BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Application of PACIFIC GAS AND ELECTRIC COMPANY, a California corporation, for a Permit to Construct the Vierra Reinforcement Project Pursuant to General Order 131-D (U 39 E)	Application No.

EXHIBIT B

PROPONENT'S ENVIRONMENTAL ASSESSMENT FOR THE APPLICATION OF PACIFIC GAS AND ELECTRIC COMPANY FOR A PERMIT TO CONSTRUCT THE VIERRA REINFORCEMENT PROJECT

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June 6, 2018

Proponent's Environmental Assessment

Vierra Reinforcement Project

Prepared for

Pacific Gas and Electric Company

June 2018

Prepared by

TRC

Results you can rely on

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Acronyms

Acronym/ Abbreviation	Definition
AB	Assembly Bill
APM	Applicant-Proposed Measure
BAAH	breaker-and-a-half
BMP(s)	best management practice(s)
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CAA	Clean Air Act
CBC	California Building Code
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CGS	California Geological Survey
CH_4	Methane
CMP	Congestion Management Program
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CFR	Code of Federal Regulations
CPUC	California Public Utilities Commission
CRHR	California Register of Historic Resources
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
dBA	A-weighted sound level
dB	decibel
DTSC	Department of Toxic Substances Control
DWR	Department of Water Resources

Acronym/ Abbreviation	Definition
EDR	Environmental Data Resources, Inc.
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FMMP	Farmland Mapping and Monitoring Program
GHG	Greenhouse Gases
H_2S	hydrogen sulfide
kV	kilovolt
LDSP	light-duty steel pole
L_{eq}	energy equivalent sound level
L_{dn}	day-night equivalent noise level
LOS	Level of Service
MBTA	Migratory Bird Treaty Act
MPAC	Modular Protection, Automation, and Control building
MRZ	mineral resource zone
NAAQS	National Ambient Air Quality Standards
NO_2	nitrogen dioxide
N_2O	nitrous oxide
NO_x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
O_3	ozone
O&M	operation and maintenance
Pb	lead
PEA	Proponent’s Environmental Assessment
PFYC	Potential Fossil Yield Classification
PG&E	Pacific Gas and Electric Company
$PM_{2.5}$	Particulate matter with a diameter less than or equal to 2.5 microns
PM_{10}	particulate matter less than 10 microns in equivalent diameter
PPV	peak particle velocity
PTC	Permit to Construct

Acronym/ Abbreviation	Definition
ROG	reactive organic gas
RWQCB	Regional Water Quality Control Board
SF_6	sulfur hexafluoride gas
SCAQMD	South Coast Air Quality Management District
SIP	state implementation plan
SJCOG	San Joaquin Council of Governments
SJVAPCD	San Joaquin Valley Air Pollution Control District
SO_2	sulfur dioxide
SPCC	Spill Prevention Countermeasure and Control
SR	State Route
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TCR	Tribal Cultural Resources
TSP	Tubular Steel Pole
UCMP	University of California Museum of Paleontology
USA	Underground Service Alert
USGS	U.S. Geological Survey
USFWS	U.S. Fish and Wildlife Service
VRP	visibility reducing particles

Index to CPUC PEA Requirements

CPUC Requirement	PEA Section Number
Cover Sheet	
Chapter 1: PEA Summary	
1. The major conclusions of the PEA	1.0, 2.0
2. Any areas of controversy	None Known
3. Any major issues that must be resolved including the choice among reasonably feasible alternatives and mitigation measures, if any;	None Known
4. Description of inter-agency coordination, if any; and	1.3
5. Description of public outreach efforts, if any.	1.3
Chapter 2: Project Purpose and Need and Objectives	
2.1 Overview Explanation of the objective(s) and/or Purpose and Need for implementing the Proposed Project.	2.2
2.2 Project Objectives Analysis of the reason why attainment of these objectives is necessary or desirable. Such analysis must be sufficiently detailed to inform the Commission in its independent formulation of project objectives which will aid any appropriate CEQA alternatives screening process.	2.2
Chapter 3: Project Description	
3.1 Project Location	
1. Geographical Location: County, City (provide project location map(s)).	2.3, Figures 2.0-1, 2.0-2, and 2.0-3
2. General Description of Land Uses within the project site (e.g., residential, commercial, agricultural, recreation, traverses vineyards, farms, open space, number of stream crossings, etc.).	3.10-3, 3.1.3.1, Figure 3.10-1
3. Describe if the Proposed Project is located within an existing property owned by the Applicant, traverses existing rights of way (ROW) or requires new ROW. Give the approximate area of the property or the length of the project that is in an existing ROW or which requires new ROWs.	2.6

CPUC Requirement	PEA Section Number
3.2 Existing System	
1. Describe the local system to which the Proposed Project relates; include all relevant information about substations, transmission lines and distribution circuits.	2.2, 2.4
2. Provide a schematic diagram and map of the existing system.	Figures 2.0-4a, 2.0-1,
3. Provide a schematic diagram that illustrates the system as it would be configured with implementation of the Proposed Project.	Figure 2.0-4b
3.3 Project Objectives	2.2
3.4 Proposed Project	
1. Describe whole of the Proposed Project. Is it an upgrade, a new line, new substations, etc.?	2.1, 2.5
2. Describe how the Proposed Project fits into the Regional system. Does it create a loop for reliability, etc.?	2.2
3. Describe all reasonably foreseeable future phases, or other reasonably foreseeable consequences of the Proposed Project.	2.1
4. Provide capacity increase in MW. If the project does not increase capacity, state it.	2.2
5. Provide GIS (or equivalent) data layers for the Proposed Project preliminary engineering including estimated locations of all physical components of the Proposed Project as well as those related to construction. For physical components, this could include but is not limited to the existing components (e.g., ROW, substation locations, poles, etc.) as well as the proposed pole locations, transmission lines, substations, etc. For elements related to construction include: proposed or likely lay-down areas, work areas at the pole sites, pull and tension sites, access roads (e.g., temporary, permanent, existing, etc.), areas where special construction methods may need to be employed, areas where vegetation removal may occur, areas to be heavily graded, etc. More details about this type of information are provided below.	GIS data layers will be submitted separately to CPUC staff
3.5 Project Components	
3.5.1 Transmission Line	
1. What type of line exists and what type of line is proposed (e.g., single-circuit, double-circuit, upgrade 69 kV to 115 kV).	2.5.1

CPUC Requirement	PEA Section Number
2. Identify the length of the upgraded alignment, the new alignment, etc.	2.5.1
3. Would construction require one-for-one pole replacement, new poles, steel poles, etc.?	2.5.1
4. Describe what would occur to other lines and utilities that may be co-located on the poles to be replaced (e.g., distribution, communication, etc.).	No infrastructure will be co-located on the new poles.
3.5.2 Poles/Towers: Provide the following information for each pole/tower that would be installed <u>and</u> for each pole/tower that would be removed:	
1. Unique ID number to match GIS database information.	For security reasons, poles have been assigned project-specific numbers (1, 2, 3, etc.).
2. Structure diagram and, if available, photos of existing structure. Preliminary diagram or "typical" drawings and, if possible, photos of proposed structure. Also provide a written description of the most common types of structures and their use (e.g., Tangent poles would be used when the run of poles continues in a straight line, etc.). Describe if the pole/tower design meets raptor safety requirements.	2.5.1, Figure 2.0-4
3. Type of pole (e.g., wood, steel, etc.) or tower (e.g., self-supporting lattice).	2.5.1
4. For poles, provide "typical" drawings with approximate diameter at the base and the tip; for towers, estimate the width at base and top.	2.5.1, Figure 2.0-4
5. Identify typical total pole lengths, the approximate length to be embedded, and the approximate length that would be above ground surface; for towers, identify the approximate height above ground surface and approximate base footprint area.	2.5.1
6. Describe any specialty poles or towers; note where they would be used (e.g., angle structures, heavy angle lattice towers, stub guys); make sure to note if any guying would likely be required across a road.	N/A
7. If the project includes pole-for-pole replacement, describe the approximate location of where the new poles would be installed relative to the existing alignment.	Not applicable (N/A); preliminary pole locations are shown in Appendix A

CPUC Requirement	PEA Section Number
8. Describe any special pole types (e.g., poles that require foundations, transition towers, switch towers, microwave towers, etc.) and any special features.	2.5.1, 2.5.2, 2.5.4
3.5.3 Conductor Cable	
3.5.3.1 Above-Ground Installation	
1. Describe the type of line to be installed on the poles/tower (e.g., single circuit with distribution, double circuit, etc.).	2.5.1
2. Describe the number of conductors required to be installed on the poles or tower and how many on each side including applicable engineering design standards.	2.5.1
3. Provide the size and type of conductor (e.g., ACSR, non-specular, etc.) and insulator configuration.	2.5.1
4. Provide the approximate distance from the ground to the lowest conductor and the approximate distance between the conductors (i.e., both horizontally and vertically) Provide specific information at highways, rivers, or special crossings.	2.5.1
5. Provide the approximate span lengths between poles or towers, note where different if distribution is present or not if relevant.	2.5.1
6. Describe if other infrastructure would likely be collocated with the conductor (e.g., fiber optics, etc); if so, provide conduit diameter of other infrastructure.	No infrastructure will be co-located on the new poles.
3.5.3.2 Below-Ground Installation	
1. Describe the type of line to be installed (e.g., single circuit cross-linked polyethylene-insulated solid-dielectric, copper-conductor cables).	N/A
2. Describe the type of casing the cable would be installed in (e.g., concrete-encased duct bank system); provide the dimensions of the casing.	N/A
3. Provide an engineering ‘typical’ drawing of the duct bank and describe what types of infrastructure would likely be installed within the duct bank (e.g., transmission, fiber optics, etc.).	N/A
3.5.4 Substations	
1. Provide “typical” Plan and Profile views of the proposed substation and the existing substation if applicable.	Figures 2.0-5 and 2.0-6

CPUC Requirement	PEA Section Number
2. Describe the types of equipment that would be temporarily or permanently installed and provide details as to what the function/use of said equipment would be. Include information such as, but not limited to: mobile substations, transformers, capacitors, and new lighting.	2.1, 2.5.2
3. Provide the approximate or "typical" dimensions (width and height) of new structures including engineering and design standards that apply.	2.5.2
4. Describe the extent of the Proposed Project. Would it occur within the existing fence line, existing property line or would either need to be expanded?	2.5.2
5. Describe the electrical need area served by the distribution substation.	2.2
3.6 Right-of-Way Requirements	
1. Describe the ROW location, ownership, and width. Would existing ROW be used or would new ROW be required?	2.6
2. If new ROW is required, describe how it would be acquired and approximately how much would be required (length and width).	2.6
3. List properties likely to require acquisition.	2.5.2, 2.6
3.7 Construction	
3.7.1 For All Projects	
3.7.1.1 Staging Areas	
1. Where would the main staging area(s) likely be located?	2.7.1
2. Approximately how large would the main staging area(s) be?	2.7.1
3. Describe any site preparation required, if known, or generally describe what might be required (i.e., vegetation removal, new access road, installation of rock base, etc.).	2.7.1
4. Describe what the staging area would be used for (i.e., material and equipment storage, field office, reporting location for workers, parking area for vehicles and equipment, etc.).	2.7.1
5. Describe how the staging area would be secured, would a fence be installed? If so, describe the type and extent of the fencing.	2.7.1
6. Describe how power to the site would be provided if required (i.e., tap into existing distribution, use of diesel generators, etc.).	2.7.1

CPUC Requirement	PEA Section Number
7. Describe any grading activities and/or slope stabilization issues.	2.7.1
3.7.1.2 Work Areas	
1. Describe known work areas that may be required for specific construction activities (i.e., pole assembly, hill side construction, etc.).	2.7.2
2. For each known work area, provide the area required (include length and width) and describe the types of activities that would be performed.	2.7.2
3. Identify the approximate location of known work areas in the GIS database.	Available GIS data layers will be submitted separately to CPUC staff
4. How would the work areas likely be accessed (e.g., construction vehicles, walk in, helicopter, etc.)?	2.7.3
5. If any site preparation is likely required, generally describe what and how it would be accomplished.	2.7.2
6. Describe any grading activities and/or slope stabilization issues.	2.7.2
7. Based on the information provided, describe how the site would be restored.	2.7.11
3.7.1.3 Access Roads and/or Spur Roads	
1. Describe the types of roads that would be used and or would need to be created to implement the Proposed Project. See table below as an example of information required. Road types may include, but are not limited to: new permanent road; new temporary road; existing road that would have permanent improvements; existing road that would have temporary improvements, existing paved road; existing dirt/gravel road, and overland access.	2.7.3
2. For road types that require preparation, describe the methods and equipment that would be used.	2.7.3
3. Identify approximate location of all access roads (by type) in the GIS database.	Available GIS data layers will be submitted separately to CPUC staff
4. Describe any grading activities and/or slope stabilization issues. See table in PEA Checklist as an example of information required. Road types may include, but are not limited to: new permanent road; new temporary road; existing road that would have permanent improvements; existing road that would have temporary improvements, existing paved road; existing dirt/gravel road, and	2.7.3

CPUC Requirement	PEA Section Number
overland access	
3.7.1.4 Helicopter Access	
1. Identify which proposed poles/towers would be removed and/or installed using a helicopter.	N/A
2. If different types of helicopters are to be used, describe each type (e.g., light, heavy or sky crane) and what activities they will be used for.	2.7.2.5, Table 2.0-3
3. Provide information as to where the helicopters would be staged, where they would refuel, where they would land within the Project site.	2.7.2.5
4. Describe any BMPs that would be employed to avoid impacts caused by use of helicopters, for example: air quality and noise considerations.	2.7.2.5, 3.12.4.2
5. Describe flight paths, payloads, hours of operations for known locations and work types.	2.7.2.5, Table 2.0-2
3.7.1.5 Vegetation Clearance	
1. Describe what types of vegetation clearing may be required (e.g., tree removal, brush removal, flammable fuels removal) and why (e.g., to provide access, etc.).	2.7.4
2. Identify the preliminary location and provide an approximate area of disturbance in the GIS database for each type of vegetation removal.	Available GIS data layers will be submitted separately to CPUC staff
3. Describe how each type of vegetation removal would be accomplished.	2.7.4
4. For removal of trees, distinguish between tree trimming as required under GO-95D and tree removal.	2.7.4, 3.4.4.3 (e)
5. Describe the types and approximate number and size of trees that may need to be removed.	2.7.2.2
6. Describe the type of equipment typically used.	2.7.2.2, 2.7.4, Table 2.0-2
3.7.1.6 Erosion and Sediment Control and Pollution Prevention during Construction	
1. Describe the areas of soil disturbance including estimated total areas, and associated terrain type and slope. List all known permits required. For project sites of less than one acre, outline the best	2.7.5, 3.9.4.2, APM HYDRO-1

CPUC Requirement	PEA Section Number
management practices (BMPs) that would be implemented to manage surface runoff. Things to consider include, but are not limited to, the following: • Erosion and Sedimentation BMPs; • Vegetation Removal and Restoration; and/or, • Hazardous Waste and Spill Prevention Plans.	and HM-2
2. Describe any grading activities and/or slope stabilization issues.	2.7.5
3. Describe how construction waste (i.e., refuse, spoils, trash, oil, fuels, poles, pole structures, etc.) would be disposed.	2.7.4, 2.7.11
3.7.1.7 Cleanup and Post-Construction Restoration	
1. Describe how cleanup and post-construction restoration would be performed (i.e., personnel, equipment, and methods). Things to consider include, but are not limited to, restoration of the following: Natural drainage patterns; wetlands; vegetation, and other disturbed areas (i.e. staging areas, access roads, etc).	2.7.11
3.7.2 Transmission Line Construction (Above Ground)	
3.7.2.1 Pull and Tension Sites	
1. Provide the general or average distance between pull and tension sites.	2.7.2.4, Appendix A Project Route Map
2. Provide the area of pull and tension sites, include the estimated length and width.	2.7.2.4
3. According to the preliminary plan, how many pull and tension sites would be required, and where would they be located? Please provide the location information in GIS.	2.7.2.4; Available GIS data layers will be submitted confidentially under CPUC Section 583.
4. What type of equipment would be required at these sites?	2.7.2.4
5. If conductor is being replaced, how would it be removed from the site?	N/A
3.7.2.2 Pole Installation Removal	
1. Describe how the construction crews and their equipment would be transported to and from the pole site location. Provide vehicle type, number of vehicles, and estimated number of trips and hours of operation.	2.7.3, Table 2.0-2

CPUC Requirement	PEA Section Number
Pole and Foundation Removal	
1. Describe the process of how the poles and foundations would be removed.	2.5.1
2. Describe what happens to the hole that the pole was in (i.e., reused or backfilled)?	2.5.1
3. If the hole is to be filled, what type of fill would be used, where would it come from?	2.5.1
4. Describe any surface restoration that would occur at the pole site?	N/A
5. Describe how the poles would be removed from the site?	2.5.1
Top Removal	
If topping is required to remove a portion of an existing transmission pole that would now only carry distribution lines, please provide the following:	
1. Describe the methodology to access and remove the tops of these poles	N/A
2. Describe any special methods that would be required to top poles that may be difficult to access, etc.	N/A
Pole/Tower Installation	
1. Describe the process of how the new poles/towers would be installed; specifically call out any special construction methods (e.g., helicopter installation) for specific locations or for different types of poles/towers.	2.7.7.1
2. Describe the types of equipment and their use as related to pole/tower installation.	2.7.7.1, Table 2.0-2, Table 2.0-3
3. Describe actions taken to maintain a safe work environment during construction (e.g., covering of holes/excavation pits, etc.).	2.7.7.1, 3.8.4.2
4. Describe what would be done with soil removed from a hole/foundation site.	2.7.7.1
5. For any foundations required, provide description of construction method(s), approximate average depth and diameter of excavation, approximate volume of soil to be excavated, approximate volume of concrete or other backfill required, etc.	2.7.7.1
6. Describe briefly how poles/towers and associated hardware are assembled.	2.7.7.1

CPUC Requirement	PEA Section Number
7. Describe how the poles/towers and associated hardware would be delivered to the site; would they be assembled off-site and brought in or assembled on site?	2.7.7.1
8. Provide a table of pole/tower installation metrics and associated disturbance area estimates as in PEA Checklist 3.7.2.2	Table 2.0-2
3.7.2.3 Conductor/Cable Installation	
1. Provide a process-based description of how new conductor/cable would be installed and how old conductor/cable would be removed, if applicable. Note, graphical representation of the general sequencing is helpful for the reader here.	2.7.7.2
2. Generally describe the conductor/cable splicing process.	N/A
3. If vaults are required, provide their dimensions and approximate location/spacing along the alignment.	N/A
4. Describe in what areas conductor/cable stringing/installation activities would occur.	2.7.7.3, Appendix A
5. Describe any safety precautions or areas where special methodology would be required (e.g., crossing roadways, stream crossing).	2.7.2.3, 2.7.7.2, 2.7.7.4
3.7.3 Transmission Line Construction (Below Ground)	
3.7.3.1 Trenching	
1. Describe the approximate dimensions of the trench (e.g., depth, width).	N/A
2. Describe the methodology of making the trench (e.g., saw cutter to cut the pavement, back hoe to remove, etc.).	N/A
3. Provide the total approximate cubic yardage of material to be removed from the trench, the amount to be used as backfill and the amount to subsequently be removed/disposed of off-site.	N/A
4. Provide off-site disposal location, if known, or describe possible option(s).	N/A
5. If engineered fill would be used as backfill, provide information as to the type of engineered backfill and the amount that would be typically used (e.g., the top two feet would be filled with thermal-select backfill).	N/A

CPUC Requirement	PEA Section Number
6. Describe if dewatering would be anticipated, if so, how the trench would be dewatered, what are the anticipated flows of the water, would there be treatment, and how would the water be disposed.	N/A
7. Describe the process for testing excavated soil or groundwater for the presence of pre-existing environmental contaminants that could be exposed as a result of trenching operations.	N/A
8. If a pre-existing hazardous waste were encountered, describe the process of removal and disposal.	N/A
9. Describe any standard BMPs that would be implemented.	N/A
3.7.3.2 Trenchless Techniques: Microtunnel, Bore and Jack, Horizontal Directional Drilling	
1. Provide the approximate location of the sending and receiving pits.	N/A
2. Provide the length, width and depth of the sending and receiving pits.	N/A
3. Describe the methodology of excavating and shoring the pits.	N/A
4. Describe the methodology of the trenchless technique.	N/A
5. Provide the total cubic yardage of material to be removed from the pits, the amount to be used as backfill and the amount to subsequently be removed/disposed of off-site.	N/A
6. Describe process for safe handling of drilling mud and bore lubricants.	N/A
7. Describe process for detecting and avoiding “fracturing-out” during HDD operations.	N/A
8. Describe process for avoiding contact between drilling mud/lubricants and stream beds.	N/A
9. If engineered fill would be used as backfill, provide information as to the type of engineered backfill and the amount that would be typically used (e.g., the top two feet would be filled with thermal-select backfill).	N/A
10. Describe if dewatering would be anticipated, if so, how the pit would be dewatered, what are the anticipated flows of the water, would there be treatment, and how would the water be disposed.	N/A
11. Describe the process for testing excavated soil or groundwater for the presence of pre-existing environmental contaminants.	N/A

CPUC Requirement	PEA Section Number
12. If a pre-existing hazardous waste were encountered, describe the process of removal and disposal.	N/A
13. Describe any grading activities and/or slope stabilization issues.	N/A
14. Describe any standard BMPs that would be implemented.	N/A
3.7.4 Substation Construction	
1. Describe any earth moving activities that would be required; what type of activity and, if applicable, estimate cubic yards of materials to be reused and/or removed from the site for both site grading and foundation excavation.	2.7.6
2. Provide a conceptual landscape plan in consultation with the municipality in which the substation is located.	APM AES-4; Figure 3.1-3b
3. Describe any grading activities and/or slope stabilization issues.	2.7.6, 3.9-6 – 11, APM HYDRO-1
4. Describe possible relocation of commercial or residential property, if any.	N/A
3.7.5 Construction Workforce and Equipment	
1. Provide the estimated number of construction crew members.	2.7.12
2. Describe the crew deployment, would crews work concurrently (i.e., multiple crews at different sites); would they be phased, etc.	2.7.13; preliminary schedule details will be submitted when available
3. Describe the different types of activities to be undertaken during construction; the number of crew members for each activity i.e. trenching, grading, etc.; and number and types of equipment expected to be used for said activity. Include a written description of the activity. See example in PEA Checklist 3.7.5.	2.7.12, Table 2.0-2
4. Provide a list of the types of equipment expected to be used during construction of the Proposed Project as well as a brief description of the use of the equipment. See example in PEA Checklist 3.7.5.	Table 2.0-3
3.7.6 Construction Schedule	
1. Provide a Preliminary Project Construction Schedule; include contingencies for weather, wildlife closure periods, etc. Include Month Year, or Month Year to Month Year for each. See example in PEA Checklist 3.7.6.	2.7.13

CPUC Requirement	PEA Section Number
3.8 Operation and Maintenance	
1. Describe the general system monitoring and control (i.e., use of standard monitoring and protection equipment, use of circuit breakers and other line relay protection equipment, etc.).	2.8
2. Describe the general maintenance program of the Proposed Project, include items such as: • Timing of the inspections (i.e., monthly, every July, as needed); • Type of inspection (i.e., aerial inspection, ground inspection); and • Description of how the inspection would be implemented. Things to consider, who/how many crew members; how would they access the site (walk to site, vehicle, ATV); would new access be required; would restoration be required, etc.	2.8
3. If additional full time staff would be required for operation and/or maintenance, provide the number and for what purpose.	N/A
3.9 Applicant-Proposed Measures	
1. If there are measures that the Applicant would propose to be part of the Proposed Project, please include those measures and reference plans or implementation descriptions.	2.10
Chapter 4: Environmental Setting	
4.1 Aesthetics	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	
• Local environment (site-specific)	3.1.3.1
• Regional environment	3.1.3.1
2. A description of the regulatory environment/context	
• Federal	3.1.2.1
• State	3.1.2.1
• Local	3.1.2.1
4.2 Agriculture Resources	
1. A description of the physical environment in the vicinity of the project	

CPUC Requirement	PEA Section Number
(e.g. topography, land use patterns, biological environment, etc.)	
• Local environment (site-specific)	3.2.3.2, 3.2.4.3 (a)
• Regional environment	3.2.3.1
2. A description of the regulatory environment/context	
• Federal	3.2.2.1
• State	3.2.2.1
• Local	3.2.2.1
4.3 Air Quality	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	
• Local environment (site-specific)	3.3.3.1, 3.3.4.3 (d)
• Regional environment	3.3.3.1
2. A description of the regulatory environment/context	
• Federal	3.3.2.1
• State	3.3.2.1
• Local	3.3.2.1
4.4 Biological Resources	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	
• Local environment (site-specific)	3.4.3.1
• Regional environment	3.4.3.1
2. A description of the regulatory environment/context	
• Federal	3.4.2.1
• State	3.4.2.1
• Local	3.4.2.1

CPUC Requirement	PEA Section Number
4.5 Cultural Resources	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	
• Local environment (site-specific)	3.5.3
• Regional environment	3.5.3
2. A description of the regulatory environment/context	
• Federal	3.5.2.1
• State	3.5.2.1
• Local	3.5.2.1
4.6 Geology, Soils and Seismic Potential	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	
• Local environment (site-specific)	3.6.3
• Regional environment	3.6.3.1
2. A description of the regulatory environment/context	
• Federal	3.6.2.1
• State	3.6.2.1
• Local	3.6.2.1
4.7 Hazards and Hazardous Materials	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	
• Local environment (site-specific)	3.8.3
• Regional environment	3.8.3
2. A description of the regulatory environment/context	
• Federal	3.8.2.1

CPUC Requirement	PEA Section Number
• State	3.8.2.1
• Local	3.8.2.1
4.8 Hydrology and Water Quality	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	
• Local environment (site-specific)	3.9.3
• Regional environment	3.9.3.1
2. A description of the regulatory environment/context	
• Federal	3.9.2.1
• State	3.9.2.1
• Local	3.9.2.1
4.9 Land Use and Planning	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	
• Local environment (site-specific)	3.10.3.2
• Regional environment	3.10.3.1
2. A description of the regulatory environment/context	
• Federal	3.10.2.1
• State	3.10.2.1
• Local	3.10.2.1
4.10 Mineral Resources	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	
• Local environment (site-specific)	3.11.3
• Regional environment	3.11.3

CPUC Requirement	PEA Section Number
2. A description of the regulatory environment/context	
• Federal	3.11.2.1
• State	3.11.2.1
• Local	3.11.2.1
4.11 Noise	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	
• Local environment (site-specific)	3.12.3
• Regional environment	3.12.3
2. A description of the regulatory environment/context	
• Federal	3.12.2.1
• State	3.12.2.1
• Local	3.12.2.1
4.12 Population and Housing	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	
• Local environment (site-specific)	3.13.3
• Regional environment	3.13.3
2. A description of the regulatory environment/context	
• Federal	3.13.2.1
• State	3.13.2.1
• Local	3.13.2.1

CPUC Requirement	PEA Section Number
4.13 Public Services	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	
• Local environment (site-specific)	3.14.3
• Regional environment	3.14.3
2. A description of the regulatory environment/context	
• Federal	3.14.2.1
• State	3.14.2.1
• Local	3.14.2.1
4.14 Recreation	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	
• Local environment (site-specific)	3.15.3.1
• Regional environment	3.15.3.1
2. A description of the regulatory environment/context	
• Federal	3.15.2.1
• State	3.15.2.1
• Local	3.15.2.1
4.15 Transportation and Traffic	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	
• Local environment (site-specific)	3.16.3
• Regional environment	3.16.3.1

CPUC Requirement	PEA Section Number
2. A description of the regulatory environment/context	
• Federal	3.16.2.1
• State	3.16.2.1
• Local	3.16.2.1
4.16 Utilities and Public Services	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	
• Local environment (site-specific)	3.17.3
• Regional environment	3.17.3
2. A description of the regulatory environment/context	
• Federal	3.17.2.1
• State	3.17.2.1
• Local	3.17.2.1
Chapter 5: Environmental Impact Assessment Summary	
5.1 Aesthetics Provide visual simulations of prominent public view locations, including scenic highways to demonstrate the before and after project implementation. Additional simulations of affected private view locations are highly recommended.	Figures 3.1-3b and 3.1-4b
5.2 Agriculture Resources Identify the types of agricultural resources affected.	3.2.4.3
5.3 Air Quality	
1. Provide supporting calculations / spreadsheets / technical reports that support emission estimates in the PEA.	To be submitted separately to CPUC staff
2. Provide documentation of the location and types of sensitive receptors that could be impacted by the project (e.g., schools, hospitals, houses, etc.). Critical distances to receptors is dependant on type of construction activity.	3.3.4.3 (d)

CPUC Requirement	PEA Section Number
3. Identify Project Green House Gas (GHG) emissions as follows:	
• Quality GHG emissions from a business as usual snapshot. That is, what the GHG emissions will be from the proposed project if no mitigations were used	3.7.4.3 (a), Table 3.7-2, Table 3.7-3
• Quantify GHG emission reductions from every Applicant Proposed Measure that is implemented. Itemize quantifications and place in a table format	Table 3.7-2
• Identify the net emissions of a project after mitigations have been applied.	3.7.4.3 (a), Table 3.7-2, Table 3.7-3
• Calculate and quantify GHG emissions (CO2equivalent) for the project including construction & operation.	3.7.4.3
• Calculate and quantify the GHG reduction based on reduction measures proposed for the project.	3.7.4.3
• Propose Applicant Proposed Measures (APM) to implement and follow to maximize GHG reductions. If sufficient, CPUC will accept them without adding further mitigation measures.	3.7.4.2
• Discuss programs already in place to reduce GHG emissions on a system wide level. This includes Applicant's voluntary compliance with USEPA SF6 reduction program, reductions from energy efficiency, demand response, LTPP, et al.	APM GHG-2
5.4 Biological Resources - In addition to an Impacts Analysis:	
1. Provide a copy of the Wetland Delineation and supporting documentation (i.e., data sheets). If verified, provide supporting documentation. Additionally, GIS data of the wetland features should be provided as well.	N/A
2. Provide a copy of special status surveys for wildlife, botanical and aquatic species, as applicable. Any GIS data documenting locations of special-status species should be provided.	This information will be submitted separately to CPUC staff
5.5 Cultural Resources - In addition to an Impacts Analysis:	
1. Cultural Resources Report documenting a cultural resources investigation of the Proposed Project. This report should include a literature search, pedestrian survey, and Native American consultation.	This information will be submitted separately to CPUC staff
2. Provide a copy of the records found in the literature search.	This information will be submitted separately to

CPUC Requirement	PEA Section Number
	CPUC staff
3. Provide a copy of all letters and documentation of Native American consultation.	Appendix E
5.6 Geology, Soils and Seismic Potential - In addition to an impacts analysis:	
1. Provide a copy of geotechnical investigation if completed, including known and potential geologic hazards such as ground shaking, subsidence, liquefaction, etc.	To be completed and provided separately to CPUC staff
5.7 Hazards and Hazardous Materials - In addition to an impacts analysis:	
1. Environmental Data Resources Report.	Provided separately to CPUC staff
2. Hazardous Substance Control and Emergency Response Plan.	Equivalent to be provided separately to the CPUC staff
3. Health and Safety Plan.	Equivalent to be provided separately to the CPUC staff
4. Worker Environmental Awareness Program (WEAP).	To be completed and provided separately to CPUC staff
5. Describe what chemicals would be used during construction and operation of the Proposed Project. For example: fuels, etc. for construction, naphthalene to treat wood poles before installation.	3.8.3, 3.8.4.3 (a)
5.8 Hydrology and Water Quality – In addition to an impacts analysis:	
1. Describe impacts to groundwater quality including increased run-off due to construction of impermeable surfaces, etc.	3.9.4.3 (a) –(e)
2. Describe impacts to surface water quality including the potential for accelerated soil erosion, downstream sedimentation, and reduced surface water quality.	3.9.4.3
5.9 Land Use and Planning - In addition to an impacts analysis:	
1. Provide GIS data of all parcels within 300' of the Proposed Project with the following data: APN number, mailing address, and parcel's physical address.	Appendix B; available GIS data layers will be submitted separately to

CPUC Requirement	PEA Section Number
	CPUC staff
5.10 Mineral Resources - Data needs already specified under Chapter 3 would generally meet the data needs for this resource area.	
5.11 Noise	
1. Provide long term noise estimates for operational noise (e.g., corona discharge noise, and station sources such as substations, etc.).	3.12.4.3 (c) and (a)
5.12 Population and Housing Data needs already specified under Chapter 3 would generally meet the data needs for this resource area.	
5.13 Public Services Data needs already specified under Chapter 3 would generally meet the data needs for this resource area.	
5.14 Recreation Data needs already specified under Chapter 3 would generally meet the data needs for this resource area	
5.14 Transportation and Traffic Describe the likely probable routes that are the subject of the traffic analysis.	3.16.3.1 and 3.16.3.2
1. Discuss traffic impacts resulting from construction of the Proposed Project including ongoing maintenance operations.	3.16.4.3 (a) and (b)
2. Provide a preliminary description of the traffic management plan that would be implemented during construction of the Proposed Project.	APM TRA-1.
5.16 Utilities and Services Systems	
1. Describe how treated wood poles would be disposed of after removal, if applicable.	N/A
5.17 Cumulative Analysis	
1. Provide a list of projects (i.e., past, present and reasonably foreseeable future projects) within the Project Area that the applicant is involved in.	3.18.4, Table 3.18-2
2. Provide a list of projects that have the potential to be proximate in space and time to the Proposed Project. Agencies to be contacted	3.18.4, Table 3.18-2

CPUC Requirement	PEA Section Number
include but are not limited to: the local planning agency, Caltrans, etc.	
5.18 Growth-Inducing Impacts, If Significant	
1. Provide information on the Proposed Project's growth inducing impacts, if any. The information should include, but is not necessarily limited, to the following:	N/A
• Any economic or population growth, in the surrounding environment that will directly or indirectly, result from the Proposed Project	N/A
• Any increase in population that could further tax existing community service facilities (i.e., schools, hospitals, fire, police, etc.), that will directly or indirectly result from the Proposed Project	N/A
• Any obstacles to population growth that the Proposed Project would remove	N/A
• Any other activities, directly or indirectly encouraged or facilitated by the Proposed Project that would cause population growth that could significantly affect the environment, either individually or cumulatively	N/A
Chapter 6: Detailed Discussion of Significant Impacts	
6.3 Growth-Inducing Impacts	
Information required to analyze the Proposed Project's effects on growth would vary depending on the type of project proposed. Generally, for transmission line projects the discussion would be fairly succinct and focus on the following:	
1. Would the Proposed Project foster economic or population growth, either directly or indirectly, in the surrounding environment?	3.13.4.3 (a)
2. Would the Proposed Project cause an increase in population that could further tax existing community service facilities (i.e., schools, hospitals, fire, police, etc.)?	3.14.4.3
3. Would the Proposed Project remove obstacles to population growth?	3.13.4.3 (a)
4. Would the Proposed Project encourage and facilitate other activities that would cause population growth that could significantly affect the environment, either individually or cumulatively?	3.13.4.3 (a)

CPUC Requirement	PEA Section Number
6.4 Applicant Proposed Measures to address GHG Emissions	
See the menu of suggested APMs in PEA Checklist Section 6.4 that applicants can consider. Applicants can and are encouraged to propose other GHG reducing mitigations. Priority is given to on-site and/or near by mitigation measures. Off-site mitigation measures within California will be considered.	3.7.4.2
Chapter 7: Other Process-Related Data Needs	
1. Excel spreadsheet that includes all parcels within 300 feet of any project component with the following data: APN number, owner mailing address, and parcels physical address.	Appendix B

1.0 PEA SUMMARY

1.1 INTRODUCTION

PG&E's Vierra Reinforcement Project (project) proposes to expand PG&E's existing Vierra Substation in the City of Lathrop and build a new, double-circuit power line west from the substation approximate one mile to the existing Tesla-Stockton Cogen Junction 115 kilovolt (kV) Power Line. The expanded substation and new line will provide more electrical capacity and reliability for households and businesses in Lathrop, Manteca, and surrounding areas of San Joaquin County.

The new line, with its double-circuit connection to the Tesla-Stockton Cogen Junction Power Line, will reinforce the area's 115 kV system as well as the 60 kV systems connected to it at Kasson, Manteca, and Salado substations. The double-circuit line will be made up of the Tesla-Vierra and Vierra-Stockton Cogen Junction 115 kV power lines, located together on approximately 16 tubular steel poles (TSPs). The project will also improve reliability by upgrading the substation to a breaker-and-a-half (BAAH) bus configuration, where each bay will have two elements (line or transformer connections) connected to three 115 kV circuit breakers. Using this configuration, only two breakers per BAAH bay are used at one time, allowing one breaker to be taken out of service without taking either of the two lines out of service. Additionally, the upgrade of Vierra Substation to a BAAH bus configuration will allow for Howland Road Substation, located approximately 0.7 mile north of Vierra Substation, to receive power directly from Vierra Substation instead of from the Vierra-Tracy-Kasson 115 kV line, which is approximately 10.5 miles in length, thereby increasing the reliability of Howland Road Substation.

The project was planned and engineered to avoid or minimize environmental impacts, and Applicant-Proposed Measures (APMs) will be implemented to further avoid or minimize impacts to environmental resources. This Proponent's Environmental Assessment (PEA) describes the environmental setting, regulations, and APMs for minimizing potential effects, and evaluates potential environmental impacts that could result from construction and operation of the project. With implementation of the APMs, all potential project-related impacts will be less than significant.

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

1.2 ORGANIZATION OF THE PEA

As required by the CPUC guidelines, Appendix G of the California Environmental Quality Act (CEQA) (hereafter referred to as the CEQA Checklist) was used as the format for assessing potential impacts under CEQA. The CPUC, as lead agency, will review this information and will be responsible for preparing and providing public review of the Initial Study.

This PEA is organized in the following manner:

- Chapter 1.0, PEA Summary
- Chapter 2.0, Project Description, provides a detailed description of the project and its purpose and need. In addition, the end of this chapter provides a list of the APMs that will be implemented (APMs are described in detail in Table 2.0-5 of Chapter 2.0 and in Chapter 3.0, Impact Assessment Summary).
- Chapter 3.0, Impact Assessment Summary, Sections 3.1 through 3.18, provides the environmental setting information and an analysis of all potential impacts on resources (described in the CEQA Checklist) that might result from implementing the project, and the Mandatory Findings of Significance and growth-inducing impacts of the project. Each section includes a description of the regulatory context, environmental setting, resource-specific APMs, and analysis and assessment of potential impacts resulting from construction, operation, and maintenance of the project.

Appendices include the following:

- Appendix A: Project Route Map
- Appendix B: Properties Within 300 Feet
- Appendix C: EMF Background Information
- Appendix D: Nesting Birds: Species-Specific Buffers for PG&E Activities
- Appendix E: Native American Heritage Commission Correspondence
- Appendix F: List of Preparers

1.3 AGENCY COORDINATION AND PUBLIC OUTREACH EFFORTS

1.3.1 AGENCY COORDINATION

PG&E met with several regulatory agencies in the early planning stages of the project to solicit input on project design and potential resource and land use issues in the vicinity of the project.

Table 1-1: Summary of Agency Meetings Conducted to Date, summarizes the agency meetings and correspondence that took place in the development of this PEA and the Permit to Construct (PTC) application. Coordination with these agencies will continue through the project's planning process, and discretionary permits will be applied for where necessary.

No local discretionary (e.g., use) permits are required because the CPUC has preemptive jurisdiction over the construction, maintenance, and operation of PG&E facilities in California. The CPUC's authority does not preempt other state agencies or the federal government. PG&E will obtain all applicable ministerial building and encroachment permits from local jurisdictions.

PG&E will obtain permits, approvals, and licenses, and participate in reviews and consultations as needed with federal, state, and local agencies.

Table 1-1: Summary of Agency Meetings Conducted to Date

Date of Consultation/Meetings	Agency
9/5/16	California High-Speed Rail Authority
Beginning 9/28/16 (multiple dates)	City of Lathrop
Beginning 12/15/16	City of Manteca
Beginning 4/14/17 (multiple dates)	Caltrans District 10
Beginning 5/11/17 (multiple dates)	Altamont Commuters Express (ACE Rail)
Beginning 6/1/17 (multiple dates)	County of San Joaquin
7/14/17	Livermore Amador Valley Transit Authority

1.3.2 NATIVE AMERICAN HERITAGE COMMISSION AND TRIBAL OUTREACH

A search of the Sacred Lands File was requested from the Native American Heritage Commission (NAHC) in June 2016. The NAHC identified six tribal groups with traditional or historical ties to the region who may have information about Native American resources within the project area. On July 8, 2017, PG&E sent letters to contacts at six Native American tribes, requesting information on resources in the siting study area and inviting general comments or questions pertaining to the project. Follow-up letters were sent to the same contacts plus one additional tribal group on September 27, 2017. PG&E received a response from one tribe and reached out again to the remaining six tribes by email and telephone on October 18, 2017. Ultimately, five of the seven tribal groups contacted responded to the request for information and comments.

1.3.3 PUBLIC AND COMMUNITY OUTREACH

Public outreach and communications are critical elements of PG&E's planning process. PG&E identified and reached out to key stakeholders in the vicinity of the project to solicit input and provide information about the project.

PG&E began public outreach in September 2016 with government agencies, community members and property owners to introduce the project and receive feedback to assist in the development of potential routes. In addition, PG&E distributed mailers to inform those within 500 feet of the studied routes and options, and within 1,000 feet of the expanded Vierra Substation, about the project, and to solicit feedback. A second mailer was sent to notify the same property owners of the proposed route in December 2017. Feedback from the community assisted PG&E with analyzing the potential route options and determining the final proposed project.

Four formal comment letters were received in response to this outreach. Two comments were received from agencies: Union Pacific Railroad and the City of Lathrop. Two comments were received from customers: Lazares Companies (South Lapthrop, LLC) and Tuff Boy Properties (Marty Harris).

2.0 PROJECT DESCRIPTION

2.1 OVERVIEW

PG&E's Vierra Reinforcement Project (project) proposes to expand PG&E's existing Vierra Substation in the City of Lathrop and build a new, double-circuit power line west from the substation approximately 1 mile to the existing Tesla-Stockton Cogen Junction 115 kilovolt (kV) Power Line. The expanded substation and new line will provide more electrical capacity and reliability for households and businesses in Lathrop, Manteca, and surrounding areas of San Joaquin County.

The new line, with its double-circuit connection to the Tesla-Stockton Cogen Junction 115 kV Power Line, will reinforce the area's 115 kV system as well as the 60 kV systems connected to it at Kasson, Manteca, and Salado substations. The double-circuit line will be made up of the Tesla-Vierra and Vierra-Stockton Cogen Junction 115 kV power lines, located together on approximately 16 tubular steel poles (TSPs). The project will also improve reliability by upgrading the substation to a breaker-and-a-half (BAAH) bus configuration, where each bay will have two elements (line or transformer connections) connected to three 115 kV circuit breakers. Using this configuration, only two breakers per BAAH bay are used at one time, allowing one breaker to be taken out of service without taking either of the two lines out of service. Additionally, the upgrade of Vierra Substation to a BAAH bus configuration will allow for Howland Road Substation, located approximately 0.7 mile north of Vierra Substation, to receive power directly from Vierra Substation instead of from the Vierra-Tracy-Kasson 115 kV line, which is approximately 10.5 miles in length, thereby increasing the reliability of Howland Road Substation.

The project consists of the following major components:

- **Power Line Construction.** An approximately 1-mile-long, double-circuit 115 kV power line will be installed on approximately 16 TSPs.

- **Substation Expansion**. Vierra Substation will be expanded approximately 340 feet to the west. The existing 115 kV equipment will be replaced, upgraded, and reconfigured to accommodate the new 115 kV double-circuit lines.

  To accommodate the substation expansion and future improvements to Vierra Road, three existing TSPs supporting both the Vierra-Tracy-Kasson 115 kV Power Line and the Manteca-Vierra 115 kV Power Line will be relocated, two TSPs will be installed, and two TSPs will be removed. Approximately four temporary shoo-fly structures will be installed to support the relocation of the these lines. Additionally, a minimum of one wood pole will be removed and one new single-circuit TSP and one new single-circuit light-duty steel pole (LDSP) will be installed to re-route the Howland Road 115 kV Tap to its new termination bay within the expanded substation.

New equipment to be installed at the substation consists of:

- a four-bay, BAAH bus arrangement
- eleven 115 kV sulfur hexafluoride (SF6) circuit breakers
- 24 center break disconnect switches
- 7 vertical break disconnect switches
- 19 coupling-capacitor voltage (CCVT) 115 kV transformers
- a 115 kV station service transformer 100 kVA
- associated support structures
- Modular Protection, Automation, and Control (MPAC) building
- battery building
- microwave communication facilities

Equipment to be removed consists of:

- two 115 kV circuit breakers
- six 115 kV CCVT transformers
- 3 disconnect switches
- 2 bypass switches
- 2 circuit switchers
- associated structures
- string bus

The expanded substation includes space for a third transformer and two additional 115 kV line positions, consistent with PG&E standard practice, although there are no plans for these facilities. The expansion will also include a storm water retention pond.

In addition to expanding Vierra Substation, the project will require remote end upgrades to facilities at Tesla, Kasson, Tracy, Manteca, Howland Road, San Joaquin Cogen, Ripon Cogen, and Thermal Cogen substations to integrate protection of the new line into the existing system. Telecommunication equipment will also be installed at various substations and existing telecommunication facilities, including microwave towers or monopoles, dishes on existing towers, and antennas.

