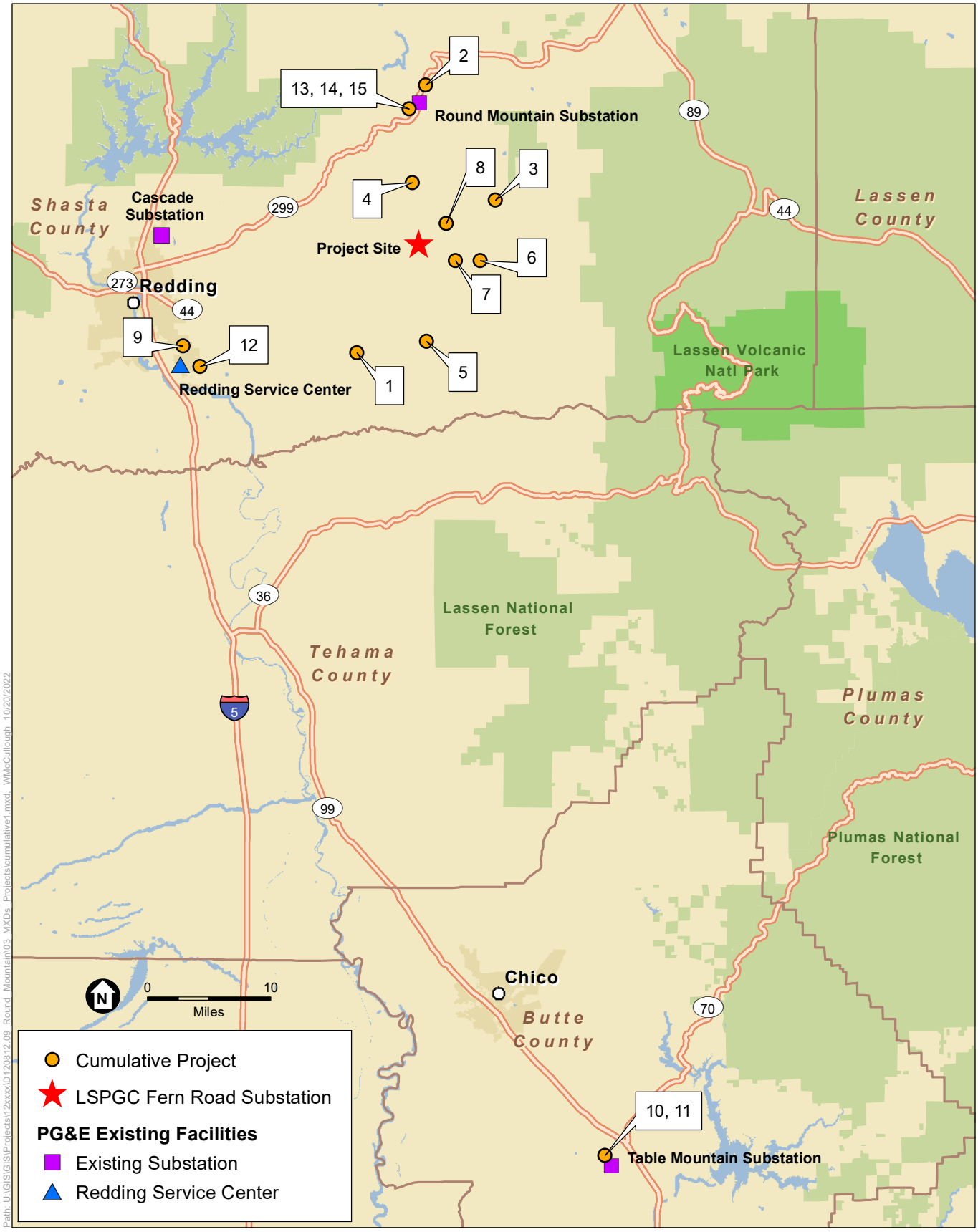
The Project is proposed in a rural location with few urban projects in the vicinity. PG&E was contacted and provided information about recent and reasonably foreseeable projects at its existing Cascade, Round Mountain, and Table Mountain substations. Information about other comparable projects in the geographic area was derived primarily from the Shasta County Department of Public Works' website and CEQAnet (Shasta County 2022; OPR 2022). The California Department of Transportation and City of Redding websites were also reviewed to identify current roadway rehabilitation and associated planned construction in the Shasta County area and approved projects in Redding (CalTrans 2022; City of Redding 2022). These projects are considered together along with the Project, as part of the potential cumulative scenario and are depicted in **Figure 3.21-1** and described in **Table 3.21-1**.

A discussion of cumulative impacts per resource area is provided, as follows.

Aesthetics

As discussed in Section 3.1, *Aesthetics*, there would be no impact with respect to scenic resources within a state scenic highway or scenic vistas because there are none designated in the Project study area. Moreover, the Project would have a less-than-significant impact to scenic resources because the location is not visible from any State or locally-designated scenic highways. Therefore, the Project would not contribute to cumulative impacts regarding these considerations. Additionally, the Project is in a very sparsely populated non-urban area where a change of lighting could be significant. However, the design features which would be implemented to minimize impacts (per APM AES-1 and APM AES-2) to a less-than-significant impact related to light and glare and would not combine with impacts from other facilities. Therefore, the Project's impact to visual resources resulting from light and glare would not cause or contribute to a significant adverse cumulative impact.

The geographic scope of potential cumulative impacts to the existing visual character or quality of public views along State Route (SR) 44. Recently constructed and reasonably foreseeable future projects in this geographic area are located approximately 2 to 10 miles of the Project as described in Table 3.21-1. Elements of these projects would contribute to an alteration of the visual quality of the landscape and would introduce light and glare to an otherwise predominantly rural environment.



SOURCE: LS Power Grid California LLC, 2022; ESRI, 2022

Round Mountain 500 kV Area Dynamic Reactive Support Project

Figure 3.21-1
Cumulative Projects

ESA

TABLE 3.21-1
ROUND MOUNTAIN 500 KV DYNAMIC REACTIVE SUPPORT PROJECT CUMULATIVE PROJECTS LIST

#	Project Name	Location	Approximate Distance	Description	Status
California Department of Transportation					
1	Dersch Road Culverts	State Route 44, east of Redding in Shasta County, from 1.8 miles west of South Cow Creek Road to 1.7 miles east of Black Butte Road	10 miles from Project Site	The purpose of the project is to maintain conveyance of drainage, prevent roadway damage, and provide an operational highway. The project is needed because the culverts exhibit corroded inverts and piping is starting to occur.	Ongoing
2	McArthur Mixed Strategy	State Route 299 (Shasta County) from approximately 2 miles west of Buzzard Roost Road (west of Round Mountain) to Old Bertagna Place (near Montgomery Creek)	8 miles from Project Site	The project will place an asphalt rubber chip seal along State Route 299.	Ongoing
CALFire					
3	SHU RPM Pilot Project	Approximately 3 miles northeast of Whitmore	4 miles from Project Site	This project will create up to 74 acres of fuel reduction with treatment activities of prescribed (pile) burning, prescribed (broadcast) burning and mechanical/manual treatments.	Planned
4	Buckhorn Forest Fire Station Replacement Project	30377 Oak Run to Fern Rd, Whitmore, CA 96096	4 miles from Project Site	The project involved the construction of various site improvements at the Buckhorn Forest Fire Station.	Completed
5	Ponderosa Way Fuel Break	Ponderosa Way, Shingletown, CA	9 miles from Project Site	The purpose of this shaded fuel break project was to reduce the volume of hazardous fuels within the Wildland/Urban Interface, along both sides of Ponderosa Way south of the community of Whitmore.	Completed
State Water Resources Control Board					
6	Kilarc-Cow Creek Hydroelectric Project License Surrender	Whitmore, CA 96096	5 miles from Project Site	The project involved the decommissioning, removal, and modification of several project features and facilities in compliance with California water quality standards.	Completed
Western Shasta Resource Conservation District					
7	Whitmore Forest and Watershed Restoration Project	Communities of Whitmore and Shingletown	2 miles from Project Site	This project will implement fuel reduction activities such as thinning and tree removal to improve the protection communities from fire.	Planned

TABLE 3.21-1 (CONTINUED)
ROUND MOUNTAIN 500 KV DYNAMIC REACTIVE SUPPORT PROJECT CUMULATIVE PROJECTS LIST

#	Project Name	Location	Approximate Distance	Description	Status
8	Bassett Diversion Fish Passage Project	Old Cow Creek, Shasta County	2 miles from Project Site	This project consisted of re-constructing an existing side channel riffle to allow fish passage around the south side of the Bassett Ditch diversion dam.	Completed
City of Redding					
9	Airport Road Distribution Facility Project	5497 and 5525 Airport Road	2 miles from the Redding Service Center	The purpose of the project is to develop a 250,955 square foot warehouse distribution facility on 38.78 acres of property zoned for Industrial uses.	Planned
Pacific Gas & Electric					
10	Modify 500kV Series Caps 1&2	Table Mountain Substation	Co-located with Table Mountain portion of the Project.	The purpose of this project is to make various modifications the existing Series Cap 1&2.	Planned Construction is planned from December 2022 to April 2023
11	Replace D Bank-2	Table Mountain Substation	Co-located with Table Mountain portion of the Project.	The purpose of this project is to remove and replace transformer foundation and associated bank structures.	Planned Construction is planned to start mid-2023.
12	Round Mountain 500kV DRS EGI – Fern Road	Redding Service Center	Co-located with Table Mountain portion of the Project.	The purpose of this project is to install various structures such as a control building, new MW tower and ground building, MW dish, and a monopole structure.	Planned Construction is planned from October 2023 to April 2024.
13	Modify 500kV Series CAPs 3&4	Round Mountain Substation	Co-located with the Round Mountain Substation portion of the Project.	The purpose of this project is to modify existing Series Cap 3&4 and replace existing bypass breakers with faster breakers.	Planned Construction is planned from October 2023 to January 2024.
14	EM REPL 500 KV STA SVC	Round Mountain Substation	Co-located with the Round Mountain Substation portion of the Project	The purpose of this project is to remove an existing load center structure and install a new load center and conduits.	Planned Construction is planned to start early-2023
15	EM REPL REG 1	Round Mountain Substation	Co-located with the Round Mountain Substation portion of the Project	The purpose of this project is to remove an existing load center structure and install a new load center and conduits.	Planned Construction is planned to start late-2022.

When considered in the cumulative context (in combination with the effects of these projects), the Project's contribution to cumulative effects would introduce a moderate to high level of visual change to the study area. In conjunction with the low to moderate visual sensitivity of the landscape, the Project's contribution to cumulative visual impacts would be less than significant.

Agricultural and Forestry

As discussed in Section 3.2, *Agriculture and Forestry*, the Project would result in no impact with respect to conflicts or conversion of forest land or timberland and no impact with respect to Williamson Act contracts. Therefore, the Project could not cause or contribute to any potential significant cumulative impact on these resource areas. The potential for the Project or an alternative to cause or contribute to a potential significant cumulative impact with respect to the remaining agricultural resources considerations are evaluated below.

The geographic context for potential cumulative impacts related to other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use in Shasta County.

The term "cumulative impacts" refers to two or more individual effects, which, when considered together, are considerable or that compound or increase other environmental impacts. The cumulative impact from multiple projects is the change in the physical environment that results from the incremental impact of the proposed project when added to other closely related past, present, and reasonably foreseeable probable future projects. Various projects planned by PG&E within the Fern Road Substation property, immediately adjacent to the Project site, as well as adjacent to the Project site, have the potential to cause impacts that could combine with those of the Project to result in an adverse cumulative impact.

No areas within any of the Project sites are designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. Accordingly, the PG&E Interconnection Facilities would not contribute any direct or indirect incremental impact to cumulative conditions relating to the potential conversion of Farmland. Because the Project would be sited to minimize the loss of farmland and consolidate non-agricultural uses, the Project's contribution to the overall cumulative impact would not be cumulatively considerable.

Air Quality

The geographic scope considered for cumulative impacts to air quality is the Sacramento Valley Air Basin (SVAB). As discussed in Section 3.3, *Air Quality*, the AQMD's application of thresholds of significance for criteria pollutants is a relevant way to determine whether a project's individual emissions would have a cumulatively significant impact on air quality. Therefore, if a project would exceed the identified significance thresholds, its emissions would be cumulatively considerable, and if a project would not exceed the significance thresholds, its emissions would not be cumulatively considerable. Project-related construction activities would not exceed the identified significance thresholds. Therefore, construction of the Project would not result in a cumulatively considerable net increase in regional emissions of criteria pollutants and precursors and the associated cumulative impact would be less than significant.

As described in Section 3.3, the nearest sensitive receptors to the Fern Road Substation Facilities sites and the PG&E interconnection facilities and distribution modifications sites are residences that would be between 100 and 1,000 feet from the nearest Project construction limit boundary. The health risk impacts associated with the Project's construction TAC emissions at the closest receptors were found to be less than significant with mitigation; however, health risk impacts are highly local, and none of the cumulative projects identified in Table 3.21-1 are in the vicinity of the Fern Road Substation Facilities sites or the PG&E interconnection facilities and distribution modifications sites. Regarding the other PG&E Facilities, construction activities associated with the PG&E substation modifications at the Round Mountain Substation, Table Mountain Substation, Cascade Substation, and Redding Service Center would be substantially reduced in scope, as would the PG&E cumulative projects identified in Table 3.21-1 at Table Mountain Substation, Round Mountain Substation, and the Redding Service Center. Therefore, the health risk from the short-term diesel particulate matter (DPM) emissions that would be associated with construction of those facilities would not be cumulatively considerable, and the cumulative health risk impact would be less than significant.

Construction of the Project would cause a less-than-significant impact related to the generation of odors from diesel equipment emissions because construction activities would be intermittent and spatially dispersed, and associated odors would dissipate quickly and would not be noticeable at the nearest sensitive receptor locations. There is no existing adverse cumulative condition related to odors to which the Project could contribute. Projects in the cumulative scenario are not expected to cause diesel-related odors that would substantially intermingle with those of the Project and thereby cause a significant cumulative effect. The cumulative impact would be less than significant.

Long-term operation and maintenance of the Project would not cause emissions that would exceed the operational significance thresholds (see Section 3.3.4). Therefore, the Project's contribution to the cumulative impact would not be cumulatively considerable and the cumulative impact would be less than significant.

Biological Resources

Cumulative effects are caused by the incremental impact of a proposed project combined with the impacts of other closely related past, present, and reasonably foreseeable probable future projects. The ongoing impacts of past projects generally are reflected in the existing environmental setting. In this context, the cumulative effects of the Project in combination with the incremental impacts of present and reasonably foreseeable probable future projects in the cumulative scenario are analyzed below.

As stated above, implementation of the Project would result in no impact to riparian habitat or other sensitive natural communities; local ordinances; or HCPs and NCCPs; and less than significant impacts to protected wetlands. Accordingly, the Project would not cause or contribute to a significant cumulative impact relating to these elements.

The geographic scope of this cumulative analysis includes the regional population or corridor extent for the species or community affected, or the extent of the local watershed, in the case of

impacts to aquatic resources. The list of projects considered for cumulative analysis is provided in Table 3.21-1 and depicted on Figure 3.21-1. The temporal scope of cumulative analysis is the life of the proposed facility and associated infrastructure.

Special-Status Species

Project impacts on special-status plants and wildlife after the implementation of APMs would be less than significant. Identified cumulative projects include PG&E projects within the existing substations, which does not represent foraging habitat for any special-status species, and others identified in Table 3.21-1, which may result in direct impacts to special-status species as well as the removal of potential special-status species movement or foraging habitat. Because so much of the lands surrounding the cumulative projects are already developed, potential impacts on special-status species transit and foraging would be less-than-significant. Therefore, the contribution of the Project to impacts on this species would not be cumulatively considerable.