2.2 PROJECT PURPOSE, NEED, AND OBJECTIVES

The Vierra Reinforcement Project is an electric infrastructure project in the Tesla 115 kV system south of Stockton that is aimed at helping PG&E provide added capacity and reliability to households and businesses in San Joaquin County. The heaviest electric load in this region is centered around the cities of Manteca and Lathrop, which are in the eastern and southeastern parts of the service area. These customers are served from the distant Tesla Substation, approximately 20 miles to the west, or the Tracy Combined Cycle Power Plant (formerly GWF Tracy Power Plant and referred to herein as "GWF Tracy"), approximately five miles closer.

Power is transmitted to the load centers on four transmission paths that start at Tesla Substation and travel generally eastward on different routes toward Manteca Substation in the City of Manteca. (See Figure 2.0-1: Existing and Proposed Tesla 115 kV System.) The paths (named for the substations they pass through) include:

- Tesla-Schulte-Lammers-Kasson 115 kV Power Line
- Tesla-Schulte-Kasson-Manteca 115 kV Power Line
- Tesla-Salado-Manteca 115 kV Power Line
- Tesla-Tracy-Kasson-Vierra-Manteca 115 kV Power Line[1]

Much of the power for the Tesla 115 kV system is supplied by the GWF Tracy Power Plant, which connects directly into the Tesla-Schulte-Lammers-Kasson and Tesla-Schulte-Kasson-Manteca power lines east of Tesla Substation. The Tesla 115 kV system also receives stepped-down power at Tesla Substation from two 230/115 kV transformers.

The rest of the generation feeding Tesla Substation is connected to the Tesla-Stockton Cogen Junction 115 kV Power Line. This line begins at Stockton Cogen Junction, an open switch near the Stockton Cogen Substation and power plant approximately 25 miles northeast of Tesla Substation. The power line travels southerly approximately 10 miles to the San Joaquin River, where it is joined by the Ripon Cogen 115 kV Power Line, a 10-mile-long tap line from the Ripon Cogen Substation and power plant in the City of Ripon. The Tesla-Stockton Cogen Junction 115 kV Power Line then continues generally southwesterly from the river for approximately 15 miles to Tesla Substation, picking up additional power on the way from the Thermal Energy power plant approximately 4 miles east of Tesla Substation.

In the City of Lathrop, the Tesla-Stockton Cogen Junction 115 kV Power Line passes one mile west of Vierra Substation, and does not connect to the substation. Vierra Substation is located at the southern edge of Lathrop just northwest of the City of Manteca and is connected to two other 115 kV power lines extending from Tracy, Kasson and Manteca substations, the Tracy-Kasson-Vierra and Manteca-Vierra 115 kV power lines. Vierra, Tracy, Kasson and Manteca substations are directly or indirectly connected to Tesla Substation and together serve power to over half of

[1] The Tracy-Kasson-Vierra 115 kV Power Line and the Manteca-Vierra 115 kV Power Line both connect to Vierra Substation and are part of this transmission path.

the electric load in the Tesla 115 kV system. At Vierra Substation, power is converted from 115 kV to 17 kV distribution voltage to serve area customers.

With electric generation and load located on opposite ends of the Tesla 115 kV system, heavy loading on sections of the four transmission paths between Tesla and Manteca substations could result from overlapping outages on two of the four transmission paths – known as a P6 planning event.[2] If this were to happen within the existing 115 kV system, the remaining lines may not be able to handle the load. This past summer, one of the transmission paths, the Tesla-Salado-Manteca 115 kV Power Line, remained out of service from a heavy winter storm. To mitigate potential overloads for the next outage, Transmission Operations was prepared to initiate rolling blackouts of up to 68 MW of load. Fortunately, the second overlapping outage did not materialize.

To improve system reliability and increase capacity by approximately 164 MW,[3] PG&E proposes to construct a one-mile-long, double-circuit power line between the Tesla-Stockton Cogen Junction 115 kV Power Line and Vierra Substation. The California Independent Systems Operator (CAISO) approved this project in its 2010-2011 Transmission Plan and, after reassessment in 2017, reaffirmed the approval in its 2017-2018 Transmission Plan. The new connecting line will provide a shortcut from the generation sources on the Tesla-Stockton Cogen Junction 115 kV Power Line through Vierra Substation to the Manteca load centers. It will also add a fifth transmission path for power to be transmitted from Tesla Substation to the load centers in the east and southeast of the service area. The fifth transmission path will add capacity to the system and reduce the loading on the existing four transmission paths, which will prevent overloads for any overlapping outages if a P6 event takes two lines out of service.

The project will also upgrade Vierra Substation to a BAAH bus configuration, where each bay will have two elements (line or transformer connections) connected to three 115 kV circuit breakers. The BAAH upgrade will not only further improve reliability for the three transmission paths connecting through Vierra Substation, it will also facilitate a direct connection to Howland Road Substation, located approximately 0.7 mile north of Vierra Substation.

The objectives of the project include:

- Increase service reliability to electricity customers in the cities of Lathrop, Manteca, and surrounding communities by alleviating a potential overload condition due to the growing load in the existing system
- Meet the category "P6" planning performance requirement established by NERC that the electric system will operate reliably during the loss of two transmission circuits

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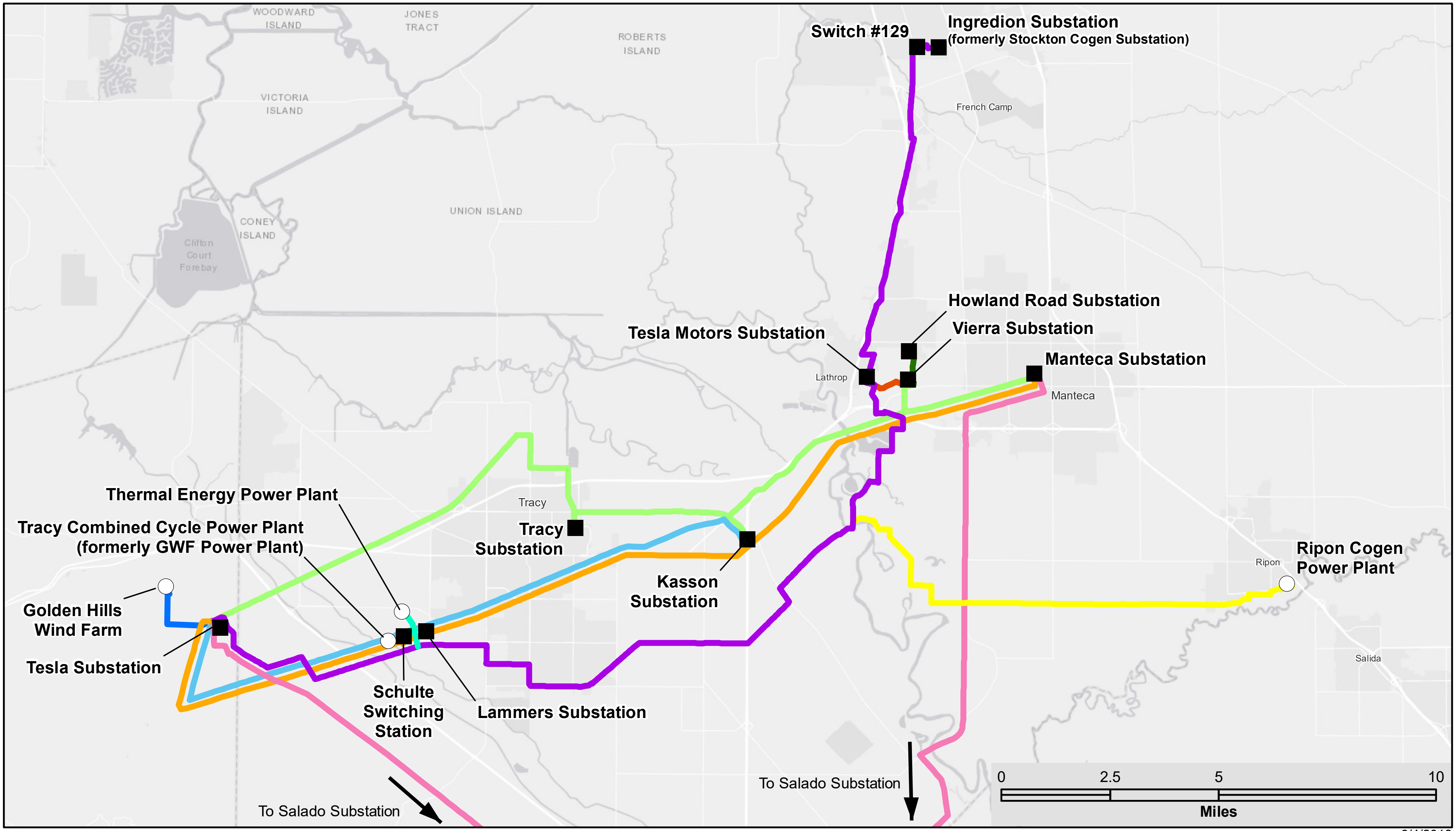
[2] A category "P6" planning performance requirement, established by the North American Reliability Corporation (NERC), provides for purposes of this project that the electric system will operate reliably during the loss of two transmission circuits.

[3] The project is expected to add approximately 164 MW, based on preliminary planning estimates.



S:\7-SANDBOX\chaworth\WorkDocs\PG&E\Vierra PEA\mxd\Figure 2_0-1 Existing and Proposed Tesla 115 kV System.mxd

6/4/2018

- ■ Substations and Switching Stations
- ○ Generation
- Tesla-Stockton Cogen Junction 115 kV Power Line
- New 115 kV Line to be Installed
- Howland Road 115 kV Tap
- Thermal Energy 115 kV Tap
- Ripon Cogen 115 kV Power Line
- Tesla - Trust 115 kV Power Line
- Tesla-Salado-Manteca 115 kV Power Line Path
- Tesla-Schulte-Kasson-Manteca 115 kV Power Line Path
- Tesla-Schulte-Lammers-Kasson 115 kV Power Line Path
- Tesla-Tracy-Kasson-Vierra-Manteca 115 kV Power Line Path

Figure 2.0-1 Existing and Proposed Tesla 115 kV System

Vierra Reinforcement Project

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- Increase electric system capacity to help meet increasing demand in and around the cities of Lathrop and Manteca
- Design and build the CAISO-approved project in a safe, cost-effective manner that will also minimize environmental impacts

2.3 PROJECT LOCATION

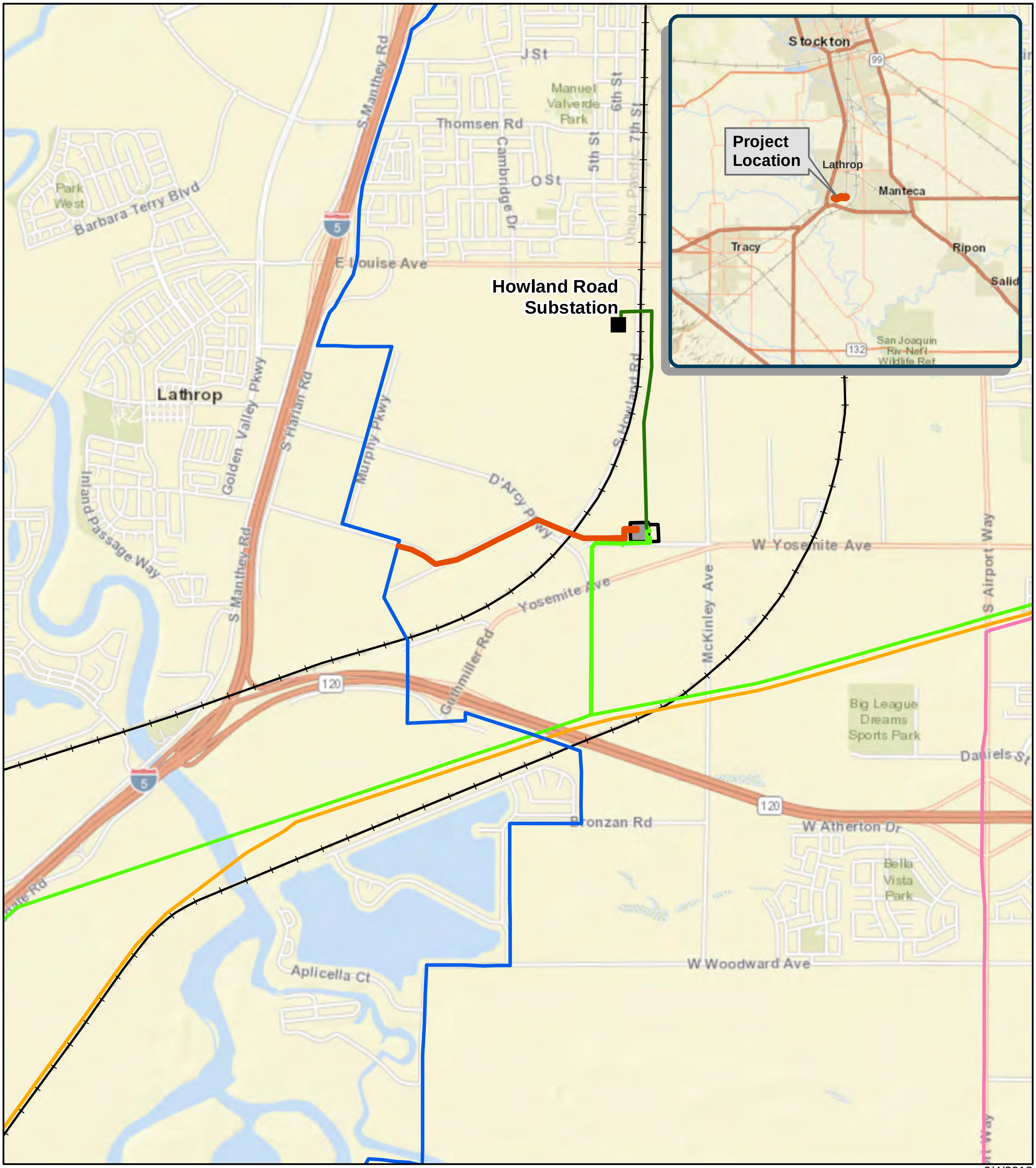
2.3.1 VIERRA SUBSTATION AND NEW 115 KV LINE

Vierra Substation and the new power line are located in a primarily industrial area within the City of Lathrop, in southern San Joaquin County (see Figure 2.0-2: Project Area Map). The new power line will originate at Vierra Substation, north of State Route 120 and east of Interstate 5. It will extend approximately 1,000 feet west along the north side of Vierra Road, and then turn in a northwesterly direction for approximately 1,000 feet, crossing Union Pacific Railroad tracks at a perpendicular angle and paralleling the east side of D'Arcy Parkway. The alignment then turns west and extends along the south side of Christopher Way for approximately 2,000 feet, and then northwest along Nestle Way for approximately 800 feet to where it ties into the existing Tesla-Stockton Cogen Junction 115 kV Power Line on the west side of a private spur rail line serving the industrial park. The alignment is shown on Figure 2.0-3: Project Overview Map; approximate pole locations are shown on Appendix A: Project Route Map.

2.3.2 WORK AT OTHER SUBSTATIONS

The new line will be integrated into the existing system with new protection equipment at several area substations. These upgrades will occur within the existing fence lines at the following facilities:

- Tesla Substation, located at 16116 Patterson Pass Road in Alameda County
- Kasson Substation, located at 23851 Kasson Road in San Joaquin County
- Tracy Substation, located at 17201 Kelso Road in Alameda County
- Manteca Substation, located at 245 Elm Avenue in the City of Manteca, in San Joaquin County
- Howland Road Substation, located at 16700 Howland Road in the City of Lathrop, in San Joaquin County
- San Joaquin Cogen Substation, located at 17200 Murphy Parkway in the City of Lathrop, in San Joaquin County
- Ripon Cogen Substation, located at 944 S Stock Avenue in the City of Ripon, in San Joaquin County
- Thermal Cogen Substation, located at 14700 W Schulte Road in San Joaquin County



S:\7-SANDBOX\chaworth\WorkDocs\PG&E\Vierra PEA\mxd\Figure 2_0-2 Project Area Map.mxd

6/4/2018

- New 115 kV Line to be Installed
- Existing Tesla-Stockton Cogen Jct 115 kV
- Howland Road 115 kV Tap
- Existing Vierra Substation Footprint
- Planned Vierra Substation Expansion
- Tesla-Salado-Manteca 115 kV Power Line Path
- Tesla-Schulte-Kasson-Manteca 115 kV Power Line Path
- Tesla-Tracy-Kasson-Vierra-Manteca 115 kV Power Line Path
- Union Pacific Railroad

0 1,000 2,000 4,000

Feet

N

Figure 2.0-2 - Project Area Map

Vierra Reinforcement Project

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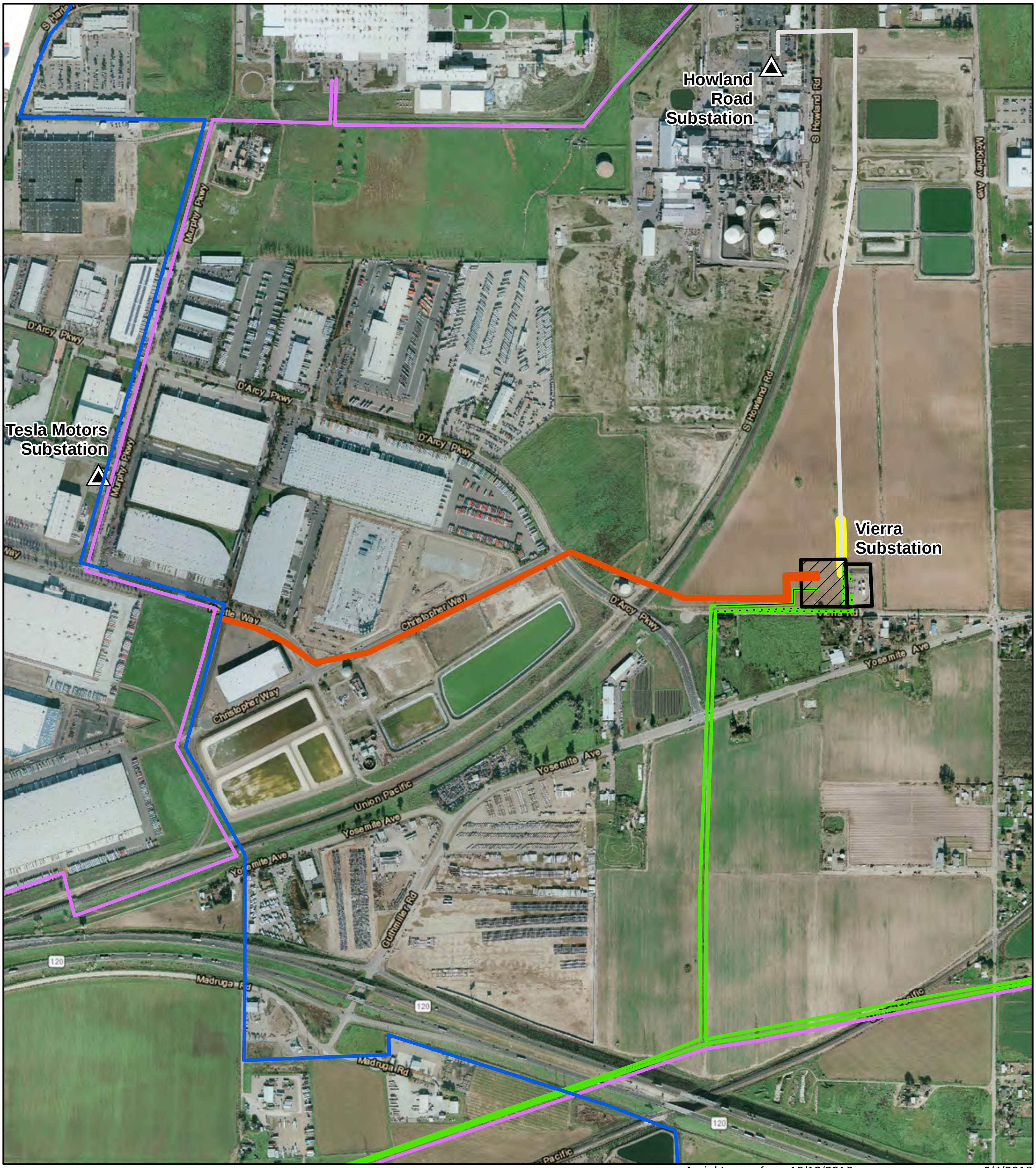

S:\7-SANDBOX\chaworth\WorkDocs\PG&E\Vierra PEA\mxd\Figure 2_0-3 Project Overview Map.mxd

Aerial Image from 12/12/2016

6/4/2018

Substations

New 115 kV Line to be Installed

Existing Tesla-Stockton Cogen Jct 115 kV

Existing Howland Road Tap 115kV

Howland Road 115 kV Tap (Reconfigured Span)

Existing 60 kV Lines

Existing 115 kV Lines

Existing 115 kV Lines to be Relocated

Existing 115 kV Lines to be Removed

Existing Vierra Substation Footprint

Planned Vierra Substation Expansion

0 250 500 1,000

Feet

N

Figure 2.0-3 - Project Overview Map

Vierra Reinforcement Project

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2.3.3 TELECOMMUNICATION

2.3.3.1 Microwave Facilities

Microwave towers or monopoles, each with two dishes approximately 4-feet in diameter, will be installed within the existing fence lines at Vierra, Kasson, Manteca, and Tracy substations. Antennas will be installed on existing microwave structures within the existing fences lines at Ripon Cogen, Thermal Cogen, San Joaquin Cogen, and Howland Road substations. The location of Vierra Substation is described in Section 2.3.1 and the locations of Kasson, Manteca, Tracy, Ripon Cogen, Thermal Cogen, San Joaquin Cogen, and Howland Road substations are described in Section 2.3.2.

2.3.3.2 Mount Oso and Highland Peak Microwave Dishes

Microwave dishes, approximately 4-feet in diameter, will be added to existing telecommunications towers at Mount Oso and Highland Peak. The Mount Oso tower is located in northwestern Stanislaus County, approximately 6 miles northwest of the intersection of Del Puerto Canyon Road and Mount Oso Road, just off of Mount Oso Road. The Highland Peak tower is located in southern Contra Costa County, approximately 4.5 miles west of the intersection of Morgan Territory Road and Manning Road, along a private road. Both towers will be accessed by existing roads.

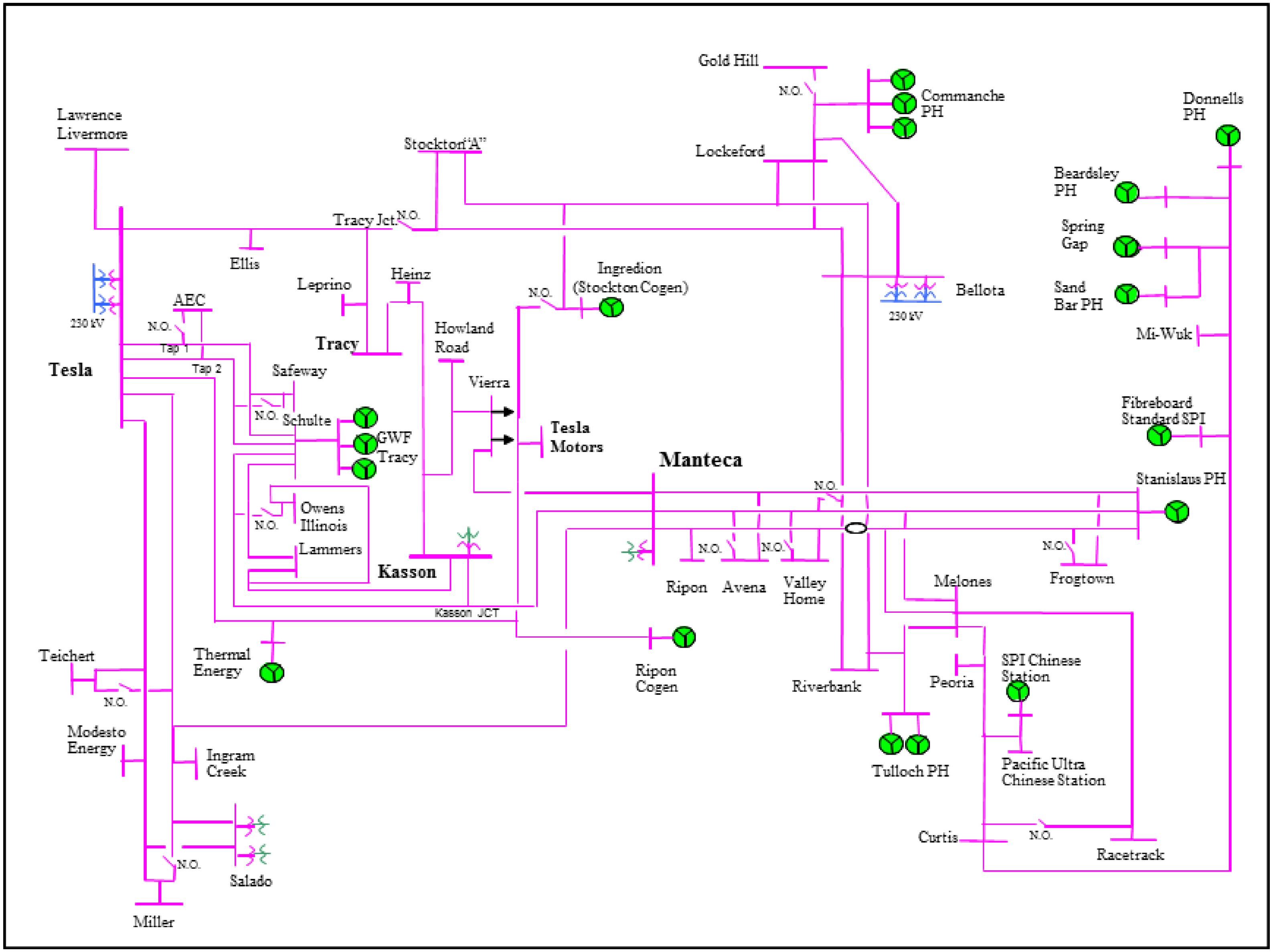
2.4 EXISTING SYSTEM

Vierra Substation serves the cities of Lathrop and Manteca, and is located approximately 1 mile east of the Tesla-Stockton Cogen Junction 115 kV Power Line. This power line collects and delivers generation to Tesla Substation, located approximately 17 miles southwest of Vierra Substation. The Tesla-Stockton Cogen Junction 115 kV Power Line also serves Tesla Motors Substation in the Crossroads Industrial Park (see Figure 2.0-3: Project Overview Map) and provides a back-tie support as needed to the Lockeford/Bellota 115 kV System (see Figure 2.0-4a: Existing Regional Transmission System). The proposed regional transmission system is depicted in Figure 2.0-4b: Proposed Regional Transmission System.

2.5 PROPOSED PROJECT

2.5.1 POWER LINE

The new power line between Vierra Substation and the existing Tesla-Stockton Cogen Junction 115 kV Power Line will be approximately one mile long and a double-circuit, composed of the Tesla-Vierra 115 kV Power Line and Vierra-Stockton Cogen Junction 115 kV Power Line. The power line will be supported by approximately 16 galvanized TSPs that range in height from approximately 80 to 90 feet above ground.



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S:\7-SANDBOX\chaworth\WorkDocs\PG&E\Vierra PEA\mxd\Figure 2_0-4a Existing Regional Transmission System.mxd

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Figure 2.0-4a - Existing Regional Transmission System
Vierra Reinforcement Project
PG&E

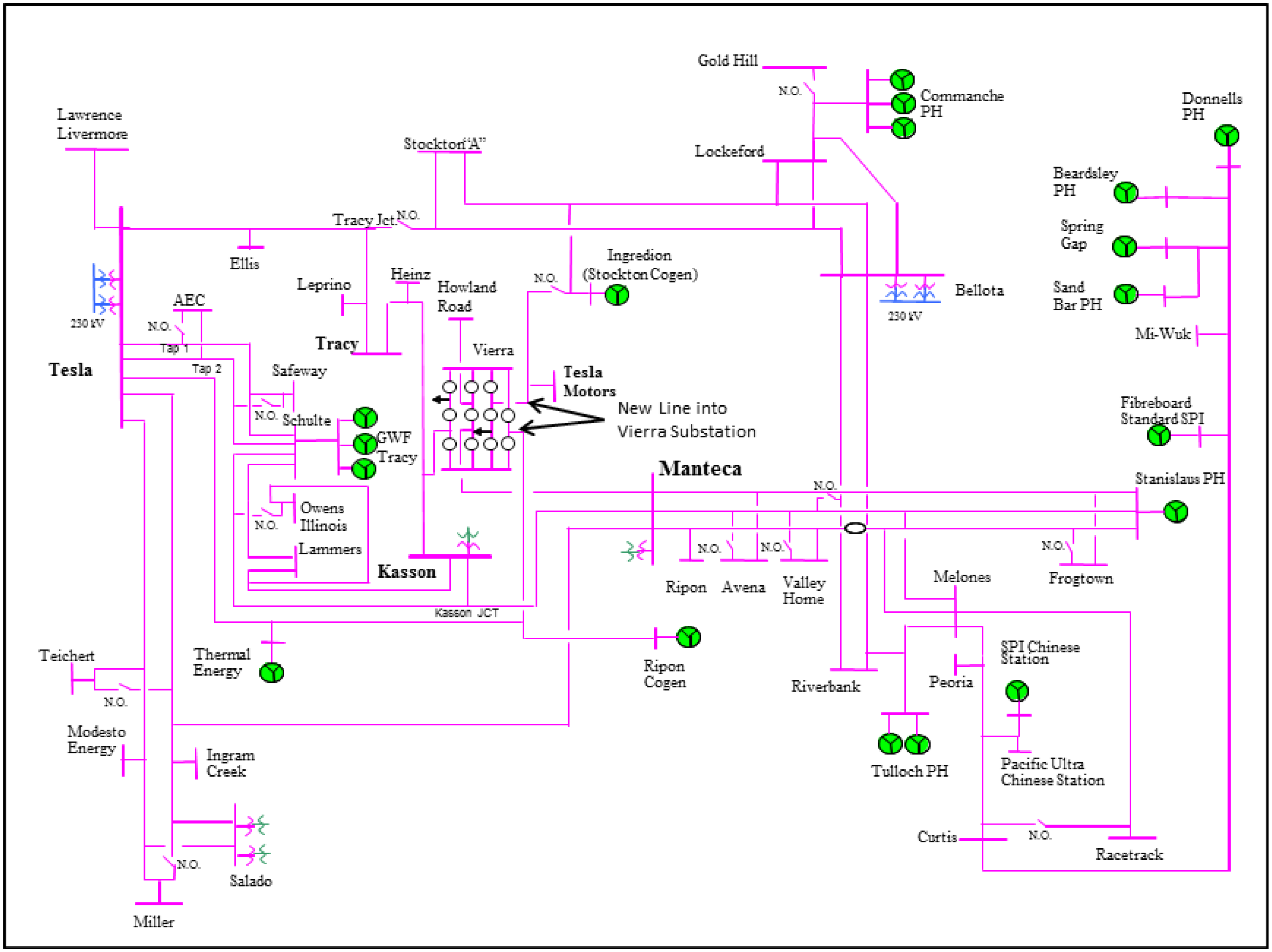

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Figure 2.0-4b - Proposed Regional Transmission System
Vierra Reinforcement Project
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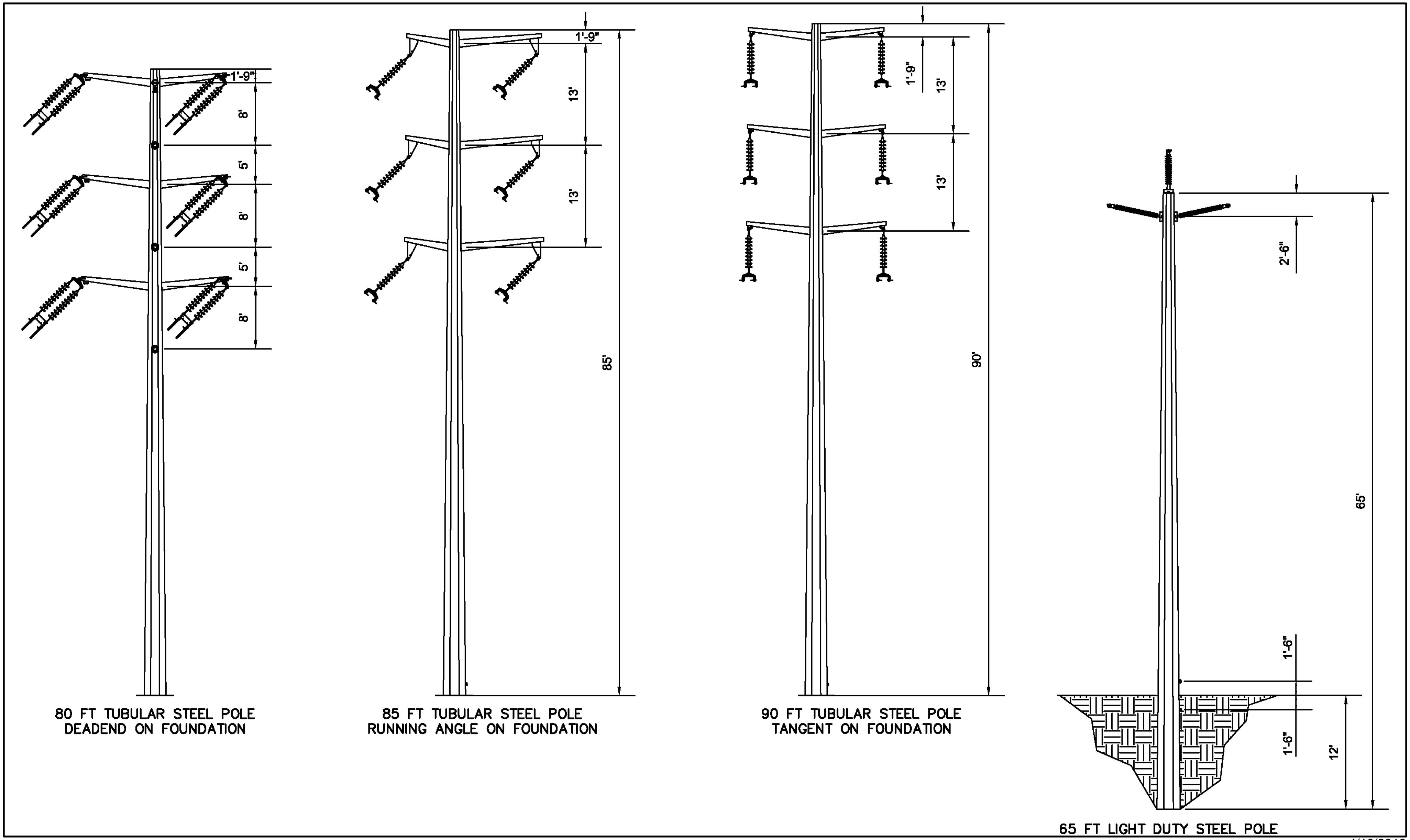
Other lines being rearranged to connect with the expanded substation are the Vierra-Tracy-Kasson 115 kV Power Line, the Manteca-Vierra 115 kV Power Line, and the Howland Road 115 kV Tap. To enable the Vierra-Tracy-Kasson 115 kV Power Line and the Manteca-Vierra 115 kV Power Line to enter the expanded substation from the west, two double-circuit TSPs on the north side of Vierra Road, west of the substation expansion, will be replaced with one double-circuit TSP. Also, two single-circuit TSPs at the southwest corner of the existing substation and one single-circuit TSP at the northwest corner of the existing substation will be replaced with four single-circuit TSPs on the west side of the substation expansion. These TSPs will range in height from approximately 75 to 85 feet. Howland Road 115 kV Tap is a single-circuit line that currently branches off from the Vierra-Tracy-Kasson 115 kV Power Line at the northwest corner of the existing Vierra Substation. As part of the proposed project, the tap line will be disconnected from the power line and connected directly into Vierra Substation. To do this, the southernmost wood pole on the Howland Road 115 kV Tap, which is approximately 38 feet in height, will be replaced with an LDSP approximately 57 feet in height, and a new TSP approximately 85 feet in height and 400 feet south of the LDSP will be installed within the eastern portion of the substation expansion.

TSPs will be approximately 2 to 4 feet wide at the base and approximately 10 inches wide at the top. All TSPs will have concrete pier foundations measuring approximately 4 to 6 feet in diameter, 18 to 30 feet deep, and extending 1 to 2 feet above ground. The LDSP will be approximately 2 feet wide at the base and approximately 10 inches wide at the top and direct embedded. The preliminary locations of the new and rearranged structures are shown on Appendix A: Project Route Map. Drawings of typical designs for TSPs and the LDSP are provided in Figure 2.0-5: Typical TSPs and LDSP. Pole designs will meet raptor safety requirements.

The proposed conductor for both circuits on the new power line is 715.5 KCMIL AAC "Violet" double-bundle specular conductor with a summer interior rating of 1262 amperes (amps). It is a "bundled" conductor consisting of two parallel wires approximately 10 inches apart installed on the same cross-arm, creating a single phase. Three phases on three cross-arms make up one circuit. To support the double-circuit lines, three cross arms will be installed on each side of the TSPs. Nine of the TSPs on the new power line will be deadend structures, while the remaining 7 will be tangent or running angle suspension configuration. For the single-circuit lines on the west side of Vierra Substation, typically two cross-arms will be installed on one side of the TSPs and one on the other. On the rearranged Vierra-Tracy-Kasson 115 kV Power Line, the Manteca-Vierra 115 kV Power Line, and the Howland Road 115 kV Tap, the relocated conductor will be 477 KCMIL ACSS "Flicker," and the conductor on the Howland Road 115 kV Tap between the new TSP and Vierra Substation will be 715.5 KCMIL AAC "Violet."

Toughened glass or ceramic insulators will be used on all poles except the TSP connecting to the Tesla-Stockton Cogen Junction 115 kV Power Line, and the new TSP and LDSP being installed on Howland Road 115 kV Tap, which will have non-ceramic, polymer insulators with silicone rubber sheds.

The new conductor will be installed a minimum of 39 feet above the ground in accordance with PG&E standards, which exceed the California Public Utilities Commission (CPUC) General



S:\7-SANDBOX\chaworth\WorkDocs\PG&E\Vierra PEA\mxd\Figure 2_0-5 Typical TSPs and LDSP.mxd

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Figure 2.0-5 - Typical TSPs and LDSP
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Order 95 minimum clearance of 30 feet. The 115 kV conductor will have a minimum radial separation distances of 8.5 feet. The span lengths between poles will be approximately 400 feet, with the longest span being approximately 520 feet between the two poles on the east side of D'Arcy Parkway, north of South Howland Road.

2.5.2 SUBSTATION MODIFICATIONS

PG&E will acquire an approximately 3.4 acre parcel for the expansion of Vierra Substation, expanding the substation from 1.6 acres to a total of 5.0 acres to accommodate the new power line and substation modifications. The expansion will extend approximately 340 feet west of the existing substation, and approximately 33 feet further back from Vierra Road than the existing substation. Substation modifications include converting the 115 kV bus into a four-bay BAAH bus arrangement and installing MPAC and battery buildings and a microwave communication tower.

A storm water retention pond will be constructed within the expanded substation, measuring approximately 300 feet long by 40 feet wide and 3 feet deep.

All new substation equipment will be adequate to support the new 115 kV line requirements. Existing substation structures are a maximum of approximately 40 feet tall. Replacement dead-end structures will be approximately 2 to 4 feet wide at the base and approximately 42 feet tall. The prefabricated MPAC building will be approximately 64 feet long, 15 feet wide, and 11 feet tall, and be covered in steel sheeting with a sloped roof. The battery building will measure approximately 34 feet long, 15 feet wide, and 11 feet tall.

Construction and operations power will be provided from the existing station service transformers within the substation. Portable generators may also be used during construction. The expanded substation will have a precast concrete wall along the south side facing Vierra Road, consistent with the existing substation wall, and 9-foot-tall chain link fencing consisting of an 8-foot-tall chain link fence topped with 1 foot of barbed wire on the remaining sides, or as otherwise consistent with PG&E's corporate security requirements at the time of installation. The lighting at the substation will consist of non-glare fixtures located and designed to avoid casting light or glare toward off-site locations. The expanded substation will be unmanned, with automated features and remote-control capabilities.

Existing and proposed plans and profiles for Vierra Substation, based on preliminary engineering, are provided in Figure 2.0-6: Vierra Substation Plan Drawing and Figure 2.0-7: Vierra Substation Profile Drawing. More information on the appearance of the expanded substation, including visual simulations of the project, is provided in Section 3.1.

2.5.3 REMOTE END SUBSTATION WORK

Remote work at the following substations will be required as a part of the Vierra Substation upgrade and expansion: Tesla, Kasson, Tracy, Manteca, Howland Road, San Joaquin Cogen, Ripon Cogen, and Thermal Cogen. This work will require construction personnel to enter each substation or generation facility to modify existing protective equipment. Minimal or no ground-disturbing work is expected at remote end facilities.

2.5.4 TELECOMMUNICATIONS

2.5.4.1 Microwave Facilities

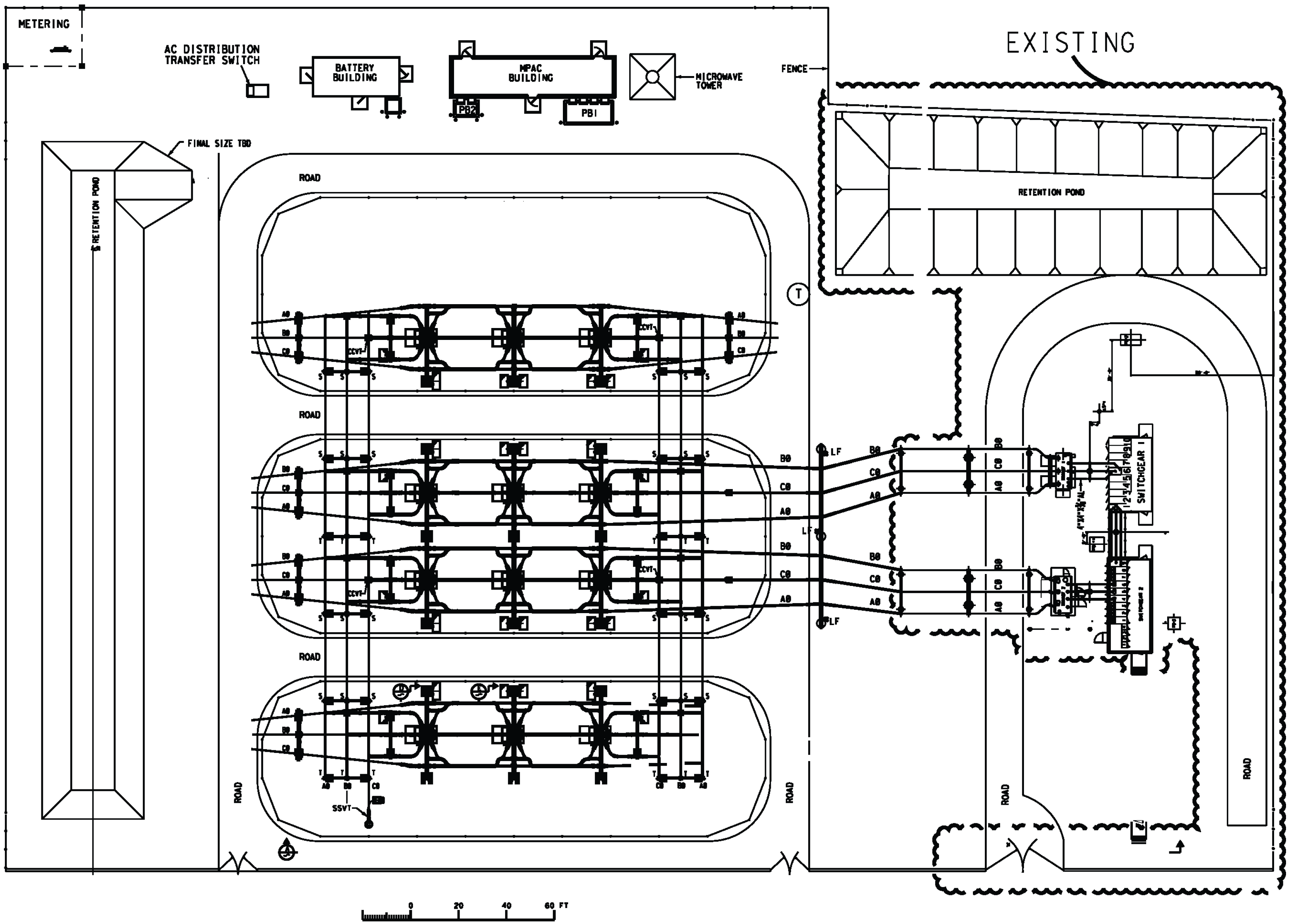
Microwave towers or monopoles with dishes will be installed within the existing substation fence lines at Vierra, Kasson, Manteca, and Tracy substations. The microwave tower at Vierra Substation will be approximately 15 feet wide at the base, approximately 9 feet wide at the top, and approximately 100 feet tall. It is anticipated that the structures at Kason, Manteca, and Tracy substations will be monopoles, approximately 60 feet tall. The microwave tower will typically have a slab foundation measuring approximately 25 by 25 feet and extend approximately 4 to 6 feet below ground and 6 inches above ground. The monopole foundations will typically have a slab foundation measuring approximately 11 by 11 feet and extend approximately 4 feet below ground and 18 inches above ground. Two 4-foot dishes will be installed at each of the microwave structures. Minor trenching within the substation yards will be required at each microwave structure. Drawings of the typical design for microwave structures are provided in Figure 2.0-7: Typical Microwave Structures. Additionally, antennas approximately 12 feet in length will be installed on existing microwave facilities at the following third-party substations: Ripon, Thermal, San Joaquin Cogen, and Howland Road.

2.5.4.1 Mount Oso and Highland Peak Microwave Dishes

Microwave dishes will be installed on existing telecommunications towers at Mount Oso and Highland Peak. All work will occur within the existing fence line surrounding the existing towers. One 4-foot microwave dish will be installed on each tower.

2.6 RIGHT-OF-WAY REQUIREMENTS

PG&E has existing land rights along portions of the project area, which include fee-owned lands for Vierra Substation and franchise rights for the existing power line facility installed along Vierra Road, in addition to an existing overhang easement on the north side of Vierra Road. Additional easements—measuring approximately 30 to 100 feet wide and 3,900 feet in total length—will be required for the new power line facilities. Along the north side of Vierra Road, the new easement will be approximately 100 feet wide to accommodate the new line and moving the existing power line out of the road franchise. Along Christopher Way and Nestle Way, the majority of new power line facilities, including all structures, will be installed within easements of varying widths to be acquired, and the remainder will overhang the road franchise. PG&E's land rights include ingress and egress to the power lines, vegetation removal, pole installation, and reconstruction.



S:\7-SANDBOX\chaworth\WorkDocs\PG&E\Vierra PEA\mxd\Figure 2_0-6 Vierra Substation Plan Drawing.mxd

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Figure 2.0-6 - Vierra Substation Plan Drawing

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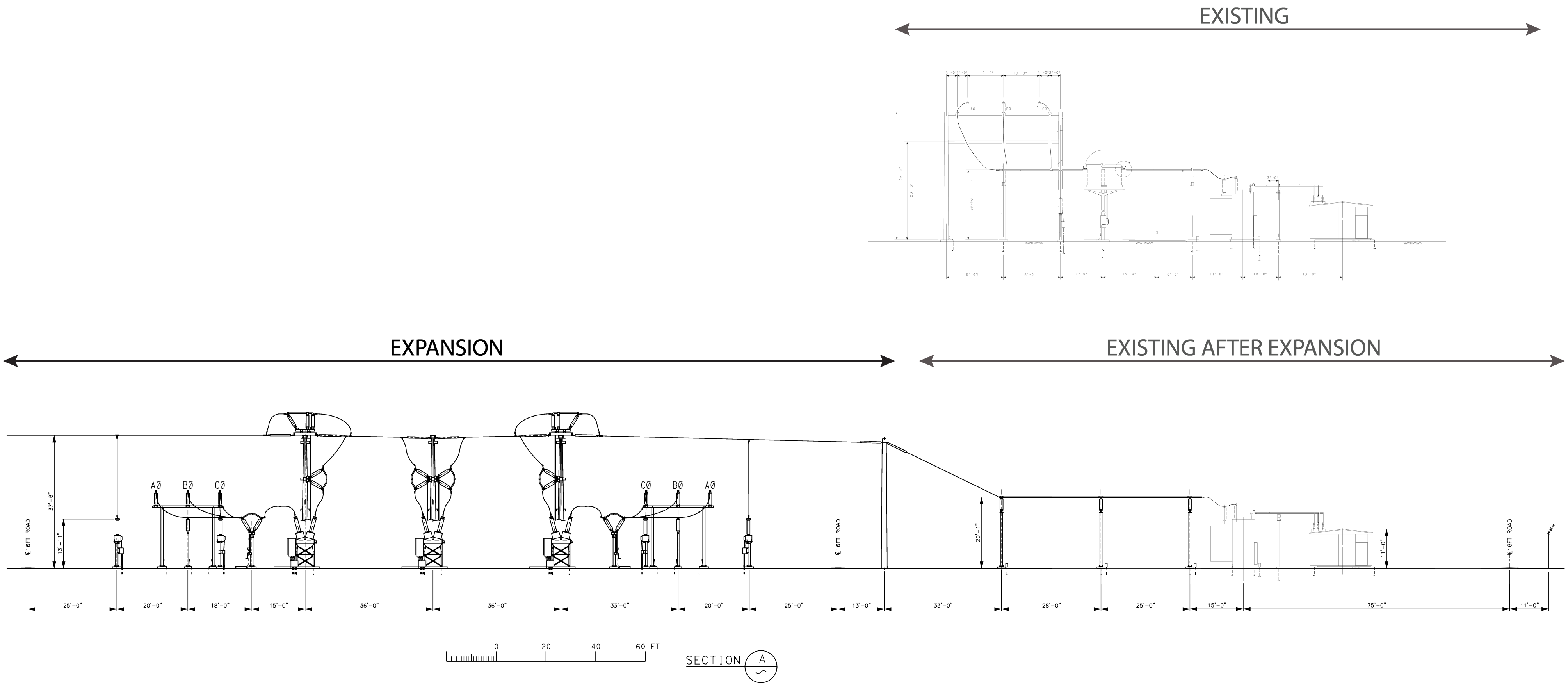

S:\7-SANDBOX\chaworth\WorkDocs\PG&E\Vierra PEA\mxd\Figure 2_0-7 Vierra Substation Profile Drawing.mxd

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Figure 2.0-7 - Vierra Substation Profile Drawing

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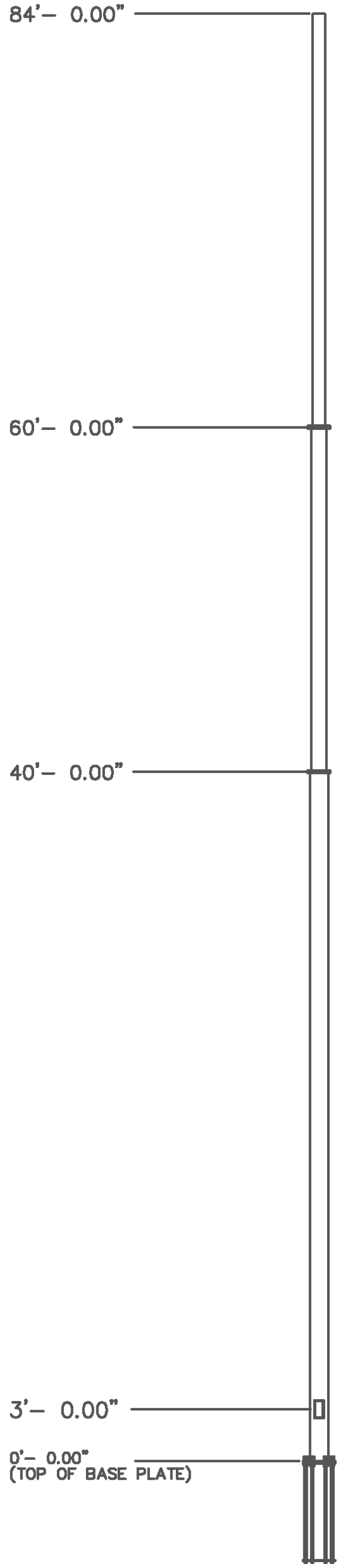
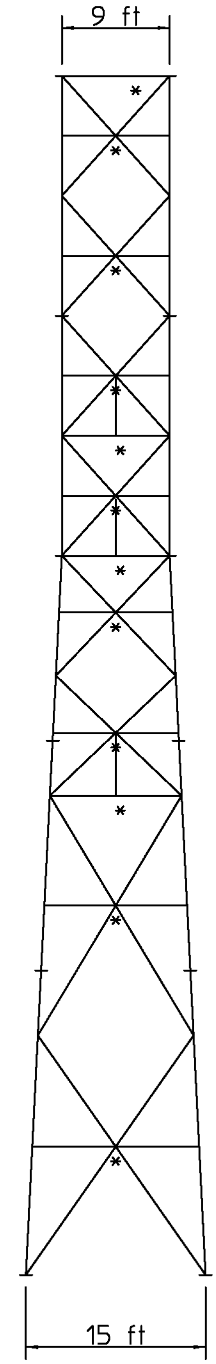


MICROWAVE MONOPOLE



MICROWAVE TOWER

S:\7-SANDBOX\chaworth\WorkDocs\PG&E\Vierra PEA\mxd\Figure 2_0-8 Typical Microwave Structures.mxd

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Figure 2.0-8 Typical Microwave Structures
Vierra Reinforcement Project
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2.7 CONSTRUCTION

2.7.1 STAGING AREAS

Temporary staging areas will be used for a variety of purposes, including storing construction materials and equipment, parking of vehicles and equipment, meeting areas, and as conductor pull sites. Any staging area that will store material will typically be fenced using cyclone-type fencing with a double gate. Various existing PG&E industrial facilities and private parcels in the general project area may be used as temporary staging areas. These are identified in Appendix A: Project Route Map, and include:

- An area of up to 6 acres west of Vierra Substation
- A 1.6-acre area on the north side of South Howland Road, east of D'Arcy Parkway
- A 2.5-acre area on the west side of D'Arcy Parkway, north of South Howland Road

Other areas may be identified closer to construction. Project staging areas range in size from approximately 1 to 6 acres. The footprint will vary depending on the area available for use at the time of construction and project needs. The project staging areas are located on flat lands and preparation may require mowing of vegetation and minor grading. Minor ground disturbance at staging areas will occur, and some staging areas may need to be graveled prior to use. Temporary electrical service may be required at staging areas, and security fencing may be installed.

2.7.2 WORK AREAS

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

2.7.2.1 Substation Work Area

The work area for the substation expansion will consist of the existing substation, which is an area of approximately 1.6 acres, and an approximately 3.4-acre parcel on the west side of the existing substation. Temporary work areas outside of the expanded substation parcel may be required for construction of the substation expansion. The area of the substation expansion and adjacent possible temporary work area is approximately 1,100 by 415 feet.

2.7.2.2 Pole Work Areas

TSP installation for the new line will require an approximately 0.1- to 0.5-acre work area at each TSP location (typically ranging from approximately 100 by 40 feet to 185 by 90 feet). Construction materials will be delivered by line truck and staged at pole work locations. Construction crews will access work areas by truck or on foot. Approximately half of the pole work areas will be on paved surfaces, while the other pole work areas are either immediately adjacent to a paved road or will be accessed using existing dirt roads. If necessary, site preparation, including use of gravel and/or matting on non-paved work areas, will be utilized for construction work in the winter or during rain events. Ground vegetation may need to be mowed, and recently planted landscaping such as along Nestle Way and Christopher Way, including trees and shrubs, may need to be removed. Currently there are approximately 2 pine trees, 2 oak trees, and one eucalyptus tree that will need to be removed, and based on the City of Lathrop's landscape plan for D'Arcy Parkway, an additional three eucalyptus trees may need to be removed. As the trees are container stock planted in 2017 or later, they can all be removed by hand digging. PG&E will coordinate with the City of Lathrop regarding tree replacement with species compatible with power line easements.

2.7.2.3 Guard Structure Work Areas

To prevent the conductor from sagging onto other utility lines or roads, temporary guard structures—consisting of either vertical wood poles with cross-arms and nets, or staged construction equipment—will be installed or mobilized at crossings of energized electric lines, railroad crossings, and/or major roadways, including Nestle Way, Christopher Way, South Howland Road, and D'Arcy Parkway. A work area up to approximately 0.03 acre in size (typically approximately 60 by 20 feet) will be required for each guard pole.

2.7.2.4 Pull Sites

Pull and tension sites are required to install the new conductor onto the TSPs. Approximately five pull sites will be located generally in line with the proposed power line alignment, typically at locations where the alignment changes direction. The longest distance between pull and tension sites is approximately 3,500 feet, between Vierra Substation and the western end of Christopher Way. Along Nestle Way, a pull and tension site is located at each pole as the alignment changes direction between each pole. The exact location of each site will depend on ground conditions and will not be determined until just prior to construction. Each pull site will have a footprint of up to approximately 0.2 to 0.5 acre (typically approximately 200 by 100 feet). The majority of pull sites will be located on paved areas, and no blading, grading, or filling is anticipated to be required. Where appropriate, materials such as fiberglass mats, metal plates, or gravel will be laid down at the pull sites to minimize ground disturbance.

Pull sites will be used to stage conductor-pulling trucks and conductor reel trucks. Construction vehicles and equipment needed at the pull sites are expected to be parked or staged within sidewalks and adjacent paved roads, which may require a lane closure.

2.7.2.5 Helicopter Landing Zone

One light-type helicopter landing zone will be required for the approximately two days of helicopter operation to install the pulling line on the new TSPs. The typical payload will be human load, small minor materials, tools, and pulling of the sock line, and the helicopter will be used approximately four hours per day, on two days in separate weeks. The landing zone will be approximately 0.5 acre in size, within a designated staging area on the west side of Vierra Substation or the north side of South Howland Road, east of D'Arcy Parkway. The flight path of the helicopter will be directly over the top of the new line. Where appropriate, materials such as fiberglass mats or gravel will be laid down at the landing zone to minimize ground disturbance.

2.7.3 ACCESS ROADS

Vierra Substation currently has one entrance gate, located along Vierra Road. Two additional entrance gates along Vierra Road will be installed as part of the expansion.

The majority of project work areas for the pole line work will be accessed using public roads. No new roads are expected to be established for the project, as existing access roads will provide access to and/or near most of the poles. Temporary lane and sidewalk closures will occur during construction when equipment is needed to work on poles adjacent to roads. Nestle Way, Christopher Way, and D'Arcy Parkway will each need to be closed for up to approximately five minutes when the helicopter is passing over the road with the new line. A width of up to approximately 16 feet will be required for passage of construction vehicles. The existing dirt access road extending from South Howland Road may require vegetation trimming and removal, and may require placement of gravel to improve traction and all-weather access. Road types and approximate mileage anticipated for project use are provided in Table 2.0-1: Unpaved Access Roads. Minor adjustments to access may be necessary at the time of construction due to land use changes, unanticipated impacts, and other factors.

Existing roads will be used to access the remote-end work locations.

Table 2.0-1: Unpaved Access Roads

Type of Road[1]	Improvements Required	Approximate Width (feet)	Approximate Length (feet)	Total Approximate Area (acres)
Existing Unpaved	Vegetation removal, minor grading, and gravel	14-18	808	0.26-0.33
Note: This table is subject to change based on California Public Utilities Commission requirements, final engineering, ground conditions at time of construction, and other factors.				

2.7.4 VEGETATION CLEARANCE

PG&E has contacted landowners about vegetation clearance requirements on their property. Mowing may be required at staging areas and pull sites, and recently planted landscaping along Nestle Way and Christopher Way may need to be removed and replaced to establish construction work areas, project access, and provide clearance along the reconductored line to comply with CPUC General Order 95 requirements.

2.7.5 EROSION AND SEDIMENT CONTROL AND POLLUTION PREVENTION DURING CONSTRUCTION

Construction of the project will require ground-disturbing activities (approximately 2.8 acres at Vierra substation and 0.4 acre at each pole location), including minor vegetation trimming, tree removal, and pole installation and removal. Because these activities will result in disturbance of more than 1 acre in total, PG&E will obtain coverage under the State Water Resource Control Board (SWRCB) General Permit for Storm Water Discharges Associated with Construction

Activity Order No. 2009-0009-DWQ. To obtain coverage under the permit, PG&E will develop and submit permit registration documents to the SWRCB prior to initiating construction activities, including a Notice of Intent, Stormwater Pollution Prevention Plan (SWPPP), risk assessment, site map, certification, and annual fee.

PG&E will implement the SWPPP during construction to prevent polluting storm drains with sediment or other polluted runoff related to project construction. The SWPPP will outline best management practices (BMPs) for each activity that has the potential to degrade surrounding water quality through erosion, sediment runoff, and other pollutants. Refer to Section 3.9 for more information.

2.7.6 Substation Construction

Surveyors will establish grading limits and set grade stakes for the expanded substation pad. PG&E will begin site preparation for the substation expansion by relocating three distribution poles on the west side of the existing substation to a new alignment outside of the substation expansion area or under the substation expansion area. The existing poles supporting the Vierra-Tracy-Kasson 115 kV Power Line and Manteca-Vierra 115 kV Power Line along Vierra Road will also be relocated onto temporary (shoofly) poles within the work area west of the substation expansion. The existing Howland Road 115 kV Tap will be re-routed to a new termination bay within the expanded substation. Any crop present at the time of construction will be cleared, and any other organic material will be removed. This material will be stockpiled within the work area, and eventually hauled to a PG&E-approved disposal facility. The rough grade will be established by importing fill to closely match the elevation of the existing substation, and engineered fill will be spread and compacted on the pad surface. It is anticipated that approximately 10,000 cubic yards of fill will be required

Rough grading will be followed by installing a 9-foot-tall security fence, excavating and installing the subsurface ground grid, forming and pouring concrete footings and foundations for all the aboveground structures, and installing aboveground steel structures, switches, MPAC building, battery building, retention pond, and other electrical equipment associated with the expansion.

A final layer of aggregate will be spread on all unpaved areas in the expanded substation. Paved roads will be constructed within the expanded substation to provide access to substation equipment and tie into the asphalt roadways within the existing substation.

2.7.7 Power Line Construction

2.7.7.1 Pole Installation

To install the poles, work will begin by excavating a hole for each pole. For new TSPs, the holes will measure approximately 4 to 6 feet in diameter and 18 to 30 feet deep. The holes for TSPs will be drilled and excavated using a line truck mounted with an auger. The line truck will set up adjacent to the existing pole. Excavated soils will either be feathered around the new pole site using a backhoe or loaded into a dump truck to be disposed of off-site. Measurements associated with pole installation are summarized in Table 2.0-2: Summary of Typical Pole Installation Metrics.

Table 2.0-2: Summary of Typical Pole Installation Metrics

Pole Type	Diameter (inches)	Hole Depth (feet)	Average Work Area around Pole (acres)	Number	Permanent Footprint per Pole (sq. feet)
TSP	24 to 72 (base); 10 inches top	18 to 30	0.17	19 (install)	3 to 28
TSP	24 to 48 (base); 10 inches top	18 to 30	0.17	3 (relocate)	3 to 13
TSP	-	-	0.17	2 (remove)	-
LDSP	24 (base); 10 inches top	14	0.23	1 (install)	3
Wood	-	-	0.23	1 (remove)	-
Total Permanent Footprint for Poles (acres):					0.01
Note: This table is preliminary and subject to change based on CPUC requirements, final engineering, ground conditions at time of construction, and other factors. All measurements are approximate.					

Following excavation, new poles and hardware will be delivered to the pole work areas. A rigging truck will be used to deliver the TSPs. Poles typically will be delivered the same day they are to be installed, unless there is a location to place the pole within the work area that does not obstruct vehicle or pedestrian traffic. Poles, insulators, and hardware will be assembled in the pole work area.

A line truck will be used to place foundation forms, anchor bolts, and rebar, and a concrete truck and concrete pump will be used to deliver and pour concrete for the foundation form. Once the concrete has cured, the forms will be removed and native soil placed around the base. A crane will then be used to install the new TSP on the foundation.

The location of the pole to be installed on the east side of D'Arcy Parkway near the intersection of Christopher Way is within a percolation basin associated with the City of Lathrop's Water Treatment Plant. The location was determined in coordination with the Engineering Department of the City of Lathrop, and it was agreed that the pole should be installed immediately adjacent to the side of the basin through the placement of fill, and not on the access road surrounding the basin. Approximately 100 cubic yards of soil will be imported and compacted against the side of the basin, filling an area extending approximately 20 feet out from the corner of the basin and approximately three feet deep, within which the foundation for the pole will be installed. If required by the City of Lathrop, reinforced polyethylene pond liner, consistent with the existing pond design, will be installed on the surface of the fill. The City of Lathrop asked to receive a drawing of the in-fill prior to PG&E conducting the work.

The existing poles removed as part of the relocation of the Vierra-Tracy-Kasson 115 kV Power Line, the Manteca-Vierra 115 kV Power Line, and the Howland Road 115 kV Tap, will be removed using a backhoe and crane or similar equipment. The poles will be lowered to the ground and then transported by truck to a recycling facility. Existing foundations for the TSPs will be removed to approximately three feet below ground surface, and filled in with the soils excavated from the new foundation locations.

2.7.7.2 Conductor Installation

One small helicopter will be used to install stringing rollers on the cross-arms at each pole where conductor is being installed, and to place a pulling line between each TSP. When the pulling line is in place for the length of the pull, it will be connected to the new conductor. The new conductor will be on a reel tensioner, typically located on a line truck or semi-truck trailer in an established project pull site. The pulling line will then pull back the new conductor. Tension will be maintained between the tensioner and puller to keep the new conductor elevated and away from obstacles. The conductor will then be sagged and clipped into the new insulators, and the stringing rollers removed using aerial lift equipment.

2.7.8 Construction at Other Area Substations

Construction at other area substations will consist of minor modifications to existing equipment within substation yards.

2.7.9 Microwave Facilities

Microwave towers or monopoles will be installed within the existing fence line of four substations. For the 100-foot microwave tower at Vierra Substation, an approximately 25 foot by 25 foot hole, approximately 4 feet deep, will be excavated for setting a concrete slab foundation that will have an aboveground height of approximately 6 inches. For the 60-foot monopoles at Kasson, Manteca, and Tracy substations, an approximately 11 foot by 11 foot hole, approximately 4 feet deep, will be excavated for setting an 11 foot by 11 foot foundation that will have an aboveground height of approximately 18 inches. The holes will be drilled and excavated using a truck-mounted digger and the excavated soils will be removed with a backhoe and loaded into a dump truck at each structure location.

A rigging truck will be used to deliver the towers, typically on the same day that they are to be installed, and the towers, insulators, and hardware will be assembled in the pole work area. A line truck will be used to place foundation forms, anchor bolts, and rebar. A cement truck will be used to deliver and pour concrete for the foundation form. Once the concrete has set, the form will be removed and gravel placed around the base. A crane will then be used to install the new tower on the foundation. Dishes will be installed on the completed tower.

Antennas will be installed on existing microwave facilities at Ripon, Thermal, San Joaquin Cogen, and Howland substations. Construction personnel will climb the existing towers to install antennas, and no ground disturbance will be required.

2.7.10 Mount Oso and Highland Peak Microwave Dishes

Microwave dishes will be added to existing telecommunications towers at Mount Oso and Highland Peak. Construction personnel will climb the existing towers and install two 4-foot microwave dishes at each tower location. No ground disturbance will be required.

2.7.11 Cleanup and Post-Construction Restoration

Crews will be required to maintain clean work areas as they proceed along the line, and they will be instructed that no debris may be left behind at any stage of the project. Poles used as guard structures will be taken to appropriate disposal facilities to be reused, recycled, or disposed of in accordance with applicable law. Restoration activities will be conducted as needed and in coordination with landowners, and will consist of restoring landscaped areas along Christopher Way and Nestle Way, and applying a native seed mix or other seed mix—as approved by landowners—in areas of ground disturbance. On the south side of Christopher Way, existing fence panels opposite the new TSPs will be replaced with non-conductive fencing. PG&E will conduct a final survey to ensure that cleanup activities have been successfully completed.

2.7.12 Construction Workforce and Equipment

Construction of the new power line will require an excavation crew, pole crew, and line crew, with approximately 5 to 20 construction workers being at the project site on a typical work day. Crews are expected to be working at adjacent pole sites in a rolling fashion. Civil and electrical crews for substation construction will each range between approximately 5 and 20 crew members, depending on the task being performed and schedule.

Construction hours will typically occur between the hours of 7:00 a.m. and 7:00 p.m., Monday through Friday, and between 9:00 a.m. and 7:00 p.m. Saturday, although some nighttime construction is anticipated to take advantage of line clearances during off-peak hours. Some Sunday work may also occur between 9:00 a.m. and 7:00 p.m. It is anticipated that construction crews will work concurrently, either 4 to 6 10-hour days per week, or on a rotating schedule of 11 days on and 3 days off.

Equipment typically used during project construction is identified in Table 2.0-3: Typical Construction Equipment and Duration of Use. Table 2.0-3 also describes a breakdown of typical duration of use during construction, including days per week of operation, hours per day of operation, and the total duration of use (in weeks). Table 2.0-4: Anticipated Construction Equipment details the equipment that is planned for use. Not all equipment will be used during all stages of the activity.

2.7.13 Construction Schedule

Constructing the substation expansion will take approximately 12 to 18 months to complete and will likely begin prior to power line construction, which is estimated to take approximately 3 to 4 months to complete. Although very little site development will be required due to the urban nature of the project area, some staging area and access road preparation will be required prior to installing poles and conductors. The pole installation crew will take approximately three days to complete one foundation and pole installation. Once all the poles have been installed, the new conductor will be installed with a period of five weeks. The project is expected to be operational in 2023 or earlier depending how long it takes to acquire land rights.

2.8 OPERATION AND MAINTENANCE

2.8.1 SYSTEM MONITORING AND CONTROL

PG&E will operate the expanded 115 kV substation remotely from its Grid Control Center located in Vacaville, California, consistent with current procedures. Station and line alarms will be transmitted by the dedicated phone line to the control center. If an alarm is triggered that requires an on-site visit, personnel will be dispatched from PG&E's local maintenance center in Stockton.

2.8.2 FACILITY INSPECTION

Regular inspection of equipment and electrical lines, support systems, and instrumentation and controls is critical for the safe, efficient, and economical operation of the project. Under normal circumstances, routine inspections of the substation by PG&E personnel will continue to occur on a monthly basis or as needed under emergency conditions. The power line will be inspected annually or as needed when driven by an event, such as an emergency. The current PG&E facility inspection process involves three types of inspections: (1) ground inspections, (2) aerial inspections, and (3) climbing, if ground inspections indicate a need. Typically, power line inspections occur annually, rotating between ground inspections and flyovers. Maintenance of the power line will generally be conducted on an as-needed basis, when equipment is discovered in need of repair during inspections, or in response to an emergency. A benefit of using TSPs for the project is that they generally require less maintenance than wood poles.

Table 2.0-3: Typical Construction Equipment and Duration of Use

Activity	Total Number of On-Site Workers	Estimated Quantity of Equipment		Estimated Days per Week of Operation	Estimated Hours per Day of Operation	Estimated Duration of Use (weeks)
Vegetation trimming	2	1	Leaf blower	2	10	1
		1	Weed mower	2	10	1
		1	Pickup truck	2	10	1
Traffic control	4	2	Work site protection type vehicles	6	2	12
		2	Flasher board	6	8	12
Tubular steel pole (TSP) removal and installation (includes foundation and augur TSP holes)	6	1	40-ton crane	4	1	8
		1	Tractor trailer	4	2	8
		1	Construction digger	2	6	8
		1	Crane with 120 boom	2	4	8
		1	Backhoe	4	2	8
		1	Dump truck	2	6	8
		1	Foreman pickup truck	6	1	8
		1	Crew-cab truck	6	1	8
		2	Cement truck	2	6	6
Conductor installation	15	1	V-Groove puller attached to line truck	3	6	5
		1	Helicopter (Bell 407 or MD 500)	1	3	2
		1	Tensioner attached to line truck	3	6	5
		1	40-ton cranes	6	6	5
		2	Bucket trucks	6	6	5
		2	Boom trucks	6	6	5
		3	Crew-cab truck	6	2	5
		3	Foreman pickup truck	6	3	5
		1	Forklift	6	2	5
		1	Hardline puller	3	6	5
		2	Crane with 120 boom	6	6	5
Substation expansion	10-20	5	Pickup truck	5	4	52
		2	Concrete Truck	3	3	8

Activity	Total Number of On-Site Workers	Estimated Quantity of Equipment		Estimated Days per Week of Operation	Estimated Hours per Day of Operation	Estimated Duration of Use (weeks)
		3	Aerial man Lift	5	5	20
		2	Fork Lift	5	5	20
		2	Backhoe	5	6	20
		1	D-3 Bulldozer	5	6	2
		1	Bucket truck	5	6	2
		1	Line Truck	5	6	2
		1	50-ton crane	5	6	1
		2	Water Truck	5	6	8
		1	2-ton flatbed trucks	5	4	20
		2	Compactor	5	6	6
		2	Skid-steer bobcat	5	4	30
		1	Boom truck	5	6	20
		1	Road grader, six wheel	5	6	2
		1	Elevating scraper	5	6	2
		2	Mini excavator	5	8	8
		1	Large excavator drill	5	6	4
		2	Air compressor	5	2	30
		1	Portable generators	5	4	30
		2	Dump truck (16 cu. Yards)	5	4	10

Table 2.0-4: Anticipated Construction Equipment

Equipment	Use
Crane	Lift heavy equipment and materials
Backhoe	Excavation
Bucket truck	Aerial lift for construction personnel
Cement truck and pump	Deliver cement to worksite
Construction digger	Install poles
Compressor	Operate tools
Dump truck	Remove garbage
Generator	Portable power generation
Flasher board	Traffic control
Foreman pickup truck, crew-cab truck, boom truck	Transport workers, material, equipment, and supplies
Forklift	Lift materials
Hardline puller	Install conductor
Helicopter (light)	Install conductor
Jackhammer	Excavate holes
Leaf blower	Vegetation removal
Tractor trailer	Deliver poles to the site
Tensioner attached to line truck	Install conductor
V-Groove trailer puller attached to line truck	Install conductor
Weed mower	Vegetation trimming
Work site protection type vehicle	Traffic control

2.9 ANTICIPATED PERMITS AND APPROVALS

The CPUC is the lead state agency for the project under the California Environmental Quality Act (CEQA) because a Permit to Construct (PTC) is required in accordance with the CPUC's General Order 131-D, Section III.B (GO 131-D). GO 131-D contains the permitting requirements for the construction of substations and transmission and power line facilities. In addition to the PTC, PG&E will obtain all applicable permits for the project from federal, state, and local agencies. Table 2.0-5: Permits and Approvals That May Be Required provides the potential permits and approvals that may be required for project construction.

Table 2.0-5: Permits and Approvals That May Be Required

Regulatory Authority	Agency	Jurisdiction/Purpose	Project Requirements
State			
Permit to Construct (GO 131-D)	CPUC	Construction, modification, or alteration of substations and power line facilities.	A PTC is required under the CPUC's General Order No. 131-D, Section III.B.
National Pollution Discharge Elimination System Storm Water Permit (ministerial)	State Water Resources Control Board	Construction activities disturbing 1 acre or more of soil must submit a Notice of Intent to comply with the terms of the general permit.	The project will develop and implement a Storm Water Pollution Prevention Plan.
Local			
Encroachment Permit (ministerial)	City of Lathrop	For construction activities completed within city road rights-of-way.	Pull sites and work areas will be located within city roads.
Grading Permit (ministerial)	City of Lathrop	Cuts or fills in excess of 50 cubic yards.	Grading of substation site.
Building Permit (ministerial)	City of Lathrop	Construction of a wall.	Substation perimeter wall.
Encroachment Permit (ministerial)	Union Pacific Railroad	For construction activities completed within or over Union Pacific Railroad rights-of-way.	The new line will cross a segment of Union Pacific Railroad.

2.10 APPLICANT-PROPOSED MEASURES

PG&E has incorporated the Applicant-Proposed Measures (APMs) in Table 2.0-6: Applicant-Proposed Measures as part of the project. These measures include PG&E standard construction practices, as well as those measures that are proposed to comply with applicable regulations or reduce particular project impacts. These measures will be implemented with the project elements described previously. With these APMs incorporated, no significant impacts will result from construction or operation of this project.

Table 2.0-6: Applicant-Proposed Measures

APM Number	Description
APM AES-1	**Nighttime lighting to minimize potential visual impacts**. Nighttime construction activities, if they occur, will incorporate measures such as use of non-glare or hooded fixtures and directional lighting to reduce spillover into areas outside the construction site and minimize the visibility of lighting from off-site locations wherever feasible.
APM AES-2	**Construction cleanup.** Construction activities will be kept as clean and inconspicuous as practical. Construction debris will be picked up regularly from construction areas. The appearance of disturbed land areas will be restored to approximate pre-construction visual conditions, where feasible and consistent with landowner requests, through implementation of re-contouring and/or re-vegetation.
APM AES-3	**Use of galvanized finish on TSPs.** Use of a galvanized finish that will weather to a dull, non-reflective patina on new TSPs will reduce the potential for a new source of glare resulting from introduction of project elements.
APM AES-4	**Perimeter wall, fence and landscaping for partial screening of substation expansion.** A perimeter wall will be installed along the south side of the substation (facing Vierra Road) to provide partial screening of the expanded substation. A perimeter chain link fence with neutral gray slats will enclose the west side of the expanded substation (facing D'Arcy Parkway railroad overcrossing). The design of the wall and fence will be comparable to the design of the existing substation perimeter wall and fence. Landscaping along the substation perimeter will also be comparable to existing landscaping at the substation, and will include similar landscaping comprising drought-tolerant shrubs.
APM AGR-1	**Landowner coordination**. PG&E will coordinate with J. R. Simplot Company (or tenant) in advance of construction activities to minimize impacts on agricultural operations.

APM AIR-1	**Fugitive dust emissions minimization**. Pursuant to SJVAPCD Regulation VIII, a Dust Control Plan will be submitted to the SJVAPCD for approval at least 30 days prior to commencing construction activities. Based on the SJVAPCD Guidance for Assessing and Mitigating Air Quality Impacts (SJVAPCD 2015), the following are examples of fugitive dust control measures that may be included in the Dust Control Plan to minimize dust emissions: • Apply water or non-toxic dust suppressants to unpaved surfaces and areas as needed to control dust • Limit or reduce speed on unpaved roads and traffic areas • Stabilize inactive storage piles from dust emissions using water, chemical stabilizer/dust suppressant, tarps, or other suitable cover • Install wind barriers • During high winds, cease outdoor activities that disturb the soil • Cover haul trucks with a tarp or other suitable cover, or sufficiently wet to limit dust emissions • Remove trackout from adjacent public streets at the end of each workday and, if necessary, install a trackout control device
APM BIO-1:	**Avoid impacts on special-status plants and their habitat.** Pre-construction surveys for special-status plant species in areas of suitable habitat will be conducted during the appropriate blooming period by a qualified biologist prior to the start of construction activities. A report documenting the survey results will be provided to the CPUC prior to construction. If any special-status plant species are found, the following actions will be implemented: 1. Special-status plants within and immediately adjacent to work areas and access routes will be marked by a qualified biologist and avoided to the extent feasible. 2. If impacts to special-status plants cannot be avoided, the impacts will be enumerated and described. PG&E will notify the landowner of the presence and location of the special-status plants and inform them of their right to contact CDFW to arrange for the plants to be salvaged. PG&E will proceed with construction activities unless notification is received from the landowner or CDFW within 48 hours indicating that the plants will be salvaged.

APM BIO-2	**Avoid impacts on nesting birds.** If work is scheduled during the nesting season (February 1 through August 31), nest detection surveys will correspond with a standard buffer for individual species in accordance with the species-specific buffers set forth in Appendix D of the PEA and will occur within 15 days prior to the start of work activities at designated construction areas, staging areas, and landing zones to determine nesting status by a qualified wildlife biologist. Nest surveys will be accomplished by ground surveys and will support phased construction, with surveys scheduled to be repeated if construction lapses in a work area for 15 days between March and July. Access for ground surveys will be subject to property owner permission. If active nests containing eggs or young are found, the biologist will establish a species-specific nest buffer, as defined in Appendix D of the PEA. Where feasible, standard buffers will apply, although the biologist may increase or decrease the standard buffers in accordance with the factors set forth in Appendix D. Nesting pair acclimation to disturbance in areas with regularly occurring human activities will be considered when establishing nest buffers. The established buffers will remain in effect until the young have fledged or the nest is no longer active as confirmed by the biologist. Active nests will be periodically monitored until the biologist has determined that the young have fledged or once construction ends. Per the discretion of the biologist, vegetation removal by hand may be allowed within nest buffers or in areas of potential nesting activity. Inactive nests may be removed in accordance with PG&E's approved avian permits. The biologist will have authority to order the cessation of nearby project activities if nesting pairs exhibit signs of disturbance. All references in this APM to qualified wildlife biologists refer to qualified biologists with a bachelor's degree or above in a biological science field and demonstrated field expertise in ornithology, in particular, nesting behavior.
APM BIO-3	**Burrowing owl**. Within 30 days of beginning ground-disturbing activities, a preconstruction survey for burrowing owl will be conducted by a qualified biologist in the vicinity of Vierra Substation and the railroad tracks and any other suitable habitat within 500 feet of the project area. If no burrowing owls are detected, no further measures are required. If burrowing owls are detected, no construction activities will occur within 250 feet of occupied burrows during the nesting season or within 160 feet of occupied burrows during the non-nesting season. For purposes of this measure, the nesting season is February 1st to August 31st. Additionally, burrowing owls will be monitored by a qualified biologist during construction to assess the sensitivity of the burrowing owls to the construction activities. The size of the avoidance buffer may be increased or decreased as determined by the monitoring biologist based on the planned construction activities and the sensitivity of the burrowing owls. If impacts on an active burrow cannot be avoided, passive relocation may be considered. Relocation will be conducted during the non-nesting season and only after a site-specific plan has been developed and implemented.

APM CUL-1	**Worker education training.** The following procedures will be implemented prior to commencement of any project-related construction activities:
	• All PG&E, contractor, and subcontractor project personnel will receive training regarding:
	  ○ appropriate work practices necessary to effectively implement the APMs and to comply with the applicable environmental laws and regulations;
	  ○ the potential for exposing subsurface cultural resources and paleontological resources; and
	  ○ how to recognize possible buried cultural and paleontological resources.
	• This training will include a presentation of:
	  ○ procedures to be followed upon discovery or suspected discovery of historic or archaeological materials, including Native American remains and their treatment;
	  ○ procedures to be followed upon discovery or suspected discovery of paleontological resources; and
	  ○ actions that may be taken in the case of violation of applicable laws.

APM CUL-2	**Inadvertent discovery of previously unidentified cultural resources.** The following procedure will be employed if a previously undocumented cultural resource is encountered during construction: • All work within 100 feet (30 meters) of the find will be halted or redirected by the construction foreman and protective barriers or flagging will be installed along with signage identifying the area as an "environmentally sensitive area." Entry into the area will be limited to PG&E-approved/qualified cultural resources specialists, PG&E, and other authorized personnel. • PG&E and the CPUC will be notified immediately. • A qualified archaeologist will document the resource and coordinate with PG&E, the landowner, and the CPUC on the appropriate steps for evaluation and preservation of the find. The level of effort will be based on the size and nature of the resource, as determined by the archeologist and approved by the CPUC. • No work will occur within the environmentally sensitive area until clearance has been granted by the archaeologist or PG&E and the CPUC. Environmentally sensitive area flagging and signage will only be removed when authorized by PG&E or the archaeologist and the CPUC.
APM CUL-3	**Discovery of human remains.** The following procedures will be implemented in the event of the discovery of human remains, in compliance with California law, including, but not limited to, the following provisions: CEQA Guidelines Section 15064.5(e); PRC Sections 5097.94, 5097.98, and 5097.99; and California Health and Safety Code Section 7050.5: • Work in the immediate area of the find will be halted and the PG&E archaeologist and County Coroner and the CPUC will be notified immediately. Work will remain suspended until the Coroner can assess the remains. In the event the remains are determined to be prehistoric in origin, the Coroner will notify the NAHC, which will then identify a Most Likely Descendent (MLD). The MLD will consult with PG&E's archaeologist within 48 hours of notification to determine further treatment of the remains.

APM CUL-4	**Undiscovered potential tribal cultural resources**. The following procedure will be employed (after stopping work and following the procedure for determining eligibility in APM CUL-2) if a resource is encountered and determined by the project's qualified archaeologist to be potentially eligible for the CRHR or a local register of historic resources and is associated with a California Native American Tribe(s) with a traditional and cultural affiliation with the geographic area of the proposed project: • The project's qualified archaeologist will notify the CPUC for appropriate action. PG&E will assist the CPUC if needed to identify the lead contact person for the California Native American Tribe(s) potentially associated with the cultural resource and with a traditional and cultural affiliation with the geographic area of the proposed project. The CPUC will contact the lead contact person to set up a meeting with PG&E and the CPUC. • The project's qualified archaeologist will participate with the CPUC in discussions with the California Native American Tribe(s) to determine whether the resource is a "tribal cultural resource" as defined by PRC section 21074, and the tribe(s)' preferred method of mitigation, if the resource is determined to be a TCR. If no agreement can be reached for mitigation after discussions with the California Native American Tribe(s) or it is determined that the tribe(s)' preferred mitigation is not feasible, PG&E will consult with the CPUC and implement one of the example mitigation measures listed in PRC section 21084.3(b), or other feasible mitigation.
APM CUL-5	**Unanticipated discovery of paleontological resources.** If paleontological resources are discovered during construction activities, the following procedures will be followed: • Stop work immediately within 100 feet of the discovery. • Contact the designated project inspector PG&E CRS, and the CPUC immediately. • Protect the site from further impacts, including looting, erosion, or other human or natural damage. • PG&E's CRS will arrange for a Principal Paleontologist to evaluate the discovery. If the discovery is determined to be significant, PG&E will consult with the CPUC and implement appropriate measures to protect and document the paleontological resource. Examples of such measures include: establishing recovery standards, preparing specimens for identification and preservation, and securing a curation agreement from the appropriate agency. • Work may not resume within 100 feet of the find until approval by the paleontologist and PG&E CRS, and the CPUC.
APM GS-1	• **Minimization of construction above liquefiable soils or in soft or loose soils.** PG&E will conduct geotechnical investigations prior to construction to identify liquefiable soils, soft soils or loose soils, and implement design and civil engineering standards in accordance with California Building Code (2016) and to comply with California State General Order 95 (2015) standards.

APM GHG-1	**Minimize GHG emissions.** The following procedures will be implemented: • Minimize unnecessary construction vehicle idling time. The ability to limit construction vehicle idling time will depend on the sequence of construction activities and when and where vehicles are needed or staged. Certain vehicles, such as large diesel-powered vehicles, have extended warm-up times following start-up that limit their availability for use following start-up. Where such diesel-powered vehicles are required for repetitive construction tasks, these vehicles may require more idling time. The project will apply a "common sense" approach to vehicle use, so that idling is reduced as far as possible below the maximum of 5 consecutive minutes allowed by California law; if a vehicle is not required for use immediately or continuously for construction activities, its engine will be shut off. Construction foremen will include briefings to crews on vehicle use as part of pre-construction conferences. Those briefings will include discussion of a "common sense" approach to vehicle use. • Maintain construction equipment in proper working conditions in accordance with PG&E standards. • Minimize construction equipment exhaust by using low-emission or electric construction equipment where feasible. Portable diesel fueled construction equipment with engines 50 hp or larger and manufactured in 2000 or later will be registered under the CARB Statewide Portable Equipment Registration Program. • Minimize welding and cutting by using compression of mechanical applications where practical and within standards. • Encourage the recycling of construction waste where feasible.
APM GHG-2	**Minimize SF6 emissions.** The following procedures will be implemented: • Incorporate the new breakers to be installed at Vierra Substation into PG&E's system-wide SF_6 emission reduction program. CARB has adopted the Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear sections 95350 to 95359, title 17, California Code of Regulations, which requires that company-wide SF6 emission rate not exceed 1 percent by 2020. Since 1998, PG&E has implemented a programmatic plan to inventory, track, and recycle SF_6 inputs, and inventory and monitor system-wide SF_6 leakage rates to facilitate timely replacement of leaking breakers. PG&E has improved its leak detection procedures and increased awareness of SF_6 issues within the company. X-ray technology is now used to inspect internal circuit breaker components to eliminate dismantling of breakers, reducing SF_6 handling and accidental releases. As an active member of EPA's SF_6 Emission Reduction Partnership for Electrical Power Systems, PG&E has focused on reducing SF_6 emissions from its transmission and distribution operations. • Require that the new breakers at Vierra Substation have a manufacturer's guaranteed maximum leakage rate of 0.5 percent per year or less for SF_6. • Maintain substation breakers in accordance with PG&E's maintenance standards. • Comply with California Air Resources Board Early Action Measures as these policies become effective.
APM HM-1	**Worker environmental training program**. An environmental training program will be established to communicate environmental concerns and appropriate work practices to all construction field personnel. The training program will emphasize site-specific physical conditions to improve hazard prevention, and will include a review of the Stormwater Pollution Prevention Plan (SWPPP), which will also address spill response. The worker environmental training program will be provided to CPUC staff for review prior to construction.

APM HM-2	**Update Spill Prevention Control and Counter Measures (SPCC) Plan and Hazardous Materials Business Plan (HMBP).** The expanded substation will be equipped with a retention basin that meets SPCC Guidelines (40 Code of Federal Regulations 112). Prior to operation of the project, PG&E will update the existing SPCC Plan and HMBP for Vierra Substation to include all new equipment and on-site hazardous materials associated with the substation expansion, and to address containment from an accidental spill. A copy of the updated SPCC Plan and HMBP will be submitted to the CPUC for record keeping.
APM HM-3	**Emergency spill response equipment and training.** Emergency spill response and cleanup kits will be readily available at Vierra Substation for cleanup of an accidental spill. Construction crews will be trained in safe handling and cleanup responsibilities.
APM HM-4	**Soil testing and disposal**. Soil and groundwater sampling will be performed in the area of the substation expansion prior to construction. The sampling will extend to the maximum depth of construction excavation. Analysis of soil, and groundwater if encountered, will determine if any special handling is required during excavation or disposal of soil and groundwater during construction. In other areas of the project, in the event soils suspected of being contaminated (on the basis of visual, olfactory, or other evidence) are removed during site grading or excavation activities, the excavated soil will be tested, and if measured above hazardous waste levels, will be contained and disposed of at a licensed waste facility. The presence of known or suspected contaminated soil will require testing and investigation procedures to be supervised by a qualified person, as appropriate, to meet state and federal regulations.
APM HYDRO-1	**Stormwater Pollution Prevention Plan.** PG&E will prepare and implement a SWPPP to help stabilize disturbed areas and reduce erosion and sedimentation. A monitoring program will also be established to ensure that the prescribed BMPs are followed during project construction. A qualified SWPPP practitioner will oversee the implementation of the SWPPP and associated BMPs. The following measures are generally drawn from the permit and will be included in the SWPPP prepared for the construction of the project: • All BMPs will be on site and ready for installation before the start of construction activities. • BMPs will be developed to prevent the acceleration of natural erosion and sedimentation rates, such as the use of silt fence and wattles. • Prior to conducting clearing activities during the wet season and before the onset of winter rains or any anticipated storm events, erosion-control measures will be installed. Temporary measures such as silt fences or wattles, which are intended to minimize sediment transport from temporarily disturbed areas, will remain in place until disturbed areas have stabilized.
APM NOI-1	**Construction schedule limits.** Construction hours within the project area, which is industrially-zoned, will typically occur between the hours of 7:00 a.m. and 7:00 p.m., Monday through Friday, and between 9:00 a.m. and 7:00 p.m. Saturday. Nighttime work is not anticipated but may occur to take advantage of line clearances during off-peak hours, which would be short in duration. If nighttime work is needed because of clearance restrictions on the existing power lines connected to Vierra Substation, PG&E will take appropriate measures to minimize disturbances to local residents, including contacting nearby residences within 500 feet of the activity to inform them of the work schedule and probable inconveniences.
APM NOI-2	**Construction equipment noise reduction devices.** Construction equipment will use noise reduction devices that are no less effective than those originally installed by the manufacturer.
APM NOI-3	**Placement of stationary construction equipment.** Stationary equipment used during construction will be located as far as practical from sensitive noise receptors.
APM NOI-4	**Minimization of unnecessary engine idling.** Construction crews will limit unnecessary engine idling. (See APM GHG-1.)