Project impacts to common raptors and other nesting birds after implementation of APMs would be less than significant. APMs would protect any common raptor and other bird nests within the study area from disturbance during construction. The identified projects in Table 3.21-1 also have the potential to impact suitable nesting and foraging habitat for raptors. However, the total area of these existing and proposed cumulative projects is less than 1,500 acres. The Project itself is approximately 40 acres. Therefore, the Project, in combination with all identified cumulative projects, would not result in a cumulatively considerable impact to any raptors.

Impacts on common and special-status migratory birds for the duration of transmission line operation would be less than significant for the Project. Ultimately, cross-facility and cross-taxon meta-analyses would be necessary to fully understand the cumulative impacts of energy infrastructure on birds (Smith and Dwyer 2016). However, because the projects considered in this analysis are distant from perennial water sources, they are expected to attract little flyover traffic from migratory birds, and the level of avian fatalities that would occur at these sites is unknown. In addition, compliance with required mitigation would ensure that this Project adheres to current APLIC design standards for overhead powerlines and associated structures (including use of avian-safe line designs, and installation of devices to make powerlines visible to birds), which would minimize the potential for avian injury and mortality from collisions and electrocution with such facilities. Because of these factors, the incremental effects of the Project on overall avian fatality from collision risk in the region would not be cumulatively considerable.

Wildlife Corridors

This Project would have less-than-significant impacts on wildlife movement due to its small size and location. The site is not an important wildlife movement corridor due to the surrounding areas being heavily used for agriculture and solar development. There is no existing significant cumulative impact on wildlife movement, and the incremental impacts of the Project, in combination with other present and reasonably foreseeable future projects in the cumulative scenario, would not cause one.

Cultural Resources

The geographic scope for cumulative effects on cultural resources includes the immediate vicinity of locations where the Project could cause disturbance to historical resources, unique archaeological resources, and/or human remains. As the Project would not have an impact on historical resources of the built environment there would be no cumulative impact. There are no known archaeological resources qualifying as historical resources or unique archaeological resources in the study area and there would be no cumulative impact on known resources. Similar to the Project, cumulative projects in the vicinity could have a significant impact on previously undiscovered archaeological resources, including human remains interred outside of formal cemeteries, during ground-disturbing activities. The potential impacts of the Project when considered together with similar impacts from other probable future projects in the vicinity could result in a significant cumulative impact on buried archaeological resources or human remains. However, implementation of APMs and BMPs, which would require a worker environmental awareness training for cultural resources and that work halt in the vicinity of a find until it is evaluated, and in the case of human remains the County Coroner is contacted. In addition, cumulative projects undergoing CEQA review would have similar types of training and inadvertent discovery measures. Therefore, with implementation of the APMs and BMPs, the Project's contribution to cumulative impacts would not be considerable, and the impact would be less than significant.

Energy

As discussed in Section 3.6, *Energy*, there would be no impact with respect to conflicts with, or obstruction of, a state or local plan for renewable energy or energy efficiency. Therefore, the Project would not cause or contribute to any potential significant cumulative impact in this regard. The potential for the Project to cause or contribute to a potential significant cumulative impact with respect to the remaining energy-related consideration is evaluated below.

The geographic context for potential cumulative impacts related to electricity use is within PG&E's service area and for equipment and vehicle fuel use is within the Project's construction equipment delivery and workers' average travel radius since these are the areas within which energy resources would be supplied for the Project. The Project would use energy resources during initial construction, operation and maintenance, and decommissioning; therefore, it could contribute to potential cumulative impacts during any of these phases as well.

Regarding electricity, there is no existing significant adverse condition that would be worsened or intensified by the Project. To the contrary, the Project would allow for more efficient transmission and use of energy that would be generated within the PG&E system and would contribute to electrical grid reliability. No significant adverse cumulative effect associated with wasteful, inefficient, or unnecessary consumption would result relating to electricity use; instead, a beneficial cumulative impact related to efficient transmission of electricity and grid stability would result.

Similarly, regarding the efficiency of fuel use, there is no existing significant adverse condition (such as a shortage) that would be worsened or intensified by the Project. The past, present, and reasonably foreseeable future projects described in Section 3.21 (Figure 3.21-1) in close proximity of the Project site could require gasoline or diesel but would not combine with the fuel

demands of the Project to cause a significant adverse cumulative impact relating to the wasteful, inefficient, or unnecessary consumption or use of fuel. In the event of a future shortage, higher prices at the pump would curtail unnecessary trips that could be termed "wasteful" and would moderate choices regarding vehicles, equipment, and fuel efficiency. Under these conditions, the Project's less-than-significant impact relating to wasteful, inefficient, or unnecessary consumption or use of fuel would not be cumulatively considerable.

Geology and Soils

Significant cumulative impacts related to geology, soils, and paleontological resources could occur if the incremental impacts of the Project combined with the incremental impacts of one or more of the cumulative projects identified in Table 3.21-1. The locations of these projects are shown there in Figure 3.21-1.

As discussed in Section 3.7, the Project would have no impact with respect to fault rupture, landslides, and septic tanks and alternate wastewater disposal systems. Accordingly, the Project could not contribute to cumulative impacts related to these topics and are not discussed further.

The geographic area affected by the Project and its potential to contribute to cumulative impacts varies based on the environmental resource under consideration. The geographic scope of analysis for cumulative geologic impacts encompasses and is limited to the Project site and its immediately adjacent area. This is because impacts relative to geologic hazards are generally site-specific. For example, the effect of erosion would tend to be limited to the localized area of a project and could only be cumulative if erosion occurred as the result of two or more adjacent projects that spatially overlapped.

The timeframe during which Project could contribute to cumulative geologic hazards includes the construction and operations phases. The temporal scope of construction-related cumulative effects is the 22-month construction period. For the Project, the operations phase is permanent. However, similar to the geographic limitations discussed above, it should be noted that impacts relative to geologic hazards are generally time-specific. Geologic hazards could only be cumulative if two or more geologic hazards occurred at the same time, while also overlapping at the same location.

Significant cumulative impacts related to geologic hazards could occur if the incremental impacts of the Project combined with the incremental impacts of one or more of the cumulative projects to substantially increase risk that people or the environment would be exposed to geologic hazards. None of the cumulative projects are adjacent to the Project.

If the projects are constructed at the same time, the erosion effects could be cumulatively significant, if stormwater runoff from the sites were not controlled. However, the state Construction General Permit would require each project to prepare and implement a SWPPP. The SWPPPs would describe BMPs to control runoff and prevent erosion for each project. Through compliance with this requirement, the potential for erosion impacts would be reduced. The Construction General Permit has been developed to address cumulative conditions arising from construction throughout the state, and is intended to maintain cumulative effects of projects

subject to this requirement below levels that would be considered significant. For example, two adjacent construction sites would be required to implement BMPs to reduce and control the release of sediment and/or other pollutants in any runoff leaving their respective sites. The runoff water from both sites would be required to achieve the same action levels, measured as a maximum amount of sediment or pollutant allowed per unit volume of runoff water. Thus, even if the runoff waters were to combine after leaving the sites, the sediments and/or pollutants in the combined runoff would still be at concentrations (amount of sediment or pollutants per volume of runoff water) below action levels and would not be cumulatively considerable (less than significant).

Seismically induced ground shaking, liquefaction and lateral spreading, and expansive or corrosive soils could cause structural damage. State and local building regulations and standards, described in the Section 3.7.2, *Regulatory Setting,* have been established to address and reduce the potential for such impacts to occur. The Project and cumulative projects would be required to comply with applicable provisions of these laws and regulations. Through compliance with these requirements, the potential for impacts would remain less than significant. As explained in the Regulatory Setting, the purpose of the CBC and local ordinances is to regulate and control the design, construction, quality of materials, use/occupancy, location, and maintenance of all buildings and structures within its jurisdiction; by design, it is intended to reduce the cumulative risks from buildings and structures. Therefore, based on compliance with these requirements, the incremental impacts of the Project combined with impacts of other projects in the area would not cause a significant cumulative impact related to seismically induced ground shaking, liquefaction and lateral spreading, or expansive or corrosive soils and the Project's contribution to cumulative effects would not be cumulatively considerable and this impact would be less than significant.

Relative to erosion, it is assumed that cumulative projects would also include design measures to ensure that runoff is controlled to prevent erosion. Based on compliance with regulatory requirements to ensure appropriate design, the incremental impacts of the cumulative projects in the area would not cause a significant cumulative impact related to erosion and the Project's contribution to cumulative effects would not be cumulatively considerable and this impact would be less than significant.

Greenhouse Gas Emissions

The California Air Pollution Control Officers Association considers GHG impacts to be exclusively cumulative impacts (CAPCOA 2008); therefore, assessment of significance is based on a determination of whether the GHG emissions from a project represent a cumulatively considerable contribution to the global atmosphere. Although the geographic scope of cumulative impacts related to GHG emissions is global, this analysis focuses on impacts associated with potential conflicts with California's reduction goals set forth in SB 32 and the Project's direct and/or indirect generation of GHG emissions. The Project would result in less-than-significant emissions of GHGs and would not conflict with the state's GHG reduction goals. Therefore, the Project-specific incremental impact associated with GHG emissions would not contribute to a significant cumulative impact, and the incremental impact would not be cumulatively considerable.

Hazards and Hazardous Materials

This section presents an analysis of the cumulative effects of the Project in combination with other past, present, and reasonably foreseeable future projects that could cause cumulatively considerable impacts. Significant cumulative impacts related to hazards and hazardous materials could occur if the incremental impacts of the Project combined with the incremental impacts of one or more of the cumulative projects identified in Table 3.21-1. The locations of the listed projects are shown there in Figure 3.21-1.

As previously discussed, the Project would have no impact with respect to being within 0.25 miles of a school or within 2 miles of an airport. Accordingly, the Project could not contribute to cumulative impacts related to these topics and are not discussed further.

The geographic area affected by the Project and its potential to contribute to cumulative impacts varies based on the environmental resource under consideration. The geographic scope of analysis for cumulative hazardous materials impacts encompasses and is limited to the Project site and its immediately adjacent area. This is because impacts relative to hazardous materials are generally site-specific and depend on the nature and extent of the hazardous materials release, and existing and future soil and groundwater conditions. For example, hazardous materials incidents tend to be limited to a smaller and more localized area surrounding the immediate spill location and extent of the release and could only be cumulative if two or more hazardous materials releases spatially overlapped.

The timeframe during which the Project could contribute to cumulative hazards and hazardous materials effects includes the construction and operations phases. The temporal scope of construction-related cumulative effects is the 22-month construction period. For the Project, the operations phase is permanent. However, similar to the geographic limitations discussed above, it should be noted that impacts relative to hazardous materials are generally time-specific. Hazardous materials events could only be cumulative if two or more hazardous materials releases occurred at the same time, as well as overlapping at the same location.

Significant cumulative impacts related to hazards and hazardous materials could occur if the incremental impacts of the Project combined with the incremental impacts of one or more of the cumulative projects discussed above to substantially increase risk that people or the environment would be exposed to hazardous materials. As listed and shown, the cumulative projects under consideration are not adjacent to the Project.

The construction activities for all these cumulative projects would be subject to the same regulatory requirements discussed for the Project for compliance with existing hazardous materials regulations, including spill response. Cumulative projects that have spills of hazardous materials would be required to remediate their respective sites to the same established regulatory standards as the Project. This would be the case regardless of the number, frequency, or size of the release(s). The responsible party associated with each spill would be required to remediate site conditions to the same established regulatory standards. The residual less-than-significant effects of the Project that would remain after mitigation would not combine with the potential residual effects of cumulative projects to cause a potential significant cumulative impact because

residual impacts would be highly site-specific and would be below regulatory standards. Accordingly, no significant cumulative impact with respect to the use of hazardous materials would result. For the above reasons, the Project would not cause or contribute to a cumulatively considerable impact with respect to the use of hazardous materials, and impacts would be less than significant.

Construction for two or more projects that occur at the same time and use the same roads could cause interference with emergency access. As discussed in Section 3.9.3, *Applicant Proposed Measures and PG&E Construction Measures*, the Project would be required to prepare and implement a Traffic Control Plan, which would manage the movement of vehicles such that emergency access would be maintained. Local regulations also require traffic control plans as part of grading and construction permits. Cumulative projects would be required to prepare and implement similar traffic control plans to maintain traffic flow and prevent interference with emergency access. With the implementation of traffic control/traffic management plans, the Project would not cause or contribute to a cumulatively significant impact with respect to emergency access, and impacts would be less than significant.

Significant cumulative impacts related to operational hazards could occur if the incremental impacts of the Project combined with those of one or more of the above-listed projects to cause a substantial increase in risk that people or the environment would be exposed to hazardous materials used or encountered during the operations phase.

Once constructed, the project would use chemicals typical for electrical substation facilities (e.g., mineral oil for the transformers). The chemicals would be used in compliance with manufacturer's specifications and contained within containers designed to hold the chemicals. For the cumulative projects, once constructed, none of the cumulative projects would use chemicals. Therefore, the combined effects of the Project and cumulative projects would not be cumulatively considerable result in a significant cumulative impact, and impacts would be less than significant.

Hydrology and Water Quality

This section presents an analysis of the cumulative effects of the Project in combination with other past, present, and reasonably foreseeable future projects that could cause cumulatively considerable impacts. Significant cumulative impacts related to hydrology and water quality could occur if the incremental impacts of the Project combined with the incremental impacts of one or more of the cumulative projects identified in Table 3.21. The locations of the listed projects are shown there in Figure 3.21-1.

The geographic scope of analysis of cumulative effects includes the Project site, affected waterways, and surrounding watersheds and aquifers potentially affected by site clearing, construction, O&M, and decommissioning of the Project. The cumulative development for water quality includes all development within the Basin Plan; the cumulative context for groundwater is the Enterprise Subbasin boundary. Consideration of the cumulative scenario includes effects of past projects within and surrounding the Project site, as well as current and reasonably foreseeable activities that, similar to the Project, have an influence on land contours and hydrology across the landscape. This analysis considers the incremental effects of the Project to

determine whether, when added to the effects of other projects in the cumulative scenario, the Project would cause or contribute to significant cumulative effects.

The temporal scope of construction-related cumulative effects is the 22-month construction period. The temporal scope for cumulative O&M-related activities is assumed to be permanent or ongoing.

The Project's incremental impacts would remain less than significant through implementation of various measures to protect waterways and water quality involving compliance with regional water quality standards or waste discharge requirements, such as those in effect with the Construction General Permit and associated best management practices. Therefore, when considered in combination with the effects of other projects, the Project's incremental contribution to potential significant cumulative effect would not be cumulatively considerable and impacts would be less than significant.

In the absence of requirements governing water quality, the Project, in combination with other past, present, and reasonably foreseeable future development in the Basin Plan area watersheds, would continue to contribute runoff and discharges that contain constituents from agriculture, industrial, and urban land uses. Likewise, activities could continue to affect groundwater quality in the Enterprise Subbasin, which would be considered a potentially significant cumulative impact. However, recognizing the potential for ongoing impacts on water quality in the Basin Plan area, inclusive of the subbasin area, regular updates to the Basin Plan and associated water quality regulations are implemented. Such regulations, respective of state anti-backsliding requirements, would presumably be as effective as or more effective than current water quality requirements (such as those listed in Section 3.10.2, *Regulatory Setting*).

As described in Section 3.10*, Hydrology and Water Quality*, development under the Project would include construction, operation, and maintenance activities that could result in the degradation of surface water and groundwater quality. The Project, as with other projects in the cumulative scenario, would be required to comply with the current and future Basin Plan, applicable NPDES permit requirements and ordinances, and other water quality regulations. These regulatory requirements and the design of the Project would reduce the incremental contribution to the cumulative impact to a less-than-considerable level.

The Project, in combination with other past, present, and future development in the Enterprise Subbasin area, may require the use of groundwater for construction. Groundwater pumping would be regulated by the effective GSP in the groundwater basin that water utilized for the project is sourced from. Given that water is sourced from both surface and groundwater in Redding and Red Bluff, it is unlikely that the Project would be entirely dependent on groundwater resources for its construction. Even if groundwater were to be the sole source utilized, the effective GSP contains a programmatic cumulative water use scenario that includes a consideration of long-term management for sustainability of the subbasin and provides checks and balances to prevent overreliance on groundwater. Because the Project would not deplete groundwater or require long-term groundwater sources, the Project's impact, when considered in combination with impacts

from other projects, would not be cumulatively considerable and the cumulative impact would be less than significant.

Noise and Vibration

Noise is a local impact. The geographic scope considered for potential cumulative impacts related to noise is the area within 0.5 miles of the Project site because sounds naturally attenuate with distance and topography. The temporal scope for cumulative noise impacts is the construction, operation/maintenance, and decommissioning phases of the Project. Given the absence of sensitive receptors in the vicinity of the Project site, and the long distance separating the Project site from the nearest residential receptors, noise from the Project during construction or operation would not cumulatively combine with any other projects proposed in the area to result in significant noise impacts. The Project's contribution to any cumulative noise increase at the nearest residential receptors would not be considerable, and the associated cumulative impact would be less than significant.

Transportation

Cumulative impacts related to transportation and circulation resulting from the Project would be limited to construction impacts. Cumulative construction in the Project vicinity may be anticipated to include regional roadway projects, which in combination with construction traffic from the Project, could have a temporary significant effect on Project area roadways. Projects in the vicinity of the Project as described in Table 3.21-1 could be anticipated to contribute to substantial delays at roadway intersections, segments of SR 44, and at freeway interchanges.

Implementation of the proposed traffic control plan, pursuant to APM TRA-1 (see Table 2-9 in Chapter 2), would implement measures to control construction traffic–related impacts associated with the Project, so as to minimize traffic congestion and potential vehicular conflicts and maintain traffic safety, in accordance with County policies. To reduce construction worker vehicle trips, APM GHG-1 includes a provision to encourage construction workers to utilize suitable park-and-ride facilities and carpool to the Project site. The implementation of these measures as part of the Project would be anticipated to limit the Project's contribution to temporary roadway congestion and maintain traffic safety, in compliance with local, state, and federal policies and regulations related to transportation. With the implementation of APMs TRA-1 and GHG-1, construction-related cumulative transportation impacts would be considered less than cumulatively considerable and would not be anticipated to conflict with relevant federal, state, and local transportation policies, plans, and standards.

VMT impacts are considered and managed on a regional level. Regional VMT thresholds are identified based on regional VMT goals. Thus, VMT impacts from individual projects that are determined to be less than significant, based on regional VMT thresholds, are considered to have a less than cumulatively considerable impact. The Project is anticipated to generate up to 60 automobile trips per day, which is fewer than 110 automobile vehicle trips and is considered to have a less-than-significant VMT impact under the Governor's Office of Planning and Research Guidance. Therefore, the Project's cumulative impact under this criterion would be less than significant.

Tribal Cultural Resources

The geographic scope for cumulative effects on tribal cultural resources includes the immediate vicinity of locations where the Project could cause disturbance to tribal cultural resources. Similar to the Project, cumulative projects in the vicinity could have a significant impact on previously undiscovered archaeological resources and human remains, which could be considered tribal cultural resources, during ground-disturbing activities. The potential impacts of the Project when considered together with similar impacts from other probable future projects in the vicinity could result in a significant cumulative impact on tribal cultural resources. However, APMs and BMPs would be implemented, which require a worker environmental awareness training for cultural resources; that work halt in the vicinity of a find until it is evaluated; and in the case of human remains, that the County Coroner be contacted. In addition, cumulative projects undergoing CEQA review would have similar types of training programs and inadvertent discovery measures. Therefore, with implementation of the APMs and BMPs, the Project's contribution to cumulative impacts would not be considerable, and the impact would be less than significant.

Utilities and Service Systems

The Project would have a less-than-significant impact related to utilities and service systems, associated with the construction of water, wastewater, stormwater, and telecommunication facilities primarily internal to the Project site. This analysis considers the contribution of impacts on utilities and service systems that could be generated by the Project, while viewed in combination with other past, recent, and reasonably foreseeable future projects.

In compliance with the Integrated Waste Management Act, it is anticipated that the Avenal Landfill would have at least 15 years of remaining capacity at the time of decommissioning and reclamation. and that waste could be disposed of within the limits of available permitted capacity. The Project would be subject to the CalGreen Code requirements in effect at the time of decommissioning, which would ensure that an appropriate percentage of debris would be diverted from the landfill. The same requirements for waste diversion and recycling that would apply to the Project would also apply to other cumulative projects. For this reason, the cumulative scenario for solid waste is not expected to exceed the permitted capacity of available landfills and the Project's incremental contribution to capacity constraints would not be cumulatively significant.

The Project's anticipated construction water demand of 900,000 gallons would be temporary and would not extend beyond the 22-month duration of construction. This demand could be met through local supplies, sourced from either surface, groundwater, or recycled water if available. Water demand for other projects would be considered by the supplier(s) to ensure that adequate resources are available during normal, dry, and multiple dry years. Because the City of Redding and Red Bluff manage diverse water supply portfolios in consideration of long-term use scenarios, and the Project's demand would not be ongoing, the incremental use of water posed by the Project would not result in an impact that is cumulatively considerable. The cumulative impact would be less than significant.

Wildfire

As discussed in Section 3.20, *Wildfire*, there would be no impact with respect to the potential for the Project to change or alter drainage patterns or result in slope instability from post-fire

conditions. Therefore, the Project would not contribute to any cumulative impact to post-fire related drainage changes or erosion impacts. The potential for the Project to cause or contribute to a potential significant cumulative impact with respect to the remaining wildfire considerations is evaluated below.

The geographic scope for potential cumulative impacts to wildfire encompasses the Project site and the surrounding terrain and conditions that contribute to the fire environment and nearby evacuation routes. Cumulative projects surrounding the Project site that could contribute to wildfire risk consist of PG&E energy infrastructure projects and Caltrans projects (identified in Table 3.21-1). Construction of the Caltrans cumulative projects would involve an additional ignition source due to vehicle and equipment use and could result in temporary traffic changes and road closures. However, due to the Caltrans cumulative projects' locations, no road closures or traffic route changes would interfere or limit any emergency plans or evacuation routes near the proposed Fern Road Substation. As described in Table 3.21-1, there are multiple fire fuel reduction projects proposed by CAL FIRE to address existing fire risk in the region, which would beneficially reduce potential cumulative impacts with respect to wildfire risk. Although the Project could incrementally increase the potential for ignition sources in the area, given the topography and sparse vegetation in the immediate vicinity of the Fern Road Substation, and the APMs and BMPs proposed by the Applicant and PG&E to address existing wildfire risk, the impact of an increase in ignition sources of the Project in combination with the incremental impacts of other projects would be less than cumulatively considerable. There is no existing significant cumulative impact, and the Project's incremental, less-than-significant contributions when combined with the incremental impacts of other projects in the cumulative scenario would not cause one. Cumulative impacts would be less than significant.

c) Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly: *Less than Significant.*

The Project would not expose sensitive receptors to substantial pollutant concentrations, nor would it generate other emissions (such as objectionable odors) adversely affecting a substantial number of people. As discussed in Section 3.3, *Air Quality*, because the maximum daily emissions would be below the screening threshold for an ambient air quality analysis, the Project would not contribute to local exceedances of the national or California air quality standards. As mentioned, these standards are established at health protective levels and include an adequate margin of safety. Therefore, the Project construction and operational emissions would not be anticipated to result in an adverse health effect with respect to criteria air pollutants. Moreover, the Project is not proposed in a populated area. There are no sensitive receptors near the Project. The nearest sensitive receptor is approximately 850 feet from the Project site. Therefore, the Project's construction or operational activities do not pose a direct or indirect health risk to area receptors.

As described in Section 3.9, *Hazards and Hazardous Materials*, specific measures proposed by the Applicant and by PG&E have been incorporated into the Project to ensure that the Project would comply with regulatory requirements with respect to hazardous materials management, storage, transport, and spill containment and countermeasures control, among other APMs and

BMPs (proposed by the Applicant and PG&E, respectively) that would be implemented to reduce effects, that could otherwise, directly or indirectly, affect humans beings.

Similarly, as discussed in Section 3.10, *Hydrology and Water Quality*, the Project's incremental impacts would be reduced through implementation of various measures (as noted in the section) to protect surface and groundwater and comply with water quality standards. The Project (along with other construction projects that disturb one or more acres of soil) would be subject to the requirements of the construction general permit and would implement SWPPP(s) including specific measures to control erosion and limit impacts to stormwater and receiving waters. Therefore, when considered in combination with the effects of other projects, the Project's incremental contribution would be limited and would not be cumulatively considerable.

As described in Section 3.17, *Transportation*, a traffic control plan (per APM TRA-1) would be implemented as part of the Project, which would minimize traffic congestion and potential vehicular conflicts and to maintain traffic safety during construction. With implementation of such measures, the Project's potential impacts pertaining to public safety and emergency access would be reduced. Therefore, the Project would not cause or result in a significant adverse effect to human beings either directly or indirectly. The impact would be less than significant.

3.21.2 References

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CHAPTER 4
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CHAPTER 5

Mitigation Monitoring, Compliance, and Reporting Program

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STATE OF CALIFORNIA Gavin Newsom, Governor

PUBLIC UTILITIES COMMISSION

505 VAN NESS AVENUE
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MITIGATION MONITORING, COMPLIANCE, AND REPORTING PROGRAM

LS Power Grid California, LLC – Round Mountain 500 KV Dynamic Reactive Support Project (APPLICATION NO. A.22-04-004)

Introduction

This document describes the mitigation monitoring, compliance, and reporting program (MMCRP) for ensuring the effective implementation of the mitigation measures required for the California Public Utilities Commission (CPUC) approval of the LS Power Grid California, LLC's (LSPGC's) application to construct, operate and maintain the Round Mountain 500 KV Dynamic Reactive Support Project (Project). The MMCRP includes all measures proposed by LSPGC also referred to as Applicant Proposed Measures (APMs), and all mitigation measures identified by the CPUC to reduce potentially significant impacts to less-than-significant levels. All APMs and mitigation measures are presented in **Table 5-1** provided at the end of this MMCRP.

If the Project is approved by the CPUC, this MMCRP would serve as a self-contained general reference for the Mitigation Monitoring, Compliance, and Reporting Program adopted by the CPUC for the Project. If and when the Project is approved by the Commission, the CPUC will compile the Final Plan from the Mitigation Monitoring Program in the Final Mitigated Negative Declaration (MND), as adopted.

LS Power Grid California, LLC – MMCRP Authority

The California Public Utilities Code in numerous places confers authority upon the CPUC to regulate the terms of service and the safety, practices, and equipment of utilities subject to its jurisdiction. It is the standard practice of the CPUC, pursuant to its statutory responsibility to protect the environment, to require that mitigation measures stipulated as conditions of approval are implemented properly, monitored, and reported on. In 1989, this requirement was codified statewide as Section 21081.6 of the Public Resources Code. Section 21081.6 requires a public agency to adopt a reporting or monitoring program when it adopts a mitigated negative declaration for a project that could have potentially significant environmental effects. California Environmental Quality Act (CEQA) Guidelines Section 15097 was added in 1999 to further clarify agency requirements for mitigation monitoring and reporting.

The purpose of a MMCRP is to ensure that measures adopted to mitigate or avoid significant impacts of a project are implemented. The CPUC views the MMCRP as a working guide to facilitate not only the implementation of mitigation measures by the project proponent, but also the monitoring, compliance, and reporting activities of the CPUC and any monitors it may designate.

The CPUC will address its responsibility under Public Resources Code Section 21081.6 when it takes action on LSPGC's application. If the CPUC approves the application, it also will adopt a MMCRP that includes the mitigation measures ultimately made conditions of approval by the CPUC. Because the CPUC must decide whether or not to approve the LSPGC application and because the application may cause either direct or reasonably foreseeable indirect effects on the environment, CEQA requires the CPUC to consider the potential environmental impacts that could occur as the result of its decision and to consider mitigation for any identified significant environmental impacts.

If the CPUC approves LSPGC's application to construct and operate the Fern Road Substation, LSPGC would be responsible for implementation of all the Applicant Proposed Measures (APM) and all mitigation measures governing the construction, operation, and maintenance of the Project. The PG&E Interconnection facilities are analyzed in the IS/MND because, combined with the Fern Road Substation Facility, they constitute the Project being evaluated under CEQA. However, the PG&E Interconnection Facilities are not part of this application proceeding and will not be authorized under this specific CPUC's decision. Though other federal, State, and local agencies would have permit and approval authority over some aspects of the Project, the CPUC would continue to act as the lead agency for monitoring compliance with all mitigation measures required by the adopted IS/MND. All approvals and permits obtained by LSPGC would be submitted to the CPUC prior to commencing the activity for which the permits and approvals were obtained.

In accordance with CEQA, the CPUC reviewed the impacts that would result from approval of the application. The activities considered include the construction and operation the Fern Road Substation which would consist of a +/- 529[1] million volt-amperes, reactive (MVAR) dynamic reactive device to be installed in a minimum of two, equally sized Static Synchronous Compensator[2] (STATCOM) units that would be independently connected to the Pacific Gas and Electric Company's (PG&E) regional electric transmission system via the existing Round Mountain –Table Mountain #1 and #2 500 kV transmission lines that are located adjacent to the Fern Road Substation site.

The CPUC review concluded that implementation of the Project would not result in any significant unmitigable impacts. All potential impacts would be mitigated to less-than-significant levels or would be less than significant. LSPGC has agreed to incorporate all the CPUC-recommended mitigation measures into the Project. The CPUC has included the stipulated mitigation measures as conditions of approval of the application and has circulated an IS/proposed MND for public review.

1 The designation "±" indicates both leading (capacitive) and lagging (inductive) reactive power.

2 A STATCOM device provides or absorbs reactive current to regulate voltage on electricity transmission networks.

Because the CPUC must decide whether or not to approve the LSPGC application and because the application may cause either direct or reasonably foreseeable indirect effects on the environment, CEQA requires the CPUC to consider the potential environmental impacts that could occur as the result of its decisions and to consider mitigation for any identified significant environmental impacts.

The attached IS/MND presents and analyzes potential environmental impacts that would result from construction, operation, and maintenance of the Project, and recommends mitigation measures as appropriate. Based on the IS/MND, approval of the application would have no impact or less than significant impacts in the following areas:

- Aesthetics
- Agriculture and Forestry
- Cultural Resources
- Energy
- Greenhouse Gas Emissions
- Geology and Soils
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Population and Housing
- Public Services
- Recreation
- Transportation
- Tribal and Cultural Resources
- Utilities and Service Systems
- Wildfire

The IS/MND indicates that approval of the application would result in potentially significant impacts in the areas listed below, and so identifies APMs and mitigation measures that have been accepted by LSPGC to reduce the significance below established thresholds.

- Air Quality
- Biological Resources
- Noise

Roles and Responsibilities

As the lead agency under CEQA, the CPUC is required to monitor the Project to ensure that the required mitigation measures and all APMs are implemented, as described in the IS/MND. The CPUC will be responsible for ensuring full compliance with the provisions of this MMCRP and has primary responsibility for implementation of the monitoring program. The purpose of the monitoring program is to document that the mitigation measures and APMs required and relied upon by the CPUC are implemented and that mitigated environmental impacts are reduced to a less-than-significant level. The CPUC has the authority to halt any activity associated with the Project if the activity is determined to be a deviation from the approved Project or the adopted APMs and mitigation measures.

The CPUC may delegate duties and responsibilities for monitoring to other mitigation monitors or consultants as deemed necessary. The CPUC will ensure that the person(s) delegated any duties or responsibilities are qualified to monitor compliance.