APM NOI-5	**Use of "quiet" equipment.** Where feasible, equipment will be used that is specifically designed for low-noise emissions or that is powered by electric or natural gas as opposed to diesel or gasoline.
APM NOI-6	**Sensitive Receptor Notification.** Sensitive receptors in areas of heavy construction noise, including helicopter usage, will be notified prior to commencing construction activities. Notification will include written notice and posting signs in appropriate locations, with a contact number to call with questions and concerns.
APM TRA-1	**Temporary traffic controls.** PG&E will obtain any necessary transportation and/or encroachment permits, including those for transport of oversized loads and certain materials, and will comply with permit requirements designed to prevent excessive congestion or traffic hazards during lane closures. PG&E will develop lane closure/width reduction or traffic diversion plans, as required by the encroachment permits. Construction activities that are in, along, or cross local roadways and rail lines will follow best management practices to minimize impacts on traffic and transportation in the project area.
APM TRA-2	**Air transit and neighborhood coordination.** PG&E will implement the following protocols that pertain to helicopter use and air traffic during construction: • PG&E will comply with all applicable FAA regulations regarding air traffic within 2 miles of the project alignment. • PG&E's helicopter operator will coordinate all project helicopter operations with the local airport before and during project construction.
APM TRA-3	**Crossroads Commerce Center coordination.** Prior to the start of construction, PG&E will consult with the Crossroads Commerce Center regarding the schedule of traffic using the private rail spur that crosses Nestle Way to reduce potential interruption of rail services serving the industrial park.

3.0 ENVIRONMENTAL ASSESSMENT SUMMARY

3.1 INTRODUCTION

The following sections (3.1 through 3.18) evaluate potential environmental impacts that may result from construction of PG&E's Vierra Reinforcement Project (project). In accordance with the California Environmental Quality Act, the following resources areas were evaluated:

3.1 Aesthetics
3.2 Agricultural and Forest Resources
3.3 Air Quality
3.4 Biological Resources
3.5 Cultural Resources
3.6 Geology and Soils
3.7 Greenhouse Gas Emissions
3.8 Hazards and Hazardous Materials
3.9 Hydrology and Water Quality
3.10 Land Use and Planning
3.11 Mineral Resources
3.12 Noise
3.13 Population and Housing
3.14 Public Services
3.15 Recreation
3.16 Transportation and Traffic
3.17 Utilities and Service Systems
3.18 Mandatory Findings of Significance

Sections 3.1 through 3.17 each include a description of the regulatory context, environmental setting, resource-specific Applicant-Proposed Measure(s) (APMs), and analysis and assessment of potential impacts that could result from implementing the project. The impact analysis is focused on construction activities that are required to install the new power line and expand the existing Vierra Substation, as well as operation and maintenance activities required for the new line and expanded substation, as described in Chapter 2.0, Project Description.

Section 3.18, Mandatory Findings of Significance and Cumulative Impact Analysis, discusses mandatory findings of significance as well as potential cumulative impacts related to the project.

With incorporation of APMs, the project will result in less-than-significant impacts in all potential impact areas. APMs are discussed in their relevant sections and are summarized in Table 2.0-5: Applicant-Proposed Measures in Chapter 2.0, Project Description.

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3.1 AESTHETICS

3.1.1 INTRODUCTION

This section describes existing conditions and potential impacts on aesthetic resources as a result of construction and operation of the project. The analysis concludes that impacts on aesthetic resources will be less than significant; the Applicant-Proposed Measure (APM) described in Section 3.1.4.2 will further reduce the project's less-than-significant impacts on aesthetic resources.

The project's potential effects on aesthetic resources were evaluated using the significance criteria set forth in Appendix G of the California Environmental Quality Act (CEQA) Guidelines. The conclusions are summarized in Table 3.1-1 and discussed in more detail in Section 3.1.4.

Table 3.1-1: CEQA Checklist for Aesthetics

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b) Substantially degrade scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

3.1.2 REGULATORY BACKGROUND AND METHODOLOGY

3.1.2.1 Regulatory Background

Federal

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

State

California Scenic Highway Program

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

A review of the California Scenic Highway Program indicates that the closest designated state scenic highway located near the project is Interstate 580 (I-580), which is approximately 11 miles southwest of the project. The project is not visible from this roadway. There are no eligible state scenic highways in San Joaquin County.

Local

Because the CPUC has exclusive jurisdiction over project siting, design, and construction, the project is not subject to local discretionary regulations. This section includes a summary of local standards or ordinances pertaining to the visual character of the project area for informational purposes and to assist with the CEQA review process.

The project alignment is located within the City of Lathrop in San Joaquin County. This section reviews the visual resource-related policies and regulations as outlined in the City of Lathrop and San Joaquin County general plans.

San Joaquin County General Plan 2010

The Resources chapter lists San Joaquin county scenic routes. The closest county scenic route, Austin Road, south of SR-99 is located approximately 5.5 miles to the east. The project area is not visible from this roadway.

Comprehensive General Plan for the City of Lathrop

The project is located within the City of Lathrop. The City of Lathrop Comprehensive General Plan (2004) describes the San Joaquin River as a scenic resource, and also acknowledges that views of the river are generally obstructed by levees. Situated more than 0.75 miles away (at the closest point), the San Joaquin River is not visible from the project area due to intervening vegetation and development. Views of the Coast Range and the Sierra are also listed as a scenic resource (p. 2-5). As noted below in Section 3.1.3.1 Regional and Local Landscape Setting, on clear days these features are visible from the project area.

Lathrop Gateway Business Park Specific Plan

The City of Lathrop's Gateway Business Park Specific Plan (2010) covers approximately 384 acres of land that was previously a part of unincorporated San Joaquin County, but was annexed and is now part of the City of Lathrop. The plan includes guidelines for development including landscaping streetscape enhancements. Vierra Road is the northern boundary of this specific planning area and, as described in Section 2.3.1, approximately 950 feet of the proposed power line alignment follows the north side of this roadway. The Specific Plan articulates the City's vision for future improvements and development in this portion of the project area. Planned future roadway improvements along Vierra Road potentially include connecting Vierra Road to Yosemite Avenue by way of a new street across from the substation expansion, and converting the eastern end of Vierra Road to a cul-de-sac, which would discontinue the existing through traffic connection to McKinley Road. In addition, Vierra Road would be re-named “Vierra Court,” and the roadway would be widened to include a center turn lane, a sidewalk along the south side, and new street trees on both sides of the right of way. Figures 4.4 and 4.6 of the Specific Plan depict these potential future improvements.

3.1.2.2 Methodology

As outlined in Chapter 2.0, Project Description, the project includes expansion of the existing Vierra Substation, located in the City of Lathrop, and construction of a new 115 kilovolt (kV) power line composed of two circuits — Tesla-Vierra 115 kV Power Line and Vierra-Stockton Cogen Junction 115 kV Power Line — collocated on a single alignment of tubular steel poles (TSPs) between Vierra Substation and the existing Tesla-Stockton Cogen Junction 115 kV Power Line, located west of Vierra Substation in the City of Lathrop. The visual analysis is based on review of technical data, including project maps and drawings provided by PG&E, aerial and ground-level photographs of the project area, local planning documents, and computer-generated visual simulations. Field observations were conducted in August 2017 to document existing visual conditions in the project area and to identify potentially affected sensitive viewing locations.

As part of the PEA aesthetics analysis, a set of visual simulations were prepared to illustrate before and after visual conditions in the proposed project area, as seen from key representative public viewpoints or Key Observation Points (KOPs). Two vantage points have been selected to represent viewing locations where the project would be most visible to the public. The simulation methods employ systematic digital photography, computer modeling and rendering techniques described in the following paragraph.

Photographs were taken using a digital single-lens reflex camera with standard 50-millimeter lens equivalent, which represents an approximately 40-degree horizontal view angle. Photography viewpoint locations were documented systematically using photo log sheet notation, Global Positioning System (GPS) recording, and basemap annotation. Digital aerial photographs and project design information supplied by PG&E provided the basis for developing a three–dimensional (3-D) computer model of the new project components. For each simulation viewpoint, viewer location was input from global positioning system data, using five feet as the assumed eye level. Computer “wireframe” perspective plots were overlaid on the simulation photographs to verify scale and viewpoint location. Digital visual simulation images were then produced based on computer renderings of the 3-D model combined with digital versions of the selected site photographs. The simulations are presented in Figures 3.1-3 through 3.1-4; each of these figures consists of two full-page images designated “A” and “B,” with the existing views shown in the “A” figure and the “after” visual simulations in the “B” figure. Discussion of these simulations is included in Section 3.1.4.3.

This visual assessment employs methods based, in part, on those adopted by the U.S. Department of Transportation Federal Highway Administration (FHWA), as well as other accepted visual analysis techniques. The impact analysis describes change to existing visual resources and assesses viewer response to that change. Central to this assessment is an evaluation of representative views from which the project will be visible to the public. The visual impact assessment is based on evaluation of the changes to the existing visual resources that will result from construction and operation of the project. These changes were assessed, in part, by evaluating the after views provided by the computer-generated visual simulations and comparing them to the existing visual environment.

3.1.3 ENVIRONMENTAL SETTING

Figure 3.1-1: Photograph Viewpoint Locations shows the project location within a regional and local landscape context. In addition to an approximate 3.4-acre expansion to the existing Vierra Substation, the project includes installing approximately 1 mile of new double circuit 115 kV line on approximately 16 TSPs in a rural and primarily industrial setting.

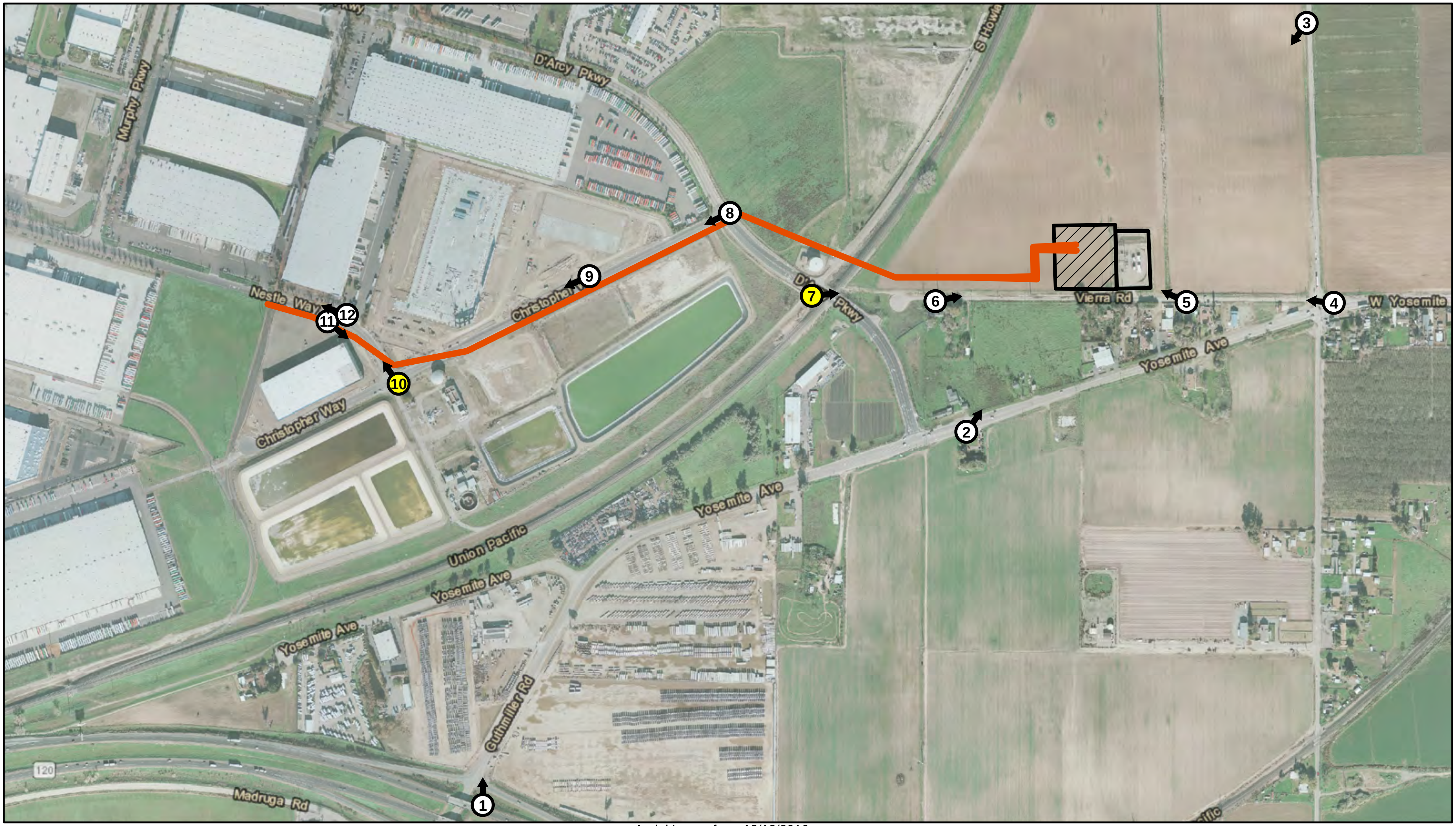
3.1.3.1 Regional and Local Landscape Setting

The project is situated within southern San Joaquin County in the San Joaquin Valley, which comprises the southern portion of the California's much larger Central Valley area. Bordered by the Sierra Nevada on the east and the Central Coast Range on the west, the valley landscape generally reflects a high level of human modification, including vast areas of agricultural land punctuated by populated cities and towns. Interstate 5 (I-5) and State Route 99 (SR-99) located approximately 0.5 mile west and 4.5 miles east of the project respectively, provide major north-south transportation links between cities and smaller communities. Within the area, major east-west roadways traversing the valley include State Route 120 (SR-120), located approximately 0.5 mile south of the project, as well as Interstate 205 and I-580. A grid of rural roadways, in addition to other linear facilities such as irrigation canals, railroad corridors, and electric utility lines, traverse the landscape. The Union Pacific railroad crosses the project route.

Located about 1 mile east of the San Joaquin River, the project is situated on flat terrain of the river delta. Elevations along the project route range between 12 and 20 feet above sea level. Approximately 15 miles to the west, the Diablo Range rises to elevations of approximately 3,900 feet, and is visible from some locations in the project area. The higher Sierra Nevada foothills, located approximately 30 miles to the east, and more distant mountains, are visible on clear days.

Industrial and commercial development, as well as agricultural fields and vacant land, characterize the local landscape. In addition, there are a limited number of single-family rural residences in the vicinity. Views across the area are relatively open, although buildings, other structures, and vegetation—including individual and clusters of mature trees—provide intermittent screening. Utility structures that are seen in the immediate project area include overhead power lines, power poles, and substation facilities, as well as streetlights, water storage tanks, and railroad crossing structures. In addition to a power generating facility and multiple overhead lines, there are three substation facilities including Vierra Substation, within less than 1 mile of the project (refer to Figure 2.0-2 Project Overview Map).

Within this area, sources of nighttime lighting include street and roadway lighting, and localized lighting associated with industrial and commercial facilities and adjacent parking lots, and a limited number of residences.



S:\7-SANDBOX\chaworth\WorkDocs\PG&E\Vierra PEA\mxd\Figure 3_1-1 Photo Viewpoint Locations.mxd

Aerial Image from 12/12/2016

6/4/2018

Photo Viewpoint Location & Direction

Simulation Viewpoint Location & Direction

New 115 kV Line to be Installed

Existing Vierra Substation Footprint

Planned Vierra Substation Expansion

Figure 3.1-1 - Photograph Viewpoint Locations

Vierra Reinforcement Project

PG&E

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Feet

N

TRC Results you can rely on

3.1.3.2 Project Viewshed and Representative Views

A project viewshed is defined as the general area from which a project is visible. For purposes of describing a project's visual setting and assessing potential visual impacts, the viewshed can be broken down into foreground, middleground, and background zones. The foreground is defined as the zone within 0.25 mile to 0.5 mile of the viewer; the middleground is defined as the zone that extends from the foreground to a maximum of 3 to 5 miles of the viewer; and the background zone extends from the middleground to infinity (United States Department of Transportation, 2015).

Viewing distance is a key factor that affects the potential degree of project visibility. Visual details generally become apparent to the viewer when they are observed in the foreground, at a distance of 0.25 to 0.5 mile or less. The primary focus of the visual analysis included in this PEA is the foreground viewshed zone, where visual details are most apparent, up to approximately one mile from the project area, where change could be noticeable.

3.1.3.3 Representative Views

A set of 12 photographs, presented on Figure 3.1-2(a-f): Photographs of the Project and Vicinity, portray views from key representative locations within the project viewshed. These photographs convey a general sense of the landscape character found in the project vicinity (Photographs 1–12). Captions below each photograph note the viewpoint location and view direction. Figure 3.1-1: Photograph Viewpoint Locations is an annotated aerial photograph that depicts the project and photograph viewpoint locations.

The overall project area is a relatively flat, rural landscape located at the southern edge of the City of Lathrop. Industrial development is the predominant land use. **Photograph 1** shows a motorist view from the SR-120 overcrossing of Guthmiller Road at the off ramp, approximately 0.5 mile north of the project. This elevated viewpoint provides an overview of the landscape in the western part of the project area. Truck traffic at the off ramp and on Guthmiller Road is visible in the foreground, along with fenced vehicle and equipment storage yards and low-rise metal industrial buildings. Commercial signage can also be seen along the roadside. More distant landscape features include a red and white-striped stack of a manufacturing facility, light-colored storage tanks, utility poles, and additional industrial buildings with trees and open field areas scattered in between.

Photograph 2, from Yosemite Avenue, is another view from the south looking toward the project. This view shows light-colored warehouse buildings located on the east side of McKinley Avenue. Mature trees seen on the right and in the foreground partially screen the substation and adjacent transmission structures, and on the left, a variety of power lines and utility structures are visible primarily against the sky.

Photographs 3, 4, and **5** are views from the east looking toward Vierra Substation. **Photograph 3** is a motorist view, taken along McKinley Avenue, at a distance of approximately 0.25 mile away from the substation.

1. SR-120 at Guthmiller Road looking north

2. Yosemite Avenue looking northeast

S:\7-SANDBOX\chaworth\WorkDocs\PG&E\Vierra PEA\mxd\Figure 3_1-2a Photographs of the Project and Vicinity.mxd

6/4/2018

Refer to Figure 3.1-1 for photograph viewpoint locations

Figure 3.1-2a Photographs of the Project and Vicinity
Vierra Reinforcement Project
PG&E

TRC
Results you can rely on

3. McKinley Avenue looking southwest

4. Yosemite Avenue at McKinley Avenue looking west

S:\7-SANDBOX\chaworth\WorkDocs\PG&E\Vierra PEA\mxd\Figure 3_1-2b Photographs of the Project and Vicinity.mxd

6/5/2018

Figure 3.1-2b Photographs of the Project and Vicinity
Vierra Reinforcement Project
PG&E

Refer to Figure 3.1-1 for photograph viewpoint locations

Results you can rely on

5. Vierra Road looking west

6. Vierra Road looking east

Refer to Figure 3.1-1 for photograph viewpoint locations

Figure 3.1-2c Photographs of the Project and Vicinity
Vierra Reinforcement Project
PG&E

TRC Results you can rely on

7. D’Arcy Parkway looking east, see Figure 3.1-3 for visual simulation

8. D’Arcy Parkway at Christopher Way looking southwest

Figure 3.1-2d Photographs of the Project and Vicinity
Vierra Reinforcement Project
PG&E

Refer to Figure 3.1-1 for photograph viewpoint locations

TRC
Results you can rely on

9. Christopher Way looking southwest

10. Christopher Way at Nestlé Way looking west, see Figure 3.1-4 for visual simulation

Refer to Figure 3.1-1 for photograph viewpoint locations

Figure 3.1-2e Photographs of the Project and Vicinity
Vierra Reinforcement Project
PG&E

TRC
Results you can rely on

11. Nestlé Way looking southeast

12. Nestlé Way looking west

Figure 3.1-2f Photographs of the Project and Vicinity
Vierra Reinforcement Project
PG&E

Refer to Figure 3.1-1 for photograph viewpoint locations

TRC
Results you can rely on

Open fields dominate the foreground, and the substation, including perimeter fence and upper portions of equipment, can be seen near the center left against a landscape backdrop. Along the horizon, a mixture of steel and wood power poles with overhead conductors are visible against the sky where several residences and industrial buildings can also be seen.

Photograph 4 is a view from Yosemite Avenue where it converges with Vierra Road and McKinley Avenue. Prominent foreground elements seen from this location include a streetlight, part of a cantilevered traffic signal on Yosemite Avenue, and wood power poles situated along Vierra Road. Palm trees and a stand of dense vegetation beyond the light-colored residential structures are also noticeable landscape features. From a distance of approximately 0.25 mile away, substation structures and a line of gray TSPs are visible on the right. The perimeter substation fence is partially screened by a mixture of shrubs. Photograph 4 demonstrates that, in general, light gray-colored steel transmission structures tend to blend in when seen against the sky.

Photograph 5, a close-range motorist view of the substation taken from a distance of approximately 300 feet away along Vierra Road, shows substation structures against the sky. Landscaping shrubs partially screen the substation perimeter fence. TSPs are also seen against the sky, extending westward along Vierra Road. On the left, wood utility poles are silhouetted against the sky and dense vegetation partially screens views from the residence located directly across the street from the substation. Visible in the background are light-colored storage tanks and low-rise warehouse buildings located approximately 0.5 mile away in the Crossroads Industrial Park.

An open view looking east toward the substation from Vierra Road, **Photograph 6** shows utility structures with overhead conductor, including TSPs, extending from the substation along the north (left) side of the road and wood poles along the south (right). Dense vegetation on the right side of Vierra Road provides screening with respect to views from the adjacent residential property. An open field dominates the foreground, allowing an unobstructed view towards substation structures and the landscaped perimeter wall in addition to more distant buildings, utility structures, and vegetation. Although it is a public view near a residence, the Photograph 6 view is not frequently seen because Vierra Road is not a through street and the roadway ends very close to this viewpoint, which is near the railroad tracks. As noted above, with respect to the residential view, dense roadside vegetation provides considerable screening.

Photograph 7 is a motorist view from eastbound D’Arcy Parkway, a four-lane arterial providing access to the Crossroads Industrial Park from Guthmiller Road. From this location, a brief unobstructed view toward the substation can be seen beyond the open field in the foreground. Vierra Road is visible with overhead conductors and TSPs, as well as wood utility poles with dense vegetation on the right. The line supported by wood poles continues and crosses the railroad tracks. From this location, open views are available from the road to the substation and adjacent utility structures. As shown in this photograph, dense roadside vegetation seen on the right screens westbound motorist views.

The project alignment turns off of D’Arcy Parkway and continues southwest along the south side of Christopher Way. **Photograph 8,** a motorist view looking southwest from D’Arcy Parkway at

Christopher Way, shows recently constructed and landscaped industrial developments, including light-colored one- and two-story buildings on the right side of the street, and new off-white light standards along both sides of the street. On the left (south) side of the street, perimeter chain-link fencing topped with barbed wire encloses water treatment ponds bordering the street. A water storage tank and new streetlights are also visible in the distance. Taken from a viewpoint further west along Christopher Way, **Photograph 9** shows the roadway and sidewalk in the foreground with newly landscaped low-rise warehouse buildings on the right. On the left, chain-link fencing is seen along the north side of the street along with equipment and the painted metal water storage tank. Industrial street lights are present on both sides of the street, and utility poles can be seen in the distance.

At Nestle Way, the alignment again turns northwest. **Photographs 10** through **12** portray the existing visual character along Nestle Way. **Photograph 10**, a view from Christopher Way at Nestle Way, shows the roadway and recently installed sidewalk and landscaping in the foreground, as well as new streetlights, off-street parking areas, and light-colored warehouse buildings. Near the center and on the right side of the view, mature trees substantially screen portions of light-colored buildings and part of a utility pole silhouetted against the sky.

Photograph 11 is a view from Nestle Way looking southeast toward Christopher Way. This view is looking toward the previous viewpoint location. Recently installed sidewalk and new roadside landscaping can be seen in the foreground along with new light standards and the painted metal water storage tank. Just to the right of the water storage tank, the new administration building for the water treatment plant is under construction and the two cranes are temporary features. Wood utility poles with overhead conductor and distant lattice steel transmission towers are also visible on the right side of this view.

Photograph 12 is a view looking toward the west end of the project alignment from Nestle Way. Located approximately 500 feet from Christopher Way, this viewpoint is near where the roadway crosses a private railroad spur track, and the Tesla-Stockton Cogen Junction 115 kV Power Line can be seen on the left side of the road and crossing the road. On the right, mature canopy trees line the roadway. Large-scale low-rise warehouse buildings can be seen on the left beyond paved areas and open fields. Railroad crossing structures and signals are visible along with other utility structures and street and parking lot lights.

3.1.3.4 Potentially Affected Viewers

Accepted visual assessment methods, including those adopted by FHWA, establish sensitivity levels as a measure of public concern for changes to scenic quality. Viewer sensitivity, which is one of the criteria for evaluating visual impact significance, can be divided into high, moderate, and low categories. Factors considered in assigning a sensitivity level include viewer activity, view duration, viewing distance, adjacent land use, and special management or planning designation. According to the *Visual Impact Assessment for Highway Projects* (DOT 2015), research on the subject suggests that certain activities tend to heighten viewer awareness of visual and scenic resources, while others tend to be distracting. Concerned viewers within the project viewshed primarily include motorists on local roadways.

Motorists are the largest affected viewer group. Primary viewers in this group include motorists traveling on local public roadways located relatively close to the project such as Vierra Road, Yosemite Avenue, and Nestle Way. Motorists on SR-120, approximately 0.5 mile to the south, could also have brief views of the project from the elevated roadway. Motorists may include both local travelers who are familiar with the visual setting, and regional travelers using the roadways on a less regular basis. Roadway views are typically brief in duration, and, at many locations, further away from the immediate project area; motorists' views are screened by vegetation, development, and topography. Viewer sensitivity is considered low to moderate.

The second viewer group is comprised of a limited number of residents, including occupants of rural residences located along Vierra Road and Yosemite Avenue near Vierra Substation. Residential views tend to be long in duration, and the sensitivity of this viewer group is considered moderate to high.

3.1.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

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

3.1.4.1 Significance Criteria

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

3.1.4.2 Applicant-Proposed Measures

PG&E will implement the following APMs:

APM AES-1: Nighttime lighting to minimize potential visual impacts.

Nighttime construction activities, if they occur, will incorporate measures such as use of non-glare or hooded fixtures and directional lighting to reduce spillover into areas outside the construction site and minimize the visibility of lighting from off-site locations wherever feasible.

APM AES-2: Construction Cleanup.

Construction activities will be kept as clean and inconspicuous as practical. Construction debris will be picked up regularly from construction areas. The appearance of disturbed land areas will be restored to approximate pre-construction visual conditions, where feasible and consistent with landowner requests, through implementation of re-contouring and/or re-vegetation.

APM AES-3: Use of Galvanized Finish on TSPs.

Use of a galvanized finish that will weather to a dull, non-reflective patina on new TSPs will reduce the potential for a new source of glare resulting from introduction of project elements.

APM AES-4: Perimeter wall, fence and landscaping for partial screening of substation expansion.

A perimeter wall will be installed along the south side of the substation (facing Vierra Road) to provide partial screening of the expanded substation. A perimeter chain link fence with neutral gray slats will enclose the west side of the expanded substation (facing D'Arcy Parkway railroad overcrossing). The design of the wall and fence will be comparable to the design of the existing substation perimeter wall and fence. Landscaping along the substation perimeter will also be comparable to existing landscaping at the substation, and will include similar landscaping comprising drought-tolerant shrubs.

3.1.4.3 Potential Impacts

Project impacts related to aesthetics and visual resources were evaluated against the CEQA significance criteria and are discussed below. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance phase.

As described in Chapter 2.0, Project Description, the project includes installing approximately 1 mile of 115 kV power line on TSPs, improving and expanding PG&E's existing Vierra Substation, and establishing temporary work areas to construct these improvements.

a) Would the project have a substantial adverse effect on a scenic vista? *No Impact*

The project will not have a substantial adverse effect on a scenic vista. For purposes of this evaluation, a scenic vista is defined as a distant public view along or through an opening or corridor that is recognized and valued for its scenic quality. There are no designated scenic vistas within the project viewshed; therefore, there will be no impact from the project on a scenic vista.

b) Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? *No Impact*

As documented in Section 3.1.2.1, there are no designated State Scenic Highways within the project viewshed; therefore, the project will not substantially damage scenic resources within a state scenic highway. The closest designated state scenic highway is I-580, which is located approximately 11 miles southwest of the project, and the project is not visible from this roadway. There are no eligible state scenic highways in San Joaquin County; therefore the project is not visible from, and would not affect, views along a designated or eligible state scenic highway, and there will be no construction or operation and maintenance impacts.

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

Construction

The project will not substantially degrade the existing visual character or quality of the site and its surroundings. Construction-related visual impacts will result from the temporary presence of workers, construction equipment, and vehicles, along the project route and at the substation expansion site. These effects will be relatively short term, and could be most noticeable to a limited number of residential viewers who live in close proximity to Vierra Substation. For the most part, construction of the power line will take place along public roads situated within a primarily industrial area where construction is not uncommon and other activities typically employ the use of trucks and other equipment that is similar to construction equipment. In addition, views from nearby residential properties are generally screened by vegetation.

Construction of the substation expansion is expected to take approximately 12 months and will likely begin prior to construction of the power line portion of the project. Construction of the power line is estimated to take approximately 3 to 4 months to complete, but will take less time at any one location along the project route. Given the presence of existing construction and other activities associated with industrial and agricultural uses, as well as vegetation screening at nearby residences, and in light of the limited number of affected viewers, temporary construction-related visual effects will be less than significant. Implementation of APM AES-1 and APM AES-2 will further minimize these less-than-significant impacts.

Operation and Maintenance

<u>Substation Expansion</u>

The expansion and improvements at Vierra Substation will be noticeable from short segments of rural roadways near the facility; however, given the brief duration of views and the presence of the existing substation facility, the overall quality of the landscape and visual setting in this primarily industrial area will not be substantially altered.

Vierra Substation will be expanded approximately 340 feet to the west. The expanded substation area will increase approximately 3.4 acres from its current size of approximately 1.6 acres. As described in Section 2.1, the existing 115 kV equipment will be replaced, upgraded, and reconfigured to allow for tie-in of the new 115 kV double-circuit line. The new and replacement substation equipment will be similar in scale and appearance to the components currently seen at the substation facility and will be surrounded by a comparable wall and fence with landscaping, as described in APM-AES-4. The substation expansion will also include construction of a stormwater retention pond measuring approximately 300 feet long by 40 feet wide and 3 feet deep; however, given its low profile, this component will not be visible to the public. The overall project requires minimal grading and vegetation removal.

As documented in Section 3.1.3.3, portions of Vierra Substation are currently visible from some nearby locations, including places along McKinley and Yosemite Avenues, as well as Vierra Road and D'Arcy Parkway. The expanded substation including new and replacement equipment and the new perimeter wall along the south side of the expanded facility will also be visible from these viewing locations. The introduction of these modifications is expected to represent an incremental change to the visual setting. Figure 3.1-3(a): Existing View from D'Arcy Parkway and Simulation from D'Arcy Parkway shows an existing and post-project motorist view from eastbound D'Arcy Parkway, where the elevated roadway affords a brief unobstructed view toward the substation. From this location the substation is visible beyond the open field seen in the foreground and Vierra Road can also be seen, framed by the vertical elements of TSP and wood pole structures with overhead conductors. Near the center of this view, the wood pole in the immediate foreground supports an existing overhead distribution line along Vierra Road that continues west, and crosses the railroad tracks. Four TSPs near the center of this view support the existing power line entering the substation from the west along Vierra Road and the more distant TSP on the left supports another existing line that leaves the substation.

Figure 3.1-3(b) is a visual simulation showing the proposed project components including the substation expansion and landscaped perimeter wall and fence. The new substation substructures and equipment are somewhat more noticeable than the existing substation facility due to the closer proximity to this viewpoint. The new perimeter wall and fence screen the lower part of the expanded substation facility and the visible portions are partially seen against a landscape backdrop while taller portions are visible against the sky. Along Vierra Road, three TSPs supporting the existing power line have been relocated to accommodate the planned roadway widening. The simulation also shows new TSPs supporting the new overhead power line, including one TSP on the left in the foreground with additional new TSPs beyond. At the left edge of the expanded substation, a pair of new TSPs frames a new telecommunication tower. These new substation components are primarily visible against sky in the background. A comparison of the existing and post-project views presented on Figures 3.1-3 (a-b) demonstrates that, although the project would introduce additional transmission and substation structures, the overall change would be incremental and would not substantially alter the existing visual character or composition of the landscape experienced briefly by motorists at this location, given the presence of existing transmission and utility structures. In addition, while eastbound motorists have a brief, open view toward the substation and adjacent utility structures, Figure 3.1-3 (a-b) shows that dense roadside vegetation seen on the far right provides roadside screening for westbound travelers.

As outlined in Section 3.1.3.3 Representative Views, existing vegetation generally screens views toward the substation from the limited number of residences in the vicinity. Additionally, the potential planned future roadway improvements along Vierra Road as described in Section 3.1.2.1, including a new cul-de-sac that would discontinue the existing through traffic connection to McKinley Road, as well as new street trees on both sides of the right of way, would likely result in fewer viewers and an increased amount of screening along this roadway.

<u>Proposed Power Line</u>

The project will include a new, approximately 1-mile-long, double-circuit 115 kV power line on 16 TSPs. The approximate height of the new TSP structures ranges from 80 feet to 90 feet. Three existing TSPs on the Vierra-Tracy-Kasson 115 kV power line near the substation will be relocated and one TSP will be removed to accommodate the substation expansion and future improvements to Vierra Road. In addition, a minimum of one wood pole will be removed and one new, single-circuit TSP and one new, single-circuit light duty steel pole (LDSP) will be installed to re-route the Howland Road 115 kV Power Line to its new termination bay with the expanded substation.

The new power line will be visible from some nearby locations, primarily along public roadways. Originating at Vierra Substation, the project will extend approximately 1,000 feet west along the north side of Vierra Road, then turn in a northwesterly direction for approximately 1,000 feet, crossing the railroad tracks and running parallel along the east side of D'Arcy Parkway. Representative photographs presented on Figure 3.1-2a through 3.1-2d demonstrate that, at these locations, the new power line will be seen within the context of existing overhead conductors, steel or wood power poles, and other utility structures. As discussed above, Figure 3.1-3(a-b) shows an existing and post-project view that is seen briefly by motorists traveling eastbound on D'Arcy Parkway. Figure 3.1-3b shows the new power line leaving the substation supported on two pairs of single-circuit dead-end TSPs, seen in the left center of the view next to the substation fence. The new power line follows Vierra Road and then runs parallel to D'Arcy Parkway, supported on the double-circuit TSPs near the center and left side of this view. The closest TSP seen on the left is approximately 400 feet away from this viewpoint. The additional TSPs next to the substation and the closer TSP in the center are part of the relocated Vierra-Tracy-Kasson 115 kV Power Line. Given the presence of the existing utility elements, the project will represent a relatively minor incremental change to the visual setting.

The new line turns west, extending along the south side of Christopher Way for approximately 2,000 feet, then northwest along Nestle Way for approximately 800 feet, to where it ties into the existing Tesla-Stockton Cogen Junction 115 kV Power Line. The project terminates on the west side of a private rail line spur serving the industrial park. Error! Reference source not found. shows an existing and post-project view from Christopher Way at Nestle Way with the roadway, new sidewalk pavement, and recently installed landscaping in the immediate foreground.

Visible structures include new streetlights, off-street parking areas, and light-colored warehouse buildings within the Crossroads Business Park. Near the center and right side of this view, mature tree canopies screen portions of buildings and part of a TSP structure seen silhouetted against the sky. Figure 3.1-4b shows the proposed power line including two new TSPs with overhead conductor in the foreground. The Figure 3.1-4b visual simulation indicates the new TSPs will be noticeable and somewhat prominent; however, in terms of form and color, the appearance of the recently installed light standards seen along Christopher Way and Nestle Way is not dissimilar to the new structures' appearance. The light gray color of the new TSPs tends to blend in with the background of sky, which in turn helps reduce potential contrast and visibility of the project. In addition, it is expected that recently installed landscaping, including street trees seen in the foreground, will mature and partially screen lower portions of the TSPs. Over time the effect could be similar to the visual screening provided by mature tree canopy currently seen near the center of this view. In light of the minor aesthetic change described above, the project will not substantially degrade the existing visual character or quality experienced by the public along Nestle or Christopher Way. Additionally, the recently-installed street trees are expected to

Existing View from D'Arcy Parkway looking east (VP 7)

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4/10/2018

TRC
Results you can rely on

Figure 3.1-3a Existing View from D'Arcy Parkway
Vierra Reinforcement Project
PG&E

Visual Simulation from D'Arcy Parkway looking east (VP 7)

TRC
Results you can rely on

Figure 3.1-3b Visual Simulation from D'Arcy Parkway
Vierra Reinforcement Project
PG&E

Existing View from Christopher Way at Nestlé Way looking west (VP 10)

TRC Results you can rely on

Figure 3.1-4a Existing View from Christopher Way

Vierra Reinforcement Project

PG&E

Visual simulation of proposed project from Christopher Way at Nestlé Way looking west (VP 10)

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4/10/2018

TRC
Results you can rely on

Figure 3.1-4b Visual Simulation from Christopher Way
Vierra Reinforcement Project
PG&E

mature and provide a measure of visual screening that would reduce the less-than-significant aesthetic impact.

The overall visual change brought about by the project will occur within a landscape that is heavily modified for industrial activity, and where electric utility structures, including substations, wood poles, and overhead lines, as well as industrial structures and infrastructure, are currently seen in the immediate vicinity.

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

The project will not create a new source of substation light or glare that would adversely affect the day or nighttime view in the area.

Construction

Nighttime construction is not anticipated unless certain short-term construction procedures are required because of safety considerations or activities that need to be completed once started, or to take advantage of line clearances during off-peak hours. Potential staging areas may use nighttime lighting for security. This effect will be temporary and, by directing lights away from any residential uses, will be less than significant. Implementation of APM-AES-1 will further reduce potential night-lighting effects.

Operation and Maintenance

<u>Proposed Power Line - Nighttime Lighting and Glare</u>

No permanent lighting will be installed along the new power line.

The proposed TSPs will have a galvanized finish that will weather to a dull, non-reflective patina (APM AES-3). Similarly the new conductor will weather to have a dull, non-reflective finish. Thus the new power line will not create a new source of substantial light or glare that would adversely affect the day or nighttime views in the area.

<u>Proposed Vierra Substation Expansion -Glare</u>.

The substation expansion includes a new perimeter wall that will be a neutral gray color with a non-reflective finish, and shrubs will be planted on the outside of the wall (APM AES-4). Any visible new substation components will be a galvanized finish that will weather to a dull, non-reflective patina. The substation design characteristics described above will minimize potential effect of glare.

<u>Proposed Vierra Substation Expansion -Nighttime Lighting</u>.

The substation expansion will include outdoor lighting for safety and security purposes. The new lighting will be designed to avoid casting light or glare off-site. The substation expansion is located adjacent to the existing substation facility within a rural, primarily industrial setting, with existing sources of localized lighting sources including streetlights and commercial and industrial facility lighting. Currently there is some lighting located on the substation site. Seen within this context, new substation lighting will represent a minor incremental change to existing nighttime lighting conditions. The impact will be less than significant.

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3.2 AGRICULTURAL AND FOREST RESOURCES

3.2.1 INTRODUCTION

This section describes existing conditions and potential impacts on agricultural and forest resources as a result of construction, operation, and maintenance of the project. The analysis concludes that impacts on agricultural and forest resources will be less than significant. The project's potential effects on agricultural and forest resources were evaluated using the significance criteria set forth in Appendix G of the California Environmental Quality Act (CEQA) Guidelines. The conclusions are summarized in Table 3.2-1 and discussed in more detail in Section 3.2.4.

Table 3.2-1: CEQA Checklist for Agricultural and Forest Resources

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural land?	☐	☐	☒	☐
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 by 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 uses?	☐	☐	☐	☒
e) Involve other changes in the existing environment, which, due to their location or nature, could result in the conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

3.2.2 REGULATORY BACKGROUND AND METHODOLOGY

3.2.2.1 Regulatory Background

Federal

No federal regulations related to agricultural or forest resources are applicable to the project.

State

Farmland Mapping and Monitoring Program

The California Department of Conservation (DOC), under the Division of Land Resource Protection, has established the Farmland Mapping and Monitoring Program (FMMP) to monitor the conversion of the state's farmland to and from agricultural use. The FMMP maps agriculturally viable lands and designates specific categories, including Prime, Unique, non-Prime, or Farmland of Statewide Importance.

Local

Because the CPUC has exclusive jurisdiction over project siting, design, and construction, the project is not subject to local discretionary regulations. This section includes a summary of local zoning in the project area for agricultural use or forest land, and is provided for informational purposes and to assist with the CEQA review process.

In any event, the project does not cross any lands zoned for agricultural or forest land. See Section 3.10, Land Use and Planning, for additional information about zoning in the project area.

3.2.2.2 Methodology

Various sources were consulted to complete the analysis for agricultural and forestry resources, including DOC FMMP data and maps, Williamson Act contract maps, aerial photographs, and city general plans, zoning ordinances, and maps. The mapped agricultural designations and contracted lands were compared with the project alignment, with particular focus on the proposed locations for installation of new towers and poles, which represent the locations with the greatest potential to impact these lands uses. A qualitative analysis is provided to determine whether the project will have a substantial impact on farmland. There are no forest resources present in the project area; therefore, forest resources will not be discussed in this section.

3.2.3 ENVIRONMENTAL SETTING

3.2.3.1 Regional

The approximately 1-mile-long 115 kV power line alignment is located in a primarily industrial area in the City of Lathrop, in San Joaquin County, although it crosses approximately 0.44 mile of DOC-designated Farmland of Statewide Importance east of D'Arcy Parkway. Many of the DOC FMMP-designed farmland parcels within the City of Lathrop are not currently used for agriculture. As of 2014, there were approximately 614,992 acres of Important Farmland in San Joaquin County, 382,877 acres of which were Prime Farmland, accounting for approximately 67 percent of the land surveys within San Joaquin County boundaries (DOC 2015).

3.2.3.2 Local

Williamson Act and Important Farmland

The project alignment does not cross any Williamson Act agricultural land. The project alignment crosses parcels designated Farmland of Local Importance west of D'Arcy Parkway.

Zoning Districts

The project alignment does not cross any land zoned for agriculture or forest land.

3.2.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for agricultural and forest resources impacts derived from Appendix G of the CEQA Guidelines, provide APMs, and assess potential project-related construction and operational impacts on agricultural and forest resources.

3.2.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project-related impacts on agricultural and forest resources were evaluated for each of the criteria listed in Table 3.2-1, as discussed in Section 3.2.4.3.

3.2.4.2 Applicant-Proposed Measures

PG&E will implement the following APM:

APM AGR-1: Landowner Coordination

PG&E will coordinate with J. R. Simplot Company (or tenant) in advance of construction activities to minimize impacts on agricultural operations.

3.2.4.3 Potential Impacts

Project impacts on agriculture and forest resources were evaluated against the CEQA significance criteria, as discussed below. This section evaluates potential project impacts from both the construction phase and operation and maintenance phase.

As described in Chapter 2.0, Project Description, the project includes installing approximately 1 mile of 115 kV power line on TSPs, improving and expanding PG&E's existing Vierra Substation, and establishing temporary work areas to construct these improvements.

a) Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the FMMP, to non-agricultural use?
Less-than-Significant Impact

Construction

The project alignment crosses Farmland of Statewide Importance and Farmland of Local Importance; however, the majority of these parcels are planned to be or are currently being developed, and are not currently being used as farmland. Undeveloped land consists of the following parcels:

- A parcel located immediately west of Vierra Substation, designated as Farmland of Statewide Importance and owned by J.R. Simplot Company, is leased for agricultural production and is currently planted in alfalfa. Expansion of the substation will convert approximately 2.5 acres of farmland on this parcel to industrial use, and the permanent footprint of the new TSPs will convert approximately 0.002 acre to non-agricultural use. Construction on this parcel will also temporarily impact approximately 10.7 acres of agricultural lands for construction work areas around TSPs, the substation, staging areas, and pull and tension sites. Construction activities could temporarily interfere with agricultural operations surrounding the substation by temporarily restricting landowner access to the agricultural areas where active construction is taking place. Apart from the staging area adjacent to the substation expansion, this impact will occur over approximately 2 days at each TSP site.

- A parcel located on the west side of the Tesla-Stockton Cogen Junction 115 kV Power line, designated as Farmland of Statewide Importance, is located within an industrial park and is not being used for agricultural production. A pull site and pole work area on this parcel will temporarily impact 0.8 acre.

Temporary and permanent impacts on undeveloped, designated Farmland associated with the project are indicated in Table 3.2-2: Estimated Temporary and Permanent Impacts on Farmland. The TSP poles will result in the conversion of an area approximately 5 to 6 feet in diameter at each pole location. Once construction is completed, all temporary construction work areas in agricultural areas will be restored.

Table 3.2-2: Estimated Temporary and Permanent Impacts on Farmland

Project Element	Temporary Impact on Farmland	Permanent Impact on Farmland
Substation	N/A	2.5 acres of Farmland of Statewide Importance
Power Line Pull and Tension Sites[1]	0 acre	N/A
Staging Area[2]	7.86 acres of Farmland of Statewide Importance	N/A
Access	0.09 acre of Farmland of Statewide Importance[2]	N/A
TSPs	1.5 acres of Farmland of Statewide Importance	0.008 acre of Farmland of Statewide Importance
Total Acres	9.45 acres of Farmland of Statewide Importance	2.5 acres of Farmland of Statewide Importance

[1] Note that there are temporary impacts associated with power line pull and tension sites, but they overlap with staging area temporary pull sites and are, therefore, not included in this table.
[2] This assumes an 18-foot width.

Apart from the substation expansion (which will account for any crop values in the purchase price), project-related impacts on undeveloped agricultural land will be temporary, and property owners will be appropriately compensated for any production losses during this period. The amount of Farmland of Statewide Importance that will be converted to non-agricultural land is less than the significance threshold of 40 acres, which is noted in California Government Code Section 51222 as the size of a parcel large enough to sustain agricultural use in the case of Farmland of Statewide Importance. The project will, therefore, have a less-than- significant impact related to the conversion of approximately 2.5 acres of Farmland of Statewide Importance to non-agricultural use.

Operation and Maintenance

Operation and maintenance activities primarily include inspection and repair of the power lines and routine inspection of the substation, all of which will be conducted within project ROWs and PG&E-owned land. Operation and maintenance of the project will not result in the conversion of Prime Farmland, Farmland of Statewide Importance, or Unique Farmland to non-agricultural use. Therefore, no impact will occur.

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

The project does not cross any parcels under Williamson Act contracts, nor does the project cross any land zoned for agricultural use. Therefore, there would be no impact.

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

No areas of protected timberland or commercial timberland are located within the project area. Therefore, the project will not conflict with the zoning of forest lands or the conversion of timberland, and no impact will occur.

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

No forest land is located in the area. Therefore, the project will not result in the conversion or loss of any forest land, and no impact will occur.

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

Implementation of the project will not discourage the use of adjacent land for agricultural use. Rather, the project will improve power service reliability for existing customers in the area, including agricultural users, so that such uses can continue operating with a more reliable power source. The project will not induce growth that will result in the conversion of farmland to non-agricultural use; therefore, there will be no impact.

3.2.5 REFERENCES

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3.3 AIR QUALITY

3.3.1 INTRODUCTION

This section discusses potential air quality issues associated with the project construction, operation, and maintenance, including both regional and site-specific concerns, and concludes that impacts will be less than significant in these areas. Air quality emissions will occur within the San Joaquin Valley Air Pollution Control District (SJVAPCD). Emission evaluations follow California Environmental Quality Act (CEQA) guidance provided by San Joaquin Valley Air Pollution Control District for activities within their jurisdiction. Primary air emissions from the project include construction emissions associated with fugitive dust, heavy construction equipment and helicopter usage, and construction workers commuting to and from the project site. Air emissions evaluated include reactive organic gases (ROG), nitrogen oxides (NO_X), carbon monoxide (CO), sulfur dioxide (SO_2), and particulate matter (PM). Greenhouse gas (GHG) emissions are discussed separately in Section 3.7. The analysis concludes that impacts to air quality will be less than significant. Incorporation of the APMs described in Section 3.3.4.2 will further minimize potential less-than-significant impacts.

Emission calculations in this document were based on worst-case estimates of pollutant emissions to ensure presentation of a conservative environmental analysis. This analysis may be revised, as needed, to reflect changes to the project plans. The project's potential effects on air quality were evaluated using the criteria set forth in Appendix G of the CEQA Guidelines. The conclusions are summarized in Table 3.3-1 and discussed in more detail in Section 3.3.4.

Table 3.3-1: CEQA Checklist for Air Quality

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

3.3.2 REGULATORY BACKGROUND AND METHODOLOGY

3.3.2.1 Regulatory Background

Federal

The federal Clean Air Act (CAA) establishes the statutory framework for regulation of air quality in the United States. Pursuant to this act, the U.S. Environmental Protection Agency (EPA) has established various regulations to achieve and maintain acceptable air quality, including the adoption of National Ambient Air Quality Standards (NAAQS), mandatory state implementation plan (SIP) or maintenance plan requirements to achieve and maintain NAAQS, and emission standards for both stationary and mobile sources of air pollution. National ambient air quality standards were established in 1970 for six pollutants: carbon monoxide (CO), ozone (O_3), particulate matter (PM_{10} and $PM_{2.5}$), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead (Pb). These pollutants are commonly referred to as criteria pollutants, because they are considered the most prevalent air pollutants known to be hazardous to human health. The U.S. EPA designates a region that is meeting the air quality standard for a given pollutant as being in "attainment" for that pollutant; regions not meeting the federal standard are designated as being in "nonattainment" for that pollutant. If a region is designated as nonattainment for a NAAQS, the federal CAA requires the state to develop a SIP to demonstrate how the standard will be attained, including the establishment of specific requirements for review and approval of new or modified stationary sources of air pollution. The CAA Amendments of 1990 directed the EPA to set standards for toxic air contaminants and required facilities to sharply reduce emissions. Table 3.3-2 summarizes state and federal ambient air quality standards.

State

The California Air Resources Board (CARB) is the state agency responsible for California air quality management, including establishment of California Ambient Air Quality Standards (CAAQS), mobile source emission standards, and GHG regulations, as well as oversight of regional air quality districts and preparation of implementation plans, including regulations for stationary sources of air pollution. The CAAQS are generally more stringent, except for the 1-hour NO_2 and SO_2 standards, and include more pollutants than the NAAQS (see Table 3.3-2). California specifies four additional criteria pollutants: visibility reducing particles (VRP), sulfates, hydrogen sulfide (H_2S), and vinyl chloride. Similar to U.S. EPA, CARB designates counties in California as being in attainment or nonattainment for the CAAQS.

The Air Toxic "Hot Spots" Information and Assessment Act identifies toxic air contaminant hot spots where emissions from specific sources may expose individuals to an elevated risk of adverse health effects, particularly cancer or reproductive harm. Toxic air contaminants are also referred to as hazardous air pollutants (HAPs). The Act requires that a business or other establishment identified as a significant source of toxic emissions provide the affected population with information about health risks posed by the emissions.

Table 3.3-2: Ambient Air Quality Standards

Pollutant	Averaging Time	CAAQS [a]	NAAQS [b]	
			Primary [c]	Secondary [d]
Ozone	1 hour 8 hours	0.09 ppm 0.070 ppm	-- 0.075 ppm	-- 0.075 ppm
Carbon monoxide (CO)	1 hour 8 hours	20 ppm 9.0 ppm	35 ppm 9 ppm	-- --
Nitrogen dioxide (NO_2)	1 hour Annual Arithmetic Mean	0.18 ppm 0.030 ppm	0.100 ppm [e] 0.053 ppm	-- 0.053 ppm
Sulfur dioxide (SO_2)	1 hour 3 hours 24 hours Annual Arithmetic Mean	0.25 ppm -- 0.040 ppm --	0.075 ppm [f] -- 0.014 ppm 0.030 ppm	-- 0.5 ppm -- --
Particulate matter less than 10 microns (PM_{10})	24 hours Annual Arithmetic Mean	50 µg/m^3 20 µg/m^3	150 µg/m^3 --	150 µg/m^3 --
Particulate matter less than 2.5 microns ($PM_{2.5}$)	24 hours Annual Arithmetic Mean	-- 12 µg/m^3	35 µg/m^3 15 µg/m^3	35 µg/m^3 15 µg/m^3
Lead [g]	30-day Average Calendar Quarter Rolling 3-month Average	1.5 µg/m^3 -- --	-- 1.5 µg/m^3 0.15 µg/m^3	-- 1.5 µg/m^3 0.15 µg/m^3
Visibility reducing particles (VRP)	8 hours	[h]	--	--
Sulfates	24 hours	25 µg/m^3	--	--
Hydrogen sulfide (H_2S)	1 hour	0.03 ppm	--	--
Vinyl chloride	24 hours	0.01 ppm	--	--

Notes:

ppm = parts per million

µg/m3 = micrograms per cubic meter

-- = No standard has been adopted for this averaging time

[a] California Ambient Air Quality Standards for ozone, CO (except 8-hour Lake Tahoe), SO2 (1 and 24 hour), NO2, and particulate matter (PM10, PM2.5, and VRP), are values that are not to be exceeded. All others are not to be equaled or exceeded.

[b] National Ambient Air Quality Standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m3 is equal to or less than one. For PM2.5, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.

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

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

[e] To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 0.100 ppm.

[f] To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 0.075 ppm.

[g] CARB has identified lead and vinyl chloride as “toxic air contaminants” with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[h] Particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70 percent.

Source: CARB 2016

Regional

San Joaquin Valley Air Pollution Control District

The project is located within the jurisdiction of the SJVAPCD. The SJVAPCD implements and enforces air quality programs required by state and federal mandates. The SJVAPCD is responsible for managing and permitting existing, new, and modified sources of air emissions within its boundaries, and has established rules and regulations that apply to the project to ensure compliance with local, state, and federal air quality regulations.

The SJVAPCD developed the Guide for Assessing and Mitigating Air Quality Impacts (SJVAPCD 2015) as an advisory document to provide lead agencies, consultants, and project applicants with uniform procedures for addressing air quality in environmental documents. The SJVAPCD also developed the Guide for Assessing and Mitigating Air Quality Impacts: Technical Document – Information for Preparing Air Quality Sections in EIRs (SJVAPCD 2002) as a companion document to the Guide for Assessing and Mitigating Air Quality Impacts.

Regulation VIII, Fugitive PM_{10} Prohibition, contains rules developed pursuant to EPA guidance for serious PM_{10} nonattainment areas. Rules included under this regulation aim to reduce ambient concentration of PM_{10} by the following methods: preventing, reducing, or mitigating fugitive dust emissions from construction sites during excavation, demolition, and other earthmoving activities; regulating bulk material handling, storage, and transport; preventing carryout and track-out; and requiring construction crews to drive in paved and unpaved vehicle and equipment traffic areas. A SJVAPCD-approved Dust Control Plan is required for projects in which construction-related activities will disturb 5 or more acres of surface area. The total amount of area disturbed during project construction is estimated to be 9.2 acres. This includes approximately 6.4 acres for TSP sites, pull sites, and temporary access roads and staging areas, and approximately 2.8 acres associated with expanding the substation. The project will require a Dust Control Plan that identifies the fugitive dust sources at the construction site and describes all of the dust control measures to be implemented before, during, and after any dust-generating activity for the duration of the project.

The PM_{10} Maintenance Plan and Request for Redesignation was adopted in 2007, following the EPA's finding that the San Joaquin Valley Air Basin (SJVAB) had attained the federal PM_{10} standards. The plan was approved by the EPA, and in 2008, the SJVAB was re-designated to attainment for PM_{10} NAAQS.

The Extreme Ozone Attainment Demonstration Plan was adopted by the SJVAPCD in 2004 and approved by the EPA in 2010. In 2012, the EPA withdrew its 2010 approval of the SJVAPCD's 2004 plan and required submittal of a new plan for the revoked 1-hour standard, which was adopted by SJVAPCD in 2013. Even though the EPA revoked the federal 1-hour ozone standard, including associated designations and classifications, the EPA had previously classified the SJVAB as in extreme nonattainment for this standard, and many applicable requirements for extreme 1-hour ozone nonattainment areas continue to apply. The Eight-hour Ozone Plan was adopted by the SJVAPCD in 2007 and approved by the EPA in 2012. This plan projects that the

San Joaquin Valley will achieve the 8-hour ozone standard for all areas of the SJVAB no later than 2023.

The San Joaquin Valley is designated as nonattainment for federal $PM_{2.5}$ standards. The 2008 $PM_{2.5}$ Attainment Plan was adopted by the SJVAPCD to set out the strategy to attain the federal 1997 Annual $PM_{2.5}$ standard by 2015. Most of its provisions were approved by the EPA in 2012. The SJVAPCD 2012 $PM_{2.5}$ Attainment Plan is designed to achieve the federal 2006 24-hour $PM_{2.5}$ NAAQS by 2019. CARB approved this plan in 2013.

Local

No local (city and county) air quality regulations are applicable to this project.

3.3.2.2 Methodology

Information on air quality impacts was collected from the SJVAPCD's current CEQA Air Quality Guidelines (SJVAPCD 2015). Short-term construction emissions of CO, SO_2, PM_{10}, and $PM_{2.5}$ were evaluated. Because O_3 is formed through chemical reactions in the atmosphere, the O_3 precursors NO_x and ROG were also evaluated. Construction emissions (excluding those from helicopters), emissions from soil disturbance, and emissions from vehicle travel on paved and unpaved roads were estimated using California Emissions Estimator Model Version 2016.3.1 (CalEEMod). Helicopter emissions were estimated manually using emissions factors obtained from the Swiss Federal Office of Civil Aviation (FOCA) and Federal Aviation Administration (FAA). Detailed construction emission calculations will be provided separately to CPUC staff. This analysis may be revised, as needed, to reflect changes to the project plans.

3.3.3 ENVIRONMENTAL SETTING

3.3.3.1 Regional Setting

The project is located in the City of Lathrop, in southern San Joaquin County. San Joaquin County is part of the San Joaquin Valley Air Basin, which stretches approximately 250 miles and comprises the southern half of California's Central Valley. The overall climate in the SJVAB is warm and semi-arid, and the San Joaquin Valley is in a Mediterranean Climate Zone, which is characterized by sparse rainfall that occurs mainly in the winter. There is only one wet season during the year, which is from October through April, when the SJVAB receives 90 percent of annual precipitation. Snow and thunderstorms are infrequent, and summers are hot and dry, with maximum temperatures often exceeding 100 degrees Fahrenheit. During the summer, wind usually originates at the north end of the valley and flows in a south-southeasterly direction through the valley and the Tehachapi Pass, into the Mojave Desert. During the winter months, the San Joaquin Valley experiences light and variable winds that are less than 10 miles per hour. Wintertime temperature inversion events in the valley, when cool air is trapped below warm air and inhibits dispersion of air pollutants, can often last many weeks and be very strong, with mixing heights of only a few hundred feet (SJVAPCD 2015).

Based upon review of the U.S. Geological Survey map detailing natural occurrence of asbestos in California, naturally occurring asbestos is not expected to be present at the project site (California Department of Conservation 2011).

3.3.3.2 Ambient Air Quality

The U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) have established ambient air quality standards for several pollutants based on their adverse health effects. The EPA has set National Ambient Air Quality Standards (NAAQS) for ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), particulate matter less than 10 microns (PM_{10}), fine particulate matter less than 2.5 microns ($PM_{2.5}$), sulfur dioxide (SO_2), and lead (Pb). These pollutants are commonly referred to as “criteria pollutants.” Primary standards were set to protect public health; secondary standards were set to protect public welfare against visibility impairment, and damage to animals, crops, vegetation, and buildings. In addition, CARB has established California Ambient Air Quality Standards (CAAQS) for these pollutants, as well as for sulfate (SO_4), visibility reducing particles, hydrogen sulfide (H_2S), and vinyl chloride. California standards are generally stricter than national standards.

Attainment defines the status of a given airshed with regard to NAAQS or CAAQS requirements. Airsheds not meeting these standards are classified as “nonattainment.” Table 3.3-3 summarizes the federal and state attainment status for the SJVAB, as of 2016, based on the NAAQS and CAAQS, respectively.

3.3.4 Applicant-Proposed Measures and Potential Impacts

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

3.3.4.1 Significance Criteria

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

The SJVAPCD has adopted thresholds of significance for project construction- and operation-related environmental impacts, which are shown in Table 3.3-4.

Table 3.3-3: Attainment Status for the San Joaquin Valley Air Pollution Control District

Pollutant	Designation/Classification	
	Federal	State
Ozone	Nonattainment/Extreme[(1),(2)]	Nonattainment/Severe
PM_{10}	Attainment[(3)]	Nonattainment
$PM_{2.5}$	Nonattainment[(4)]	Nonattainment
Carbon monoxide (CO)	Unclassifiable/Attainment	Attainment/Unclassified
Nitrogen dioxide (NO_2)	Unclassifiable/Attainment	Attainment
Sulfur dioxide (SO_2)	Attainment/Unclassified	Attainment
Lead (Pb)	No classification/designation	Attainment
Hydrogen sulfide (H_2S)	No Federal Standard	Unclassified
Sulfates (SO_4)	No Federal Standard	Attainment
Visibility reducing particulate	No Federal Standard	Unclassified
Vinyl chloride	No Federal Standard	Attainment

Source: SJVAPCD 2017

Notes:

1. Even though the EPA revoked the federal 1-hour ozone standard, including associated designations and classifications, in 2005, the EPA had previously classified the SJVAB as in extreme nonattainment for this standard. The EPA approved the 2004 Extreme Ozone Attainment Demonstration Plan on March 8, 2010. Many applicable requirements for extreme 1-hour ozone nonattainment areas continue to apply to the SJVAB.
2. Though the San Joaquin Valley was initially classified as being in serious nonattainment for the 1997 8-hour ozone standard, the EPA approved the reclassification to extreme nonattainment in the Federal Register on May 5, 2010.
3. On September 25, 2008, The EPA redesignated the San Joaquin Valley to attainment for the PM_{10} standard and approved the PM_{10} Maintenance Plan.
4. The San Joaquin Valley is designated nonattainment for the 1997 $PM_{2.5}$ standard. The EPA designated the San Joaquin Valley as being in nonattainment for the 2006 $PM_{2.5}$ standard on November 13, 2009.

Key:

EPA	United States Environmental Protection Agency
PM_{10}	particulate matter less than 10 microns in diameter
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
SJVAB	San Joaquin Valley Air Basin

Table 3.3-4: Thresholds of Significance for the San Joaquin Valley Air Pollution Control District

Pollutant/Precursor	Construction Emissions	Operational Emissions	
		Permitted Equipment and Activities	Non-Permitted Equipment and Activities
	Emissions (tpy)	Emissions (tpy)	Emissions (tpy)
CO	100	100	100
NOx	10	10	10
ROG	10	10	10
SOx	27	27	27
PM_{10}	15	15	15
$PM_{2.5}$	15	15	15

Although CARB has established California Ambient Air Quality Standards for SO_4, visibility reducing particles, H_2S, and vinyl chloride, SJVAPCD has not adopted thresholds of significance for these pollutants. This project is also not expected to result in emissions of these pollutants, and therefore emissions of these pollutants were not quantitatively evaluated.

3.3.4.2 Applicant-Proposed Measures

PG&E will implement the following APMs:

APM AIR-1: Fugitive Dust Emissions Minimization.

Pursuant to SJVAPCD Regulation VIII, a Dust Control Plan will be submitted to the SJVAPCD for approval at least 30 days prior to commencing construction activities. Based on the SJVAPCD Guidance for Assessing and Mitigating Air Quality Impacts (SJVAPCD 2015), the following are examples of fugitive dust control measures that may be included in the Dust Control Plan to minimize dust emissions:

- Apply water or non-toxic dust suppressants to unpaved surfaces and areas as needed to control dust
- Limit or reduce speed on unpaved roads and traffic areas
- Stabilize inactive storage piles from dust emissions using water, chemical stabilizer/dust suppressant, tarps, or other suitable cover
- Install wind barriers
- During high winds, cease outdoor activities that disturb the soil

- Cover haul trucks with a tarp or other suitable cover, or sufficiently wet to limit dust emissions
- Remove trackout from adjacent public streets at the end of each workday and, if necessary, install a trackout control device

3.3.4.3 Potential Impacts

Project impacts on air quality were evaluated against the CEQA significance criteria, as discussed below. This section evaluates potential project impacts from both the construction phase and operation and maintenance phase.

As described in Chapter 2.0, Project Description, the project includes installing approximately 1 mile of 115 kV power line on TSPs, improving and expanding PG&E's existing Vierra Substation, and establishing temporary work areas to construct these improvements.

a) Would the project conflict with or obstruct implementation of the applicable air quality plan? *No Impact*

Construction

The project will not conflict with or obstruct implementation of an applicable air quality plan. As previously discussed in Section 3.3.3.2, the maximum daily emissions and total project emissions for a range of pollutants for off- and on-road vehicle were calculated using CalEEMod, and helicopter emissions were calculated manually using emissions factors obtained from FOCA and FAA. As a conservative first step, APM AIR-1 was not factored into the emissions calculations, and off-road construction equipment emissions were modeled assuming no engine tier or oxidation catalyst mitigation. Average daily emission rates and total project emissions generated as a result of construction are presented in Table 3.3-5, and indicate that no significance thresholds were exceeded even using the most conservative calculations.

PM and NO_x are generally the primary air pollutants resulting from construction activities. The simulated PM emissions are the composite of two types of sources—fugitive dust and exhaust emissions. Typical fugitive dust sources include earth-moving activities (such as grading and improvement of access roads) and vehicle travel across unpaved roads. Exhaust emissions result from the combustion of fossil fuels in both off-road construction equipment and on-road vehicles. The emission values shown in Table 3.3-5 assume a worst-case scenario where no APMs are implemented and all construction activities (except TSP installation and conductor installation activities, which will take place sequentially), on-road traffic, and helicopter use will occur at the same time. This worst-case emission rate, without factoring in PM emission reductions associated with the implementation of APM AIR-1, will be below SJVAPCD significance thresholds and below the SJVAPCD screening level of 100 pounds per day for any criteria pollutant. These results indicate that project construction will not conflict with or obstruct implementation of the applicable air quality plan. Therefore no impact will occur.

Table 3.3-5: Estimated Unmitigated Criteria Pollutant Emissions during Construction

Criteria Emissions	Daily Maximum lbs/day	Total		
		Project Total Tons(1)	Applicable Construction Threshold(2) Tons/Year	Threshold Exceeded?
Volatile Organic Compounds (VOCs)	13.4	0.2	10	No
Carbon Monoxide (CO)	58.4	2.0	100	No
NO_X	62.2	2.2	10	No
Sulfur Dioxide	0.1	<0.1	27	No
Particulates (PM_{10})	8.4	0.3	15	No
Particulates ($PM_{2.5}$)	5.2	0.2	15	No

Source: SJVAPCD 2015

Notes:

Emissions are for the entire proposed project construction

Key:

lbs	pounds
NOx	oxides of nitrogen
PM_{10}	particulate matter less than 10 microns in diameter
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
SO_2	sulfur dioxide

Operation and Maintenance

Existing O&M staff will operate and maintain the expanded substation as part of their current O&M activities. Vierra Substation is currently remotely operated and monitored. Vehicle trips and maintenance activities for the expanded substation will be comparable to the current level of vehicle trips and maintenance activities. The new power line will be inspected annually and maintenance will generally be conducted on an as-needed basis, when equipment is discovered in need of repair during inspections or in response to an emergency. Neither of these activities will differ materially from baseline O&M conditions in the area. Consequently, operation of the project will not result in a material increase in O&M emissions that will conflict with adopted air quality plans. Therefore, no impact will occur.

b) Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation? *Less-than-Significant Impact*

Construction

The project will not violate air quality standards or substantially contribute to an existing or projected air quality violation. The thresholds of significance for air quality described in the SJVAPCD Guide for Assessing and Mitigating Air Quality Impacts (SJVAPCD 2015) were used to assess whether emissions from project construction would violate any air quality standard or contribute substantially to an existing or projected air quality violation. These thresholds are the same as utilized for criterion (a) (and set forth in Table 3.3-5). As described under criterion (a), emissions of criteria pollutants will not contribute to an ongoing violation or cause a violation of the NAAQS or CAAQS because emissions will not exceed the air quality thresholds; therefore, impacts will be less than significant.

Operation and Maintenance

O&M activities for the expanded substation will generally be consistent with the current level of activity. The new power line will be inspected annually, and maintenance activities will generally be conducted on an as-needed basis, when equipment is discovered in need of repair during inspections, or in response to an emergency. This minimal level of activity will not violate any air quality standard, nor contribute substantially to an air quality violation. Thus, the impact will be less than significant.

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

Construction

Although the project is in a state and federal nonattainment area for ozone and $PM_{2.5}$ and a state nonattainment area for PM_{10}, project construction will not result in a cumulatively considerable net increase of these criteria pollutants. As shown in Table 3.3-5: Unmitigated Criteria Pollutant Emissions, construction of the project will lead to a temporary increase in criteria air pollutants. To reduce fugitive dust emissions, PG&E will implement APM AIR-1, which includes applying water to exposed areas, as needed, and reducing vehicle speeds on unpaved areas. Even before implementation of APM AIR-1, all criteria air pollutant emissions will be well below the applicable SJVAPCD thresholds; thus, the impact will be less than significant.

Operation and Maintenance

O&M activities for the expanded substation will not substantially differ from those currently being conducted for the existing substation, nor will they contribute to a cumulatively considerable net increase in emissions of pollutants for which the project area is in nonattainment. The annual ground inspections and occasional use of a helicopter for air inspection of the power line (typically every other year) will not contribute to a cumulatively considerable impact related to ozone, PM_{10}, or $PM_{2.5}$. Therefore, the impact will be less than significant.

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

Construction

The project will not expose sensitive receptors to substantial pollutant concentrations. The nearest sensitive receptors to the project are five residences located on the south side of Vierra Road across from the existing substation, ranging between approximately 100 and 275 feet from the existing substation property. The westernmost residence is also approximately 100 feet from the expansion area of the substation. Light of the World Christian Center on Yosemite Avenue is located approximately 500 feet south of the substation. The alignment of the new double-circuit 115 kV line runs through an area that is primarily industrial and commercial. There is one residence at the western end of Vierra Road and two residences on Yosemite Road that are approximately 100 and 500 feet from the alignment, respectively. No schools, hospitals, parks, other residences, or other sensitive facilities are located within 0.5 mile of the project.

Because of their proximity to the project, sensitive receptors in the project vicinity will be exposed to increases in criteria air pollutants due to fugitive dust and increased equipment use in the area, but the exposure will not be substantial. Implementation of APM AIR-1, which includes controlling fugitive dust, will further reduce exposure to sensitive receptors. As a result, impacts on sensitive receptors will be less than significant.

Residences on the south side of Vierra Road may experience increased dust during helicopter take-off and landing activities in staging areas. However, helicopter activities will only be required for approximately 2 days during the construction period, for approximately 6 hours. Landings will be brief and dust effects will be localized. The closest staging area is 100 feet from the nearest residence; however, to the extent feasible, helicopter take-off and landing activities will occur on portions of the staging area that are farther from the nearest residence. In addition, the implementation of APM AIR-1 will control fugitive dust in the area through watering or use of a soil stabilizer. As a result, impacts on the residences due to fugitive dust will be less than significant.

Operation and Maintenance

O&M activities for the expanded substation and new power line will emit minimal air pollutants and will not substantially differ from those currently being conducted for the existing substation and other existing power lines in the area. SJVAPCD thresholds will not be exceeded, and exposure of sensitive receptors to air pollutants will be less than significant.

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

Construction

No significant project-related sources of odor pollutants will exist during construction. Typical odor nuisances include hydrogen sulfide, ammonia, chlorine, and other sulfide-related emissions, none of which will be present in nuisance quantities during project construction. An additional potential source of project-related odor is diesel engine emissions. However, all potential sources of odors will be spatially diverse, construction will be short term, and there are relatively few people near the project area; therefore, impacts related to odor generated during construction of the project will be less than significant.

Operation and Maintenance

O&M activities for the expanded substation and the new power line will not cause detectable odors affecting a substantial number of people and will not change materially from existing conditions. Therefore, no impacts related to creating objectionable odors will occur.

3.3.5 REFERENCES

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3.4 BIOLOGICAL RESOURCES

3.4.1 INTRODUCTION

This section describes biological resources (vegetation, fish, wildlife, and wetlands) in the project area, identifies potential impacts on sensitive habitats and species that could result from the implementation of the project, and concludes that impacts on biological resources will be less than significant. Incorporation of the Applicant-Proposed Measures (APMs) described in Section 3.4.4.2 will further minimize potential less-than-significant project impacts on biological resources. The project's potential effects on biological resources were evaluated using the significance criteria set forth in Appendix G of the California Environmental Quality Act (CEQA) Guidelines. The conclusions are summarized in Table 3.4-1 and are discussed in more detail in Section 3.4.4. The technical biological reports referenced in this section will be submitted separately to CPUC staff.

Table 3.4-1: CEQA Checklist for Biological Resources

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

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

3.4.2 Regulatory Background and Methodology

3.4.2.1 Regulatory Background

Federal

Endangered Species Act

The federal Endangered Species Act (ESA) of 1973 (16 USC 1531–1544), as amended, protects plants, fish, and wildlife that are listed as endangered or threatened by the U.S. Fish and Wildlife Service (USFWS) or the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS). Section 9 of the ESA prohibits the "take" of listed fish and wildlife, where "take" is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (50 Code of Federal Regulations [CFR] 17.3). For plants, this statute prohibits removing, possessing, maliciously damaging, or destroying any listed plant *under federal jurisdiction* and removing, cutting, digging-up, damaging, or destroying any listed plant in knowing violation of state law (16 United States Code [USC] 1538).

The ESA allows for issuance of incidental take permits to private parties either in conjunction with a Habitat Conservation Plan (HCP) or as part of a Section 7 consultation (which is discussed in the following paragraph). Under Section 10 of the ESA, a private party may obtain incidental take coverage by preparing an HCP to cover target species within the project area, identifying impacts to the covered species, and presenting the measures that will be undertaken to avoid, minimize, and mitigate such impacts.

Under Section 7 of the ESA, federal agencies are required to consult with USFWS and/or NMFS, as applicable, if their actions—including permit approvals or funding—may affect a federally listed species (including plants) or designated critical habitat. If the project is likely to adversely affect a species, the federal agency will initiate formal consultation with the USFWS and/or NMFS, which will issue a biological opinion as to whether the proposed agency action(s) is likely to jeopardize the continued existence of a listed species (jeopardy) or adversely modify critical habitat (adverse modification). As part of the biological opinion, the USFWS may issue an incidental take statement allowing take of the species that is incidental to an otherwise authorized activity, provided that the action will not jeopardize the continued existence of the species or adversely modify designated critical habitat.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 (16 USC Sections 703–711) protects all migratory birds, including active nests and eggs. Birds protected under the MBTA include all native waterfowl, shorebirds, hawks, eagles, owls, doves, and other common birds such as ravens, crows, sparrows, finches, swallows, and others, including their body parts (for example feathers and plumes), active nests, and eggs. A complete list of protected species can be found in 50 CFR 10.13. Enforcement of the provisions of the federal MBTA is the responsibility of USFWS.

State

California Endangered Species Act

Sections 2050–2098 of the California Fish and Game Code (the California Endangered Species Act [CESA]) prohibit the take of state-listed endangered and threatened species unless specifically authorized by the CDFW. The state definition of "take" is to hunt, pursue, catch, capture, or kill a member of a listed species or attempt to do so. CDFW administers CESA and authorizes take through permits or memorandums of understanding issued under Section 2081 of CESA, or through a consistency determination issued under section 2080.1. Section 2090 of CESA requires state agencies to comply with threatened and endangered species protection and recovery and to promote conservation of these species.

Fully Protected Species Under the Fish and Game Code

Fish and Game Code designates certain fish and wildlife species as "fully protected" under Sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), and 5515 (fish). Fully protected species may not be taken or possessed at any time, and no permits may be issued to PG&E for incidental take of these species. [1]

Protection for Birds: Fish and Game Code

Fish and Game Code Section 3503 et seq. state that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. Section 3503.5 makes it unlawful to take, possess, or destroy any birds in the orders of Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird.

Native Plant Protection Act of 1973

The Native Plant Protection Act of 1973 (Fish and Game Code Sections 1900–1913) includes provisions that prohibit the taking of endangered or rare native plants. CDFW administers the Native Plant Protection Act of 1973 and generally regards as rare many plant species included on California Rare Plant Rank (CRPR) 1A, 1B, 2A, and 2B of the CNPS Inventory of Rare and Endangered Vascular Plants of California. In addition, sometimes CRPR 3 and 4 plants are considered if the population has local significance in the area and is impacted by the project.

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[1] While take of fully protected species may be authorized by CDFW under a Natural Communities Conservation Plan (NCCP), PG&E activities are not covered by an NCCP so this permitting option is not available.

Section 1913(b) includes a specific provision to allow for the incidental removal of endangered or rare plant species, if not otherwise salvaged by CDFW, within a right-of-way to allow a public utility to fulfill its obligation to provide service to the public.

California Species of Special Concern

Species of Special Concern (SSC) is a category conferred by CDFW to fish and wildlife species that meet the state definition of threatened or endangered, but have not been formally listed (e.g., federally or state-listed species), or are considered at risk of qualifying for threatened or endangered status in the future based on known threats. SSC is an administrative classification only, but these species should be considered "special-status" for the purposes of the CEQA analysis (see the Significance Criteria section of this document).

Porter-Cologne Water Quality Control Act

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

Local

This section includes a summary of local or regional plans, policies, or regulations that identify sensitive or special-status species in the project area, as well as local polices or ordinances that protect biological resources. Because the CPUC has exclusive jurisdiction over the siting, design, and construction of the project, the project is not subject to local discretionary regulations related to biological resources. The following summary of local policies is provided for informational purposes and to assist with CEQA review.

City of Lathrop General Plan

The Conservation and Open Space Components of the Land Use section, and the Resource Management Element of the City of Lathrop General Plan include the following goals to protect and manage natural habitats and ecological functions:

- Improve and integrate waterway habitat areas.
- Preserve all riparian vegetation to achieve a "no net loss of wetland acreage" and restrict land use within riparian habitat to nature oriented passive recreation.
- Proceed with caution and awareness towards wildlife when introducing recreation activities to habitat areas to ensure wildlife is not disturbed through high noise levels, landscape changes, or intensity of operations.
- Retain hedgerows and wildlife habitat within agricultural areas and promote cooperation among landowners to increase agricultural practices that benefit desirable wildlife species.

- Protect fisheries from contaminated water discharge.
- Create new habitat in areas already designated for reuse of treated wastewater to promote wildlife management and recreation.

3.4.2.2 Methodology

This section summarizes the methods used to identify and analyze potential impacts on special-status species that may occur in the project area. As described below, biologists began their research with a database searches and literature reviews to determine which special-status plants, natural communities, and wildlife might have potential to occur in the project area. Using this information, the biologists conducted field surveys of the biological resources survey area, as defined below. A more detailed description of these methods is provided in the project's Biological Constraints Analysis and Biological Resources Survey Technical Memorandums, which will be provided separately to CPUC staff.

Species Considered to be of Special Status

Special-status species include those that are:

- Listed or candidates for listing as rare, threatened or endangered under the federal Endangered Species Act (ESA) or California Endangered Species Act (CESA)
- Plants included in the online version of the CNPS Inventory of Rare and Endangered Plants of California as CRPR 1A, 1B, 2A, or 2B
- Fish or wildlife designated as a Species of Special Concern or a fully protected species by the CDFW
- Migratory birds with active nests, defined as containing eggs or dependent young

Natural communities were considered to be special status if they were defined as natural communities of special concern (S1–S3) on the CDFW List of California Terrestrial Natural Communities (CDFG 2010) Database Searches.

Database Searches

The following biological databases were queried for records of special-status plants, natural communities, and wildlife that might have potential to occur in the project area:

- The CDFW California Natural Diversity Database (CNDDB) (CDFW 2016a) for the 7.5-minute Lathrop quadrangle and the eight surrounding quadrangles (Stockton West, Stockton East, Manteca, Ripon, Vernalis, Tracy, Union Island, and Holt), to review recorded occurrences of special-status wildlife and plant species as well as rare natural communities in the project vicinity

- The CNPS Inventory of Rare and Endangered Vascular Plants of California (CNPS 2016) for the 7.5-minute Lathrop quadrangle and the eight surrounding quadrangles, to review recorded occurrences of special-status plant species in the project vicinity

- The USFWS species list for the 7.5-minute Lathrop quadrangle and the eight surrounding quadrangles using the USFWS IPaC portal (USFWS 2016a), to determine federally threatened and endangered species and critical habitat in the project vicinity

Other information sources consulted to determine which special-status species or sensitive biological resources (e.g., wetlands) could potentially occur in the project area included:

- A biological constraints analysis for initial phases of project siting (Stillwater Sciences 2017a);
- A technical memorandum reporting results of preliminary biological resources surveys for the project (Stillwater Sciences 2017b)
- The National Wetlands Inventory (NWI) database (USFWS 2016b) to determine wetland resources (potentially jurisdictional waters of the U.S., including wetlands, hereafter, waters/wetlands) in the project vicinity
- PG&E San Joaquin Valley Operations and Maintenance Habitat Conservation Plan (Jones & Stokes 2006)
- Soil maps;
- CDFW's List of Vegetation Alliances and Associations
- A Manual of California Vegetation
- eBird, an online database of bird distribution and abundance
- Google Earth aerial photographs and street views of the project area
- Jepson Manual: Vascular Plants of California

Field Surveys

Reconnaissance Surveys

Reconnaissance-level field surveys were conducted on December 6, 2016, to supplement initial database searches and a desktop review performed to identify potential sensitive biological resources in corridors that were under consideration for routing of the new power line (Stillwater Sciences 2017a). Objectives of this windshield survey were to visit the corridors and to characterize habitat types and/or land uses, evaluate baseline habitat conditions for special-status plant species, wildlife species, and rare natural communities with the potential to occur, identify potential waters/wetlands, and summarize biological constraints on routes within the prospective power line corridors.

Focused Surveys

A qualified wildlife biologist and botanist conducted focused surveys on May 25, 2017, to further evaluate habitat along alternative routes, and potential to support relevant biological resources identified as having the potential to occur, including wetlands/waters, rare plants, and burrowing owls. The methods used and results of this survey are reported in the Vierra Loop Project Biological Resources Survey Technical Memorandum (Stillwater Sciences 2017b).

Within the project area, a protocol-level rare plant survey targeting round-leaved filaree (*California macrophylla*), which blooms during April and May, was conducted along the northeast area of the intersection of D'Arcy Parkway. Also within the project area, a western burrowing owl habitat assessment/burrow survey was conducted within suitable habitats located within a 200-meter survey buffer of the south side of Christopher Way, South Howland Road, and around the Vierra Substation expansion area. These survey areas are collectively referred to in this PEA as the "biological resources survey area."

Likelihood of Presence for Special-Status Species

Using the information generated from literature reviews and field surveys, the list of special-status species with the potential to occur was further refined to reflect the species that may occur within the project area. The likelihood of special-status species occurrence was determined based on natural history parameters, including but not limited to, the species' range, habitat, foraging needs, migration routes, and reproductive requirements, using the following general categories:

- *Present* – Reconnaissance-level, focused, or protocol-level surveys documented the occurrence or observation of a species in the project area.
- *Seasonally present* – Individuals were observed in the project area, but are only present in the area during certain times of the year.
- *Likely to occur (on site)* – The species has a strong likelihood to be found in the project area prior to or during construction but has not been directly observed to date during project surveys. The likelihood that a species may occur is based on the following considerations: suitable habitat that meets the life history requirements of the species is present on or near the project area; migration routes or corridors are near or within the project area; records of sighting are documented on or near the project area; and there is an absence of invasive predators (e.g., bullfrogs). The main assumption is that records of occurrence have been documented within or near the project area, the project area falls within the range of the species, suitable habitat is present, but it is undetermined whether the habitat is currently occupied.
- *Potential to occur*: There is a possibility that the species can be found in the project area prior to or during construction, but has not been directly observed to date. The likelihood that a species may occur is based on the following conditions: suitable habitat that meets the life history requirements of the species is present on or near the project area; migration routes or corridors are near or within the project area; and there is an absence of invasive predators (e.g., bullfrogs). The main assumption is that the project area falls within the range of the species, suitable habitat is present, but no records of sighting are located within or near the project area and it is undetermined whether the habitat is currently occupied. The primary difference between Likely to Occur and Potential to Occur is the presence of recent records of sighting.

- *Unlikely to occur* – The species is not likely to occur in the project area based on the following considerations: lack of suitable habitat and features that are required to satisfy the life history requirements of the species (e.g., absence of foraging habitat; lack of reproductive areas, and lack of sheltering areas); presence of barriers to migration/dispersal; presence of predators or invasive species that inhibit survival or occupation (e.g., the presence of bullfrogs or invasive fishes); lack of hibernacula, hibernation areas, or estivation areas on site.

- *Absent* – Suitable habitat does not exist in the project area, the species is restricted to or known to be present only within a specific area outside of the project area, or focused or protocol-level surveys did not detect the species.

Unless otherwise noted, the methodology and environmental information presented in this section are summarized from the Biological Constraints Analysis for Vierra Loop Project (Stillwater Sciences 2017a) and Vierra Loop Project Biological Resources Survey Technical Memorandum (Stillwater Sciences 2017b), which will be provided separately to CPUC staff.

3.4.3 ENVIRONMENTAL SETTING

3.4.3.1 Regional

The project is located at the eastern boundary in the urban City of Lathrop, in southern San Joaquin County. The project is situated near primarily industrial land uses, but also agricultural, industrial, commercial, and residential. The route crosses or runs parallel to public roadway corridors, including Vierra Road, D’Arcy Parkway, Christopher Way, and Nestle Way.

Landcover, Vegetation, and Wildlife Habitats

Habitat types and land uses in the biological resources survey area and vicinity consist of industrial development (typically associated with cement/asphalt, bare ground, and/or ornamental landscaping) and agricultural land, with scattered residential areas south of Vierra Road, and some undeveloped areas dominated by ruderal herbaceous plant species. The predominant plant community is ruderal herbaceous, consisting of weedy species such as non-native annual grasses and thistle (*Carduus* sp.) that are often found in disturbed areas. Within the biological resources survey area, this cover type is found in thin strips along most roads and in fallow agricultural fields in the Vierra Substation expansion area. Ornamental landscaping surrounding the industrial development and residential areas is predominantly cultivated lawn with nonnative trees and shrubs (e.g., blue gum [*Eucalyptus globulus*], common oleander [*Nerium oleander*], London plane tree [*Platanus* × *hispanica*], ornamental plums [*Prunus* spp.], pears [*Pyrus* spp.], salt cedar [*Tamarix ramosissima*], etc.), although some native trees were also documented (e.g., northern California black walnut [*Juglans hindsii*], Fremont cottonwood [*Populus fremontii* subsp. *fremontii*], coast redwood [*Sequoia sempervirens*], etc.).

Wetlands and Aquatic Resources

No wetlands or aquatic resources were identified in the biological resources survey area during the reconnaissance surveys in December 2016 and the focused surveys in May 2017.

Special-Status Species

This section describes special-status species observed (present) during project reconnaissance-level field surveys and any species considered to be likely to occur, have potential to occur, or that are seasonally present. Special-status species that are unlikely to be found in the project area or absent are not discussed in this section.

Special-Status Plant Species

Twenty-five special-status plant species and five rare natural communities were identified from the database queries as potentially occurring in the project region. Table 3.4-2: Special-Status Plant Species identifies these species, describes the potential for occurrence of each in the project area, and lists the status, blooming period, and associated habitats. Of these, three plant species are unlikely to occur in the project area because it is well outside their known elevation range. Twenty-one additional plant species and all five rare natural communities are considered to be absent or unlikely to occur in the project area, either because the project area does not support suitable habitat or because protocol-level surveys did not detect the species during the appropriate blooming period.

Round-leaved filaree (*California macrophylla*) was considered to potentially occur in the project area based on the presence of potentially suitable habitat; however, it was determined to be absent from the project area based upon results of targeted protocol-level surveys. Round-leaved filaree is discussed in the following paragraph.

Round-leaved filaree

Round-leaved filaree is an annual to biennial herb in the Geraniaceae family. It has a CRPR of 1B.2 (plants rare, threatened, or endangered in California and elsewhere; fairly threatened in California). It grows in open sites, grassland, scrub, vertic clay (occasionally on serpentine), and clay areas of cismontane woodland and valley and foothill grassland from 0 to 3,937 feet, and blooms from March to May (Baldwin et al. 2012, CNPS 2016). Most populations are small and are threatened by development, urbanization, and habitat alteration (CNPS 2016). The closet previously documented population of round-leaved filaree is near the town of Tracy, California, nearly 8 miles from the project (CDFW 2016a).

In the project area, round-leaved filaree has the potential to occur in the ruderal herbaceous habitat in a 1.6-acre staging area northeast of the intersection of D'Arcy Parkway and South Howland Road. A rare plant survey targeting round-leaved filaree was conducted at this location on May 25, 2017 (see Section 3.4.2.2 for methodology). No special-status plant species, including round-leaved filaree individuals, were documented during this survey.