The CPUC, along with its mitigation monitor, will ensure that any variance process, which will be designed specifically for the Project, or deviation from the procedures identified under the monitoring program is consistent with CEQA requirements; no Project variance will be approved by the CPUC if it creates new significant environmental impacts. As defined in this MMCRP, a variance should be strictly limited to minor Project changes that will not trigger other permit requirements, that does not increase the severity of an impact or create a new impact, and that clearly and strictly complies with the intent of the mitigation measure. A change to the Project that has the potential for creating significant environmental effects will be evaluated to determine whether supplemental CEQA review is required. Any proposed deviation from the approved Project and adopted mitigation measures, including correction of such deviation, shall be reported immediately to the CPUC and the mitigation monitor assigned to the construction for their review and CPUC approval. In some cases, a variance also may require approval by a CEQA responsible agency.

Enforcement and Responsibility

The CPUC is responsible for enforcing the procedures for monitoring through the environmental monitor. The environmental monitor shall note problems with monitoring, notify appropriate agencies or individuals about any problems, and report the problems to the CPUC. The CPUC has the authority to halt any construction, operation, or maintenance activity associated with the Project if the activity is determined to be a deviation from the approved Project or adopted APMs or mitigation measures. The CPUC may assign its authority to its environmental monitor.

Mitigation Compliance Responsibility

LSPGC is responsible for successfully implementing all of the adopted APMs and mitigation measures in this MMCRP. The MMCRP contains criteria that define whether mitigation is successful. Standards for successful mitigation also are implicit in many mitigation measures that include such requirements as obtaining permits or avoiding a specific impact entirely. Additional mitigation success thresholds will be established by applicable agencies with jurisdiction through the permit process and through the review and approval of specific plans for the implementation of mitigation measures.

LSPGC shall inform the CPUC and its mitigation monitor in writing of any mitigation measures that are not or cannot be successfully implemented. The CPUC in coordination with its mitigation monitor will assess whether alternative mitigation is appropriate and specify to LSPGC the subsequent actions required.

Dispute Resolution Process

The MMCRP is expected to reduce or eliminate potential disputes between CPUC staff and the applicant concerning implementation of the adopted mitigation measures. Issues should first be addressed informally at the field level between the CPUC Environmental Monitoring Team and the LSPGC Environmental Compliance Team with questions that may be raised to the LSPGC

Project Manager or Construction Manager, as necessary. Should the issue not be resolved at the field level, the following procedure will be observed for dispute resolution between CPUC staff and the applicant:

- Disputes and complaints should be directed first to the CPUC's designated Project Manager for resolution. The Project Manager will attempt to resolve the dispute.
- Should this informal process fail, the CPUC Project Manager may initiate enforcement or compliance action to address deviations from the approved Project or MMCRP.

General Monitoring Procedures

Mitigation Monitor

Many of the monitoring procedures will be conducted during the construction phase of the Project. The CPUC and the mitigation monitor are responsible for integrating the mitigation monitoring procedures into the construction process in coordination with LSPGC. To oversee the monitoring procedures and to ensure success, the mitigation monitor assigned to the construction must be on site during that portion of construction that has the potential to create a significant environmental impact or other impact for which mitigation is required. The mitigation monitor is responsible for ensuring that all procedures specified in this MMCRP are followed.

Construction Personnel

A key feature contributing to the success of mitigation monitoring will be obtaining the full cooperation of construction personnel and supervisors. Many of the mitigation measures and APMs require action on the part of the construction supervisors or crews for successful implementation. To ensure success, the following actions, detailed in specific mitigation measures included in this MMCRP, will be taken:

- LSPGC shall require all contractors to comply with the conditions of Project approval, including all applicable APMs and mitigation measures.
- One or more pre-construction meetings will be held to inform all and train construction personnel about the requirements of the MMCRP.
- A written summary of mitigation monitoring procedures will be provided to construction supervisors for all APMs and mitigation measures requiring their attention.

General Reporting Procedures

Site visits and specified monitoring procedures performed by other individuals will be reported to the mitigation monitor assigned to the construction. A monitoring record form will be submitted to the mitigation monitor by the individual conducting the visit or procedure so that details of the visit can be recorded and progress tracked by the mitigation monitor. A checklist will be developed and maintained by the mitigation monitor to track all procedures required for each mitigation measure and to ensure that the timing specified for the procedures is adhered to. The mitigation monitor will note any problems that may occur and take appropriate action to rectify the problems. LSPGC shall provide the CPUC with written quarterly reports of the Project, which shall include progress of

construction, resulting impacts, mitigation implemented, and all other noteworthy elements of the Project. Quarterly reports shall be required as long as mitigation measures are applicable.

Public Access to Records

The public is allowed access to records and reports used to track the monitoring program. Monitoring records and reports will be made available for public inspection by the CPUC on request. The CPUC and LSPGC will develop a filing and tracking system

Condition Effectiveness Review

In order to fulfill its statutory mandates to mitigate or avoid significant effects on the environment and to design a MMCRP to ensure compliance during project implementation (Pub. Res. Code §21081.6):

- The CPUC may conduct a comprehensive review of conditions which are not effectively mitigating impacts at any time it deems appropriate, including as a result of the Dispute Resolution procedure outlined above; and
- If in either review, the CPUC determines that any conditions are not adequately mitigating significant environmental impacts caused by the project, or that recent proven technological advances could provide more effective mitigation, then the CPUC may impose additional reasonable conditions to effectively mitigate these impacts.

These reviews will be conducted in a manner consistent with the CPUC's rules and practices.

Mitigation Monitoring, Compliance, and Reporting Program

The table attached to this MMCRP presents a compilation of the adopted APMs and mitigation measures in the IS/MND. The purpose of the table is to provide a single comprehensive list of impacts, mitigation measures, adopted APMs, monitoring and reporting requirements, and timing. LSPGC proposed APMs to minimize environmental impacts associated with implementation of the Project. In some instances, those APMs have been superseded by CPUC-recommended mitigation measures, as described in the IS/MND. The table below identifies only those APMs that have not been superseded and will be implemented as part of the Project.

TABLE 5-1
REQUIRED MEASURES

Resource Area	Applicant Proposed Measures (APMs) PG&E Avoidance and Impact Minimization Measures (AMMs), Best Management Practices (BMPs) and Mitigation Measures (MMs) Identified in the IS/MND	Implementing Actions	Monitoring/ Reporting Requirements	Timing
Applicant Proposed Measures				
Aesthetics	**APM AES-1**: All proposed Fern Road Substation Facilities sites would be maintained in a clean and orderly state. \Nighttime lighting would be directed away from residential areas and have shields to prevent light spillover effects. Upon completion of project construction, project staging and temporary work areas would be returned to pre-project conditions, including re-grading of the site and re-vegetation or re-paving of disturbed areas to match pre-existing contours and conditions.	Applicant or designated contractors to implement measure as defined.	CPUC mitigation monitor to inspect compliance.	During all phases of the project.
Aesthetics	**APM AES-2:** Structures and equipment at the proposed Fern Road Substation would be a non-reflective finish and neutral gray color.	Applicant or designated contractors to implement measure as defined.	CPUC mitigation monitor to inspect compliance.	During all phases of the project.
Air Quality	**APM AQ-1*:*** The Proposed Project would implement the following Shasta County Standard Mitigation Measures (SMMs:) • **AQ-SMM-1:** Maintain all construction equipment in proper tune according to manufacturer's specifications. • **AQ-SMM-2:** Fuel all off-road and portable diesel-powered equipment with ARB-certified motor vehicle diesel fuel (non-taxed version suitable for use off-road). • **AQ-SMM-3:** Use diesel construction equipment meeting ARB's Tier 2 certified engines or cleaner off-road heavy-duty diesel engines and comply with the State Off-Road Regulation. • **AQ-SMM-4:** Use on-road heavy-duty trucks that meet the ARB's 2007 or cleaner certification standard for on-road heavy-duty diesel engines and comply with the State On-Road Regulation. • **AQ-SMM-5:** All on and off-road diesel equipment shall not idle for more than five minutes. Signs shall be posted in the designated queuing areas and or job sites to remind drivers and operators of the five-minute idling limit. • **AQ-SMM-6:** Diesel idling within 1,000 feet of sensitive receptors is not permitted. • **AQ-SMM-7:** Staging and queuing areas shall not be located within 1,000 feet of sensitive receptors. • **AQ-SMM-8:** Electrify equipment when feasible. • **AQ-SMM-9:** Substitute gasoline-powered in place of diesel-powered equipment, where feasible; and use alternatively fueled construction equipment on-site where feasible, such as compressed natural gas (CNG), liquefied natural gas (LNG), propane or biodiesel.	Applicant or designated contractors to implement measures as defined.	CPUC mitigation monitor to inspect compliance.	During all phases of the project.
Air Quality	**APM-AQ-2:** During construction the following Dust Control Plan measures shall be implemented to control fugitive dust and particulate emissions in compliance with SCAQMD SMMs: • Reduce the amount of the disturbed area where possible;	Applicant or designated contractors to implement measure as defined	CPUC mitigation monitor to inspect compliance.	Prior to and implemented during construction.

TABLE 5-1
REQUIRED MEASURES

Resource Area	Applicant Proposed Measures (APMs) PG&E Avoidance and Impact Minimization Measures (AMMs), Best Management Practices (BMPs) and Mitigation Measures (MMs) Identified in the IS/MND	Implementing Actions	Monitoring/ Reporting Requirements	Timing
	• Use water trucks or sprinkler systems in sufficient quantities to prevent airborne dust from leaving the site. Increased watering frequency would be required whenever wind speeds exceed 15 mph. Reclaimed (non-potable) water should be used whenever possible; • All dirt stock-pile areas should be sprayed daily as needed; • All roadways, driveways, sidewalks, etc. to be paved should be completed as soon as possible, and building pads should be laid as soon as possible after grading unless seeding or soil binders are used; • All relevant fugitive dust mitigation measures contained in APM AQ-2 shall be shown or otherwise noted on grading and building plans.			
Biological Resources	**APM BIO-1:** Speed of vehicles driving along proposed access roads and on the Proposed Project site during construction and operation would be limited to 15 miles per hour. In addition, construction and maintenance employees would be required to stay on established and clearly marked and existing roads and within the limits of disturbance except when not feasible due to physical or safety constraints and would be advised that care should be exercised when commuting to and from the Proposed Project area to reduce accidents and animal road mortality.	Applicant and its contractors to implement measure as defined.	CPUC mitigation monitor to inspect compliance.	During all phases of the project.
Biological Resources	**APM BIO-2:** Conductors and ground wires would be spaced sufficiently apart so that raptors cannot contact two conductors or one conductor and a ground wire to cause electrocution (APLIC, 2006).	Applicant and its contractors to implement measure as defined.	CPUC mitigation monitor to inspect compliance	During all phases of the project.
Biological Resources	**APM BIO-3:** Appropriate methods to reduce the risks of avian collisions would be incorporated into the Project's design (APLIC, 2012).	Applicant and its contractors to implement measure as defined.	CPUC mitigation monitor to inspect compliance	Prior to construction.
Biological Resources	**APM BIO-4:** If feasible, the Applicant would avoid construction during the migratory bird nesting or breeding season (February 15 to August 31). When it is not feasible to avoid construction during the nesting or breeding season, the Applicant would perform a survey in the area where the work is to occur. This survey would be performed to determine the presence or absence of nesting birds. If an active nest (i.e., containing eggs or young) is identified, a suitable construction buffer would be implemented to ensure that the nesting or breeding activities are not substantially adversely affected. If the nesting or breeding activities are being conducted by a federal- or state-listed species, the Applicant would consult with the USFWS and CDFW as necessary. Monitoring of the nest would continue until the birds have fledged or construction is no longer occurring on the site. If an inactive nest is identified, careful nest removal under the supervision and direction of qualified biologists could occur wherever necessary.	Applicant and its contractors to implement measure as defined.	Applicant's qualified biologist to coordinate with wildlife agencies (as applicable) regarding construction buffer and inspect compliance.	Up to 30 days prior to construction and during all phases of construction activities.
Biological Resources	**APM BIO-5:** If a raptor nest is observed during pre-construction surveys, a qualified biologist would determine if it is active. If the nest is determined to be active, the biological monitor would monitor the nest to ensure that nesting or breeding activities are not substantially	Applicant and its contractors to implement measure as defined	Applicant's qualified biologist and biological monitor to coordinate	Up to 30 days prior to construction and during all

TABLE 5-1
REQUIRED MEASURES

Resource Area	Applicant Proposed Measures (APMs) PG&E Avoidance and Impact Minimization Measures (AMMs), Best Management Practices (BMPs) and Mitigation Measures (MMs) Identified in the IS/MND	Implementing Actions	Monitoring/ Reporting Requirements	Timing
	adversely affected. If the biological monitor determines that activities associated with the Proposed Project are disturbing or disrupting nesting or breeding activities, the monitor would make recommendations to reduce noise or disturbance in the vicinity of the nest, such as temporarily suspending work in the area. If the nest is determined to be inactive, the nest would be removed under direct supervision of the qualified biologist.		removal of active nest. CPUC mitigation monitor to inspect compliance.	phases of construction activities.
Biological Resources	**APM BIO-6:** All excavated holes or trenches that are not be filled at the end of a workday would be covered, or a wildlife escape ramp would be installed to prevent the inadvertent entrapment of wildlife species.	Applicant and its contractors to implement measure as defined.	CPUC mitigation monitor to inspect compliance.	During all phases of the project.
Biological Resources	**APM BIO-7:** The use of outdoor lighting during construction and O&M of the proposed Fern Road Substation would be minimized whenever practicable. Photocell controlled lighting (motion detection) would be provided at a level sufficient to provide safe entry and exit to the proposed Fern Road Substation and control building. All lighting would be selectively placed, shielded, and directed downward to the maximum extent practicable. Night work would be avoided to the maximum extent.	Applicant and its contractors to implement measure as defined.	CPUC mitigation monitor to inspect compliance.	During all phases of the project.
Biological Resources	**APM BIO-8:** A Workers Environmental Awareness Program (WEAP) would be implemented to educate all construction and O&M workers on site-specific biological and non-biological resources and proper work practices to avoid harming wildlife during construction or O&M activities.	Applicant and its contractors to implement measure as defined.	CPUC mitigation monitor to inspect compliance.	Immediately prior to construction. To be repeated for all new personnel.
Biological Resources	**APM BIO-9:** Prior to initial vegetation clearance and ground-disturbing activities, a qualified biologist would conduct pre-construction sweeps of the Proposed Project work area for special-status wildlife and plants. In the event of the discovery of a previously unknown special-status plant, the area would be marked as a sensitive area and would be avoided to the maximum extent practicable. If avoidance of species listed under the Federal or California Endangered Species Act is not possible, USFWS and/or CDFW would be consulted. Any other construction activities that may impact sensitive biological resources including movement of construction equipment and other activities outside of the fenced/paved areas within wildlife habitat would be monitored by a qualified biologist. The monitor/inspector would have the authority to stop work activities upon the discovery of sensitive biological resources and allow construction to proceed after the identification and implementation of steps required to avoid or minimize impacts to sensitive resources.	Applicant and its contractors to implement measure as defined.	Applicant's qualified biologist to coordinate with wildlife agencies (as applicable) regarding sensitive biological resources and inspect compliance.	Prior to and implemented throughout construction.
Biological Resources	**APM BIO-10:** All sensitive biological areas (including the populations of silvery false lupine and ephemeral and intermittent streams and seasonal wetlands) within the Proposed Project work area would be clearly marked prior to construction commencing to restrict construction activities and equipment from entering these areas. At least a 5-foot buffer from all construction activities would be established around these areas. These buffers would be inspected regularly to ensure that they remain in place.	Applicant and its contractors to implement measure as defined.	CPUC mitigation monitor to inspect compliance.	During all phases of the project.