Table 3.4-2: Special-Status Plant Species

Common Name (Scientific Name)	Status[a]	Habitat Associations	Blooming Period	Likelihood to Occur in Project Area
Special-status plants				
alkali milk-vetch (*Astragalus tener* var. *tener*)	-- / -- / 1B.2	Playas, adobe clay in valley and foothill grassland, and alkaline areas of vernal pools from 3–197 ft in elevation.	March – June	Absent; no suitable habitat present and protocol-level surveys did not detect the species
big tarplant (*Blepharizonia plumosa*)	-- / -- / 1B.1	Usually clay areas of valley and foothill grassland from 98–1,657 ft in elevation.	July – October	Unlikely to occur; out of elevation range
bristly sedge (*Carex comosa*)	-- / -- / 2B.1	Coastal prairie; lake margins of marshes and swamps; and valley and foothill grassland from 0–2,051 ft in elevation.	May – September	Absent; no suitable habitat present and protocol-level surveys did not detect the species
California alkali grass (*Puccinellia simplex*)	-- / -- / 1B.2	Alkaline or vernally mesic areas and sinks, flats, and lake margins in chenopod scrub, meadows and seeps, valley and foothill grassland, and vernal pools from 7–3,051 ft in elevation.	March – May	Absent; no suitable habitat present and protocol-level surveys did not detect the species
caper-fruited tropidocarpum (*Tropidocarpum capparideum*)	-- / -- / 1B.1	Alkaline hills in valley and foothill grassland from 3–1,493 ft in elevation.	March – April	Unlikely to occur; no suitable habitat present
Delta button-celery (*Eryngium racemosum*)	-- / SE / 1B.1	Vernally mesic clay depressions in riparian scrub from 10–98 ft in elevation.	June – October	Unlikely to occur; no suitable habitat present; historical sighting in project area from 1892 and 1913 collections, occurrence data indicate habitat gone in 1984 (CDFW 2016a)
Delta mudwort (*Limosella australis*)	-- / -- / 2B.1	Freshwater or brackish marshes and swamps, and usually mud banks of riparian scrub from 0–10 ft in elevation.	May – August	Absent; no suitable habitat present and protocol-level surveys did not detect the species
Delta tule pea (*Lathyrus jepsonii* var. *jepsonii*)	-- / -- / 1B.2	Freshwater and brackish marshes and swamps from 0–16 ft in elevation.	May – July	Absent; no suitable habitat present and protocol-level surveys did not detect the species

Common Name (Scientific Name)	Status[a]	Habitat Associations	Blooming Period	Likelihood to Occur in Project Area
diamond-petaled California poppy (*Eschscholzia rhombipetala*)	-- / -- / 1B.1	Alkaline or clay areas of valley and foothill grassland from 0–3,199 ft in elevation.	March – April	Unlikely to occur; no suitable habitat present
heartscale (*Atriplex cordulata* var. *cordulata*)	-- / -- / 1B.2	Saline, or alkaline areas of chenopod scrub, meadows and seeps, and sandy areas of valley and foothill grassland from 0–1,837 ft in elevation.	April – October	Absent; no suitable habitat present and protocol-level surveys did not detect the species
large-flowered fiddleneck (*Amsinckia grandiflora*)	FE / SE / 1B.1	Cismontane woodland, valley and foothill grassland from 902–1,804 ft in elevation.	April – May	Absent; no suitable habitat present and protocol-level surveys did not detect the species
lesser saltscale (*Atriplex minuscula*)	-- / -- / 1B.1	Alkaline or sandy areas of chenopod scrub, playas, and valley and foothill grassland from 49–656 ft in elevation.	May – October	Absent; no suitable habitat present and protocol-level surveys did not detect the species
Mason's lilaeopsis (*Lilaeopsis masonii*)	-- / SR / 1B.1	Brackish or freshwater marshes and swamps and riparian scrub from 0–33 ft in elevation.	April – November	Absent; no suitable habitat present and protocol-level surveys did not detect the species
palmate-bracted salty bird's-beak (*Chloropyron palmatum*)	FE / SE / 1B.1	Alkaline areas of chenopod scrub and valley and foothill grassland from 16–509 ft in elevation.	May – October	Absent; no suitable habitat present and protocol-level surveys did not detect the species
recurved larkspur (*Delphinium recurvatum*)	-- / -- / 1B.2	Alkaline areas of chenopod scrub, cismontane woodland, and valley and foothill grassland from 10–2,592 ft in elevation.	March – June	Absent; no suitable habitat present and protocol-level surveys did not detect the species
round-leaved filaree (*California macrophylla*)	-- / -- / 1B.2	Clay areas of cismontane woodland, and valley and foothill grassland from 49–3,937 ft in elevation.	March – May	Absent; protocol-level surveys did not detect the species
saline clover (*Trifolium hydrophilum*)	-- / -- / 1B.2	Marshes and swamps; mesic or alkaline areas of valley and foothill grassland; and vernal pools from 0–984 ft in elevation.	April – June	Absent; no suitable habitat present and protocol-level surveys did not detect the species
San Joaquin spearscale (*Extriplex joaquinana*)	-- / -- / 1B.2	Alkaline areas of chenopod scrub, meadows and seeps, playas, and valley and foothill grassland from 3–2,740 ft in elevation.	April – October	Absent; no suitable habitat present and protocol-level surveys did not detect the species
Sanford's arrowhead (*Sagittaria sanfordii*)	-- / -- / 1B.2	Assorted shallow freshwater marshes and swamps from 0–2,133 ft in elevation.	May – October	Absent; no suitable habitat present and protocol-level surveys did not detect the species

Common Name (Scientific Name)	Status[a]	Habitat Associations	Blooming Period	Likelihood to Occur in Project Area
showy golden madia (*Madia radiata*)	-- / -- / 1B.1	Cismontane woodland, valley and foothill grassland from 82–3,986 ft in elevation.	March – May	Absent; no suitable habitat present and protocol-level surveys did not detect the species
slough thistle (*Cirsium crassicaule*)	-- / -- / 1B.1	Chenopod scrub, slough areas of marshes and swamps, and riparian scrub from 10–328 ft in elevation.	May – August	Absent; no suitable habitat present and protocol-level surveys did not detect the species
Suisun Marsh aster (*Symphyotrichum lentum*)	-- / -- / 1B.2	Brackish and freshwater marshes and swamps from 0–10 ft in elevation.	May – November	Absent; no suitable habitat present and protocol-level surveys did not detect the species
watershield (*Brasenia schreberi*)	-- / -- / 2B.3	Freshwater marshes and swamps from 98–7,218 ft in elevation.	June – September	Unlikely to occur; no suitable habitat present
woolly rose-mallow (*Hibiscus lasiocarpos* var. *occidentalis*)	-- / -- / 1B.2	Freshwater marshes and swamps, often in riprap on sides of levees from 0–394 ft in elevation.	June – September	Unlikely to occur; no suitable habitat present
Wright's trichocoronis (*Trichocoronis wrightii* var. *wrightii*)	-- / -- / 2B.1	Alkaline areas of meadows and seeps, marshes and swamps, riparian forest, and vernal pools from 16–1,427 ft in elevation.	May – September	Absent; no suitable habitat present and protocol-level surveys did not detect the species; historical sighting adjacent to project area from 1892–1914 collections likely outside the project area (CDFW 2016a)
Rare natural communities				
Coastal and Valley Freshwater Marsh	G3 / S2.1	Dominated by perennial, emergent monocots (including *Typha* spp. and *Schoenoplectus* spp.) up to 15 ft tall, often forming completely closed canopies in low velocity areas permanently flooded by fresh water (rather than brackish, alkaline, or variable). Prolonged saturation permits accumulation of deep, peaty soils.	N/A	Absent; no suitable habitat present
Elderberry Savanna	G2 / S2.1	Dominated by *Sambucus nigra* subsp. *caerulea* along streambanks and in open places in forest[d].	N/A	Absent; no suitable habitat present

Common Name (Scientific Name)	**Status[a]**	**Habitat Associations**	**Blooming Period**	**Likelihood to Occur in Project Area**
Great Valley Cottonwood Riparian Forest	G2 / S2.1	A dense, broadleaved, winter-deciduous riparian forest dominated by *Populus fremontii* and *Salix goodingii*. Understories are dense, with abundant vegetative reproduction of canopy dominants. *Vitis californica* is the most conspicuous liana. Scattered seedlings and saplings of shade-tolerant species such as *Acer negundo* var. *californica* or *Fraxinus latifolia* may be found, but frequent flooding prevents their reaching into the canopy.	N/A	Absent; no suitable habitat present
Great Valley Mixed Riparian Forest	G2 / S2.2	Tall, dense, winter-deciduous, broadleaved riparian forest. The tree canopy is usually fairly well closed and moderately to densely stocked with several species including *Acer negundo* var. *californica*, *Juglans hindsii*, *Platanus racemosa*, *Populus fremontii*, *Salix gooddingii*, *Salix laevigata*, and *Salix lucida*. Understories consist of these taxa plus shade-tolerant shrubs like *Cephalanthus occidentalis* and *Fraxinus latifolia*. Several lianas are conspicuous in both tree and shrub canopies.	N/A	Absent; no suitable habitat present
Great Valley Oak Riparian Forest	G1 / S1.1	Medium to tall (rarely to 100 ft) broadleaved, winter-deciduous, closed-canopy riparian forest dominated by *Quercus lobata*. Understories include scattered *Fraxinus latifolia*, *Juglans hindsii*, and *Platanus racemosa* as well as young *Quercus lobata*. Lianas are often conspicuous, quickly occupying wind-throw generated light gaps. They also are more scattered throughout the shady understory.	N/A	Absent; no suitable habitat present

[a] Status codes:

For special-status plants (Federal/State/CRPR):
-- = None

Federal
FE = Endangered under ESA
FT = Threatened under the ESA

State
SE = Endangered under CESA
SR = Rare under the CNPPA

CRPR
1B = Plants rare, threatened, or endangered in California and elsewhere
2B = Plants rare, threatened, or endangered in California, but more common elsewhere
0.1 = Seriously threatened in California
0.2 = Fairly threatened in California
0.3 = Not very endangered in California

For rare natural communities (Global rank/State rank):

Global Rank
G1 = Critically Imperiled Imperiled
G2 = Imperiled
G3 = Vulnerable

State Rank
S1 = Critically
S2 = Imperiled
0.1= Very threatened
0.2 = Threatened

Habitat associations for rare natural communities are based on Holland (1986) unless otherwise noted
Baldwin et al. 2012

Special-Status Wildlife Species

Twenty-seven special-status wildlife species were identified from database queries as potentially occurring in the project region. Table 3.4-3: Special-Status Wildlife Species identifies these species, describes the potential for occurrence of each in the project area, and lists the status, distribution, and associated habitats. Of these, 24 species are absent or are unlikely to occur in or near the project area because the project area is outside of the species' known ranges or there is no suitable habitat in the project area. The following three species have the potential to occur in the project area and are discussed in the following paragraphs:

- white-tailed kite (*Elanus leucurus*)
- Swainson's hawk (*Buteo swainsoni*)
- burrowing owl (Athene cunicularia)

The project area crosses through designated critical habitat for delta smelt (*hypomesus transpacificus*), however, the species is absent in the project area due to the lack of suitable habitat.

White-tailed Kite

White-tailed kite is a CDFW Fully Protected species. This species is a resident (breeding and wintering) species throughout central and coastal California, up to the western edge of the foothills of the Sierra Nevada. White-tailed kites breed in lowland grasslands, oak woodlands or savannah, and wetlands with open areas. Riparian corridors represent a preferred landscape characteristic for kites in both the breeding and non-breeding seasons (Erichsen 1995). Nest trees range from single isolated trees to trees within relatively large stands (Dunk 1995). Preferred foraging sites include open and ungrazed grasslands, agricultural fields, wetlands, and meadows that support large populations of small mammals. White-tailed kites breed between February and October, with peak breeding in May through August (Zeiner et al. 1990).

There is potential for white-tailed kites to nest in several trees near the project area, particularly those located south of the substation expansion area; however, the suitability of these trees for nesting may be reduced due to the proximity to residences. There is also potential for white-tailed kites to nest in ornamental trees located along Nestle Way; however, this habitat is marginal because the trees are close to the road and subject to noise and disturbance from traffic.

Swainson's Hawk

Swainson's hawk, a migratory raptor that is a spring and summer resident in California's Central Valley, is state-listed as threatened. Swainson's hawks nest in trees near large, sparsely vegetated flatlands characterized by valleys, plateaus, broad flood plains, and large open expanses (Bloom 1980). Suitable nest trees are often mature and large, and need to provide a stable nesting platform. Although Swainson's hawk is not an obligate riparian species, the availability of nesting trees is closely tied to riparian areas, usually associated with main river channels (Bloom 1980, Estep 1989). Nesting sites tend to be adjacent or close to suitable foraging grounds, which may include recently harvested alfalfa, wheat, or hay crops; low-growing crops, such as beets or tomatoes; open pasture; non-flooded rice fields; or post-harvest cereal grain crops (Bloom 1980; CDFG 1992, 1994). Swainson's hawks forage in open areas with low vegetative cover that provides good visibility of prey, such as voles, ground squirrels, pocket gophers, and deer mice; they avoid foraging in fields with tall crops that grow much higher than native grasses, which makes prey more difficult to find (CDFG 1994). Migrating Swainson's hawks first arrive in the Central Valley in mid-March through May, and migrate south in September and October (Zeiner et al. 1990). Breeding occurs from late March to late August, with peak activity from late May through July (Zeiner et al. 1990). Most clutches are completed by mid-April, with fledging occurring from July to mid-August (Estep 1989).

There is potential for Swainson's hawk to nest near the project area in trees located south of the substation expansion area; the suitability of these trees for nesting may be reduced due to the proximity to residences. There are historical Swainson's hawk sightings in the project region. In 2003, a Swainson's hawk was documented nesting in a large cottonwood tree located just east of South Howland Road (CDFW 2016a), though the tree has since been removed.

Burrowing Owl

Burrowing owl, a CDFW Species of Special Concern, is a year-round resident through much of the state. Burrowing owl is found primarily in sparse, open grasslands or shrublands characterized by low growing vegetation, but may be found in areas highly altered by human activity, including airports, golf courses, and cemeteries (Haug et al. 1993). Burrows are the essential component of burrowing owl habitat, and are used for nesting and roosting. Individuals primarily use burrows made by ground squirrels (*Spermophilus beecheyi*), but may also use those excavated by other fossorial (ground-denning) mammals, including badger (*Taxidea taxus*) and coyote (*Canis latrans*) (Gervais et al. 2008), or may excavate their own (Haug et al. 1993, Gervais et al. 2008). Burrowing owls may be found occupying human-made structures, such as levees, culverts, pipes, or debris piles (California Burrowing Owl Consortium 1993, Gervais et al. 2008), and have been found on the edges of drains and canals that border agricultural fields (Rosenburg and Haley 2004). Burrowing owls are monogamous and breed from March through August, with peak activity occurring in April and May, but breeding can begin as early as February and end as late as December (Zeiner et al. 1990, Rosenberg and Haley 2004).

Potential burrowing owl habitat is located along a berm associated with the railroad tracks that parallel South Howland Road and in a small berm located along the northern side of the City of Lathrop's Water Reclamation Plant on Christopher Way. Multiple burrows a minimum of 3.5 inches in diameter and burrow complexes were documented within and around Vierra Substation and the expansion area, as well as adjacent to or along the water treatment plant property on Christopher Way (Stillwater Sciences 2017b). None of the burrows documented during the survey had any sign of burrowing owl presence or activity (e.g., white-wash, regurgitated pellets, molted feathers, prey remains). However, it is possible that these burrows may become occupied in the future.

Other Migratory Birds And Nesting Raptors

Non-listed migratory bird species or raptors can establish nests in trees or shrubs in or near the project area, particularly in the trees located south of the substation expansion area. There is also potential nesting habitat in a row of ornamental trees located along Nestle Way, though this habitat is marginal because the trees are in very close proximity to the road and traffic. The nesting season for migratory birds and raptors generally is between February 15 and August 31.

Table 3.4-3: Special-Status Wildlife Species

Common Name Scientific Name	Listing Status[a] Federal/ State	Distribution in California	Habitat Association	Occurrence Potential
Invertebrates				
Conservancy fairy shrimp *Branchinecta conservatio*	FE/–	Disjunct occurrences in Tehama, Glenn, Butte, Yolo, Solano, Stanislaus, Merced, and Ventura counties	Large, deep vernal pools in annual grasslands	Absent; outside of the species' current distribution and no suitable habitat present
Vernal pool fairy shrimp *Branchinecta lynchi*	FT/–	Central Valley, central and south Coast Ranges from Tehama County to Santa Barbara County; isolated populations also in Riverside County	Vernal pools; also found in sandstone rock outcrop pools	Absent; no suitable habitat present
Vernal pool tadpole shrimp *Lepidurus packardi*	FE/–	Shasta County south to Merced County	Vernal pools and ephemeral stock ponds	Absent; no suitable habitat present
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	FT/–	Streamside habitats throughout the Central Valley	Riparian and oak savanna habitats below 915 m (3,000 ft) with host plant *Sambucus* sp. (blue elderberry)	Absent; no suitable habitat present

Common Name Scientific Name	Listing Status[a] Federal/ State	Distribution in California	Habitat Association	Occurrence Potential
Amphibians				
California tiger salamander *Ambystoma californiense*	FT/ST	Very fragmented; along the coast from Sonoma County to Santa Barbara County, in the Central Valley and Sierra foothills from Sacramento County to Tulare County	Grassland, oak savannah, or edges of woodland that provide subterranean refuge (typically mammal burrows); breeds in nearby temporary ponds, vernal pools, or slow-moving parts of streams	Unlikely to occur; in 1996, ~50 larvae found in a seasonal pond behind a private residence south of State Route 120 (CDFW 2016a), approximately 0.9 miles from project; typical local migrations are up to 3,300 feet from subterranean summer refuge habitat to breeding ponds, and movement may be as far as 1.3 miles (Orloff 2011); however, Hwy 120 and other roads provide substantial barriers to this location; no other suitable reproductive aquatic habitat was identified within biological resources survey area, or within 1 mile using satellite imagery.
Western spadefoot *Spea hammondii*	–/SSC	Near Redding, south throughout the Central Valley and nearby foothills; Coast Ranges south of Monterey Bay; and coastal southern California south of the Transverse Mountains and west of the Peninsular Mountains	Areas with sparse vegetation and/or short grasses in sandy or gravelly soils; primarily in washes, river floodplains, alluvial fans, playas, alkali flats, among grasslands, chaparral, or pine-oak woodlands; breeds in ephemeral rain pools with no predators	Unlikely to occur; marginally suitable habitat present

Common Name **Scientific Name**	**Listing Status[a] Federal/ State**	**Distribution in California**	**Habitat Association**	**Occurrence Potential**
California red-legged frog *Rana draytonii*	FT/SSC	Largely restricted to coastal drainages on the central coast from Mendocino County to Baja California; in the Sierra foothills south to Tulare and possibly Kern counties	Breeds in still or slow-moving water with emergent and overhanging vegetation, including wetlands, wet meadows, ponds, lakes, and low-gradient, slow moving stream reaches with permanent pools; uses adjacent uplands for dispersal and summer retreat	Absent; no suitable habitat present
Foothill yellow-legged frog *Rana boylii*	–/SSC	From the Oregon border along the coast to the Transverse Ranges, and south along the western side of the Sierra Nevada Mountains to Kern County; a possible isolated population in Baja California	Shallow tributaries and mainstems of perennial streams and rivers, typically associated with cobble or boulder substrate	Absent; outside of the species' current distribution and no suitable habitat present
Reptiles				
Western pond turtle *Actinemys marmorata*	–/SSC	From the Oregon border along the coast ranges to the Mexican border, and west of the crest of the Cascades and Sierras	Permanent, slow-moving fresh or brackish water with available basking sites and adjacent open habitats or forest for nesting	Absent; no suitable habitat present
Coast horned lizard *Phrynosoma blainvillii*	–/SSC	West of deserts and Cascade-Sierran highlands, as far north as Shasta Reservoir	Open areas with sandy soil and/or patches of loose soil and low/scattered vegetation in scrublands, grasslands, conifer forests, and woodlands; frequently found near ant hills	Unlikely to occur; marginally suitable habitat present
San Joaquin whipsnake *Masticophis flagellum ruddockii*	–/SSC	From the Sacramento Valley (Colusa County) south to San Joaquin Valley (Kern County) and west into the South Coast Ranges; an isolated population in the Sutter Buttes	Open, dry, treeless areas, including grassland and saltbush scrub; uses rodent burrows, shaded vegetation, and surface objects as refuge	Unlikely to occur; marginally suitable habitat present
Giant garter snake *Thamnophis gigas*	FT/ST	Central Valley from the vicinity of Burrel in Fresno County north to near Chico in Butte County; has been extirpated from areas south of Fresno	Sloughs, canals, low- gradient streams and freshwater marsh habitats where there is a prey base of small fish and amphibians; also found in irrigation ditches and rice fields; requires grassy	Absent; no suitable habitat present

Common Name **Scientific Name**	**Listing Status[a] Federal/ State**	**Distribution in California**	**Habitat Association**	**Occurrence Potential**
			banks and emergent vegetation for basking and areas of high ground protected from flooding during winter	
Birds				
White-tailed kite *Elanus leucurus*	–/SFP	Year-round resident; found in nearly all lowlands of California west of the Sierra Nevada mountains and the southeast deserts	Lowland grasslands and wetlands with open areas; nests in trees near open foraging area	Potential to occur; suitable nest trees present
Swainson's hawk *Buteo swainsoni*	–/ST	Summer resident; breeds in lower Sacramento and San Joaquin valleys, the Klamath Basin, and Butte Valley; highest nesting densities occur near Davis and Woodland, Yolo County	Nests in oaks or cottonwoods in or near riparian habitats; forages in grasslands, irrigated pastures, and grain fields	Potential to occur; historically present in vicinity (documented in 2003 and 2009 [CDFW 2016a]), but documented nest trees since removed
Western yellow-billed cuckoo *Coccyzus americanus*	FT/SE	Breeds in limited portions of the Sacramento River and the South Fork Kern River; small populations may nest in Butte, Yuba, Sutter, San Bernardino, Riverside, Inyo, Los Angeles, and Imperial counties	Summer resident of valley foothill and desert riparian habitats; nests in open woodland with clearings and low, dense, scrubby vegetation	Absent; outside of the species' current distribution and no suitable habitat present
Burrowing owl *Athene cunicularia*	–/SSC	Year-round resident throughout much of the state; Central Valley, northeastern plateau, southeastern deserts, and coastal areas; rare along south coast	Level, open, dry, heavily grazed or low- stature grassland or desert vegetation with available burrows	Potential to occur; suitable habitat present
Least Bell's vireo *Vireo bellii pusillus*	FE/SE	Summer resident; breeds in scattered locations around southern California	Nests in dense vegetative cover of riparian areas; often nests in willow or mulefat; forages in dense, stratified canopy	Absent; outside of the species' current distribution and no suitable habitat present
Song sparrow ("Modesto" population) *Melospiza melodia*	–/SSC	Year-round resident; north-central portion of the Central Valley	Emergent freshwater marshes, riparian willow thickets, and riparian forests	Absent; no suitable habitat present
Tricolored blackbird *Agelaius tricolor*	–/SSC	Permanent resident, but makes extensive migrations both in breeding season and winter; common locally throughout Central Valley and in coastal areas from Sonoma County	Feeds in grasslands and agriculture fields; nesting habitat components include open accessible water, a protected nesting substrate (including	Absent; no suitable habitat present

Common Name Scientific Name	Listing Status[a] Federal/ State	Distribution in California	Habitat Association	Occurrence Potential
		south	flooded or thorny vegetation), and a suitable nearby foraging space with adequate insect prey	
Yellow-headed blackbird *Xanthocephalus xanthocephalus*	–/SSC	Primarily a migrant and summer resident, though small numbers remain in winter; Central Valley, northeastern California, central and southern coasts, and southern deserts	Breeds almost entirely in open marshes with relatively deep water and tall emergent vegetation, such as bulrush (*Schoenoplectus* spp.) or cattails (*Typha* spp.); nests are typically in moderately dense vegetation; forage within wetlands and surrounding grasslands and croplands	Absent; no suitable habitat present
Mammals				
Riparian (San Joaquin Valley) woodrat *Neotoma fuscipes riparia*	FE/SSC	Single known extant population restricted to Stanislaus River in Caswell Memorial State Park	In riparian areas with willows and dense oak, evergreen, and/or shrubby overstory	Absent; outside of the species' current distribution and no suitable habitat present
Riparian brush rabbit *Sylvilagus bachmani riparius*	FE/SE	Single, known extant population restricted to the Stanislaus River in Caswell Memorial State Park	Brushy understory of valley riparian forests	Absent; outside of the species' current distribution and no suitable habitat present
Western mastiff bat *Eumops perotis californicus*	–/SSC	Found mostly in southern half of California	Primarily a cliff-dwelling species though may be found in crevices in large boulders and buildings	Absent; outside of the species' current distribution
Townsend's western big-eared bat *Corynorhinus townsendii*	–/SSC	Throughout California, found in all but subalpine and alpine habitats, details of distribution not well known	Most abundant in mesic habitats; also found in oak woodlands, desert, vegetated drainages, caves or cave-like structures (including basal hollows in large trees, mines, tunnels, and buildings)	Absent; no suitable habitat present
Pallid bat *Antrozous pallidus*	–/SSC	Throughout California except for elevations greater than 3,000 m in the Sierra Nevada	Roosts in rock crevices, tree hollows, mines, caves, and a variety of vacant and occupied buildings; feeds in a variety of open terrestrial habitats	Absent; no suitable habitat present

Common Name Scientific Name	Listing Status[a] Federal/ State	Distribution in California	Habitat Association	Occurrence Potential
San Joaquin kit fox *Vulpes macrotis mutica*	FE/ST	San Joaquin Valley floor and surrounding foothills of the coastal ranges, Sierra Nevada, and Tehachapi mountains	Annual grasslands or open areas dominated by scattered brush, shrubs, and scrub	Unlikely to occur; marginally suitable habitat present
American badger *Taxidea taxus*	–/SSC	Throughout the state except in the humid coastal forests of Del Norte County and the northwest portion of Humboldt County	Shrubland, open grasslands, fields, and alpine meadows with friable soils	Unlikely to occur; marginally suitable habitat present

[a] Status codes:

Federal

FE = Listed as endangered under the federal Endangered Species Act
FT = Listed as threatened under the federal Endangered Species Act
FPT = Federally proposed as threatened

State

SE = Listed as Endangered under the California Endangered Species Act
ST = Listed as Threatened under the California Endangered Species Act
SSC = CDFW Species of Special Concern
SFP = CDFW Fully Protected species

Habitat Conservation Plans

PG&E has an HCP for its operation and maintenance activities in the San Joaquin Valley. This HCP, PG&E's San Joaquin Valley Operations and Maintenance Habitat Conservation Plan, authorizes incidental take of 23 wildlife and 42 plant species for 33 routine operations and maintenance activities for PG&E's electric and gas transmission and distribution systems within nine counties of the San Joaquin Valley, including San Joaquin County. The project is included within the boundaries of this HCP, although the project is not a covered activity, as the HCP does not cover substation expansions that exceed 0.5-acre. Construction practices and APMs for this project have been designed to be compatible with PG&E's HCP avoidance and minimization measures, which have been reviewed previously by USFWS and California Department of Fish and Wildlife (CDFW).

The City of Lathrop is a Permittee under a second area HCP, the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan, which provides compensation for the conservation of open space to non-open space uses that affect the plant, fish and wildlife species covered by the Plan. The Plan is either administered by the cities themselves within San Joaquin County, or by the San Joaquin Council of Governments. Participation in the SJMSCP is voluntary for project applicants except when conditioned to participate by a Permittee. The project is not a covered activity since PG&E is not a permittee/participant in this HCP.

3.4.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

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

3.4.4.1 Significance Criteria

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

3.4.4.2 Applicant-Proposed Measures

PG&E will implement the following APMs. To the extent any of the following measures conflict with requirements in subsequently issued resource agency permits, the resource agency permit requirements shall supersede these measures.

APM BIO-1: Avoid Impacts on Special-Status Plants

Pre-construction surveys for special-status plant species in areas of suitable habitat will be conducted during the appropriate blooming period by a qualified biologist prior to the start of construction activities. A report documenting the survey results will be provided to the CPUC prior to construction. If any special-status plant species are found, the following actions will be implemented:

Special-status plants within and immediately adjacent to work areas and access routes will be marked by a qualified biologist and avoided to the extent feasible.

If impacts to special-status plants cannot be avoided, the impacts will be enumerated and described. PG&E will notify the landowner of the presence and location of the special-status plants and inform them of their right to contact CDFW to arrange for the plants to be salvaged. PG&E will proceed with construction activities unless notification is received from the landowner or CDFW within 48 hours indicating that the plants will be salvaged.

APM BIO-2: Avoid Impacts on Nesting Birds

If work is scheduled during the nesting season (February 1 through August 31), nest detection surveys will correspond with a standard buffer for individual species in accordance with the species-specific buffers set forth in Appendix D of the PEA and will occur within 15 days prior to the start of work activities at designated construction areas, staging areas, and landing zones to determine nesting status by a qualified wildlife biologist. Nest surveys will be accomplished by ground surveys and will support phased construction, with surveys scheduled to be repeated if construction lapses in a work area for 15 days between March and July. Access for ground surveys will be subject to property owner permission.

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

All references in this APM to qualified wildlife biologists refer to qualified biologists with a bachelor’s degree or above in a biological science field and demonstrated field expertise in ornithology, in particular, nesting behavior.

APM BIO-3: Burrowing Owl

Within 30 days of beginning ground-disturbing activities, a preconstruction survey for burrowing owl will be conducted by a qualified biologist in the vicinity of Vierra Substation and the railroad tracks and any other suitable habitat within 500 feet of the project area. If no burrowing owls are detected, no further measures are required. If burrowing owls are detected, no construction activities will occur within 250 feet of occupied burrows during the nesting season or within 160 feet of occupied burrows during the non-nesting season. For purposes of this measure, the nesting season is February 1st to August 31st. Additionally, burrowing owls will be monitored by a qualified biologist during construction to assess the sensitivity of the burrowing owls to the construction activities. The size of the avoidance buffer may be increased or decreased as determined by the monitoring biologist based on the planned construction activities and the sensitivity of the burrowing owls. If impacts on an active burrow cannot be avoided, passive relocation may be considered. Relocation will be conducted during the non-nesting season and only after a site-specific plan has been developed and implemented.

3.4.4.3 Potential Impacts

Potential project impacts on biological resources were evaluated against the CEQA significance criteria and are discussed below. The impact analysis evaluates potential project impacts during the construction phase and operation and maintenance phase.

As described in Chapter 2.0, Project Description, the project includes installing approximately 1 mile of 115 kV power line on TSPs, improving and expanding PG&E's existing Vierra Substation, and establishing temporary work areas to construct these improvements.

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

Special-Status Plant Species

<u>*Construction*</u>

Round-leaved filaree has the potential to occur in the ruderal herbaceous habitat in an approximately 1.6-acre staging area northeast of the intersection of D'Arcy Parkway and South Howland Road. No round-leaved filaree individuals were documented in the project area during a survey in May 2017. However, because construction may not occur for several years, it is possible that round-leaved filaree could become established in this area as plant populations can change year to year. Plants can be damaged or destroyed as a result of staging project vehicles and equipment and/or installing the new poles. Minor ground disturbance at staging areas will occur, but no grading will be required. Some areas at this location may need to be graveled prior to use as staging. Special-status plants also can be indirectly affected by soil compaction and the spread of nonnative invasive species from project vehicles and equipment. Construction impacts will be temporary and small scale, as there is very limited area of potential habitat (i.e., the 1.6 acre staging area northeast of the intersection of D'Arcy Parkway and South Howland Road), and even if these plants are discovered and could not be avoided, there would not be a substantial adverse effect on the species due to the small area of potential impact. Implementation of APM-Bio-1 described in Section 3.4.4.2 will further minimize potential less-than-significant project impacts on special-status plants by identifying and avoiding round-leaved filaree to the extent feasible, should it become established.

<u>*Operation and Maintenance*</u>

Most operation and maintenance activities for the power lines (e.g., inspections of the poles and as-needed repairs) will not require ground disturbance in or near the ruderal herbaceous habitat, or otherwise, and in any case will have minimal impact on special-status plant species.

Special-Status Wildlife Species

Construction

Raptors and/or migratory birds, including special-status species white-tailed kite (State fully protected), Swainson's hawk (State threatened), and burrowing owl (State Species of Special Concern) have potential to nest in or near the project area. Nesting birds may be adversely affected if construction activities occur near active nest sites during the breeding season. Mowing of ground vegetation may be required at various pole locations, and recently planted landscaping along Nestle Way, including shrubs and trees, may need to be removed and replaced. Tree work will be performed by hand crews with hand and chain saws, driving line trucks with pull-behind chippers. Direct impacts could occur as a result of removal or trimming of trees or other that plants/structures that provide nesting habitat. Indirect impacts could include nest abandonment or premature fledging from construction-related noise and vibration (for example, from heavy equipment, helicopters, vehicles, generators, and human presence). The majority of the project area is developed, and there are relatively few places in or near the project area where birds may nest. There is also active construction occurring in immediately-adjacent areas. Furthermore, if birds nest in the project area, they will likely initiate breeding in areas where there is pre-existing level of disturbance from traffic and existing industrial and commercial uses. In addition, construction-related noise and vibration will be temporary and will occur only during construction. Levels of disturbance from operations and maintenance of constructed facilities will be similar to existing conditions. Implementation of APM-BIO-2 will further reduce potential less-than-significant impacts on raptors and/or migratory birds (including special-status birds) to a less-than-significant level by identifying active nests in the project area and establishing appropriate buffers to protect nesting birds from disturbance.

Operation and Maintenance

Operation and maintenance of the power lines will continue to primarily include inspections of the poles and as-needed repairs. These activities are expected to be infrequent and result in the same low level of human presence and disturbance as typical nearby road and utility maintenance activities, and will therefore not impact special-status wildlife species.

b) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? *No Impact*

No riparian habitat or sensitive natural community types are present in the study area. No impacts on riparian habitat or other sensitive natural communities will occur during construction or operation and maintenance.

c) Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? *No Impact*

No removal, filling, or other hydrologic alteration of wetlands will occur because no wetlands are present in the project study area. No impact on wetlands will occur during construction or operation and maintenance.

d) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? *No Impact*

Construction

The project area is highly developed and few opportunities for wildlife movement are present. The project route follows the alignment of existing distribution lines along existing roads, and will not include construction of any elements that will block wildlife movement. Vierra Substation will be expanded into an existing agricultural area. Therefore, project construction will neither interfere substantially with the movement of any native resident wildlife species, nor impede the use of any wildlife nursery sites (see above for discussion of special-status wildlife species, nesting raptors, and migratory birds). The project will not include any in-water construction and, therefore, will not interfere with the movement of migratory fish. No impact will occur.

Operation and Maintenance

Operation and maintenance of the power lines will typically include inspections of the poles and as-needed repairs, as is currently ongoing for nearby lines. These activities will not include the construction of any new features that would interfere substantially with the movement of any native resident wildlife species, or impede the use of any wildlife nursery sites.

e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? *No Impact*

The project design and APMs will not conflict with the goals of City of Lathrop's General Plan to protect and manage natural habitats and ecological functions. Section 12.08.340 of the City of Lathrop zoning code outlines regulations regarding tree trimming and removal, and section 12.16.060 outlines responsibility for replacement of trees in accordance with the comprehensive street plan or master guidelines for trees. Because the City of Lathrop does not have jurisdiction over the project, these regulations do not apply to the Vierra Reinforcement Project, although PG&E generally designs its projects to be consistent with such local tree ordinances where feasible and will do so here. No impact will occur during construction or operation and maintenance.

f) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? *No Impact*

Project construction is not covered by PG&E's San Joaquin Valley Operations and Maintenance HCP or the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan. Thus, project construction will not conflict with provisions of these HCPs. Biological resource APMs are compatible with the conditions of the avoidance and minimization measures AMMs for both HCPs. The project area does not cross through any other HCP or Natural Community Conservation Plan areas. No impact will occur during construction or operation and maintenance.

3.4.5 References

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3.5 CULTURAL AND PALEONTOLOGICAL RESOURCES

3.5.1 INTRODUCTION

This section describes existing conditions and potential impacts on cultural and paleontological resources from construction, operation, and maintenance of the project. It presents the methods and results of cultural and paleontological resources studies of the project area. The analysis concludes that impacts on cultural and paleontological resources will be less than significant.

Incorporation of the Applicant-Proposed Measures (APMs) described in Section 3.5.4.2 will further minimize potential less-than-significant impacts on cultural and paleontological resources. The project's potential effects on cultural and paleontological resources were evaluated using the significance criteria set forth in Appendix G of the California Environmental Quality Act (CEQA) Guidelines. The conclusions are summarized in Table 3.5-1 and discussed in more detail in Section 3.5.4. A confidential Cultural Resources Survey Report will be submitted separately to CPUC staff.

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

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☐	☒	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐
d) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☐	☐	☒
e) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074?	TBD[1]	TBD	TBD	TBD

[1] To Be Determined: CPUC will conduct outreach with eligible tribes under Public Resources Code Section 21080.3.1 once the application is complete. PG&E is not aware of any Tribal Cultural Resources that will be affected by the project.

3.5.2 REGULATORY BACKGROUND AND METHODOLOGY

3.5.2.1 Regulatory Background

Federal

A federal agency is not approving, implementing, or funding the project or any element of it; therefore, Section 106 of the National Historic Preservation Act (NHPA) and the Paleontological Resources Preservation Act do not apply to this project.

State

California Register of Historical Resources

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

1. Be associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.

2. Be associated with the lives of persons important in our past.

3. Embody the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic value.

4. Have yielded, or may be likely to yield, information important in prehistory or history.

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

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

Assembly Bill 52

Assembly Bill 52 (AB 52) established that Tribal Cultural Resources (TCR) must be considered by the lead agency under CEQA. AB 52 provides for additional Native American consultation requirements to be undertaken by the lead agency. A TCR is a site, feature, place, cultural landscape, sacred place, or object that is considered of cultural value to a California Native American Tribe, and that is:

i) 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

ii) 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 Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

A project that has potential to impact a TCR such that it would cause a substantial adverse change constitutes a significant effect on the environment unless mitigation reduces such effects to a less-than-significant level. The Governor's Office of Planning and Research (OPR) has issued revised CEQA Guidelines to incorporate AB 52 requirements.

Under AB 52, the CPUC will conduct consultations with eligible tribes regarding TCRs once the application is deemed complete and the CPUC begins CEQA review of the project.

California Health and Safety Code and Public Resources Code

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

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

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

Local

Background research indicated that no cultural resources designated for local listing are in the project area. Because the CPUC has exclusive jurisdiction over the siting, design, and construction of the project, the project is not subject to local discretionary land use regulations.

3.5.2.2 Methodology

Cultural Resources

Records Search and Historical Research

A cultural resources records search for the project was conducted by the Central California Information Center (CCIC) on April 19 and May 19, 2016. The records search included a review of previous investigations and documented cultural resources that exist within a 0.5-mile buffer of the project. In addition, the Historic Properties Data file was reviewed to identify resources listed on or determined eligible for listing on the National Register of Historic Places (NRHP), the CRHR, California Historic Landmarks, and California Points of Historical Interest.

Buried Site Sensitivity

The potential for the project area to contain buried archaeological materials was estimated based on the age and distribution of surface deposits combined with the proximity to historic-era water sources.

Archaeological Survey

For the purposes of this cultural resources study, a study area totaling approximately 36.5 acres was examined to include all work areas, three potential staging areas, and the alignment corridor with a buffer area. An archaeological field survey of the study area was conducted on August 8, 2017, with a supplemental survey of an added potential staging area completed on September 29, 2017. The survey employed transects spaced between 10 and 15 meters apart, and covered all segments of the project study area that were not developed, landscaped, or under active construction. The portions of the project study area that are north of Christopher Way and Nestle Way are developed and/or landscaped with sidewalks and plantings. The portion of the project study area that is between Christopher Way and the tie-in to the Tesla-Stockton Cogen Junction 115 kV Power Line is also developed and landscaped. The portion of the project study area that is south of Christopher Way is graded and under active construction. Inspection of these portions of the project study area was limited to a windshield survey to confirm that no native ground surface is extant and that all structures within or adjacent to the project area are modern in age (i.e., less than 50 years old).

The only areas with visible ground surface in the western half of the project area (i.e., west of D'Arcy Parkway) are the proposed pull site (PS) 004-14A and temporary work space (TWS) 004-14A, at the western end of the project alignment south of Nestle Way where the new power line will tie into the Tesla-Stockton Cogen Junction 115 kV Power Line and a potential staging area southwest of the intersection of D'Arcy Parkway and Christopher Way. These two areas were intensively surveyed for cultural resources.

Most of the project area east of D'Arcy Parkway also was intensively surveyed for cultural resources including staging area (SA)-1 and SA-2. A few paved or developed areas were not surveyed, including the paved rights-of-way of D'Arcy Parkway, Howland Road, and Vierra Road, the fenced and developed Vierra Substation at the eastern end of the project area, and a fenced, gravel-covered lot containing a city-owned water tank at the northern corner of the intersection of Howland Road and D'Arcy Parkway.

In total, 21.4 acres were surveyed for cultural resources, as shown on Figure 3.5-1: Cultural Survey. All surveyed areas were examined for the presence of prehistoric and historic-age archaeological materials and elements of the built environment. When animal burrows were observed, the tailings of the burrows were inspected for cultural materials and darkened soil. Vegetation coverage, ground visibility, and disturbances within each surveyed area were noted.

Native American Coordination

A search of the Sacred Lands File was requested by the Native American Heritage Commission (NAHC) in June 2016. The NAHC identified six tribal groups with traditional or historical ties to the region who may have information about Native American resources within the project area. Letters were sent by PG&E to all six representatives in July 2016. The letters notified the tribes of the proposed project, included a project description and a project map, and invited them to comment on the project and to identify potential resources of concern. No responses were received at this time.

An updated search of the Sacred Lands File was requested by the NAHC in August 2017. The results of that request have indicated the presence of Native American resources located within or near the proposed project route, but no additional information on the location or nature of the resource(s) was provided. However, the NAHC identified one additional tribe that was not included in the list provided in 2016. Updated letters to the identified tribal groups, including the newly identified tribe, were sent September 27, 2017 to provide an additional opportunity to comment on the project and identify resources of concern that could be affected by the project. Communications were also made by telephone and email, and the results were documented. A summary of all communications with tribal representatives was prepared.

The CPUC will conduct tribal outreach with eligible tribes under Public Resources Code Section 21080.3.1 after finding the Permit to Construct application complete.

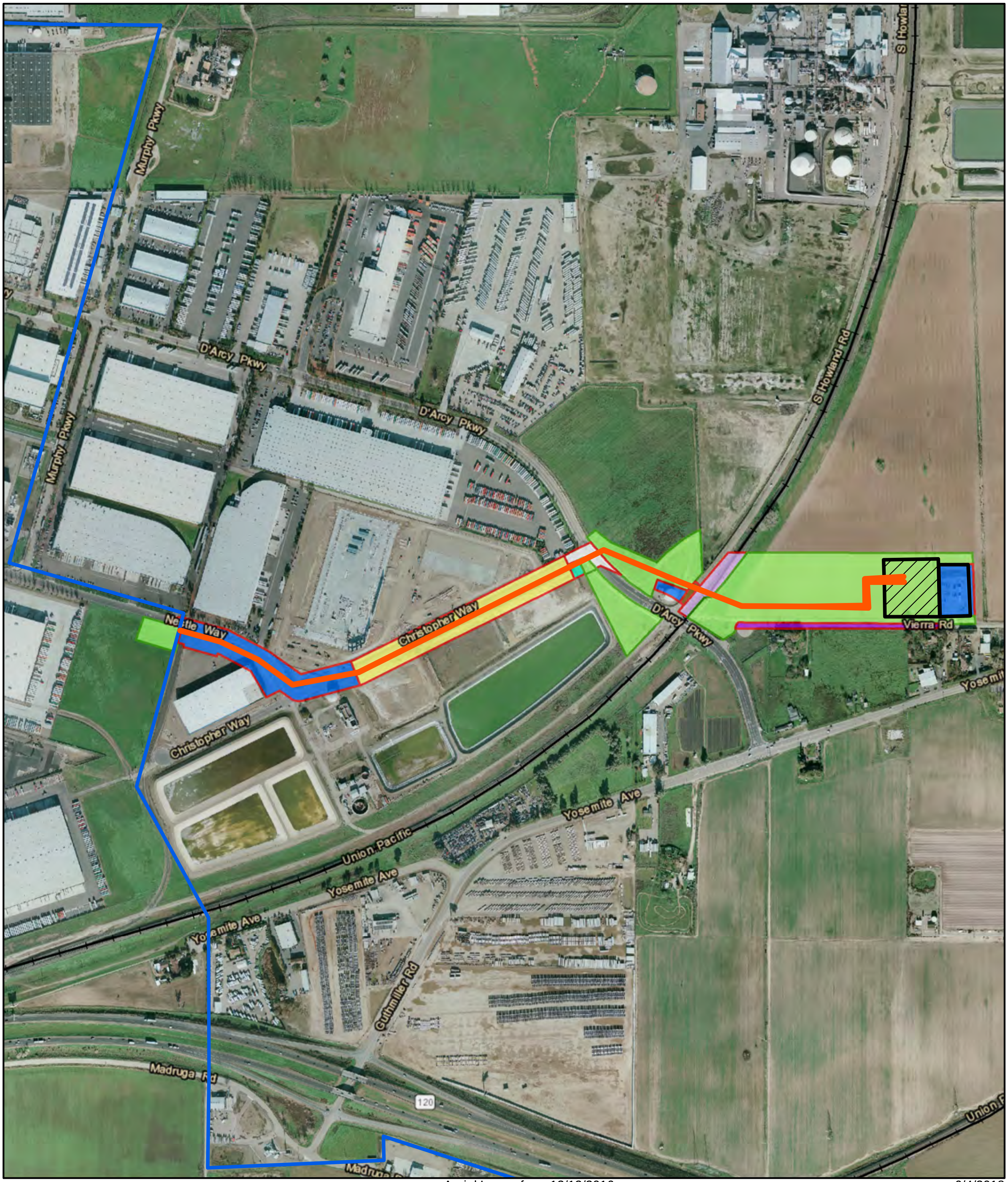
Paleontological Resources

Existing Information Review

Analysis of existing data included a geologic map review, a literature search, and one institutional record search. The geologic map review of the project area included mapping at a scale of 1:250,000 by Wagner et al. (1991). The literature reviewed included published and unpublished scientific papers. A paleontological record search of the project area and 10-mile buffer conducted by the University of California Museum of Paleontology, Berkeley (UCMP) was reviewed, and additional searches were performed using available online databases.