TABLE 5-1
REQUIRED MEASURES

Resource Area	Applicant Proposed Measures (APMs) PG&E Avoidance and Impact Minimization Measures (AMMs), Best Management Practices (BMPs) and Mitigation Measures (MMs) Identified in the IS/MND	Implementing Actions	Monitoring/ Reporting Requirements	Timing
Biological Resources	**APM BIO-11:** Vegetation and tree removal would be avoided to the maximum extent feasible to allow construction to proceed.	Applicant and its contractors to implement measure as defined.	CPUC mitigation monitor to inspect compliance.	During all phases of the project.
Biological Resources	**APM BIO-12:** All areas that are temporarily disturbed by the Proposed Project activities would be restored to approximate pre-construction conditions. Areas that are disturbed by grading, augering, or equipment movement would be restored to their original contours and drainage patterns. Work areas would be decompacted, and salvaged topsoil materials would be re-spread following recontouring to aid in restoration of temporary disturbed areas. A project-specific Restoration and Revegetation Plan (Restoration Plan) would be prepared for the Proposed Project and submitted to the CPUC for approval prior to construction activities commencing. The Restoration Plan would include procedures for restoration activities, including plant species to be planted, procedures to reduce weed encroachment, and expected timeframes for restoration and revegetation. Revegetation activities would be conducted in accordance with the Proposed Project SWPPP and APMs. Restoration could include recontouring, reseeding, and planting replacement vegetation, as appropriate. Temporarily disturbed areas would be revegetated with appropriate weed-free native seed mixes or species that are characteristic of the plant community that was disturbed.	Applicant and its contractors to implement measure as defined.	CPUC mitigation monitor to inspect compliance.	Prior to and after construction.
Biological Resources	**APM BIO-13:** All vehicles would be cleaned prior to arrival on the Proposed Project site to avoid spread of noxious weeds and non-native invasive plant species.	Applicant and its contractors to implement measure as defined.	CPUC mitigation monitor to inspect compliance.	During all phases of the project.
Cultural and Tribal Cultural Resources	**APM CUL-1:** LSPGC would design and implement a Worker Environmental Awareness Program (WEAP) that would be provided to all Project personnel who may encounter and/or alter historical resources or unique archaeological properties, including construction supervisors and field personnel. The WEAP would be submitted and approved by the CPUC prior to construction. No construction worker would be involved in ground disturbing activities without having participated in the WEAP. The WEAP would include, at a minimum: • Training on how to identify potential cultural resources and human remains during the construction process; • A review of applicable local, state and federal ordinances, laws and regulations pertaining to historic preservation; • A discussion of procedures to be followed in the event that unanticipated cultural resources are discovered during implementation of the Proposed Project; • A discussion of disciplinary and other actions that could be taken against persons violating historic preservation laws and LSPGC policies; and • A statement by the construction company or applicable employer agreeing to abide by the WEAP, LSPGC policies and other applicable laws and regulations.	Applicant and its contractors to implement measure as described.	CPUC mitigation monitor to inspect compliance	Immediately prior to construction. To be repeated for all new personnel.

TABLE 5-1
REQUIRED MEASURES

Resource Area	Applicant Proposed Measures (APMs) PG&E Avoidance and Impact Minimization Measures (AMMs), Best Management Practices (BMPs) and Mitigation Measures (MMs) Identified in the IS/MND	Implementing Actions	Monitoring/ Reporting Requirements	Timing
	The WEAP may be conducted in concert with other environmental or safety awareness and education programs for the Proposed Project, provided that the program elements pertaining to cultural resources are provided by a Qualified Archaeologist, defined as an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for Archaeology (36 CFR Part 61).			
Cultural and Tribal Cultural Resources	**APM CUL-2:** If proposed facilities and ground-disturbing activities move outside the previously surveyed acreage, the new areas would be subjected to a cultural resources inventory report that includes archaeological, unique archaeological, and built-environment resources within all areas that could be affected by the Proposed Project. Impacts to any historical resources or unique archaeological resources identified as a result of the inventory report would be avoided by project redesign, capping, or other appropriate treatment.	Applicant and its contractors to implement measure as described.	CPUC mitigation monitor to inspect compliance	During all phases of the project.
Cultural and Tribal Cultural Resources	**APM CUL-3:** In the event that previously unidentified cultural resources are uncovered during implementation of the Proposed Project, all work within 100 feet (30 meters) of the discovery would be halted and redirected to another location. LSPGC's qualified archaeologist would inspect the discovery and determine whether further investigation is required. If the discovery can be avoided and no further impacts would occur, the resource would be documented on California Department of Parks and Recreation cultural resource records and no further effort would be required. If the resource cannot be avoided and may be subject to further impact, LSPGC would evaluate the significance and CRHR eligibility of the resources and, in consultation with the CPUC, determine appropriate treatment measures. Preservation in place shall be the preferred means to avoid impacts to significant historical resources. Consistent with CEQA Section 15126.4(b)(3), if it is demonstrated that resources cannot feasibly be avoided, LSPGC's qualified archaeologist, in consultation with the CPUC and, if the unearthed resource is prehistoric or Native American in nature, the Native American monitor shall develop additional treatment measures, such as data recovery consistent with CEQA Guidelines 15126.4(b)(3)(C)- (D). Archaeological materials recovered during any investigation shall be curated at an accredited curation facility or transferred to the appropriate tribal organization.	Applicant and its contractors to implement measure as described.	Applicant's qualified archaeologist to coordinate with appropriate agencies (as applicable) regarding sensitive cultural resources and inspect compliance.	During all phases of the project.
Cultural and Tribal Cultural Resources	**APM CUL-4:** Avoidance and protection of inadvertent discoveries that contain human remains shall be the preferred protection strategy where feasible and otherwise managed pursuant to the standards of CEQA Guidelines 15064.5(d) and (e). If human remains are discovered during construction or O&M activities, all work shall be diverted from the area of the discovery, and the CPUC shall be informed immediately. The Applicant shall contact the county coroner to determine whether or not the remains are Native American. If the remains are determined to be Native American, the coroner would contact the NAHC. The NAHC would then identify the person or persons it believes to be the most likely descendant of the deceased Native American, who in turn would make recommendations for the appropriate means of treating the human remains and any associated funerary objects. No part of the Proposed Project is located on federal land and no federal monies are involved; therefore, the Proposed Project is	Applicant and its contractors to implement measure as described.	CPUC mitigation monitor to inspect compliance.	During all phases of the project.

TABLE 5-1
REQUIRED MEASURES

Resource Area	Applicant Proposed Measures (APMs) PG&E Avoidance and Impact Minimization Measures (AMMs), Best Management Practices (BMPs) and Mitigation Measures (MMs) Identified in the IS/MND	Implementing Actions	Monitoring/ Reporting Requirements	Timing
	not subject to the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA).			
Geology and Soils	**APM GEO-1:** The following measures would be implemented during construction to minimize impacts from geological hazards and disturbance to soils • Keep vehicle and construction equipment within the limits of the Project and in approved construction work areas to reduce disturbance to topsoil; • Prior to grading, salvage topsoil to a depth of six inches or to actual depth if shallower (as identified in site-specific geotechnical investigation report) to avoid mixing of soil horizons; • Avoid construction in areas with saturated soils, whenever practical, to reduce impacts to soil structure and allow safe access. Similarly, avoid topsoil salvage in saturated soils to maintain soil structure; • Keep topsoil material on-site in the immediate vicinity of the temporary disturbance or at a nearby approved work area to be used in restoration of temporary disturbed areas. Temporary disturbance areas would be re-contoured following construction to match pre-construction grades. Areas would be allowed to re-vegetate naturally or would be reseeded with a native seed mix from a local source if necessary. On-site material storage would be sited and managed in accordance with all required permits and approvals; and • Keep vegetation removal and soil disturbance to a minimum and limited to only the areas needed for construction. Removed vegetation would be disposed of off-site to an appropriate licensed facility or can be chipped on-site to be used as mulch during restoration.	Applicant and its contractors to implement measure as described.	CPUC mitigation monitor to inspect compliance.	During construction.
Geology and Soils	**APM GEO-2:** The structural requirements of the CBC are applicable to certain structural components of the Project, including the control enclosures. LSPGC and/or its contractors would design such structures to comply with such CBC standards and shall adhere to and implement all design recommendations and parameters established in the Project's Supplemental Geotechnical Engineering Report to be prepared and submitted to the CPUC upon completion.	Applicant and its contractors to implement measure as described.	CPUC mitigation monitor to inspect compliance.	Submit supplemental geotechnical report to CPUC prior to construction and adhere to its requirements during construction.
Paleontology	**APM PALEO-1:** Prior to the issuance of grading permits, a qualified paleontologist shall be retained to prepare and oversee the PRMMP for the Proposed Project. The PRMMP shall contain monitoring procedures, define areas and types of earthwork to be monitored, and provide methods for determining the significance of fossil discoveries. The PRMMP shall direct that a qualified paleontological monitor (working under the supervision of the qualified paleontologist) shall monitor all excavations or grading at depths exceeding two feet bgs in sedimentary deposits of the Montgomery Creek Formation and the sedimentary portions of the Tuscan Formation. Determination of whether or not the Tuscan Formation on the Proposed Project site contains sedimentary deposits would be made based either on results of any new geotechnical information or on observations of fresh exposures during initial earthwork in the	Applicant and its contractors to implement measure as described.	Applicant's qualified paleontologist and paleontologist monitor to coordinate with appropriate agencies (as applicable) regarding paleontological resources and inspect compliance.	Prior to construction.

TABLE 5-1
REQUIRED MEASURES

Resource Area	Applicant Proposed Measures (APMs) PG&E Avoidance and Impact Minimization Measures (AMMs), Best Management Practices (BMPs) and Mitigation Measures (MMs) Identified in the IS/MND	Implementing Actions	Monitoring/ Reporting Requirements	Timing
	northern portion of the Proposed Project site. The duration and timing of paleontological monitoring shall be determined by the qualified paleontologist based on the grading plans and construction schedule and may be modified based on the initial results of monitoring. The PRMMP shall state that any fossils that are collected shall be prepared to the point of curation, identified to the lowest reasonable taxonomic level, and curated into a recognized professional repository (e.g., SDNHM, UCMP), along with associated field notes, photographs, and compiled fossil locality data. Donation of the fossils shall be accompanied by financial support for initial specimen curation and storage. Following the completion of the above tasks, the qualified paleontologist shall prepare a final mitigation report that outlines the results of the mitigation program. This report shall include discussions of the methods used, stratigraphic section(s) exposed, fossils collected, and significance of recovered fossils. The report shall be submitted to appropriate agencies, as well as to the designated repository.			
Paleontology	**APM PALEO-2:** If paleontological resources are encountered during ground disturbing activities when the qualified paleontologist (or paleontological monitor) is not on site (an inadvertent discovery), earthwork within the vicinity of the discovery shall immediately halt, and the qualified paleontologist shall evaluate the significance of the fossil discovery. If the fossil discovery is deemed significant, the fossil shall be recovered using appropriate recovery techniques based on the type, size, and mode of preservation of the unearthed fossil. Earthwork may resume in the area of the fossil discovery once the fossil has been recovered and the qualified paleontologist deems the site has been mitigated to the extent necessary.	Applicant and its contractors to implement measure as described.	Applicant's qualified paleontologist or paleontologist monitor to inspect compliance.	During all phases of the project.
GHG	**APM GHG-1:** The following measures shall be implemented to minimize greenhouse gas emissions from all construction sites: • If suitable park-and-ride facilities are available in the Project vicinity, construction workers shall be encouraged to carpool to the job site. • Demolition debris shall be recycled for reuse to the extent feasible. • The contractor shall use line power instead of diesel generators at all construction sites where line power is available. • The contractor shall maintain construction equipment per manufacturing specifications.	Applicant and its contractors to implement measure as described.	CPUC mitigation monitor to inspect compliance.	During construction.
Hazardous Materials	**APM HAZ-1:** A site-specific SPCCP would be prepared prior to the initiation of construction. In the event of an accidental spill, the Project would be equipped with secondary containment that meets SPCCP Guidelines. The secondary containment would be sufficiently sized to accommodate accidental spills.	Applicant or designated contractors to implement measure as defined.	Applicant and/or its contractor to track compliance. CPUC mitigation monitor to inspect compliance.	Prior to construction and implemented during all phases of the project.

TABLE 5-1
REQUIRED MEASURES

Resource Area	Applicant Proposed Measures (APMs) PG&E Avoidance and Impact Minimization Measures (AMMs), Best Management Practices (BMPs) and Mitigation Measures (MMs) Identified in the IS/MND	Implementing Actions	Monitoring/ Reporting Requirements	Timing
Hazardous Materials	**APM HAZ-2:** A HMMP would be prepared and implemented for the Project. The plan would be prepared in accordance with relevant state and federal guidelines and regulations (e.g., Cal/OSHA). The plan would include the following information related to hazardous materials and waste, as applicable: • A list of hazardous materials present on-site during construction and O&M to be updated as needed along with product Safety Data Sheets and other information regarding storage, application, transportation, and disposal requirements; • A Hazardous Materials Communication (i.e., HAZCOM) Plan; • Assignments and responsibilities of Project health and safety roles; • Standards for any secondary containment and countermeasures required for hazardous materials; • Spill response procedures based on product and quantity. The procedures would include materials to be used, location of such materials within the Proposed Project area, and disposal protocols; and • Protocols for the management, testing, reporting, and disposal of potentially contaminated soils or groundwater observed or discovered during construction. This would include termination of work within the area of suspected contamination sampling by an OSHA trained individual and testing at a certified laboratory. The Project would also be equipped with lead-acid batteries to provide backup power for monitoring, alarm, protective relaying, instrumentation and control, and emergency lighting during power outages. Secondary containment would be constructed around and under the battery racks, and the HMMP would address containment from a battery leak. The plan would be provided to the CPUC prior to construction for recordkeeping. Plan updates would be made and submitted as needed if construction activities change whereas the existing plan does not adequately address the Project.	Applicant or designated contractors to implement measure as defined.	Applicant and/or its contractor to track compliance. CPUC mitigation monitor to inspect compliance.	Prior to construction and implemented during all phases of the project.
Hazardous Materials	**APM HAZ-3:** In the event that soils suspected of being contaminated (on the basis of visual, olfactory, or other evidence) are removed during site grading activities or excavation activities, the excavated soil shall be tested, and if contaminated above hazardous waste levels, shall be contained and disposed of at a licensed waste facility. The presence of known or suspected contaminated soil shall require testing and investigation procedures to be supervised by a qualified person, as appropriate, to meet state and federal regulations.	Applicant or designated contractors to implement measure as defined.	Applicant and its contractor to track compliance. CPUC mitigation monitor to inspect compliance.	During construction.
Hazardous Materials	**APM HAZ-4:** LSPGC shall implement ongoing fire patrols during the fire season as defined each year by local, state, and federal fire agencies. These dates vary from year to year, generally occurring from late spring through dry winter periods. During Red Flag Warning events, as issued daily by the National Weather Service, all construction/maintenance activities shall cease, with an exception for transmission line testing, repairs, unfinished work,	Applicant or designated contractors to implement measure as defined.	Applicant and its contractor to track compliance. CPUC mitigation monitor to inspect compliance.	During all phases of the project.

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	or other specific activities which may be allowed if the facility/equipment poses a greater fire risk if left in its current state. The Proposed Project area is located within an area designated as a Very High or High Fire Hazard Severity Zone; thus, LSPGC will prepare a Construction Fire Prevention Plan prior to construction. All construction/maintenance crews and inspectors shall be provided with radio and cellular telephone access that is operational in all work areas and access routes to allow for immediate reporting of fires. Communication pathways and equipment shall be tested and confirmed operational each day prior to initiating construction/maintenance activities at each work site. All fires shall be reported to the fire agencies with jurisdiction in the area immediately upon discovery of the ignition. All construction/maintenance personnel shall be trained in fire-safe actions, initial attack firefighting, and fire reporting. All construction/maintenance personnel shall be trained and equipped to extinguish small fires in order to prevent them from growing into more serious threats. All construction/maintenance personnel shall carry at all times a laminated card and be provided a hard hat sticker that list pertinent telephone numbers for reporting fires and defining immediate steps to take if a fire starts. Information on laminated contact cards and hard hat stickers shall be updated and redistributed to all construction/maintenance personnel and outdated cards and hard hat stickers shall be destroyed prior to the initiation of construction/maintenance activities on the day the information change goes into effect. Construction/maintenance personnel shall have fire suppression equipment on all construction vehicles. Construction/maintenance personnel shall be required to park vehicles away from dry vegetation. Water tanks, fire extinguishers, and/or water trucks shall be sited or available at active project sites for fire protection during construction. The Applicant shall coordinate with applicable local fire departments prior to construction/maintenance activities to determine the appropriate amounts of fire equipment to be carried on vehicles and, should a fire occur, to coordinate fire suppression activities.			
Hydrology and Water Quality	**APM WQ-1:** Because the Project involves more than an acre of soil disturbance, a SWPPP would be prepared as required by the state NPDES General Permit for Discharges of Stormwater Associated with Construction Activity. This plan would be prepared in accordance with the Water Board guidelines and other applicable erosion and sediment control BMPs. Implementation of the plan would help stabilize disturbed areas and would reduce erosion and sedimentation. The SWPPP would designate BMPs that would be followed during and after construction of the Project, examples of which may include the following erosion-minimizing measures: • Using drainage control structures (e.g., straw wattles or silt fencing) to direct surface runoff away from disturbed areas; • Strictly controlling vehicular traffic; • Implementing a dust-control program during construction;	Applicant and its contractors to implement measure as defined.	Applicant and its contractors to track compliance. CPUC mitigation monitor to inspect compliance.	Prior to and implemented during construction.

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	• Restricting access to sensitive areas; • Using vehicle mats in wet areas; or • Revegetating disturbed areas, where applicable, following construction. In areas where soils are to be temporarily stockpiled, soils would be placed in a controlled area and would be managed with similar erosion control techniques. Where construction activities occur near a surface waterbody or drainage channel and drainage from these areas flows towards a waterbody or wetland, stockpiles would be placed at least 100 feet from the waterbody or would be properly contained (such as berming or covering to minimize risk of sediment transport to the drainage). Mulching or other suitable stabilization measures would be used to protect exposed areas during and after construction activities. Erosion-control measures would be installed, as necessary, before any clearing during the wet season and before the onset of winter rains. Temporary measures, such as silt fences or wattles intended to minimize erosion from temporarily disturbed areas, would remain in place until disturbed areas have stabilized.			
Hydrology and Water Quality	**APM WQ-2:** Groundwater encountered during construction would be handled and discharged in accordance with all state and federal regulations including the following: • Recovered groundwater would be contained on site and tested prior to discharge; • If testing determines water is suitable for land application, discharge may be applied to flat, vegetated, upland areas, used for dust control, or used in other suitable construction operations (e.g., concrete mixing); • Land application would be made in a manner that discharge does not result in substantial erosion and would not be made directly to receiving waters or storm drains; • Water unsuitable for land application would be disposed of at an appropriately permitted facility; and • Discharge to surface waters or storm drains may occur only if permitted by the agency(ies) with jurisdiction over the resource (e.g., USACE, RWQCB, and/or CDFW, as applicable).	Applicant and its contractors to implement measure as defined.	Applicant and its contractors to track compliance. CPUC mitigation monitor to inspect compliance.	During construction.
Public Services	**APM PS-1:** LSPGC would coordinate construction activities with local law enforcement and fire protection agencies. Emergency service providers would be notified of the timing, location, and duration of construction activities.	Applicant or designated contractors to implement measure as defined.	Applicant and its contractors to track compliance. CPUC mitigation monitor to inspect compliance.	During construction.
Traffic and Transportation	**APM TRA-1:** LSPGC would prepare a Traffic Control Plan to describe measures to be taken to guide traffic (such as signs and workers directing traffic), safeguard construction workers, provide safe passage, and minimize traffic impacts. LSPGC would follow its standard safety practices as needed, including installing appropriate barriers between work zones and transportation facilities, posting adequate signs, and using proper construction techniques.	Applicant or designated contractors to implement measure as defined.	Applicant and its contractors to track compliance. CPUC mitigation monitor to inspect compliance.	Prior to and implemented during construction.

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	LSPGC would follow the recommendations in this manual regarding basic standards for the safe movement of traffic on highways and streets in accordance with Section 21400 of the California Vehicle Code. If required for obtaining a local encroachment permit, LSPGC would establish a Traffic Management Plan (TMP) to address haul routes, timing of heavy equipment and building material deliveries, potential street and/or lane closures, signing, lighting, and traffic control device placement. Construction activities would be coordinated with local law enforcement and fire protection agencies. Emergency service providers would be notified as required by the local permit of the timing, location, and duration of construction activities.			
Public Utilities	**APM UTIL-1:** The Applicant shall notify all utility companies with utilities located within or crossing the proposed Fern Road Substation Facilities' Rights-of-Way (ROW) to locate and mark existing underground utilities along the entire length of the proposed Fern Road Substation Facilities at least 14 days prior to construction. No subsurface work shall be conducted that would conflict with (i.e., directly impact or compromise the integrity of) a buried utility. In the event of a conflict, areas of subsurface excavation or pole installation shall be realigned vertically and/or horizontally, as appropriate, to avoid other utilities and provide adequate operational and safety buffering. In instances where separation between third-party utilities and underground excavations is less than 5 feet, the Applicant shall submit the intended construction methodology to the owner of the third-party utility for review and approval at least 30 days prior to construction. Construction methods shall be adjusted as necessary to assure that the integrity of existing utility lines is not compromised.	Applicant or designated contractors to implement measure as defined.	Applicant and its contractors to notify and coordinate with utilities.	At minimum, 30-days prior to construction.
Wildfire	**APM FIRE-1: Construction Fire Prevention Plan** • The purpose and applicability of the Plan • Responsibilities and duties • Preparedness training and drills • Procedures for fire reporting, response, and prevention that include: – Identification of daily site-specific risk conditions – The tools and equipment needed on vehicles and to be on hand at sites – Reiteration of fire prevention and safety considerations during tailboard meetings – Daily monitoring of the red-flag warning system with appropriate restrictions on types and levels of permissible • Coordination procedures with federal and local fire officials • Crew training, including fire safety practices and restrictions • Method(s) for verifying that all Plan protocols and requirements are being followed A project fire marshal or similar qualified role shall be established to enforce all provisions of the Construction Fire Prevention Plan as well as perform other duties related to fire detection,	Applicant or designated contractors to implement measure as defined.	CPUC mitigation monitor to inspect compliance.	Prior to and implemented during all phases of the project.

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	prevention, and suppression for the Proposed Project. Construction activities shall be monitored to ensure implementation and effectiveness of the Plan. **Fire Prevention Practices (Construction and Maintenance)** The Applicant shall implement ongoing fire patrols during the fire season as defined each year by local, state, and federal fire agencies. These dates vary from year to year, generally occurring from late spring through dry winter periods. During Red Flag Warning events, as issued daily by the National Weather Service, all construction/maintenance activities shall cease, with an exception for transmission line testing, repairs, unfinished work, or other specific activities which may be allowed if the facility/equipment poses a greater fire risk if left in its current state. All construction/maintenance crews and inspectors shall be equipped with radio or cellular telephone access that is operational in all work areas and access routes to allow for immediate reporting of fires. Communication pathways and equipment shall be tested and confirmed operational each day prior to initiating construction/maintenance activities at each work site. All fires shall be reported to the fire agencies with jurisdiction in the area immediately upon discovery of the ignition. All construction/maintenance personnel shall be trained in fire-safe actions, initial attack firefighting, and fire reporting. All construction/maintenance personnel shall be trained and equipped to extinguish small fires in order to prevent them from growing into more serious threats. All construction/maintenance personnel shall carry at all times a laminated card and be provided a hard hat sticker that list pertinent telephone numbers for reporting fires and defining immediate steps to take if a fire starts. Information on laminated contact cards and hard hat stickers shall be updated and redistributed to all construction/maintenance personnel, and outdated cards and hard hat stickers shall be destroyed prior to the initiation of construction/maintenance activities on the day the information change goes into effect. Construction/maintenance personnel shall have fire suppression equipment on all construction vehicles. Construction/maintenance personnel shall be required to park vehicles away from dry vegetation. Water tanks and/or water trucks shall be sited or available at active project sites for fire protection during construction. The Applicant shall coordinate with applicable local fire departments prior to construction/maintenance activities to determine the appropriate amounts of fire equipment to be carried on vehicles and, should a fire occur, to coordinate fire suppression activities.			
Wildfire	**APM FIRE-2:** Fires shall be prevented or minimized by exercising care when operating utility vehicles within the right-of-way and access roads and by parking vehicles away from dry vegetation where hot catalytic converters could present the potential to ignite a fire. Fire	Applicant or designated contractors to implement measure as defined.	CPUC mitigation monitor to inspect compliance.	Prior to and implemented during construction.

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	protective mats or shields would be used during grinding or welding to prevent or minimize the potential for fire. In addition, the following fire prevention measures would be implemented: • Because of the isolated nature of this site, the Proposed Project would develop on-site emergency water storage for fire suppression. The water storage system would include an aboveground metallic tank with no less than 1,000 gallons of storage capacity, as well as a pump and hose to dispense water in an emergency situation. • Livestock grazing, that would be allowed to continue on the property and surround area, prevents fires by reducing flammable fuels in the Proposed Project vicinity. As practicable, livestock grazing programs should be designed and implemented so as to remove grass and forb vegetation immediately adjacent to the Proposed Project site prior to the commencement of fire season (March to September). • Vegetation that is capable of generating flame lengths greater than 12 feet would be evaluated annually and removed from the surface of the transmission line corridor as appropriate. This would include all woody vegetation types whose maximum average canopy exceeds six feet.			
Wildfire	**APM FIRE-3:** In response to the need for fire mitigation during prolonged emergency response times, any Proposed Project facilities would be designed and constructed with resistance to wildfire ignition and consummation where feasible	Applicant or designated contractors to implement measure as defined.	CPUC mitigation monitor to inspect compliance.	Prior to construction.
Wildfire	**APM FIRE-4:** All construction crews and inspectors shall be equipped with radio or cellular telephone access that is operational within the Proposed Project work area to allow for immediate reporting of fires. Fires shall be reported to the fire agencies with jurisdiction in the area upon discovery of the ignition. All construction personnel shall be trained in immediate steps to take if a fire starts, including fire reporting.	Applicant or designated contractors to implement measure as defined.	CPUC mitigation monitor to inspect compliance.	During all phases of the project.
Wildfire	**APM FIRE-5:** LSPGC and/or its contractors shall notify applicable local fire departments of construction activities associated with the Proposed Project prior to construction and coordinate with emergency service providers regarding potential ingress and egress constraints that may occur. Prior to construction, an agreement would be in place with agencies providing wildfire response services to the Proposed Project area that would ensure they have access through the gated entrance off Fern Road in case of emergency.	Applicant or designated contractors to implement measure as defined.	Applicant and its contractors to notify and coordinate with fire departments and emergency service providers.	Prior to construction.
PG&E Construction Measures				
Biological Resources	**AMM-1:** Conduct annual training on habitat conservation plan requirements for employees and contractors performing covered activities in the Plan Area that are applicable to their job duties and work. Tailboard and site-specific training will also be conducted prior to commencing work.	PG&E and its designated contractors to implement measure as described.	PG&E to conduct annual training.	Prior to construction and to be repeated for new personnel.

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Biological Resources	**AMM-2:** Park vehicles and equipment on pavement, existing roads, or other disturbed or designated areas (barren, gravel, compacted dirt).	PG&E and its designated contractors to implement measure as described.	PG&E to track and maintain its own compliance.	During all phases of the project..
Biological Resources	**AMM-3:** Use existing access and ROW roads. Minimize the development of new access and ROW roads, including clearing and blading for temporary vehicle access in areas of natural vegetation.	PG&E and its designated contractors to implement measure as described.	PG&E to track and maintain its own compliance.	During all phases of the project.
Biological Resources	**AMM-4:** Route off-road access paths and site work sites to minimize impacts on plants, shrubs, and trees, small mammal burrows, and unique natural features (e.g., rock outcrops).	PG&E and its designated contractors to implement measure as described.	PG&E to track and maintain its own compliance.	During all phases of the project.
Biological Resources	**AMM-5:** Notify conservation landowners at least 2 business days prior to conducting covered activities on protected lands (state- or federally owned wildlife areas, ecological reserves, or conservation areas); more notice will be provided if practicable or if required by other permits. If the work is an emergency, as defined in PG&E's Utility Procedure ENV-8003P-01, PG&E will notify the conservation landowner within 48 hours after initiating emergency work. Although this notification is intended only to inform conservation landowner, PG&E will attempt to work with the conservation landowner to address landowner concerns.	PG&E and its designated contractors to implement measure as described.	PG&E to notify and coordinate with conservation landowners.	During all phases of the project.
Biological Resources	**AMM-6:** Minimize potential for covered species to become trapped, injured, or killed in pipes, culverts, or under materials or equipment. Inspect pipes and culverts wide enough to be entered by a covered species that could inhabit the area where pipes are stored for wildlife species prior to moving pipes and culverts. Contact a biologist if a covered species or other federally-listed species is suspected or discovered.	PG&E and its designated contractors to implement measure as described.	PG&E and biologist to track and maintain its own compliance.	During all phases of the project.
Biological Resources	**AMM-7:** Vehicle speeds on unpaved roads will not exceed 15 miles per hour. All covered wildlife species. Avoid and minimize direct mortality or injury of covered species that may cross unpaved roads in work sites.	PG&E and its designated contractors to implement measure as described.	PG&E to track and maintain its own compliance.	During all phases of the project.
Hazards	**AMM-8:** Prohibit trash dumping, firearms, open fires (such as barbecues), hunting, and pets (except for safety in remote locations) at work sites.	PG&E and its designated contractors to implement measure as described.	PG&E to track and maintain its own compliance.	During all phases of the project.
Wildfire	**AMM-9:** In designated State Responsibility Areas, equip all motorized equipment with federally or state-approved spark arrestors. Ensure a backpack pump filled with water and a shovel and fire-resistant mats and/or windscreens is onsite during welding. During fire "red flag" conditions as determined by the California Department of Forestry and Fire Protection, prohibit welding. Each fuel truck will carry a large fire extinguisher with a minimum rating of 40 B:C. Clear parking and storage areas of all flammable materials.	PG&E and its designated contractors to implement measure as described.	PG&E to track and maintain its own compliance.	During all phases of the project.