Paleontological Sensitivity

The paleontological potential of the project area was evaluated using the federal Potential Fossil Yield Classification (PFYC) system developed by the Bureau of Land Management (BLM 2016). In this system, geologic units are classified based on the relative abundance of vertebrate fossils or scientifically significant invertebrate or plant fossils and their sensitivity to adverse impacts. Because of its demonstrated usefulness as a resource management tool, the PFYC has been utilized for many years for projects across the country, regardless of land ownership. It is a predictive resource management tool that classifies geologic units on their likelihood to contain paleontological resources on a scale of 1 (very low potential) to 5 (very high potential). This



S:\7-SANDBOX\chaworth\WorkDocs\PG&E\Vierra PEA\mxd\Figure 3_5-1 Cultural Survey.mxd

Aerial Image from 12/12/2016

6/4/2018

- New 115 kV Line to be Installed
- Existing Tesla-Stockton Cogen Jct 115 kV
- Union Pacific Railroad
- Existing Vierra Substation Footprint
- Planned Vierra Substation Expansion
- Surveyed
- Not surveyed (developed)
- Not surveyed (fenced and built berm)
- Not surveyed (graded/active construction)
- Not surveyed (railroad tracks/dense brush/tumbleweeds)
- Not surveyed (paved)
- Not surveyed (paved/graded)
- Not surveyed (dense brush/tumbleweeds)

Figure 3.5-1 - Cultural Survey

Vierra Reinforcement Project

PG&E

0 250 500 1,000

Feet

N

TRC Results you can rely on

system is intended to aid in predicting, assessing, and mitigating paleontological resources. The PFYC ranking system is summarized in Table 3.5-2.

The PFYC system is not intended to be applied to specific paleontological localities or small geographic areas within geologic units. Although significant localities may occasionally occur in a geologic unit, the existence of a few important fossils or localities widely scattered over a large area does not necessarily indicate a higher classification for the unit. The relative abundance of significant localities is intended to serve as the major determinant for the class assignment. The PFYC system is intended to provide baseline guidance for predicting, assessing, and mitigating impacts on paleontological resources.

Table 3.5-2: Potential Fossil Yield Classification

BLM PFYC Designation	Assignment Criteria Guidelines and Management Summary (PFYC System)
1 = Very Low Potential	Geologic units are not likely to contain recognizable paleontological resources.
	Units are igneous or metamorphic, excluding air-fall and reworked volcanic ash units.
	Units are Precambrian in age.
	Management concern is usually negligible, and impact mitigation is unnecessary except in rare or isolated circumstances.
2 = Low	Geologic units are not likely to contain paleontological resources.
	Field surveys have verified that significant paleontological resources are not present or are very rare.
	Units are generally younger than 10,000 years before present.
	Recent aeolian deposits
	Sediments exhibit significant physical and chemical changes (i.e., diagenetic alteration) that make fossil preservation unlikely
	Management concern is generally low, and impact mitigation is usually unnecessary except in occasional or isolated circumstances.
3 = Moderate Potential	Sedimentary geologic units where fossil content varies in significance, abundance, and predictable occurrence.
	Marine in origin with sporadic known occurrences of paleontological resources.
	Paleontological resources may occur intermittently, but these occurrences are widely scattered
	The potential for authorized land use to impact a significant paleontological resource is known to be low-to-moderate.
	Management concerns are moderate. Management options could include record searches, pre-disturbance surveys, mitigation, or avoidance. Opportunities may exist for hobby collecting.
4 = High Potential	Geologic units that are known to contain a high occurrence of paleontological resources.
	Significant paleontological resources have been documented but may vary in occurrence and predictability.
	Surface-disturbing activities may adversely affect paleontological resources.
	Rare or uncommon fossils, including nonvertebrate (such as soft body preservation) or unusual plant fossils, may be present.
	Illegal collecting activities may impact some areas.
	Management concern is moderate to high depending on the proposed action. A field survey by a qualified paleontologist is often needed to assess local conditions. On-site monitoring or spot-checking may be necessary during land disturbing activities. Avoidance of known paleontological resources may be necessary.

BLM PFYC Designation	Assignment Criteria Guidelines and Management Summary (PFYC System)
5 = Very High Potential	Highly fossiliferous geologic units that consistently and predictably produce significant paleontological resources.
	Significant paleontological resources have been documented and occur consistently
	Paleontological resources are highly susceptible to adverse impacts from surface disturbing activities.
	Unit is frequently the focus of illegal collecting activities.
	Management concern is high to very high. A field survey by a qualified paleontologist is almost always needed and on-site monitoring may be necessary during land use activities. Avoidance or resource preservation through controlled access, designation of areas of avoidance, or special management designations should be considered.
U = Unknown	Geologic units that cannot receive an informed PFYC assignment
	Geological units may exhibit features or preservational conditions that suggest significant paleontological resources could be present, but little information about the actual paleontological resources of the unit or area is unknown.
	Geologic units represented on a map are based on lithologic character or basis of origin, but have not been studied in detail.
	Scientific literature does not exist or does not reveal the nature of paleontological resources.
	Reports of paleontological resources are anecdotal or have not been verified.
	Area or geologic unit is poorly or under-studied.
	BLM staff has not yet been able to assess the nature of the geologic unit.
	Until a provisional assignment is made, geologic units with unknown potential have medium to high management concerns. Field surveys are normally necessary, especially prior to authorizing a ground-disturbing activity.
Source: Summarized and modified from BLM 2016	

3.5.3 Environmental Setting

3.5.3.1 Prehistory

The project area is situated within the City of Lathrop in the northern extent of the San Joaquin Valley of central California. The earliest human use of the San Joaquin Valley is indicated by a few projectile points similar to Clovis spear points. Elsewhere in North America, Clovis points are dated 11,550 to 9,550 B.C. In addition, hundreds of early concave base points were found along a past shoreline of Tulare Lake in association with human bone that has been dated to 13,800 to 9,400 BP. This indicates that small bands of hunters were present around Tulare Lake at this early period (Rosenthal, White, and Sutton 2007:151). The Lower Archaic Period (8,550 to 5,550 B.C.) is also represented archaeologically by individual flaked stone tools, including stemmed points, concave base points, and crescents, around Tulare Lake. No evidence of camp sites or other residential sites has been found. A site near Buena Vista Lake yielded three crescents, a stemmed projectile point, and several small flaked stone tools. Animal bones indicated use of fish, waterfowl, freshwater mussels, and artiodactyls (probably deer and pronghorn antelope) (Rosenthal, White, and Sutton 2007:151).

During the Middle Archaic (5,550 to 550 B.C.), warmer, drier conditions prevailed. Tulare Lake decreased in size and eventually dried completely. Toward the end of this period in the northern San Joaquin Valley, habitation sites are found along the rivers in the valley with temporary camps elsewhere. Specialized fishing technology, including gorge hooks, composite bone hooks, and spears, are found in these sites, along with abundant fish bone. Few sites dating to this period have been found in the southern San Joaquin Valley, possibly due to the desiccation of Tulare Lake (Rosenthal, White, and Sutton 2007:152, 155).

Cooler, wetter conditions returned at the beginning of the Upper Archaic Period (550 B.C. to A.D. 1,000), and Tulare, Buena Vista, and Kern Lakes filled with water. However, few sites dating to this period are known from the southern San Joaquin Valley, possibly because they were buried by later deposition. Two sites excavated at Buena Vista Lake in the 1930s date to the Upper Archaic Period, and have house floors and subsistence waste indicating exploitation of both aquatic and terrestrial environments (Rosenthal, White, and Sutton 2007:155, 157). These sites have roasting pits, charmstones, bone strigils and bipoints, limpet shell ornaments, and Olivella half-shell and saucer beads (Moratto 1984:186). The cultures in place at the time of European contact developed during the Emergent Period (A.D. 1,000 to the Historic Period). Sites at Buena Vista Lake from this period are villages with numerous house pits, triangular arrow points, an elaborate steatite industry (objects made from soapstone), and pottery (Moratto 1984:188).

3.5.3.2 Ethnographic Period

The project survey area was historically inhabited by the San Joaquin Valley Yokuts, particularly the Talumne, Wolasi, Gawia, Yokod, and Wukchumni Yokuts (Wallace 1978:448). Several historic Yokuts villages were located in the area, including Yokodo, located near Exeter, and Dawau Nawshid. Yokuts settlements were located on the tops of low mounds, on or near the banks of the larger watercourses. Settlements were composed of single-family dwellings, sweathouses, and ceremonial assembly chambers. Dwellings were small and lightly constructed, semi-subterranean, and oval. The public structures were large and covered with earth.

Subsistence for the San Joaquin Valley Yokuts revolved around the waterways and marshes of the lower San Joaquin Valley. Fishing with dragnets, harpoons, and hook and line, yielded salmon, white sturgeon, river perch, and other species of edible fish. Waterfowl and small game attracted to the water also provided a source of protein. Vegetable staples included acorns, tule roots, and seeds. Goods not available locally were obtained through trade. Paiute and Shoshone groups on the eastern side of the Sierra were suppliers of obsidian (volcanic glass used for tools). Shell beads and mussels were obtained from Salinan and Coastanoan groups. Trading relations with neighboring Miwok groups yielded baskets and bows and arrows. Overland transport was facilitated by a network of trails, and tule rafts were used for water transport (Wallace 1978).

Most Yokuts groups had their first contact with Europeans in the early 1800s, when the Spanish began exploring the region. The gradual erosion of Yokuts culture began during the mission period. Epidemics of European diseases played a large role in the decimation of the native peoples, reducing the populations to about 25 percent of their pre-epidemic numbers by 1833 (Wallace 1978). The final blow to the aboriginal population came with the Gold Rush and its aftermath. In the rush to the mines, native populations were pushed out of their existing territories. Ex-miners that settled in the fertile valley applied further pressure to the native groups, and altered the landforms and waterways of the valley.

3.5.3.3 Historical Period

Europeans first sailed up the coast of California in 1542 as part of a Spanish exploration expedition led by the Portuguese captain, Juan Rodriguez Cabrillo. Spain would not resume in-depth exploration and settlement of the region until the mid-1700s, when Russian and French encroachment threatened Spain's interests in the territory known as Alta California (Upper California). The return of Spanish presence in California was marked by the 1769 expedition led by Captain Gaspar de Portolá (Treutlein 1968:291). Shortly thereafter, Spain began to establish a system of pueblos, presidios, ranchos, and missions along the California coast to bolster Spanish settlement and presence. The Spanish and Franciscan missionaries established a system of 21 missions along El Camino Real. The Native American population was subsumed into the mission system, which led to their decline and to increasingly hostile relationships with the Europeans.

During the Spanish and subsequent Mexican periods, ranchos were a concession-granting system that awarded many military officers with large tracts of land for settlement and raising livestock. While the Spanish ranchos supported the pueblos, presidios, and missions established along El Camino Real, most of the Mexican land grants were located away from the coast to increase inland settlement.

The American Period began in 1848 with the Treaty of Guadalupe Hidalgo, which ended the Mexican-American War (1846-1848). The cattle industry throughout southern and central California was decimated by droughts following the war, resulting in the sale of many ranchos to American investors and the subdivision of many of the ranchos. The first settlement of Lathrop began in the 1860s when the Western Pacific Railroad was constructed from San Francisco through Lathrop to connect with Stockton and Sacramento. In 1869, construction of the San Joaquin Valley Mainline of the Southern Pacific Railroad began in Lathrop at the junction with the Western Pacific Railroad. The San Joaquin Valley Mainline was constructed southwards to connect with the agricultural communities of the central and southern San Joaquin Valley, including Modesto, Merced, Fresno, and Visalia. The line reached Bakersfield in 1874 (Hatoff et al. 1995). Over the next hundred years, agriculture remained the predominant industry of the region. Following World War II and significant population growth in the area, the region evolved into a bedroom community serving the San Francisco Bay Area. The City of Lathrop was incorporated in 1989.

3.5.3.4 Record Search Results

The CCIC identified 14 previous cultural resources investigations within 0.5 mile of the project. Seven of these investigations overlapped the project area. Table 3.5-3 describes the seven previous studies that have been conducted within the project alignment.

A total of 22 cultural resources have been previously recorded within 0.5 mile of the project area. These include 20 historic-age (i.e., 50 years old or older) single-family residences, one historic-age well site, and the historic-age San Joaquin Valley Mainline of the Southern Pacific Railroad. No prehistoric sites have been recorded within 0.5 mile of the project.

Table 3.5-3: Previous Studies within the Project Area

Report Number	Authors	Year	Title	Company	Client
SJ-02515	Caruso, G. and A. MacDougall	1994	Cultural Resources Investigation of PG&E's Proposed Lathrop Area Increase San Joaquin County, California	PG&E Building and Land Services Department	Pacific Gas and Electric
SJ-04807	Gross, C.	2002	Cultural Resources Survey for the Mossdale Landing Urban Design Concept City of Lathrop, San Joaquin County, California	EDAW, Inc.	City of Lathrop
SJ-05003	Gross, C. H.	2003	Cultural Resources Assessment for the Lathrop Water Recycling Plant No. 1, Phase I Expansion Project.	EDAW, Inc.	City of Lathrop
SJ-05803	EDAW, Incorporated	2005	Central Lathrop Specific Plan, Cultural Resources Inventory, San Joaquin County, California.	EDAW, Incorporated	City of Lathrop
SJ-06577	Gross, C.	2002	Cultural Resources Assessment for the River Islands Development Project City of Lathrop, San Joaquin County, CA	EDAW Inc.	City of Lathrop
SJ-06579	Dolan, C	2004	Historical Architectural Assessment for the River Islands Development Project City of Lathrop, San Joaquin County, CA	EDAW Inc.	City of Lathrop
SJ-07293	EDAW, Inc.	2002	Draft Subsequent Environmental Impact Report for the River Islands at Lathrop Project Volume Ib: Draft SEIR (Section 4.8-Chapter 10), State Clearinghouse No. 1993112027.	EDAW, Inc.	City of Lathrop

Only one of the previously recorded resources overlaps the project area. A segment of P-39-000002 (CA-SJO-000250H), the San Joaquin Valley Mainline of the Southern Pacific Railroad, bisects the project area. Table 3.5-4 summarizes the cultural resources located within 0.5 mile of the project.

Table 3.5-4: Previously Recorded Resources within 0.5 Mile of the Project Area

Resource Number	Description	Year Recorded
39-000002*	Southern Pacific Railroad	Various, including: HDR Engineering. 2012. Archaeological Survey for the Austin Road Interchange Improvements, San Joaquin County, California.
39-004611	Well	ECORP Consulting. 2006. Cultural Resources Survey Report. South Lathrop North Village. Submitted to Lazares Companies, Los Gatos, California.
39-004613	Single story residential building	ECORP Consulting. 2006. Cultural Resources Survey Report. South Lathrop North Village. Submitted to Lazares Companies, Los Gatos, California.
39-004614	Single story residential building	ECORP Consulting. 2006. Cultural Resources Survey Report. South Lathrop North Village. Submitted to Lazares Companies, Los Gatos, California.
39-004616	Single story residential building	ECORP Consulting. 2006. Cultural Resources Survey Report. South Lathrop North Village. Submitted to Lazares Companies, Los Gatos, California.
39-004617	Single story residential building	ECORP Consulting. 2006. Cultural Resources Survey Report. South Lathrop North Village. Submitted to Lazares Companies, Los Gatos, California.
39-004618	Single story residential building	ECORP Consulting. 2006. Cultural Resources Survey Report. South Lathrop North Village. Submitted to Lazares Companies, Los Gatos, California.
39-004619	Single story residential building	ECORP Consulting. 2006. Cultural Resources Survey Report. South Lathrop North Village. Submitted to Lazares Companies, Los Gatos, California.
39-004620	Single story residential building	ECORP Consulting. 2006. Cultural Resources Survey Report. South Lathrop North Village. Submitted to Lazares Companies, Los Gatos, California.
39-004623	Single family residential building	ECORP Consulting. 2006. Cultural Resources Survey Report. South Lathrop North Village. Submitted to Lazares Companies, Los Gatos, California.
39-004625	Single family residential building	ECORP Consulting. 2006. Cultural Resources Survey Report. South Lathrop North Village. Submitted to Lazares Companies, Los Gatos, California.
39-004626	Single family residential building	ECORP Consulting. 2006. Cultural Resources Survey Report. South Lathrop North Village. Submitted to Lazares Companies, Los Gatos, California.

Resource Number	Description	Year Recorded
39-004627	Single family residential building	ECORP Consulting. 2006. Cultural Resources Survey Report. South Lathrop North Village. Submitted to Lazares Companies, Los Gatos, California.
39-004628	Single family residential building	ECORP Consulting. 2006. Cultural Resources Survey Report. South Lathrop North Village. Submitted to Lazares Companies, Los Gatos, California.
39-004629	Single family residential building	ECORP Consulting. 2006. Cultural Resources Survey Report. South Lathrop North Village. Submitted to Lazares Companies, Los Gatos, California.
39-004630	Single family residential building	ECORP Consulting. 2006. Cultural Resources Survey Report. South Lathrop North Village. Submitted to Lazares Companies, Los Gatos, California.
39-004631	Single family residential building	ECORP Consulting. 2006. Cultural Resources Survey Report. South Lathrop North Village. Submitted to Lazares Companies, Los Gatos, California.
39-004632	Single family residential building	ECORP Consulting. 2006. Cultural Resources Survey Report. South Lathrop North Village. Submitted to Lazares Companies, Los Gatos, California.
39-004633	Single family residential building	ECORP Consulting. 2006. Cultural Resources Survey Report. South Lathrop North Village. Submitted to Lazares Companies, Los Gatos, California.
39-004634	Single family residential building	ECORP Consulting. 2006. Cultural Resources Survey Report. South Lathrop North Village. Submitted to Lazares Companies, Los Gatos, California.
39-004/635	Single family residential building	ECORP Consulting. 2006. Cultural Resources Survey Report. South Lathrop North Village. Submitted to Lazares Companies, Los Gatos, California.
39-004637	Single family residential building	ECORP Consulting. 2006. Cultural Resources Survey Report. South Lathrop North Village. Submitted to Lazares Companies, Los Gatos, California.
*Resource overlaps project area		

3.5.3.5 Results of Native American Coordination

A search of the Sacred Lands File conducted by the NAHC in July 2016 did not identify any Native American cultural resources within the project area. At that time, the NAHC identified six Native American groups who should be contacted regarding the project. Letters were sent by PG&E to all six groups on July 8, 2016 inviting the Tribes to comment early in the planning process. No responses were received to this initial project notification.

The search of the Sacred Lands File by the NAHC in August 2017 indicated the presence of Native American resources located within or near the proposed project route, but no additional information on the location or nature of the resource(s) was provided. The NAHC provided a list of seven Native American groups, the six original Tribes plus one additional Tribe, who should be contacted for more information about the tribal cultural resource. Letters were sent to all seven Tribes on September 27, 2017. Follow-up phone calls and emails were made to each Tribe on October 18, 2017. Coordination with the seven Tribes has not identified any Native American cultural resources or sacred lands within or near the project area, and no concerns regarding the project location specifically were expressed. Several tribes, however, have requested to be notified in the event of an inadvertent discovery during construction. A summary of the communication with each Tribe is documented in Table 3.5-5: Details of Native American Correspondence.

3.5.3.6 Results of Field Inventory and Buried Site Sensitivity Analysis

A segment of previously recorded site P-39-000002 (CA-SJO-000250H), the San Joaquin Valley Mainline of the Southern Pacific Railroad, bisects the project area northwest of D'Arcy Parkway. This rail line was previously evaluated, with most segments recommended as not eligible for the NRHP or CRHR (Behrend 2012; Hatoff et al. 1995) due to the replacement of the original, historic-age ballast, ties, and rails with modern materials. Because the railroad was in active use at the time of the survey, the railroad bed was not intensively surveyed. However, the railroad bed and tracks were observed from two nearby vantage points. This examination has confirmed that the segment of the railroad that bisects the project area has a modern rock ballast foundation and the rails also appear to be modern in age. This confirms that this portion of the rail line was updated with modern materials in the 1990s, as previously noted by Behrend (2012). Therefore, the segment of P-39-000002 that bisects the project area is not considered eligible for the NRHP or CRHR. Regardless of eligibility status, the railroad grade and tracks will not be subject to impacts from the proposed project because there will be no alterations to the railroad as part of the project.

No other cultural resources were observed within the project survey area during the survey.

The potential for encountering buried prehistoric archaeological sites within the project area was estimated based on the age and distribution of surface deposits combined with the proximity to historic-era water sources. Geologic mapping indicates that the project area is located on recent Quaternary (Holocene) fan deposits in the east, and basin deposits in the west (Rogers 1966). Soils in the project area consist of Delhi loamy sand, Timor loamy sand, Tinnin loamy sand, and Veritas fine sandy loam (NRCS 2017), and are estimated to be between Late Holocene (4200 to 2200 years before present [BP]) and Medieval Climatic Anomaly (1150 to 600 years BP) in age.

Table 3.5-5: Details of Native American Correspondence

Tribal Group	Point of Contact	Date of Contact	Method of Contact	Response/Notes
Buena Vista Rancheria of MiWuk Indians	Rhonda Morningstar Pope, Chairperson 1418 20th Street, Suite 200 Sacramento, CA 95811 (916) 491-0011 rhonda@buenavistatribe.com	July 8, 2016	Letter	No response received
		September 27, 2017	Letter	No response received to date.
		October 18, 2017	Phone	Left message. No response received to date.
		October 18, 2017	Email	Mike DeSpain, Natural and Cultural Resources Coordinator, responded to me and stated that the Tribe does not have specific concerns regarding this location, but if anything is inadvertently discovered they would like to be notified.
California Valley Miwok Tribe	Silvia Burley, Chairperson 4620 Shippee Lane Stockton, CA 95212 (209) 931-4567	July 8, 2016	Letter	No response received
		September 27, 2017	Letter	No response received to date.
		October 18, 2017	Phone	Left message. Tiger responded on behalf of Sylvia and stated that the Tribe did not think the potential to identify any archaeological deposits or remains in the project location was high, but asked to be notified in the event of an inadvertent discovery.
Ione Band of Miwok Indians	Crystal Martinez-Alire, Chairperson P.O. Box 699 Plymouth, CA 95669 (209) 245-5800 crystal@ionemiwok.net	July 8, 2016	Letter	No response received to date.
		September 27, 2017	Letter	No response received to date.
		October 18, 2017	Phone	Left message. No response received to date.
		October 18, 2017	Email	No response received to date.
	Randy Yonemura, Cultural Committee Chair P.O. Box 699 Plymouth, CA 95669 (209) 245-5800 office (916) 601-4069 cell phone Randy_yonemura@yahoo.com	July 8, 2016	Letter	No response received to date.
		September 27, 2017	Letter	No response received to date.
		October 18, 2017	Phone	Left message. No response received to date.
		October 18, 2017	Email	No response received to date.
North Valley Yokuts Tribe	Katherine Erolinda Perez, Chairperson P.O. Box 717 Linden, CA 95236 (209) 887-3415	July 8, 2016	Letter	See below
		September 27, 2017	Letter	Ms. Perez responded to PG&E with a phone call on 10/06/17 and indicated that the proposed project is situated within or

Tribal Group	Point of Contact	Date of Contact	Method of Contact	Response/Notes
	canutes@verizon.net			adjacent to human burials believed to be Native American and associated with an archaeological site (CA-SJO-03) in proximity to the project; however, after being provided large scale mapping for the project, Ms. Perez realized that CA-SJO-3 and other areas of concern are over ½ mile away from the project location. She asserted that her concerns were assuaged and did not have any further concern regarding the project but asked to be notified in the event of an inadvertent discovery.
Southern Sierra Miwuk Nation	Lois Martin, Chairperson P.O. Box 186 Mariposa, CA 95338 (209) 742-6867	July 8, 2016	Letter	No response received to date.
		September 27, 2017	Letter	No response received to date.
		October 18, 2017	Phone	Left message. No response received to date.
United Auburn Indian Community of the Auburn Rancheria	Gene Whitehouse, Chairperson 10720 Indian Hill Road Auburn, CA 95603 (530) 883-2390 mguerrero@auburnrancheria.com mmoore@auburnrancheria.com mmcadams@auburnrancheria.com	September 27, 2017	Letter	No response received to date.
		October 18, 2017	Email	Email to Marcos Guerrero Cultural Resources Manager for the Tribe and Melodi McAdams, Cultural Resources Associate, and Matthew Moore, THPO was sent on said date. UAIC responded with a letter asking for project information and to set up a meeting regarding the project. On 10/26/2017 all project information, including previous draft reports, was emailed to UAIC and a requested meeting date was proffered. In a later email communication with Mr. Guerrero, UAIC deferred to Wilton Rancheria.
Wilton Rancheria	Raymond Hitchcock, Chairperson 9728 Kent Street Elk Grove, CA 95624 (916) 683-6000 rhitchcock@wiltonrancheria-nsn.gov aruiz@wiltonrancheria-nsn.gov esilva@wiltonrancheria-nsn.gov	July 8, 2016	Letter	No response received to date.
		September 27, 2017	Letter	See below
		October 18, 2017	Email	Mr. Hitchcock; Antonio Ruiz, Cultural Resources Officer; and Ed Silva, Cultural Resources Officer we emailed regarding the Vierra project on said date.

Tribal Group	Point of Contact	Date of Contact	Method of Contact	Response/Notes
				Mr. Ruiz responded to PG&E and requested copies of reports but did not express any specific concerns regarding the project location. Reports produced previously in support of this project were emailed to Mr. Ruiz and a copy of forthcoming reports will also be emailed to the Tribe upon completion.

Despite the youthful ages of the surface landforms that underlie the project area, the potential for buried sites is estimated to be low to moderate based on the distance to the nearest historic-era water source, as mapped by the U.S. Geological Survey (USGS 1915, 1952).

3.5.3.7 Paleontological Resources

Geologic Units and Paleontological Sensitivity

According to geologic mapping by Lettis (1982) and Wagner et al. (1991), the project area east of the Tesla-Stockton Cogen Junction 115 kV Power Line is underlain by Quaternary (Pleistocene) Modesto Formation alluvium (Qm), and the project area to the west of the Tesla-Stockton Cogen Junction 115 kV Power Line is underlain by (Holocene) Dos Palos Alluvium (Qdp).

Modesto Formation (Qm)

This formation makes up the youngest unit of the Pleistocene alluvium in the Modesto river valley area. This unit consists of distinct alluvial terraces and some alluvial fans and channel ridges. It consists of tan to light grey gravely sand, silt, and clay, except where derived from the Tuscan Formation, which is distinctly red and black. The Modesto Formation is divided into two members. The upper member forms terraces and alluvial fans. The soil at the top of the member has highly visible A/C horizon profiles but lacks a distinct argillic B horizon that can only be found in the lower member (Helley and Harwood 1985).

The review of the online UCMP database showed 14 other Pleistocene-aged vertebrate fossil localities exist within San Joaquin County (extending a maximum of 22 miles away from the project area), however, these did not have any identified geologic formation, or exact geographic locations associated with them. The cataloged specimens include bison (*Bison* sp.), mammoth (*Mammuthus columbi*, *Mammuthus* sp.), camel (*Camelops hesternus*), sloth (*Megalonyx jeffersoni*), horse (*Equus*, Equidae), mastodon (*Mammut*), artiodactyl (Artiodactyla), carnivore (Carnivora), elephant (Proboscidea), and rodent (*Thomomys* sp., Rodentia) (UCMP 2016). The limited number of recorded fossils from these sediments in the project vicinity could be due either to the absence of fossils or to a lack of substantial development and/or paleontological investigations in the area. Therefore, if fossils are recovered, they could be scientifically significant because of the information that they could provide on the Pleistocene paleoenvironment in the northern portion of the San Joaquin Valley. Based on the known fossil localities from Pleistocene deposits in the vicinity, and information about the lithology of the Modesto Formation (with its fine-grained beds, and terraces that exhibit conditions in which significant fossils could be preserved), the Modesto Formation is assigned a rating of PFYC 3 (moderate potential).

Quaternary Dos Palos Alluvium (Qdp)

Dos Palos Alluvium is the informal name given to the Holocene-aged, non-deformed, generally non-weathered, unconsolidated deposits of arkosic gravel, sand, silt, and clay covering the flood basin of the lower San Joaquin River. The Dos Palos Alluvium consists primarily of moderately to well sorted, moderately to well-bedded, unconsolidated sand and silt with lesser amounts of gravel, clayey silt, and clay. The arkosic composition indicates derivation from the plutonic rocks of the Sierra Nevada. The alluvium is generally unweathered, poorly drained, and ranges in color from yellow green to blue green (Lettis 1982). Fossils are generally unknown from younger Quaternary alluvial deposits, such as the Dos Palos Alluvium, due to their young age and are assigned PFYC 2 (low potential). It should be noted, however, that while this unit typically does not contain significant vertebrate fossils at the surface, it often overlies deeper, previously undisturbed, older alluvium (here it would likely be the Modesto Formation) or other potentially fossil-bearing sedimentary surficial deposits or bedrock units where the probability increases to PFYC 3 (moderate potential) for finding significant vertebrate fossil remains.

Paleontology Records Search Results

A paleontological search was requested from the UCMP. The museum responded via email that there were no recorded localities in the UCMP database within or adjacent to the project (Finger 2016). However, in the report, Finger noted that there was one fossil locality not in the database, which was found in 2006 during a sewer line trench excavation (10-foot depth) in central Lathrop, approximately 200 meters west of Interstate 5, and just south of East Louise Avenue (Finger 2016), within a 1-mile radius of the project. No fossils were found to be recorded from the Dos Palos Alluvium or other similar Quaternary (Holocene) alluvium deposits.

3.5.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for impacts related to cultural and paleontological resources derived from Appendix G of the CEQA Guidelines, provide APMs, and assess potential project-related construction and operational impacts on cultural and paleontological resources.

3.5.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, “a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project.” As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts to cultural and paleontological resources were evaluated for each of the criteria listed in Table 3.5-1, as discussed in Section 3.5.4.3.

3.5.4.2 Applicant-Proposed Measures

PG&E will implement the following APMs:

APM CUL-1: Worker Education Training

The following procedures will be implemented prior to commencement of any project-related construction activities:

- All PG&E, contractor, and subcontractor project personnel will receive training regarding:
  - appropriate work practices necessary to effectively implement the APMs and to comply with the applicable environmental laws and regulations;
  - the potential for exposing subsurface cultural resources and paleontological resources; and
  - how to recognize possible buried cultural and paleontological resources.

- This training will include a presentation of:
  - procedures to be followed upon discovery or suspected discovery of historic or archaeological materials, including Native American remains and their treatment;
  - procedures to be followed upon discovery or suspected discovery of paleontological resources; and
  - actions that may be taken in the case of violation of applicable laws.

APM CUL-2: Inadvertent Discovery of Previously Unidentified Cultural Resources.

The following procedure will be employed if a previously undocumented cultural resource is encountered during construction:

- All work within 100 feet (30 meters) of the find will be halted or redirected by the construction foreman and protective barriers or flagging will be installed along with signage identifying the area as an "environmentally sensitive area." Entry into the area will be limited to PG&E-approved/qualified cultural resources specialists, PG&E, and other authorized personnel.
- PG&E and the CPUC will be notified immediately.
- A qualified archaeologist will document the resource and coordinate with PG&E, the landowner, and the CPUC on the appropriate steps for evaluation and preservation of the find. The level of effort will be based on the size and nature of the resource, as determined by the archeologist and approved by the CPUC.
- No work will occur within the environmentally sensitive area until clearance has been granted by the archaeologist or PG&E and the CPUC. Environmentally sensitive area flagging and signage will only be removed when authorized by PG&E or the archaeologist and the CPUC.

APM CUL-3: Discovery of Human Remains

The following procedures will be implemented in the event of the discovery of human remains, in compliance with California law, including, but not limited to, the following provisions: CEQA Guidelines Section 15064.5(e); PRC Sections 5097.94, 5097.98, and 5097.99; and California Health and Safety Code Section 7050.5:

- Work in the immediate area of the find will be halted and the PG&E archaeologist and County Coroner and the CPUC will be notified immediately. Work will remain suspended until the Coroner can assess the remains. In the event the remains are determined to be prehistoric in origin, the Coroner will notify the NAHC, which will then identify a Most Likely Descendent (MLD). The MLD will consult with PG&E's archaeologist within 48 hours of notification to determine further treatment of the remains.

APM CUL-4: Undiscovered Potential Tribal Cultural Resources

The following procedure will be employed (after stopping work and following the procedure for determining eligibility in APM CUL-2) if a resource is encountered and determined by the project's qualified archaeologist to be potentially eligible for the CRHR or a local register of historic resources and is associated with a California Native American Tribe(s) with a traditional and cultural affiliation with the geographic area of the proposed project:

- The project's qualified archaeologist will notify the CPUC for appropriate action. PG&E will assist the CPUC if needed to identify the lead contact person for the California Native American Tribe(s) potentially associated with the cultural resource and with a traditional and cultural affiliation with the geographic area of the proposed project. The CPUC will contact the lead contact person to set up a meeting with PG&E and the CPUC.
- The project's qualified archaeologist will participate with the CPUC in discussions with the California Native American Tribe(s) to determine whether the resource is a "tribal cultural resource" as defined by PRC section 21074, and the tribe(s)' preferred method of mitigation, if the resource is determined to be a TCR.

  If no agreement can be reached for mitigation after discussions with the California Native American Tribe(s) or it is determined that the tribe(s)' preferred mitigation is not feasible, PG&E will consult with the CPUC and implement one of the example mitigation measures listed in PRC section 21084.3(b), or other feasible mitigation.

APM CUL-5: Unanticipated Discovery of Paleontological Resources

If paleontological resources are discovered during construction activities, the following procedures will be followed:

- Stop work immediately within 100 feet of the discovery.
- Contact the designated project inspector, PG&E CRS, and the CPUC immediately.
- Protect the site from further impacts, including looting, erosion, or other human or natural damage.
- PG&E's CRS will arrange for a Principal Paleontologist to evaluate the discovery. If the discovery is determined to be significant, PG&E will consult with the CPUC and implement appropriate measures to protect and document the paleontological resource. Examples of such measures include: establishing recovery standards, preparing specimens for identification and preservation, and securing a curation agreement from the appropriate agency.
- Work may not resume within 100 feet of the find until approval by the paleontologist and PG&E CRS, and the CPUC.

3.5.4.3 Potential Impacts

Potential project impacts related to cultural and paleontological resources were evaluated against the CEQA significance criteria and are discussed below. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance phase.

As described in Chapter 2.0, Project Description, the project includes installing approximately 1 mile of 115 kV power line on TSPs, improving and expanding PG&E's existing Vierra Substation, and establishing temporary work areas to construct these improvements.

Project impacts on paleontological resources were evaluated based on an assessment of the paleontological sensitivity of identified geologic formations in relation to the proposed project activities. In accordance with Appendix G of the CEQA Guidelines, project impacts on paleontological resources are considered significant if the project would directly or indirectly destroy a unique paleontological resource or site. Sensitivity ratings were employed to assess the likelihood and/or severity of project impacts. The sensitivity ratings provided in Table 3.5-2, which combine a number of relevant considerations, are considered in light of the nature of subsurface disturbance associated with the project, and the significance of impacts is determined based on that information.

Project impacts on cultural resources are defined by CEQA as a change in the characteristics of a resource that convey its significance or justify its eligibility for inclusion in the NRHP, CRHR, or local register. Direct impacts may occur by (1) physically damaging, destroying, or altering all or part of a resource, (2) altering characteristics of the surrounding environmental setting that contribute to the significance of a resource, (3) allowing a resource to deteriorate through neglect, or (4) incidental discovery of archaeological resources without proper notification. Direct impacts can be assessed by determining the exact location of historical resources and assessing their significance under NRHP and CEQA criteria, identifying the types and extent of the proposed impacts and their effect on significant resources, and determining appropriate measures to reduce impacts to less-than-significant levels. Indirect impacts may include changes to the viewshed of a significant resource through introduction of a new project element.

CEQA recommends avoidance or preservation in place as the preferred treatment for eligible properties and unique or significant archaeological or historical resources (PRC 21083.2). If avoidance is not a feasible option, data recovery is a common treatment. For architectural resources, if physical changes to a property—excluding demolition—can be treated following the Secretary of Interior Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings, the project-related impact on the historical resource will generally be considered reduced below a level of significance.

a) Would the project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5? *No Impact*

No historical resources are located within the project alignment. All elements of the built environment within and immediately adjacent to the project area are modern in age and will not be impacted by the project. Therefore, there will be no project-related impacts on any historical resources and no mitigation measures are required.

b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5? *Less-than-Significant Impact*

No archaeological resources were identified within the project area following the records search and field survey. Therefore, there will be no impact on known archaeological resources from the proposed project.

An assessment of the potential for the project area to contain buried archaeological materials has indicated that the eastern approximate ¾ of the project alignment has a low potential to contain buried resources, and the western approximate ¼ of the project alignment has a moderate potential to contain buried resources. Given the low to moderate potential for buried resources, impacts on buried archaeological deposits are not expected.

The absence of cultural resource discoveries during the field survey and the results of the site sensitivity analysis do not preclude the possibility of undisturbed subsurface deposits. Should subsurface archaeological materials be identified during ground-disturbing activities, implementation of APMs CUL-1 through CUL-3 will further reduce less-than-significant impacts. These measures include environmental awareness training of crews, recordation and investigation of inadvertent discoveries of archaeological sites, and actions to implement if human remains are encountered during construction.

c) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? *Less-than-Significant Impact*

There are no previously recorded fossil localities occur within the project alignment. However, Pleistocene-aged mammalian fossils have been found within San Joaquin County, and similar fossils may be encountered during excavation into the moderate paleontologically sensitive (PFYC 3) Modesto Formation. Given the absence of know resources and the limited ground disturbance, less-than-significant impacts on paleontological resources are expected. Impacts resulting from this project will be further reduced with implementation of APMs CUL-1 and CUL-5. These measures include environmental awareness training of crews and actions to implement if paleontological resources are encountered during construction.

d) Would the project disturb any human remains, including those interred outside of formal cemeteries? *No Impact*

The proposed project will not impact any known graves. Project impacts on human remains are not anticipated. If human remains are discovered, PG&E will implement APM CUL-3.

e) Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code section 21074? *Impact to be determined by CPUC*

The CPUC will consult with eligible tribes under PRC Section 21080.3.1 once the application is complete. Impacts on TCRs are not addressed in this PEA because, under AB 52, the CPUC must identify these resources during consultation. However, PG&E conducted outreach and informal coordination with Native American tribes requesting information regarding the potential for sensitive Native American resources, including TCRs. Federal and state registers were also reviewed to identify any TCRs already formally listed. Results of the records searches indicate that no Native American cultural resources that might be TCRs are known within or in the immediate vicinity of the study area. PG&E is not aware of any TCRs that will be affected by the project.

Cultural resources background research, surveys, and Native American outreach did not identify Native American-affiliated resources that may be considered TCRs within or adjacent to the substation or proposed power lines. As a result, impacts related to TCRs are not anticipated. Already less-than-significant impacts related to TCRs will be further reduced with implementation of APM CUL-4.

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3.6 GEOLOGY AND SOILS

3.6.1 INTRODUCTION

This section describes the existing geological and soil conditions, and potential geologic and geotechnical hazards at the project site and surrounding areas, and concludes that any impacts will be less than significant. Potential geologic hazards along the project route include ground shaking and liquefaction. The implementation of the Applicant-Proposed Measure described in Section 3.6.4.2 will further reduce these less-than-significant impacts. The project's potential effects on geology and soils were evaluated using the significance criteria set forth in Appendix G of the California Environmental Quality Act (CEQA) Guidelines. The conclusions are summarized in Table 3.6-1 and discussed in more detail in Section 3.6.4.

Table 3.6-1: CEQA Checklist for Geology and Soils

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Slope Instability?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☐	☒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste-water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

3.6.2 REGULATORY BACKGROUND AND METHODOLOGY

3.6.2.1 Regulatory Background

Federal

No federal regulations related to geology, soils, and seismicity are applicable to the project.

State

Alquist-Priolo Earthquake Fault Zoning Act

California enacted the Alquist-Priolo Special Studies Zones Act in 1972, which was renamed the Alquist-Priolo Earthquake Fault Zoning Act in 1994. Also known as the Alquist-Priolo Act, it requires the establishment of "earthquake fault zones" along known active faults in California. Regulations on development of buildings used for human occupancy within these zones are enforced to reduce the potential for damage resulting from fault displacement. Information on earthquake fault zones is provided for public information purposes (see Section 3.6.3.4, Seismicity, for further discussion).

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act (SHMA) of 1990 addresses earthquake hazards other than fault rupture, including liquefaction and seismically induced landslides. Seismic hazard zones are to be mapped by the State Geologist to assist local governments in land use planning. The SHMA states that "it is necessary to identify and map seismic hazard zones in order for cities and counties to adequately prepare the safety element of their general plans and to encourage land use management policies and regulations to reduce and mitigate those hazards to protect public health and safety."

California Building Standards Code

The California Building Standards Commission is responsible for coordinating, managing, adopting, and approving building codes in California. The State of California provides minimum standards for building design through the 2016 California Building Standards Code (CBC) (CCR, Title 24). Chapter 18 of the CBC regulates the excavation of foundations and retaining walls and specifies required geological reports. Appendix J of the 2016 CBC regulates grading activities, including drainage and erosion control and construction on unstable soils, such as expansive soils and areas subject to liquefaction.

Local

Because the CPUC has exclusive jurisdiction over the siting, design, and construction of the project, the project is not subject to local discretionary regulations. PG&E will obtain a building permit or other required ministerial permits if needed for construction of the perimeter wall at Vierra Substation.

3.6.2.2 Methodology

Information on the geology and soils was compiled from published literature, maps, and examination of aerial photographs. Geologic units and structural features were obtained from maps published by the California Geological Survey (CGS) and United States Geological Survey (USGS).

Soil descriptions were obtained from mapping by the United States Department of Agriculture, Natural Resource Conservation Service (NRCS). Information on mineral resources was obtained from the USGS, CGS, and the San Joaquin County Year 2014 General Plan. Seismic information was obtained from several sources, including the USGS and CGS.

3.6.3 ENVIRONMENTAL SETTING

3.6.3.1 Regional Setting

The project is located in the City of Lathrop, in the central portion of the Central Valley region near the southern geographic center of San Joaquin County, California. San Joaquin County is situated in the center of the Great Valley geomorphic province. The Great Valley is generally composed of a very mildly sloping alluvial plain that is approximately 40 to 60 miles wide and extends north-northwest and south-southeast about 450 miles through the geographic center of California. The Great Valley was created by the uplift of the Coast Ranges to the west and the Sierra Nevada mountain range to the east. Prior to the creation of these mountain ranges, the Great Valley was dominated by marine depositions beginning more than 144 million years ago. More recent shallow sediments have been deposited throughout the Great Valley, and in some areas, the total thickness of sediments in the Great Valley have exceeded 30,000 feet in depth. The valley is generally characterized as an asymmetrical trough with shallow dipping deposits from the Sierra Nevada Mountains to the east, and steeply dipping deposits from the Coastal Range to the west (San Joaquin County 2014). The alluvium deposits located east of the San Joaquin River originate from eroded silica-based volcanic and granitic materials from the Sierra Nevada Mountain Range, while the deposits west of the San Joaquin River are composed of more shale, clay, and quartzite marine deposits from the Coast Ranges (Harden 2004).

The topography of the area surrounding the project slopes very mildly towards the San Joaquin River. Elevations range from 30 feet above mean sea level (msl) immediately to the east of the project area, and slope gently to 10 feet msl at the east bank of the San Joaquin River, west of the project area.

3.6.3.2 Stratigraphic Units

The depositional units in the Great Valley are generally made up of two components—sediments from the Coastal Ranges to the west and sediment from the Sierra Nevada mountains to the east. Over the millennia, these sediments have accumulated and down-warped the valley surface to the extent that gas and oil exploration drillers have measured 30,000 feet of sediment below the surface. According to PSI (2016), Wagner (2005), and Harden (2004), the project area is underlain by Quaternary (Pleistocene) Modesto Formation alluvium (Qm) and (Holocene) Dos Palos Alluvium (Qdp). Approximately 1 mile east of the project, Wagner et al. mapped Quaternary sand dunes (Qs), and an area of alluvial fans (Qf) was mapped approximately 4 miles southwest of the project. The Dos Palos Alluvium makes up 16.2 percent of the surface sediments, while the Modesto Formation makes up 83.8 percent of the surface sediments. No other geologic units are mapped at the surface in the project area (PSI 2014). The Modesto Formation (Pleistocene) is typically found in alluvial fans and, to a lesser extent, alluvial terraces and channel ridges. It is composed of tan to light gray gravely sand, silt, and clay. The younger Dos Palos Alluvium (Holocene) consists of moderately to well-sorted, moderately to well-bedded, unconsolidated sand and silt with some gravel, clayey silt, and clay.