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Biological Resources	**AMM-10:** Minimize the covered activity footprint and minimize the amount of time spent at a work site to reduce the potential for take of species.	PG&E and its designated contractors to implement measure as described.	PG&E to track and maintain its own compliance.	During all phases of the project.
Water Quality	**AMM-11:** Utilize standard erosion and sediment control BMPs (pursuant to the most current version of PG&E's Stormwater Field Manual for Construction Best Management Practices) to prevent construction site runoff into waterways. All covered aquatic species	PG&E and its designated contractors to implement measure as described.	PG&E to track and maintain its own compliance.	During all phases of the project.
Water Quality	**AMM- 12:** Stockpile soil within established work site boundaries and locate stockpiles so as not to enter water bodies, stormwater inlets, other standing bodies of water. Cover stockpiled soil prior to precipitation events**.**	PG&E and its designated contractors to implement measure as described.	PG&E to track and maintain its own compliance.	During construction.
Biological Resources	**AMM-13:** Fit open trenches or steep-walled holes with escape ramps of plywood boards or sloped earthen ramps at each end if left open overnight. Field crews will search open trenches or steep-walled holes every morning prior to initiating daily activities to ensure wildlife is not trapped. Field crews will not handle covered species. If any covered wildlife species is found, work will stop and a biologist will be notified. A biologist with appropriate take permits will relocate the species to adjacent habitat or the species will be allowed to naturally disperse, as determined by a biologist.	PG&E and its designated contractors to implement measure as described.	PG&E to track and maintain its own compliance.	During construction.
Biological Resources	**AMM-14:** If the covered activity disturbs 0.1 acre or more of habitat for a covered species in grasslands, the field crew will revegetate the area with a commercial "weed free" seed mix. (Except in suitable habitat for Mount Hermon June beetle, Ohlone tiger beetle and Zyante band-winged grasshopper.)	PG&E and its designated contractors to implement measure as described.	PG&E to track and maintain its own compliance.	During all phases of the project.
Biological Resources	**AMM-15:** Prohibit vehicular and equipment refueling within 250 feet of the edge of wetlands, streams, or waterways. If refueling must be conducted closer to wetlands, construct a secondary containment area subject to review by an environmental field specialist and/or biologist. Maintain spill prevention and cleanup equipment in refueling areas.	PG&E and its designated contractors to implement measure as described.	PG&E to track and maintain its own compliance.	During all phases of the project.
Biological Resources	**AMM-16:** Maintain a buffer of 50 feet from the edge of wetlands, ponds, or riparian areas. If maintaining the buffer is not practicable because the covered activity footprint is within the buffered area, other measures as prescribed by the biologist or the HCP administrator to minimize impacts such as flagging access routes or paths, requiring foot access, restricting work until the dry season, or requiring a biological monitor during the activity.	PG&E and its designated contractors to implement measure as described.	PG&E to track and maintain its own compliance. Biological monitor or HCP administrator may be required.	During all phases of the project.
Biological Resources	**AMM-17:** Directionally fall trees away from an exclusion zone, if an exclusion zone has been defined. If this is not practicable, remove the tree in sections. Avoid damage to adjacent trees to the extent practicable. Avoid removal of snags and conifers with basal hollows, crown deformities, and/or limbs more than 6 inches in diameter.	PG&E and its designated contractors to implement measure as described.	PG&E to track and maintain its own compliance.	During all phases of the project.

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Biological Resources	**AMM-18:** Nests with eggs and/or chicks will be avoided: contact a biologist or the Avian Protection Program Manager for further guidance. Work will be stopped until the crew can obtain clarification from a biologist or the Avian Protection Program Manager on how to proceed.	PG&E and its designated contractors to implement measure as described.	PG&E to track and maintain its own compliance. Biologist or Avian Protection Program Manager may be required.	During all phases of the project.
Biological Resources	**BMP-1: Nesting Birds.** If work is anticipated to occur within the nesting bird season (February—September), nesting birds, including raptors and other species protected under the Migratory Bird Treaty Act, may be impacted. If active nests are discovered, exclusionary measures and or designated avoidance buffers may be required and implemented according to the guidance in the PG&E Nesting Bird Management Plan. For nests discovered during construction, PG&E implements Work Procedure (WP) 2321 to identify and avoid impacts to nesting birds. WP 2321 generally requires assistance from the project biologist to determine if the construction action will impact the nest, and if so, identify whether alternative actions or monitoring can be implemented to avoid impacts. If active nests are observed during construction, crews must immediately alert the PG&E project biologist.	PG&E and its contractors to implement measure as described.	PG&E to track and maintain its own compliance. Biologist may be required.	During all phases of the project.
Biological Resources	**BMP-2:** Identify wetlands, ponds, and riparian areas and establish and maintain a buffer of 50 feet around wetlands, ponds, and riparian areas. If maintaining the buffer is not practicable because the work sites are within any part of the buffered area, the field crew will implement other measures as prescribed by the biologist to minimize habitat impacts. These measures may include flagging access, requiring foot access, restricting work until the dry season, or requiring a biological monitor during the activity. Activities must maintain the hydrology necessary to support the wetland, pond, or riparian area (inclusive of downstream).	PG&E and its contractors to implement measure as described.	PG&E to track and maintain its own compliance. Biologist may be required.	During all phases of the project.
Biological Resources	**BMP-3: Ringtail cat (Basariscus astutas) avoidance:** If a ringtail cat is observed on or in a PG&E facility or access road, it will be allowed to leave on its own. If the ringtail does not leave the work area on its own, contact the PG&E Biologist.	PG&E and its contractors to implement measure as described.	PG&E to track and maintain its own compliance. Biologist may be required.	During all phases of the project.
Geology and Soils	**BMP-4: Generation of Spoil- Substation**. All spoils generated from within PG&E substations require sampling and shall only be disposed of PG&E approved landfills listed in ERTC Attachment Guide, Section 4, Part 1: ENV-4000P-01-JA15 'Job Aid- PG&E Authorized Disposal & Recycling Facilities'. Spoils from within substations are prohibited from give-away. Copies of all manifests are required to be submitted to the Environmental Lead/Project Environmental Field Specialist (EFS).	PG&E and its contractors to implement measure as described.	PG&E to track and maintain its own compliance. Environmental Lead/Project Environmental Field Specialist may be required.	During all phases of the project.

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Hazardous Materials	**BMP-5: Asbestos.** If any loadbearing structure (poles, towers, concrete pads, etc.) is to be removed by PG&E, this work may require asbestos testing and notification to the local Air District or California Air Resource Board (CARB). Notify the Environmental Field Specialist (EFS) at least 45 calendar days prior to work commencing. The Air District must be notified at least 10 working days prior to work (demolition) commencing, some districts require 14 days. If the construction start date changes, notify the EFS immediately as notification to the Air District may need to be resubmitted. EFS is responsible for obtaining any necessary permits from the air district prior to start of work.	PG&E and its contractors to implement measure as described.	PG&E to track and maintain its own compliance.	Notification to occur prior to construction, as described in measure.
Hazardous Materials	**BMP-6: Combustion Sources.** If project or work involves the installation of a combustion source that may require a local air district permit, please work with the EFS and Air SME to evaluate compliance requirements. Combustion sources, depending on HP or MMBtu rating may require an Authority to Construct Permit prior to any installation activities and a Permit to Operate prior to operating. Typical Combustion Sources that require permits are: • Engines ≤50 HP; • Boilers/Heaters that combust natural gas; and • Flares.	PG&E and its contractors to implement measure as described.	PG&E to track and maintain its own compliance.	Prior to and during construction.
Air Quality	**BMP-7: Fugitive Dust General.** Types work activities where water trucks or other dust abatement methods are typically required include: excavation, trenching, grading, sand blasting, and demolition. The crew shall not allow visible dust to pass beyond the project boundary. The crew shall abate dust by: • Applying water to disturbed areas and to storage stockpiles; • Applying water in sufficient quantities to prevent dust plumes during activities such as clearing & grubbing, backfilling, trenching and other earth moving activities; • Limit vehicle speed to 15 miles per hour; • Load haul trucks with a freeboard (space between top of truck and load) of six inches or greater; • Cover the top of the haul truck load; • Clean-up track-out at least daily; and The crew shall not generate dust in amounts that create a nuisance to wildlife or people, particularly where sensitive receptors such as schools and hospitals are located nearby or down-wind. During inactive periods (e.g. after normal working hours, weekends, and holidays), the crew shall apply water or other approved material to form a visible crust on the soil and restrict vehicle access.	PG&E and its contractors to implement measure as described.	PG&E to track and maintain its own compliance.	During construction

TABLE 5-1
REQUIRED MEASURES

Resource Area	Applicant Proposed Measures (APMs) PG&E Avoidance and Impact Minimization Measures (AMMs), Best Management Practices (BMPs) and Mitigation Measures (MMs) Identified in the IS/MND	Implementing Actions	Monitoring/ Reporting Requirements	Timing
Hazardous Materials	**BMP-8: Hazardous Materials Business Plan.** The Environmental Field Specialist (EFS) shall be notified 30 days prior to a threshold exceeding hazardous material/waste being placed on-site. Threshold limits are: 200 cubic feet of compressed gases (1000 cubic feet for simple asphyxiation or the release of pressure only; carbon dioxide), 500 pounds of solids, or 55 gallons of liquids for more than 30 non-consecutive days. The following jurisdictions require notification for any amount of hazardous material/waste: Counties: Nevada, San Bernardino (waste only), San Francisco, Santa Clara (call for city specific details), Santa Cruz, Yuba (waste only) Cities: Bakersfield (waste only), Berkeley, Healdsburg, Sebastopol, Petaluma, Santa Clara (call for city specific details) NOTE: The Project EFS will develop an HMBP if it is required.	PG&E to implement measures for PG&E Interconnection.	PG&E to track and maintain its own compliance.	Prior to or during construction; 30 days prior to a threshold exceeding event, as applicable.
Hazardous Materials	**BMP-9: Hazardous Waste Management Hazardous Materials Storage.** This project may involve the storage of hazardous materials and they must be managed according to regulations and best management practices. • All releases of hazardous materials must be immediately addressed. Maintain a spill kit onsite during the length of the project. Contact the project EFS for spills of hazardous materials/wastes to determine if agency notifications will be required and/or if additional resources are needed. • Hazardous materials, greater than 440 lbs and less than 1001 lbs can be transported on PG&E vehicles if the proper MOT shipping paper/MSDS accompanies the load. Contact the project EFS for additional guidance in these areas. • All hazardous materials containers must be marked correctly. • All hazardous materials signs must be displayed as required. • Non saturated oily rags (to be laundered) stored in non-combustible containers. • Emergency equipment such as fire extinguisher, eye wash, MSDS, etc. on-site. • Hazardous material containers must be in good condition. • All hazardous materials must be compatible with containers. • Hazardous materials containers are kept closed. • Immediately contact the local EFS and stop work if any of the following conditions occur. After hours or if the local EFS is unavailable, please call the Environmental Hotline at 800-874-4043. – Discharge or spill of hazardous substance. – If an Environmental Regulator visits the site; – Visually cloudy/muddy water is observed leaving the work area; – An underground storage tank is discovered; or	PG&E to implement measures for PG&E Interconnection.	PG&E to track and maintain its own compliance.	During all phases of the project.

TABLE 5-1
REQUIRED MEASURES

Resource Area	Applicant Proposed Measures (APMs) PG&E Avoidance and Impact Minimization Measures (AMMs), Best Management Practices (BMPs) and Mitigation Measures (MMs) Identified in the IS/MND	Implementing Actions	Monitoring/ Reporting Requirements	Timing
	– A subsurface component related to site remediation activities (e.g., monitoring well, recovery well, injection well) is discovered. No subsurface components may be impacted. • If during excavation unanticipated evidence of contamination is identified (e.g., staining, odors), work must cease and when safe to do so, cover the trench with steel plates. In order to minimize impacts to public safety and the environment, place contaminated soil on a polyethylene sheet (4 ml) and cover or place the contaminated soil in lined covered containers. Then contact your local/support EFS to determine the next steps. • If any subsurface components related to site remediation activities (e.g., monitoring well, recovery well, injection well) are discovered in the path of excavation, work must cease in that location and your EFS must be notified to determine the next steps. No subsurface components may be impacted.			
Hazardous Materials	**BMP-10: Sulfur Hexafluoride (SF6) Gas Material/Waste Management.** Before accessing any equipment that may contain SF_6 gas byproduct waste, contact your local Environmental Field Specialist (EFS) at least two weeks in advance for assistance in arranging cleanup, transportation and disposal. PSC will retrieve, package, label and transport SF_6 byproducts. All SF_6 waste that is removed from a Substation must have proper shipping papers which could include a remote waste shipping paper or a manifest (manifests require a temporary EPA ID number). • Substation personnel shall contact PSC to retrieve, package, label, and transport SF_6 byproduct waste (i.e. fluorides of sulfur, metallic fluorides, etc.). All SF_6 byproduct waste that is removed must have proper shipping papers, which could include a remote waste shipping paper or a manifest (manifests require a permanent or temporary EPA ID number). • SF_6 cylinder tracking and facility inventory shall be managed in accordance with Utility Procedure TD-3350P-001. Advanced Specialty Gas (ASG) provides sole-source service in supplying, replacing, removal and recycling of SF_6 in all facilities. ASG provides 24-hour service in response to events involving SF_6 as well as delivery and removal of all SF_6 cylinders. Contact information: https://www.advancedspecialtygases.com.	PG&E to implement measures for PG&E Interconnection.	PG&E to track and maintain its own compliance.	Prior to and/or during construction as described by measure.
Hazardous Materials	**BMP-11: SPCC.** The local/support EFS shall be notified 30 days prior to an SPCC triggering event occurs (modification to existing or new storage of >1,320 gallons of oil in containers >55 gallons). If the oil volume is contained in anything greater than 55 gallons, the SPCC Plan must be certified by an engineer. The SPCC containment must be installed prior to moving onsite of quantities requiring containment. The PM number must remain open until the local/support EFS notifies you that the plan is certified by an engineer, and any necessary modifications are complete.	PG&E to implement measures for PG&E Interconnection.	PG&E to track and maintain its own compliance.	During all phases of the project.

TABLE 5-1
REQUIRED MEASURES

Resource Area	Applicant Proposed Measures (APMs) PG&E Avoidance and Impact Minimization Measures (AMMs), Best Management Practices (BMPs) and Mitigation Measures (MMs) Identified in the IS/MND	Implementing Actions	Monitoring/ Reporting Requirements	Timing
Hydrology and Water Quality	**BMP-12: Stormwater Measures.** For PG&E-owned substations, the Project EFS will provide the Stormwater Group with the following upon completion of the PER: Stormwater Needs Request Form, Soil Disturbance Calculation Spreadsheet, and a KMZ file showing the proposed work area. These documents shall be sent by the Project EFS, via email, to: stormwater@pge.com (if applicable). [Note: LSPGC will obtain the Storm Water Pollution Prevention Plan (SWPPP) for Fern Road Substation and the area immediately adjacent to it containing PG&E's monitoring facilities.]	PG&E and its contractors to implement measure as defined.	PG&E to track and maintain its own compliance.	During construction.
Hydrology and Water Quality	**BMP-13: PG&E Good Housekeeping,** Stockpile Management, and Small Area Substation Construction Stormwater Management Activity Specific Erosion Sediment Control Plan (A-ESCPs) measures shall be implemented.	PG&E and its contractors to implement measure as defined.	PG&E to track and maintain its own compliance.	During all phases of the project.
Hydrology and Water Quality	**BMP-14: Small Excavation: Construction Dewatering.** Dewatering of trenches or excavations may be required. The Environmental Lead/Project EFS shall be notified at least 30 days in advance to ensure the appropriate dewatering methods are used, proper notifications are made, and, if necessary, applicable authorizations/permits are obtained. All dewatering activities must be coordinated through the Environmental Lead/Project EFS throughout the duration of the project.	PG&E to implement measures for PG&E Interconnection.	PG&E to track and maintain its own compliance.	Coordinate with EFS at least 30 days prior to dewatering, as applicable, prior to or during construction.
Cultural and Tribal Resources	**BMP-15: Inadvertent Cultural Resource Discovery.** If cultural resources are observed during ground-disturbing activities (including, but not limited to flaked stone tools (projectile point, biface, scraper, etc.) and debitage (flakes) made of chert, obsidian, etc., groundstone milling tools and fragments (mortar, pestle, handstone, millingstone, etc.), faunal bones, fire-affected rock, dark middens, housepit depressions and human interments, small cemeteries or burial plots, cut (square) nails, containers or miscellaneous hardware, glass fragments, cans with soldered seams or tops, ceramic or stoneware objects or fragments, milled or split lumber, earthworks, feature or structure remains and trash dumps), the following procedures will be followed: • Stop all ground disturbing work within 100 feet of the discovery location to avoid impacts. • Immediately notify a PG&E Cultural Resource Specialist who will assess the discovery. • Leave the site or the artifact untouched. • Record the location of the resource, the circumstances that led to discovery, and the condition of the resource. • Do not publicly reveal the location of the resource and ensure the location is secured. • If unsure about the significance or antiquity of a discovery, photograph the artifact or feature with a scale (e.g., coin, tape measure, etc.) and send to a PG&E Cultural Resource Specialist for review.	PG&E and its contractors to implement measure as defined.	PG&E to track and maintain its own compliance.	During construction.

TABLE 5-1
REQUIRED MEASURES

Resource Area	Applicant Proposed Measures (APMs) PG&E Avoidance and Impact Minimization Measures (AMMs), Best Management Practices (BMPs) and Mitigation Measures (MMs) Identified in the IS/MND	Implementing Actions	Monitoring/ Reporting Requirements	Timing
	Comprehensive guidance on the protocol related to an inadvertent discovery of potentially significant cultural resources on a job site can be found in Utility Standard ENV-8005S or by consulting a PG&E Cultural Resource Specialist.			
Cultural and Tribal Resources	**BMP-16: Human Remains Protocol.** Section 7050.5 of the California Health and Safety Code (CHSC) states that it is a misdemeanor to knowingly disturb a human burial. In keeping with the provisions provided in 7050.5 CHSC and Public Resource Code 5097.98, if human remains are encountered (or are suspected) during any project-related activity: • Stop all work within 100 feet; • Immediately contact a PG&E Cultural Resource Specialist (CRS), who will notify the county coroner; • Secure location, but do not touch or remove remains and associated artifacts; • Do not remove associated spoils or pick through them; • Record the location and keep notes of all calls and events; and Treat the find as confidential and do not publicly disclose the location. Upon discovery of cultural resources or suspected human remains, contact the Cultural Resources Specialist.	PG&E and its contractors to implement measure as defined.	PG&E to track and maintain its own compliance.	During construction.
Cultural and Tribal Resources	**BMP-17: Worker Awareness Training.** Prior to the start of any ground-disturbing activity, PG&E's Cultural Resource Specialist (CRS) shall prepare archeological, historical and paleontological resources sensitivity training materials for use during a Project-wide Worker Environmental Awareness Training (WEAP), or equivalent. The CRS shall make the training materials available for review and comment by the Native American group that expressed interest in the project. The WEAP shall be conducted by a qualified environmental trainer working under the supervision of the CRS. In the event construction crews are phased, additional trainings shall be conducted for new construction personnel. The training session shall focus on the recognition of the types of resources that could be encountered within the Project site and the procedures to be followed if they are found. PG&E and/or its contractor shall retain documentation demonstrating that all construction personnel attended the training prior to the start of work on the site, which documentation shall be made available upon request.	PG&E and its contractors to implement measure as described.	PG&E to track and maintain its own compliance.	Prior to and during construction. WEAP training to be repeated for new construction personnel.
Applicable to all	**BMP-18: Nighttime Construction.** PG&E will provide advance notice to CPUC if nighttime construction is planned in advance.	PG&E and its contractors to implement measure as described.	PG&E to track and maintain its own compliance.	Prior to planned nighttime construction.
Air Quality	**BMP-19: Construction Equipment Air Quality.** PG&E will ensure that at least 41 percent of the on-site construction equipment associated with the PG&E interconnection facilities and distribution modifications include Tier 4 interim emissions controls and Level 3 diesel particulate filters by including this requirement in its contractor or internal specifications, with			

TABLE 5-1
REQUIRED MEASURES

Resource Area	Applicant Proposed Measures (APMs) PG&E Avoidance and Impact Minimization Measures (AMMs), Best Management Practices (BMPs) and Mitigation Measures (MMs) Identified in the IS/MND	Implementing Actions	Monitoring/ Reporting Requirements	Timing
	confirmation of the requirement provided to the CPUC. The hourly usage of diesel equipment that does not meet this standard shall be documented, with the logs available upon request.			
Biological Resources	**BMP-20: Bat-Safe Tree Removal.** If tree removal or trimming is necessary, PG&E will follow the procedures identified in Mitigation Measure BIO-1.			
Biological Resources	**BMP-21: APLIC Guidance.** PG&E will consider and incorporate Avian Power Line Interaction Committee (APLIC) design recommendations (2006, 2012), as applicable, for its 500 kV transmission line. For its distribution lines, conductors will be upgraded to tree-wire and all energized metallic parts will be covered, thereby eliminating or greatly minimizing the risk of bird collision or electrocution; and ensuring that any impacts would be less than significant.			
CEQA Mitigation Measures				
Air Quality	**Mitigation Measure AQ-1:** LSPGC shall ensure that 41 percent of equipment horsepower-hours related to the on-site construction equipment associated with the Fern Road Substation Facilities include Tier 4 interim emissions controls and Level 3 diesel particulate filters. An initial listing that identifies each off-road unit's certified tier specification and diesel particulate filter status to be operated at the Fern Road Substation Facilities, shall be submitted to CPUC for review before the start of construction activities at those sites. Construction activities at the Fern Road Substation Facilities shall not begin until the equipment listing has been submitted to CPUC. As LSPGC requires new or replacement construction equipment at the Project sites, LSPGC shall document verification of the certified engine tier or Level 3 diesel particulate filters before their use on those Project sites. Before the start of construction, LSPGC shall develop a diesel-powered equipment-use hours tracking tool and procedure. The tracking tool shall be utilized by LSPGC (and/or its construction contractor[s]) to keep track of the certified engine tier and daily equipment use hours of all off-road diesel-powered equipment. If all diesel-powered equipment is Tier 4 certified with Level 3 diesel particulate filters, the tracking tool is not required. The tracking tool shall be maintained by LSPGC and tracking updates shall be submitted to CPUC on a monthly basis to track the Project's compliance. The updated tracking tool shall be submitted to CPUC no later than the 10th day of the following month.	Applicant and its contractor to implement measure as described	Applicant to submit equipment list and provide to CPUC along with tracking tool.	Prior to and during construction as defined in mitigation measure.
Biological Resources	**Mitigation Measure BIO-1: Bat-Safe Tree Removal.** A qualified biologist shall conduct a pre-construction survey for roosting bats in trees to be removed or pruned. If no roosting bats are found, no further action is required. If a bat roost is found, the following measures shall be implemented to avoid impacts on roosting bats. If active maternity roosts are found in trees to be removed as part of construction, tree removal shall commence before maternity colonies form (generally before March 1) or after young are flying (generally by July 31). Active maternal roosts shall not be disturbed.	The Applicant and/or their designated contractors to implement measures as described.	Pre-construction survey by a qualified biologist.	Prior to and during construction as defined in mitigation measure.

TABLE 5-1
REQUIRED MEASURES

Resource Area	Applicant Proposed Measures (APMs) PG&E Avoidance and Impact Minimization Measures (AMMs), Best Management Practices (BMPs) and Mitigation Measures (MMs) Identified in the IS/MND	Implementing Actions	Monitoring/ Reporting Requirements	Timing
	If a non-maternal roost of bats is found in a tree to be removed as part of construction, the individuals shall be safely evicted, under the direction of a qualified biologist and with approval from California Department of Fish and Wildlife. Removal of the tree should occur no sooner than two nights after the initial minor site modification (to alter airflow), under guidance of the qualified biologist. The modifications shall alter the bat habitat, causing bats to seek shelter elsewhere after they emerge for the night. On the following day, the tree may be removed, in presence of the biologist. If any bat habitat is not removed, departure of bats from the construction area shall be confirmed with a follow-up survey prior to start of construction.			
Noise	**Mitigation Measure NOI-1:** Based on the locations where blasting is needed, the blasting contractor shall estimate noise levels at nearby receptors from blasting events using methods established by the former U.S. Bureau of Mines. The charge weight used for blasting shall be adjusted such that predicted noise levels at nearby receptors shall be less than 133 dB(L), which is the regulatory limit defined by the U.S. Bureau of Mines for air-overpressure measured with 2-Hz response seismographs.	Applicant and its contractors to implement measure as described.	Applicant to track and maintain compliance.	During construction.
Noise	**Mitigation Measure NOI-2:** Based on the location where blasting is needed, the blasting contractor shall estimate vibration levels at nearby receptors from blasting events using methods established by the former U.S. Bureau of Mines. The charge weight used for blasting shall be adjusted such that predicted vibration levels at receptors shall not exceed the more conservative limit of 0.3 in/sec PPV published by Caltrans.	Applicant and its contractors to implement measure as described.	Applicant to track and maintain compliance.	During construction.

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Appendix A
Mailing List

ESA

TABLE A-1
PUBLIC LIBRARIES

Name	Address
Oak Run Community Library	27480 Oak Run to Fern Rd, Oak Run, CA 96069
Shasta Public Libraries - Redding Library	1100 Parkview Ave, Redding, CA 96001

TABLE A-2
AGENCIES AND APPLICANT

Contact Name and Title	Agency/Organization	Address
Local Agencies		
Lio Salazar	Shasta County Department of Resource Management, and Shasta County Planning Division	1855 Placer Street, Suite 103 Redding, CA 96001
Jimmy Zanotelli, Fire Marshall	Shasta County Fire Department	875 Cypress Ave Redding, CA 96001
Chad Peterson, Air Quality District Manager	Shasta County Air Quality Management District	1855 Placer Street, Suite Redding, CA 96001
EJ	Shasta County Sheriff Department	300 Park Minna Circle Redding, CA 96001
Jim Whittle, EH Director	Shasta County Department of Resource Management, Environmental Health Division	1855 Placer Street, Suite 201 Redding, CA 96001
State Agencies		
	California Department of Fish and Wildlife, Northern Region (Region 1)	601 Locust Street Redding, CA 96001
Benjamin Rowe, Unit Forester	California Department of Forestry and Fire Protection (Northern Region, Shasta-Trinity)	875 Cypress Avenue Redding, CA 96001
	State Water Resources Control Board, Central Velley Region 5	364 Knollcrest Drive, #205 Redding, CA 96002
Department of Conservation, Division of Land Resource Protection	Department of Conservation, Division of Land Resource Protection	715 P Street, MS 1904 Sacramento, CA 95814
Lynn Coster	Central Valley Regional Water Quality Control Board (Region 5)	364 Knollcrest Drive, #205 Redding, CA 96002
Joseph Tapia	California Environmental Protection Agency, Department of Toxic Substance Control	1515 Tollhouse Road Clovis, CA 93612

TABLE A-3
RESIDENCES

12318 Fern Rd, Whitmore, CA 96096	37 Coconut Ct, Palm Coast, Fl 32137
12362 Fern Rd, Whitmore, CA 96096-9535	5858 Westside Rd, Redding, CA 96001
12377 Fern Rd, Whitmore, CA 96096	940 E Pine St, Lodi, CA 95240
1855 Placer St, Whitmore, CA 96001	PO Box 235, Round Mountain, CA 96804
3000 Lava Ridge Ct #130, Roseville, CA 95661	

Appendix B
Field Management Plan

(PEA Appendix E, LS Power 2022)

ESA

APPENDIX E

ELECTRIC AND MAGNETIC FIELDS MANAGEMENT PLAN

APPENDIX E
FIELD MANAGEMENT PLAN

Fern Road Substation Project

LS Power Grid California, LLC

April 2022

1.1 INTRODUCTION

In 1993, the California Public Utilities Commission (CPUC) adopted an electromagnetic field (EMF) policy for electric utility facilities and power lines.[1] Because the CPUC concluded there was no reliable scientific basis for adverse health effects from power grid frequency EMF, the CPUC declined to adopt a specific numerical standard for EMF exposure.[2] In 2004, the Commission opened a rulemaking docket to determine whether there were improvements that should be made to the EMF policy established in 1993.

In 2006, the Commission issued Decision 06-01-042, which affirmed the prior finding that no direct link between exposure to EMF and adverse health effects had been proven, despite numerous studies, including a research program ordered by the Commission and conducted by the Department of Health Services.[3] The decision also addressed the mitigation measures to be required in different land use contexts and determined that low-cost measures were not required in agricultural or undeveloped areas. Only no-cost mitigation measures are required in those areas.[4]

The CPUC adopted *EMF Design Guidelines for Electrical Facilities* dated July 21, 2006 (the "FMP Guidelines"), which require preparation of a substation field management plan (FMP) in the form of a checklist for construction of any new substation rated 50 kilovolts (kV) or above. The FMP Guidelines also state that magnetic field modeling for a new substation project is not required.

This FMP document, which was developed in accordance with the FMP Guidelines, provides a description of the measures proposed to reduce the potential for exposure to EMF generated by the proposed Fern Road Substation .

1.2 PROJECT DESCRIPTION

The Round Mountain 500 kilovolt (kV) Area Dynamic Reactive Support Project (Proposed Project) was approved by the California Independent System Operator Corporation (CAISO) to ensure the reliability of the CAISO controlled grid. This would be accomplished through the construction of a dynamic reactive device. The Proposed Project is being developed by LS Power Grid California, LLC (LSPGC), a Delaware limited liability company established to own transmission projects in California.

The Proposed Project consists of a dynamic reactive power support substation (the Fern Road Substation) providing approximately +/-529 million volt-amperes, reactive (MVAR) dynamic reactive capability to be installed in a minimum of two, equally sized Static Synchronous Compensator (STATCOM) units. Each STATCOM unit would be independently connected to the existing PG&E regional electric transmission system via the Round Mountain – Table Mountain #1 and #2 500 kV transmission lines that are located adjacent to the Project site.

Regarding the Fern Road Substation site, LSPGC holds an option to purchase 40 acres or more within an approximately 426-acre parcel located directly adjacent to the Round Mountain – Table

[1] Decision 93-11-013, pp. 10-11.
[2] *Id.* at p. 11.
[3] Decision 06-01-042 at 19.
[4] *Id.* at pp. 9, 20 (Finding of Fact 18).

Mountain #1 and #2 500 kV transmission line corridor. The Fern Road Substation site is located east of Fern Road and east of the existing PG&E transmission right-of-way (ROW), approximately 1.6 miles northwest of the unincorporated community of Whitmore and approximately 9.3 miles north of State Highway 44 in unincorporated southern Shasta County. The Fern Road Substation site is located within the eastern half of Public Land Survey System (PLSS) Section 11 of Township 32 North and Range 1 West. The Fern Road Substation site is mapped as grazing land (one of the Important Farmland categories) by the California Department of Conservation and is currently used as grazing land. As such, the Fern Road Substation site is classified as an agricultural area.

1.3 FMP INFORMATION

Per the FMP Guidelines, construction of a new substation rated 50 kV or above requires the preparation of a substation FMP in a form of a checklist. As discussed above, Decision 06-01-042 determined that low-cost field reduction measures are not required in agricultural areas.[5] As such, the checklist provided in Table 1 below evaluates only no-cost field reduction measures.

Table 1. Checklist Evaluation of No-Cost Field Reduction Measures

No.	Magnetic Field Reduction Measures Evaluated for the Proposed Project	Measure Adopted? (Yes/No)	Reason(s) if not Adopted
1	Locate high-current devices, transformers, capacitors, and reactors away from the substation property lines.	Yes	--
2	For underground duct banks, the minimum distance should be 12 feet from the adjacent property lines or as close to 12 feet as practical.	Yes	--
3	Locate new substations close to existing power lines to the extent practical.	Yes	--
4	Increase the substation property boundary to the extent practical.	Yes	--
5	Locate the Proposed Project close to existing substations to the extent practical.	Yes	--

[5] In addition, the nearest residence is located approximately 1,400 feet to the northwest of the Fern Road Substation fence line, with the existing Round Mountain – Table Mountain 500 kV transmission lines located between the residence and the Fern Road Substation. As such, there will be no noticeable change to electric or magnetic fields at any residence due to the Fern Road Substation. Low-cost mitigation measures are therefore not applicable per Section 1.1.B.b of the CPUC's *EMF Design Guidelines for Electrical Facilities* (July 21, 2006).