Geotechnical drilling conducted by PG&E at Vierra Substation in 1997 was performed to a maximum depth of 28.5 feet below the ground surface (bgs). Loose to medium dense sands were generally encountered throughout the borings, with occasional thin silt and clay layers. The sands contained generally silty fines throughout. Below approximately 15 feet the fines content increased, and in places were predominate.

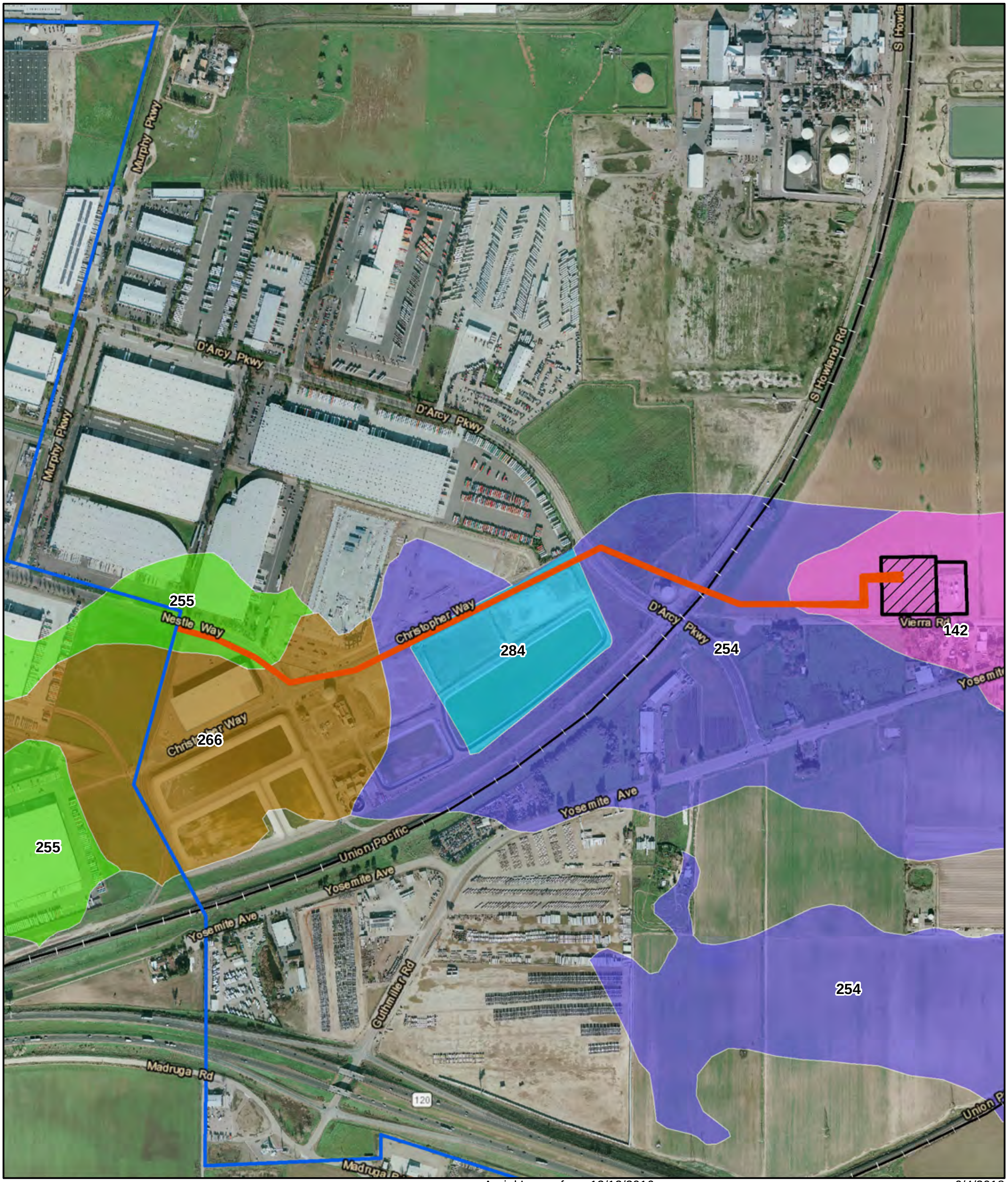
3.6.3.3 Soils

The 12 individual soil types in Table 3.6-2: Soil Types within the Project Area are listed by their map unit numbers and comprise soil types located within the project area (see Figure 3.6-1: Soil Map) (NRCS 2011).

Table 3.6-2: Soil Types within the Project Area

Map Unit	Soil Type	Soil Description
109	Bisgani loamy coarse sand	0 to 2 percent slopes, partially drained, alluvial fans
142	Delhi loamy sand	0 to 2 percent slopes, partially drained, alluvial fans, dunes / Summit, floodplains, sand sheets
166	Grangerville fine sandy loam	0 to 2 percent slopes, partially drained, alluvial fans, dunes / Summit, floodplains, sand sheets
169	Guard clay loam	0 to 2 percent slopes, poorly drained, basin floors
196	Manteca fine sandy loam	0 to 2 percent slopes, moderately well drained, terraces / Summit
197	Merritt silty lay loam	0 to 2 percent slope, partially drained, flood plains
243	Scribner clay loam,	0 to 2 percent slopes, partially drained, flood plains
254	Timor loamy sand	0 to 2 percent slopes, moderately well drained, fan skirts
255	Tinnin loamy coarse sand	0 to 2 percent slopes, well drained, alluvial fans
260	Urban Land	
266	Veritas fine sandy loam	0 to 2 percent slopes, moderately well drained, fan skirts
284	Water	

Soil units along the project alignment from Vierra Substation to Nestle Way are #142, #254, #255, and #266 (Figure 3.6-1: Soil Map). All four soil units are composed of sand or silty sand, and are major components consistent with the geologic characteristics described in Section 3.6.3.2. Due to the abundance of sand in the upper layer of soil, the presence of expansive soils is not anticipated.



S:\7-SANDBOX\chaworth\WorkDocs\PG&E\Vierra PEA\mxd\Figure 3_6-1 Soils Map.mxd

Aerial Image from 12/12/2016

6/4/2018

- New 115 kV Line to be Installed
- Existing Tesla-Stockton Cogen Jct 115 kV
- Union Pacific Railroad
- Existing Vierra Substation Footprint
- Planned Vierra Substation Expansion

NRCS Soil Categories Crossed By Project:

- 142: Delhi loamy sand, 0 to 2 percent slopes, MLRA 17
- 254: Timor loamy sand, 0 to 2 percent slopes
- 255: Tinnin loamy coarse sand, 0 to 2 percent slopes
- 266: Veritas fine sandy loam, 0 to 2 percent slopes
- 284: Water

Figure 3.6-1 - Soils Map

Vierra Reinforcement Project

PG&E

0 250 500 1,000

Feet

N

TRC

Results you can rely on

3.6.3.4 Seismicity

Fault Zones

The Alquist-Priolo Act requires the establishment of "earthquake fault zones" along known active faults in California. A fault is considered active if it has generated earthquakes accompanied by surface rupture during historic time (approximately the last 200 years) or has shown evidence of fault displacement during the Holocene period (within the last 11,000 years) (Jennings and Bryant 2010). A fault is considered potentially active if there is evidence of fault displacement during the Quaternary period (11,000 to 1.6 million years), and a fault is considered inactive if the most recent documented fault displacement pre-dates the Quaternary period (greater than 1.6 million years).

No active faults are currently mapped in San Joaquin County. Nevertheless, the county is designated Seismic Zone 3, as defined by the Uniform Building Code (San Joaquin County 1992), because it is located between two areas of potential seismic activity composed of northwest to southeast oriented fault zones. To the southwest, numerous active thrust faults associated with the Great Valley Series have been mapped along the eastern foothills of the Coastal Range (east of Mount Diablo). And approximately 37.5 miles to the northeast, a set of discontinuous shear zones associated with the Foothills Fault System is located along the western foothills of the Sierra Nevada Mountain Range.

The nearest active fault to the project is the Greenville fault, approximately 21.4 miles southwest of the project (Jennings and Bryant 2010). The nearest mapped fault is the potentially active Vernalis fault (Bartow 1991), which has been mapped about 5.25 miles southwest of the project (northeast of Tracy). Faults considered active within 62 miles (100km) of the project are listed in Table 3.6-3: Known Active Faults within 62 Miles (100 km) of the Project.

Table 3.6-3: Known Active Faults within 62 Miles (100 km) of the Project

Fault	Approximate Distance from the project (miles)	Estimated Maximum Moment Magnitude	Slip Rate (mm/yr)	Approximate Recurrence Interval (years)	30-year rupture prob M≥6.7 [Min-Max]	Estimated Site Intensity Mod Mercalli
Great Valley 7	12.6	6.7	1.5	560	-	IX
Great Valley 6	14.2	6.7	1.5	560	-	VIII
Greenville	21.4	6.9	2.0	550	3%[2-4]	VIII
Great Valley 8	26.6	6.6	1.5	540	-	VII
Great Valley 5	31.8	6.5	1.0	450	-	VI
Calaveras	34.7	6.8	6.0	400	7%[1-22]	VI
Ortigalita	36.0	6.9	1.0	1,100	-	VI
Hayward	37.1	7.1	9.0	210	31%[10-58]	VII
Foothills Fault System	37.5	6.5	0.1	12,500		VI
Great Valley 4	47.6	6.6	1.25	540	-	VI

Fault	Approximate Distance from the project (miles)	Estimated Maximum Moment Magnitude	Slip Rate (mm/yr)	Approximate Recurrence Interval (years)	30-year rupture prob M≥6.7 [Min-Max]	Estimated Site Intensity Mod Mercalli
Monte Vista-Shannon	52.0	6.8	0.4	2,400	-	VI
San Andreas (1906)	57.5	7.9	17.0	210	59%[22-94]	VII
West Napa	57.7	6.5	1.0	700	-	V
Quien Sabe	60.4	6.4	1.0	600	-	IV
Rogers Creek	60.4	7.0	9.0	230	31%[12-67]	V
Zayante-Vergeles	61.4	6.8	0.1	10,000	-	V
Sources: UCERF 2007, USGS OFR 96-705 and Blake 2016						

Strong Ground Motion

Although not located within or near a fault zone, the project is within an area that would be subject to ground shaking from earthquakes generated by faults associated with the San Andreas Fault System in the San Francisco Bay region, particularly the San Andreas and Hayward faults, and possibly the Rogers Creek fault. Shaking from an earthquake can result in structural damage and can trigger other geologic hazards, such as liquefaction and landslides. Ground shaking is controlled by the earthquake magnitude, duration, and distance from the source. Ground conditions will also influence impacts from strong ground motions. Seismic waves attenuate with distance from their sources, so estimated bedrock accelerations are highest in areas closest to the source. Local soil conditions may amplify or dampen seismic waves as they travel from the underlying bedrock to the ground surface. Ground shaking may effect widespread areas far distant from the earthquake epicenter and can produce a variety of shaking intensities.

Ground motions for the site were calculated using the USGS Probabilistic Seismic Hazard Assessment online tool to calculate ground motions for alluvium along the project area, corrected for site class by soil type “stiff soil.” The peak ground acceleration (PGA) was obtained for the ground motion with a 2 percent probability of being exceeded in 50 years. The alluvium values were obtained for the overall low, very mild slope in the project vicinity (latitude of 37.797 N and longitude 121.295 W). According to available information and the calculated PGA value of 0.44 g, the project site will likely be categorized as alluvium with a PGA of 0.44 g. This is considered a moderate value for California, which typically has values that range from about 0.1 g to over 1.0 g. Therefore, the majority of the project area may experience moderate ground motion during an earthquake generated on the San Andreas, Hayward, Rogers Creek, Calaveras, Great Valley or Greenville faults.

3.6.3.5 Landslides

A landslide is a mass of rock, soil, or debris that has been displaced downslope by sliding, flowing, or falling. Mapping from the San Joaquin General Plan (1992) shows that the project area is not located in an area subject to landslides, and as the project area has relatively flat (0 to 2 percent slope) topography, the likelihood of a landslide is remote.

3.6.3.6 Subsidence

Subsidence, which is the downward displacement of a large portion of land, is typically caused by the withdrawal of fluids (e.g., ground water or oil) from subsurface reservoirs. As the water is removed, fluid pressure is reduced and the pore spaces between the grains in the aquifer collapse. Other causes of subsidence include sinking tectonics, oil and gas extraction, and deficient alluvial surface deposits.

In the San Joaquin Valley, large areas of subsidence have been mapped and published by the USGS. These maps show varying degrees of subsidence throughout the San Joaquin Valley during the 20th century, with the most notable areas located south of Merced and in the vicinity of the Delta. Between 1925 and 1977, the USGS recorded 29 feet of subsidence in the agricultural areas of the south of Merced (Poland 1975). In the San Joaquin Valley, state and federal projects have worked to reduce groundwater pumping, which allowed some aquifers to recover, thus decreasing subsidence in those areas. Monitoring performed between 1966 and 2015 in the vicinity of the City of Lathrop shows that the ground surface south of the project has subsided 3.3 feet, and north of the project has subsided 4.6 feet (USGS 2017). Subsidence mapping by the USGS does not show the project within an area of concern.

3.6.3.7 Erosion

Erosion is another subsidence process in which rocks, soil, and other land materials are abraded or worn away from the Earth's surface over time, typically by wind and water. The rate of erosion depends on many factors, including soil type and geologic parent materials, slope and placement of soils, and human activity. The potential for erosion is highest in loose, unconsolidated soils. The steepness of slopes and absence of vegetation are also factors that increase the natural rates of erosion. Thus, erosion potential is high in steep, un-vegetated areas, especially those disturbed by grading or other construction activities.

A soil's susceptibility to erosion varies, and is a function of its characteristics, such as soil texture, soil structure, topography, amount of vegetative cover, and climate. Erosion from surface water mainly occurs in loose soils on moderate to steep slopes, particularly during high-intensity storm events.

Maps from the San Joaquin General Plan (1992) identify the Wind Erosion Hazard for the project area as moderate, and the Relative Water Erosion Potential as low.

3.6.3.8 Liquefaction

Liquefaction can result from seismic ground-shaking, such as during earthquakes, when cyclically induced stresses cause increased pore water pressures within the soil matrix. Liquefied soil may lose shear strength that may lead to large shear deformations and/or flow failure under moderate to high shear stresses, such as beneath foundations or sloping ground (NCEER/NSF 2001), and in many ways may behave more like a liquid than a solid. Liquefied soil can also settle (compact) as pore pressures dissipate following an earthquake. Settlement on the order of 2 to 3 percent of the thickness of the liquefied zone has been measured. This results in loss of shear strength, thereby removing support from foundations and causing differential settlement, subsidence, or collapse of buildings, roadways, or other structures. Soils most susceptible to liquefaction are loose to moderately dense, saturated non-cohesive soils with poor drainage, such as sands and silts with interbedded or capping layers of relatively low permeability soil, such as areas underlain by saturated unconsolidated alluvium that has fairly uniform grain size. In general, liquefaction hazards are most severe in saturated non-cohesive soils within the upper 50 feet of the ground surface.

USGS mapping titled Earthquake Shaking Potential for California (2008) shows the relative intensity of ground shaking throughout California. The shaking potential is calculated as the level of ground motion that has a 2 percent chance of being exceeded in 50 years. The project area is mapped in an area expected to experience low to moderate levels of seismic shaking (Table 3.6-4), whereby only weaker, masonry buildings would be expected to fail. It also notes that much stronger shaking, although not probable, is still possible. (San Joaquin County 2014). The majority of the project area is located on very mild slopes composed of loamy sand, as shown on the Soils Map (Figure 3.6-1).

The potential for liquefaction increases with shallower groundwater. Thus, in alluvial basins within San Joaquin County, the potential for liquefaction failures tends to increase in the winter and spring, when the ground water table is higher. A contour map showing depths to groundwater in wells throughout the county (San Joaquin County 1992) indicates that the groundwater in the project area was approximately 11 to 12 feet bgs in 1988. A geotechnical investigation performed at Vierra Substation (1997) drilled two borings to 28.5 feet and one boring to 27 feet bgs. Silty to clean loose sand was the predominant soil material encountered in each boring, from near the surface to approximately 15 feet bgs. Below 15 feet, the sandy material was interbedded by intermittent sequences of sand, clayey or silty sand; silt, clayey or sandy silt; and lean clay, sandy or silty lean clay. PG&E's boring logs also indicate that the groundwater table was encountered at 7 to 8 feet in each boring. In 2016, a boring conducted in support of the design and construction of a TSP located to the south of the entrance of the existing substation encountered groundwater at a depth of approximately 16 feet. Currently, no field exploration has been performed in the area of the substation expansion.

Lateral spreading is a form of surface displacement caused by seismically induced liquefaction. When subsurface soil deposits liquefies, intact blocks of surficial soil can move downslope, or towards a vertical free face, even when the ground surface is nearly level (Rauch 1997).

3.6.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for impacts related to geology and soils derived from Appendix G of the CEQA Guidelines, provide APMs, and assess potential project-related construction and operational geologic impacts.

3.6.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts related to geology and soils were evaluated for each of the criteria listed in Table 3.6-1, as discussed in Section 3.6.4.3.

3.6.4.2 Applicant-Proposed Measures

PG&E will implement the following APM (see Section 3.9, Hydrology and Water Quality, for APMs related to erosion control):

APM GS-1: Minimization of Construction above Liquefiable Soils or in Soft or Loose Soils

PG&E will conduct geotechnical investigations prior to construction to identify liquefiable, soft, or loose soils, and implement design and civil engineering standards in accordance with California Building Code and to comply with California State General Order 95 standards.

3.6.4.3 Potential Impacts

Potential project impacts related to geology and soils were evaluated against the CEQA significance criteria and are discussed below. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance (O&M) phase.

As described in Chapter 2.0, Project Description, the project includes installing approximately 1 mile of 115 kV power line on TSPs, improving and expanding PG&E's existing Vierra Substation, and establishing temporary work areas to construct these improvements.

a) Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault as 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, strong seismic ground shaking, seismic-related ground failure, including liquefaction, or landslides?

i) Rupture of a known earthquake fault? *No Impact*

Construction, Operation and Maintenance

The probability that construction, operation or maintenance of the power line or substation expansion will have an impact on the risk of loss, injury, or death involving rupture of an earthquake fault during construction is remote. There no mapped Alquist-Priolo Special Studies Zones for active faults in San Joaquin County. Several potentially active faults have been mapped outside of the general project area, the closest being the Vernalis fault, which is mapped approximately 5.25 miles southwest of the project. The zone of damage is limited to a relatively narrow area along either side of the fault. Therefore, no impacts related to fault rupture will occur.

ii) Strong seismic ground shaking? ***Less-Than-Significant Impact***

Construction

The project will not expose people or structures to substantial adverse effects due to strong seismic ground shaking. Based on the activity of major regional seismic sources and the USGS map titled Earthquake Shaking Potential for California (2008), it is likely that there could be exposure to moderate ground shaking in the project area during construction of the power line and substation expansion. The greatest potential for moderate seismic ground shaking within the general project area comes from known active faults associated with the San Andreas Fault System. In the event of a maximum credible earthquake event, estimated horizontal peak ground acceleration for stiff soil sites within the project area is approximately 0.44g (USGS 2015).

All work will comply with federal and state OSHA requirements, which will help minimize risks to workers. Implementation of APM GS-1 when encountering unconsolidated soil material will further reduce less-than-significant impacts.

Operation and Maintenance

Operation and maintenance activities for the new power line and substation expansion will not differ materially from existing operations and maintenance activities and ordinarily will not include placement of new structures that will be subject to strong seismic ground shaking. During day-to-day operations, the substation will continue to be unattended, and operated and monitored remotely, which reduces the potential to expose people to hazards from ground shaking. If pole replacement is necessary, design requirements and best management practices similar to those in APM GS-1 would be implemented. Therefore, risks to people or structures from strong seismic ground-shaking will continue to be less than significant.

iii) Seismic-related ground failure, including liquefaction? ***Less-Than-Significant Impact***

Construction

The project will have less-than-significant impacts from liquefaction and other seismic-related ground failure caused by lateral spreading, seismic slope instability, or ground cracking.

The soils map (Figure 3.6-1) depicts the types of soils that underlie the project. CGS has not mapped areas of liquefaction in San Joaquin County, although various areas of the County have experienced liquefaction including the Lathrop – Manteca area (San Joaquin County, 2014). Since the project is underlain by saturated sandy soil at relatively shallow depth and subject to seismic shaking as discussed above, APM GS-1 will be implemented to ensure that appropriate foundations are in place prior to vertical construction. Therefore, the potential for the construction of the power line and substation expansion to expose people or structures to potential substantial adverse effects involving liquefaction is less than significant. All work will comply with federal and state OSHA requirements and design and civil engineering standards, which will help minimize risks to construction personnel. Implementation of APM GS-1 when encountering unconsolidated soil material will further reduce potential less-than-significant impacts.

Lateral spreading is closely related to liquefaction and typically occurs at a free face along a water front. The project is not located near a water front; therefore, the potential for the project to expose people or structures to substantial adverse effects involving lateral spreading is remote, and there will be no impact.

Ground cracking is typically a problem on narrow-crested, steep-sided ridges. The project is located on very mildly sloping to level topography. Incorporation of standard engineering practices as part of the project will reduce the probability that people or structures are exposed to geological or seismic hazards. Therefore, there will be no impact on project facilities due to ground cracking.

Operation and Maintenance

Operation and maintenance activities for the new power line and substation expansion will not differ materially from existing operations and maintenance activities and ordinarily will not include placement of new structures that will be subject to seismic-related ground failure. During day-to-day operations, the substation will continue to be unattended, and operated and monitored remotely, which reduces the potential to expose people to hazards from ground shaking. If pole replacement is necessary, design requirements and best management practices similar to those in APM GS-1 would be implemented. Therefore, risks to people or structures from seismic-related ground-failure will continue to be less than significant.

iv) Landslides? *No Impact*

Construction

There will be no impact from landslides. The project area is located on very mildly sloping terrain and is not located in an area subject to landslides identified in the San Joaquin General Plan (1992). Grading of the substation expansion will not create steep slopes and construction of the power line and substation expansion will not cause a landslide.

Operation and Maintenance

Operation and maintenance activities will not change materially from existing activities and will not include construction or grading of new slopes. For these reasons, and because the project is not located in an area subject to landslides as identified in the San Joaquin General Plan (1992), no impact will occur.

b) Would the project result in substantial soil erosion or the loss of topsoil? *Less-than-Significant Impact*

Construction

The project will not result in substantial soil erosion or loss of topsoil. Power pole installation will require excavation, some of which will occur in soils on mild slopes that have a moderate wind erosion potential (San Joaquin County 1992). In addition, grading and/or scraping and vegetation clearing will be required to expand Vierra Substation, and may be required for establishing construction work areas and access roads. Substantial stormwater erosion is known to occur on steeper sloping hillsides. Because the project is located on very mildly sloping to relatively flat topography, stormwater erosion of soil and topsoil at the project will be managed by using the Stormwater Pollution Prevention Plan and Best Management Practices, which will address impacts related to soil erosion or loss of topsoil. Wind erosion, a common phenomenon occurring mostly in flat, bare areas, especially those with dry sandy soils, could occur during construction, particularly at the substation expansion while grading is taking place. Best Management Practices will help ensure that any impacts from wind-related soil erosion or loss of topsoil will be less than significant. All work will comply with federal and state OSHA requirements, which will help minimize risks to workers. Implementation of APM GS-1 when encountering unconsolidated soil material will further reduce less-than-significant impacts.

Operation and Maintenance

Operation and maintenance of the new power line and expanded substation will not change materially from existing activities and will not cause soil erosion or loss of topsoil. Occasional minor surface disturbance may continue to be required during inspections and maintenance or as-needed repair, but such disturbance will be temporary and small in size. Continuing operation and maintenance work will not result in increased erosion or topsoil loss and therefore, no impacts associated with erosion or loss of topsoil will occur.

c) Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse? *Less-than-Significant Impact*

Construction

The project will not expose people or structures to adverse effects involving unstable soil. Soil units composed of non-cohesive material that have been mapped along the project route, together with a high water table, are prone to liquefaction in the event of strong ground shaking. Portions of the project may become unstable if an earthquake generates significant ground shaking during construction, but impacts will be minimized through implementation of APM GS-1 and the use of design and civil engineering standards. The potential that the project would potentially result in landslide, lateral spreading, subsidence, liquefaction or collapse due to unstable soil is minimal. Therefore, impacts will be less than significant.

Operation and Maintenance

Operation and maintenance activities at the substation and power line will not change materially from existing activities and will not introduce new soil stability hazards. Inspections and routine maintenance will occur on an occasional basis. Therefore, no impact will occur.

d) Would the project be located on expansive soil, as defined in Section 1803.5.3 of the California Building Code (2016), creating substantial risks to life or property? *No Impact*

Construction

As discussed previously in Section 3.6.3, expansive soil behavior is a condition in which clay soils react to changes in moisture content by expanding or contracting. Poorly-drained soils have greater shrink-swell potential. None of the natural soil types identified within the project area are characterized as having high clay content and poor drainage with moderate to high shrink-swell potential. Therefore, no impact will occur.

Operation and Maintenance

None of the natural soil types identified within the project area are characterized as having high clay content and poor drainage with moderate to high shrink-swell potential. Therefore, no impact will occur from ongoing operations and maintenance activities.

e) Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste-water disposal systems where sewers are not available for the disposal of waste water? *No Impact*

Construction

The project does not include a waste disposal system; therefore, no impact will occur.

Operation and Maintenance

Ongoing operation and maintenance activities at Vierra Substation and the surrounding power lines will not introduce septic tanks or waste water disposable systems; therefore, no impacts related to septic tanks or waste water disposal systems will occur.

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3.7 GREENHOUSE GAS EMISSIONS

3.7.1 INTRODUCTION

This section discusses potential greenhouse gas (GHG) emissions associated with project construction, operation, and maintenance, and concludes that impacts will be less than significant. GHG emissions were calculated and reported in CO_2 equivalents (CO_2e) for carbon dioxide (CO_2), nitrous oxide (N_2O) and methane (CH_4) emissions from on-road, off-road, and helicopter emissions. Additionally, operational emissions of sulfur hexafluoride (SF_6) associated with potential leakage from gas-insulated switchgear at the switching stations are also estimated. The implementation of the Applicant Proposed Measure(s) (APMs) described in Section 3.7.4.2 will further reduce less-than-significant impacts.

The project's potential effects on GHG emissions were evaluated using the criteria set forth in Appendix G of the California Environmental Quality Act (CEQA) Guidelines. The conclusions are summarized in Table 3.7-1 and discussed in more detail in Section 3.7.4.

Table 3.7-1: CEQA Checklist for Greenhouse Gas Emissions

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒

3.7.2 REGULATORY BACKGROUND AND METHODOLOGY

3.7.2.1 Regulatory Background

Federal

The Supreme Court decision in *Massachusetts et al. v. Environmental Protection Agency et al.* (Supreme Court Case 05-1120) found that EPA has the authority to list GHGs as pollutants and to regulate emissions of GHGs under the federal CAA. On April 17, 2009, EPA found that CO_2, CH4, N_2O, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride may contribute to air pollution and may endanger public health and welfare. EPA has established reporting regulations that require specific facilities and industries to report their GHG emissions annually.

40 CFR Part 98. Mandatory Reporting of Greenhouse Gases Rule

This rule requires mandatory reporting of GHG emissions for facilities that emit more than 25,000 metric tons of CO_2e emissions per year (USEPA 2013).

40 CFR Part 52. Proposed Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule

USEPA has mandated that Prevention of Significant Deterioration (PSD) and Title V requirements applies to facilities whose stationary source CO2e emissions exceed 100,000 tons per year.

Utility Air Regulatory Group v. EPA, 134 S. Ct. 2427 (2014)

On June 23, 2014, the Supreme Court ruled that PSD could not be triggered solely by GHG emissions, and has directed EPA to amend the Tailoring Rule.

This project is not impacted by these regulations.

State

Executive Order S-3-05

State Executive Order S-3-05 established GHG reductions targets for the state of California. The targets called for a reduction of GHG emissions to 2000 levels by 2010; a reduction of GHG emissions to 1990 levels by 2020; and a reduction of GHG emissions to 80 percent below 1990 levels by 2050. The California Environmental Protection Agency secretary is required to coordinate development and implementation of strategies to achieve the GHG reduction targets.

Executive Order B-30-15

In April 2015, Governor Brown signed Executive Order B-30-15 that added the intermediate target of reducing GHG emissions to 40% below 1990 levels by 2030.

Global Warming Solutions Act of 2006

In 2006, the California State Legislature signed the Global Warming Solutions Act of 2006 (Assembly Bill [AB] 32), which provides the framework for regulating GHG emissions in California. This law requires the California Air Resources Board (CARB) to design and implement emission limits, regulations, and other measures such that statewide GHG emissions are reduced in a technologically feasible and cost-effective manner to 1990 levels by 2020. The statewide 2020 emissions limit is 427 million metric tons CO_2e (CARB 2007).

Part of CARB's direction under AB 32 was to develop a scoping plan that contains the main strategies California will use to reduce GHG emissions that cause climate change. The scoping plan includes a range of GHG reduction actions, which include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms such as a cap-and-trade system, and an AB 32 cost of implementation fee regulation to fund the program (CARB 2008).

CARB's Regulation for the Mandatory Reporting of Greenhouse Gas Emissions came into effect in January 2009. However, this project is not impacted by these regulations and does not require mandatory reporting.

CARB published a Preliminary Draft Staff Proposal titled *Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act* in October 2008 that included a proposal that non-transportation-related sources with

GHG emissions less than 7,000 metric tons of CO_2e per should be presumed to have a less than significant impact (CARB 2008b).

On December 30, 2009, the California Resources Agency adopted amendments to the CEQA guidelines to include analysis of GHG emissions in CEQA documents, deferring significance thresholds to the lead agency. The amendments became effective on March 18, 2010.

A Regulation for Reducing SF_6 Emissions from Gas Insulated Switchgear was implemented as part of AB 32, mandating utility-wide reduction of SF_6 emissions to a 1 percent leak rate by 2020.

Senate Bill 32 and Assembly Bill 197

On September 8, 2016, Governor Brown signed Senate Bill 32 and AB 197, which codified the 2030 GHG emissions reduction target of 40 percent below 1990 levels and provideed additional direction for updating the scoping plan. CARB is currently in the process of updating the scoping plan to address this target.

Regional

The California Air Pollution Control Officer's Association has established the Greenhouse Gas Reduction Exchange (GHG Rx) for greenhouse gas emission credits in California. Credits listed on the GHG Rx come from voluntary emission reduction projects and can be purchased to offset GHG emissions.

Local air districts act under state law and their discretionary requirements apply to PG&E utility projects.

In August 2008, the SJVAPCD's Governing Board adopted the Climate Change Action Plan (SJVAPCD 2008). The plan directed the SJVAPCD's Air Pollution Control Officer to develop guidance to assist lead agencies, project proponents, permit applicants, and interested parties in assessing and reducing the impacts of project-specific GHG emissions on global climate change. On December 17, 2009, the SJVAPCD adopted Guidance for Valley Land-Use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA (SJVAPCD 2009). This guidance does not apply to the CPUC, which is lead agency for this project, and does not address construction impacts or performance standards for substations or other electrical facilities in any event. The guidance does not limit a lead agency's authority in establishing its own process and guidance for determining significance of project-related impacts on global climate change.

Local

Because the CPUC has exclusive jurisdiction over project siting, design, and construction, the project is not subject to local (i.e., city and county) discretionary regulations.

3.7.2.2 Methodology

Short-term construction emissions of CO_2e were evaluated. Construction emissions were estimated using the *California Emissions Estimator Model Version 2016.3.1* (CalEEMod), with the exception of helicopter emissions, which were estimated manually using emissions factors obtained from the California Climate Action Registry and data from the Swiss Federal Office of

Civil Aviation (FOCA). Detailed construction emissions calculations will be provided separately to CPUC staff.

Long-term operational emissions of CO_2e were also evaluated. These emissions are a result of potential leakage from new SF_6-insulated circuit breakers. Operational emissions associated with inspections and ongoing maintenance activities (primarily associated with periodic maintenance vehicle travel) were not estimated, as these activities are part of PG&E's ongoing operations. Changes to PG&E's ongoing operations as a result of the project are expected to be negligible.

GHG emission calculations in this document are based on worst-case estimates of emissions to ensure presentation of a conservative environmental analysis.

3.7.3 ENVIRONMENTAL SETTING

3.7.3.1 Regional Setting

GHGs are global concerns, unlike criteria air pollutants or toxic air contaminants, which are of regional and/or local concern. Scientific research indicates that observed climate change is most likely a result of increased GHG emissions associated with human activity (Intergovernmental Panel on Climate Change 2007). Global climate change describes a collection of phenomena, such as increasing temperatures and rising sea levels, occurring across the globe due to increasing anthropogenic emissions of GHGs. GHGs contribute to climate change by allowing ultraviolet radiation to enter the atmosphere and warm the Earth's surface, but also prevent some infrared radiation from the Earth from escaping back into space. The largest anthropogenic source of GHGs is the combustion of fossil fuels, which results primarily in CO_2 emissions.

As defined in AB 32, "greenhouse gas" or "greenhouse gases" include, but are not limited to CO_2, CH_4, nitrogen oxides (NO_x), hydrofluorocarbons, perfluorocarbons, and SF_6.

3.7.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for GHG emission impacts derived from Appendix G of the CEQA Guidelines, provide APMs, and assess potential project-related construction and operational air quality impacts.

3.7.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. CEQA allows for significance criteria established by the applicable air pollution control district(s) to be used to assess the impact of a project related to GHG emissions, at the discretion of the CEQA Lead Agency.

Some California air districts, such as Monterey Bay Unified, San Luis Obispo County, Ventura County, South Coast, and San Diego County, have adopted, or have recommended for adoption, a significance threshold of 10,000 metric tons CO_2e per year for stationary source projects (MBUAPCD 2013). This threshold was derived from emissions data from the four largest air districts in California, and is based on the Executive Order S-3-05 GHG emissions reductions goal of 80 percent below 1990 levels by 2050, which is roughly equivalent to 90 percent below current levels by 2050. This emissions reduction goal goes beyond the AB 32 emissions reduction goal established for 2020. The emissions data suggest that approximately 1 percent of all stationary sources emit greater than 10,000 metric tons of CO_2e per year and are responsible for 90 percent of GHG emissions. This significance threshold represents a capture rate of 90 percent of all new and modified stationary source-related projects. A 90 percent emissions capture rate means 90 percent of the total emissions from all new or modified stationary source projects would be subject to analysis in an environmental impact report prepared pursuant to CEQA, including analysis of feasible alternatives and imposition of feasible mitigation measures (SCAQMD 2008).

As noted previously, this GHG significance threshold is intended for long-term operational GHG emissions associated with stationary sources; neither SJVAPCD nor any of the air districts mentioned previously have adopted or have recommended GHG significance thresholds for construction emissions. Therefore, in several recent CEQA documents, the CPUC has elected to use an approach to determine the significance of GHG construction emissions based on guidance developed by the South Coast Air Quality Management District (SCAQMD). For construction-related GHGs, SCAQMD recommends that total emissions from construction be amortized over 30 years and added to operational emissions, and then compared to the operation-based significance threshold of 10,000 metric tons CO_2e per year (SCAQMD 2008).

Per Appendix G of the CEQA Guidelines, the potential significance of the project's GHG emissions were evaluated for each of the criteria listed in Table 3.7-1, as discussed in Section 3.7.4.3.

3.7.4.2 Applicant-Proposed Measures

PG&E will implement the following APMs:

Construction

APM GHG-1: Minimize GHG Emissions

- Minimize unnecessary construction vehicle idling time. The ability to limit construction vehicle idling time will depend on the sequence of construction activities and when and where vehicles are needed or staged. Certain vehicles, such as large diesel-powered vehicles, have extended warm-up times following start-up that limit their availability for use following start-up. Where such diesel-powered vehicles are required for repetitive construction tasks, these vehicles may require more idling time. The project will apply a "common sense" approach to vehicle use, so that idling is reduced as far as possible below the maximum of 5 consecutive minutes allowed by California law; if a vehicle is not required for use immediately or continuously for construction activities, its engine will be shut off. Construction foremen will include briefings to crews on vehicle use as part of pre-construction conferences. Those briefings will include discussion of a "common sense" approach to vehicle use.

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

- Minimize construction equipment exhaust by using low-emission or electric construction equipment where feasible. Portable diesel fueled construction equipment with engines 50 hp or larger and manufactured in 2000 or later will be registered under the CARB Statewide Portable Equipment Registration Program.

- Minimize welding and cutting by using compression of mechanical applications where practical and within standards.

- Encourage the recycling of construction waste where feasible.

Operation and Maintenance

O&M of the project will have less-than-significant GHG-related impacts. PG&E will employ standard Best Management Practices (BMPs)—such as minimizing vehicle trips and keeping vehicles and equipment well maintained—during operation, and will comply with CARB Early Action Measures (CARB 2011c), as these policies become effective. PG&E will also implement the following APM that is specifically related to avoidance and minimizing potential SF_6 emissions:

APM GHG-2: Minimize SF_6 Emissions

- Incorporate the new breakers to be installed at Vierra Substation into PG&E's system-wide SF_6 emission reduction program. CARB has adopted the Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear sections 95350 to 95359, title 17, California Code of Regulations, which requires that company-wide SF6 emission rate not exceed 1 percent by 2020. Since 1998, PG&E has implemented a programmatic plan to inventory, track, and recycle SF_6 inputs, and inventory and monitor system-wide SF_6 leakage rates to facilitate timely replacement of leaking breakers. PG&E has improved its leak detection procedures and increased awareness of SF_6 issues within the company. X-ray technology is now used to inspect internal circuit breaker components to eliminate dismantling of breakers, reducing SF_6 handling and accidental releases. As an active member of EPA's SF_6 Emission Reduction Partnership for Electrical Power Systems, PG&E has focused on reducing SF_6 emissions from its transmission and distribution operations.

- Require that the new breakers at Vierra Substation have a manufacturer's guaranteed maximum leakage rate of 0.5 percent per year or less for SF_6.

- Maintain substation breakers in accordance with PG&E's maintenance standards.

- Comply with California Air Resources Board Early Action Measures as these policies become effective.

3.7.4.3 Potential Impacts

Potential project impacts related to GHG emissions were evaluated against the CEQA significance criteria and are discussed in further detail in the following paragraphs. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance phase. Similar to the SCAQMD's recommended approach for construction emissions, this analysis amortizes the construction emissions over a 30-year project lifetime then compares those emissions to the significance threshold of 10,000 metric tons CO_2e per year.

As described in Chapter 2.0, Project Description, the project includes installing approximately 1 mile of 115 kV power line on TSPs, improving and expanding PG&E's existing Vierra Substation, and establishing temporary work areas to construct these improvements.

a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? *Less-than-Significant Impact*

Construction

The project will not generate significant GHG emissions. Construction will generate GHG emissions over the 12-month construction period resulting from off-road construction equipment and machinery, helicopter activity, and vehicular traffic generated by commuting workers, and material hauling and disposal. Following project completion, all construction emissions will cease. The project's total estimated GHG emissions associated with construction activities are shown in Table 3.7-2: Estimated Construction-Related Greenhouse Gas Emissions.

Project construction emissions that are associated with the use of off-road construction equipment—such as graders, backhoes, loaders, and cranes—were estimated for the project using CalEEMod. CalEEMod, which employs emission factors derived from CARB's EMFAC2011 Model, was also used to estimate off-site construction-related vehicle emissions for on-road trucks and worker vehicles that will be associated with construction of the project. Construction-related helicopter emissions were estimated using emissions factors obtained from the California Climate Action Registry and data from the Swiss FOCA.

As indicated in Table 3.7-2, total GHG construction emissions in the form of CO_2e amortized over a 30-year period equal approximately 14.1 metric tons per year. This is reduced from approximately 14.8 metric tons per year by APM GHG-1. Combining the amortized construction emissions with the estimated potential SF_6 O&M emissions presented in Table 3.7-3, the total is 59.7 metric tons CO_2e emitted per year, which will be substantially less than the significance threshold of 10,000 metric tons of CO_2e per year. Therefore, the GHG emissions generated by the project will not significantly contribute to global climate change. The impact will be less than significant.

Table 3.7-2: Estimated Construction-Related Greenhouse Gas Emissions

Construction Phase	CO_2e metric tons/year (w/o APMs)	CO_2e metric tons/year (w/ APMs)
Vegetation Trimming	< 0.1	< 0.1
Traffic Control	0.2	0.2
TSP Installation	2.7	2.6
Conductor Installation	1.2	1.2
Substation Expansion	10.7	10.1
Helicopter Operations	0.1	0.1
Total	**14.8**	**14.1**

Notes:
GHG emissions listed above are annual emissions derived from the amortization of total construction emissions over a 30-year period.

Reduction in GHG emissions assumes that implementation of APM GHG-1 will achieve a 5 percent reduction in emissions as a result of minimizing idling and maintaining equipment in proper operating condition.

Operation and Maintenance

The expanded substation will not require a change in PG&E's existing O&M activities, with the exception of actions taken to address potential leakage of SF_6 from new circuit breakers, and will not result in a material change in long-term vehicle or equipment exhaust emissions. Estimated potential SF_6 emissions are shown in Table 3.7-3: O&M-Related Greenhouse Gas Emissions. These emissions assume a 1 percent leak rate (91.2 metric tons/year CO_2e), reduced to 0.5 percent (45.6 metric tons/year CO_2e) through implementation of APM GHG-2.

Table 3.7-3: O&M-Related Greenhouse Gas Emissions

O&M Phase	CO_2e metric tons/year (w/o APMs)	CO_2e metric tons/year (w/ APMs)
Circuit Breaker SF_6 Leakage	91.2	45.6

Notes:
Per APM GHG-2, PG&E will require that the new breakers at Vierra Substation have a manufacturer's guaranteed maximum leakage rate of 0.5 percent per year or less for SF_6.

GHGs associated with operation and maintenance of the power line will be emitted from transportation exhaust (e.g., helicopters, on-road vehicles, etc.) during annual inspections. Due to the limited and infrequent use of vehicles and helicopters, and the current ongoing inspections of nearby lines, operation and maintenance of the power line will continue to have negligible GHG emissions. As a result, impacts will be less than significant.

b) Would the project conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases? *No Impact*

The project will not conflict with an applicable plan, policy, or regulation adopted to reduce GHG emissions. The minimal short-term, construction-related GHG emissions will not interfere with the long-term goal of AB 32 to reduce GHG emissions to 1990 levels by 2020. Operation and maintenance of the power line and the expanded substation will be incorporated into existing PG&E activities such that GHG emissions are not anticipated to materially increase. While substation circuit breakers may emit a minor amount of SF_6 due to leakage during project operations, these emissions will be tracked annually per CARB's regulation for Reducing SF_6 Emissions from Gas Insulated Switchgear, and will generate a minor and insignificant amount of CO_2e emissions. Additionally, APMs GHG-1 and GHG-2 incorporate measures that will further reduce less-than-significant impacts. Therefore, the project will not conflict with plans, policies, or regulations intended to reduce GHGs, and there will be no impact.

3.7.5 REFERENCES

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3.8 HAZARDS AND HAZARDOUS MATERIALS

3.8.1 INTRODUCTION

This section describes existing conditions and potential impacts related to hazards and hazardous materials associated with construction, operation, and maintenance of the project. The analysis concludes that any impacts related to hazards and hazardous materials will be less than significant; the implementation of Applicant Proposed Measure(s) (APMs) described in Section 3.8.4.2 will further reduce less-than-significant impacts. The project's potential effects associated with hazards and hazardous materials were evaluated using the significance criteria set forth in Appendix G of the California Environmental Quality Act (CEQA) Guidelines. The conclusions are summarized in Table 3.8-1 and discussed in more detail in Section 3.8.4. The Environmental Data Resources, Inc. (EDR) report for hazardous sites near the project areas will be provided separately to California Public Utilities Commission (CPUC) staff.

Table 3.8-1: CEQA Checklist for Hazards and Hazardous Materials

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒

3.8.2 Regulatory Background and Methodology

3.8.2.1 Regulatory Background

The following paragraphs contain an overview of regulations related to the use of hazardous materials and the disposal of hazardous wastes.

Federal

Resource Conservation and Recovery Act

Under the Resource Conservation and Recovery Act of 1976 (RCRA; 42 USC Section 6901 et seq.), individual states may implement their own hazardous waste programs in lieu of RCRA as long as the state program is at least as stringent as the federal RCRA requirements. The federal government approved California's RCRA program, called the Hazardous Waste Control Law (HWCL), in 1992. In California, the RCRA program is administered by the California Environmental Protection Agency's (Cal/EPA) Department of Toxic Substances Control (DTSC), per direction of the USEPA.

Comprehensive Environmental Response, Compensation, and Liability Act

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA; 42 USC Chapter 103) and associated Superfund Amendments provide the U.S. EPA with the authority to identify hazardous sites, to require site remediation, and to recover the costs of site remediation from polluters. CERCLA also enabled the revision of the National Oil and Hazardous Substances Pollution Contingency Plan, also known as the National Contingency Plan (NCP). The NCP provides the guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants, or contaminants.

Clean Water Act

The Clean Water Act (CWA) gives USEPA the authority to regulate the discharge of pollutants and hazardous materials into the waters of the United States. As part of the CWA, USEPA oversees and enforces the Oil Pollution Prevention regulation (40 Code of Federal Regulations (CFR) Part 112). The regulations describe the requirements for facilities to prepare, amend, and implement Spill Prevention, Control, and Countermeasure (SPCC) Plans to describe a comprehensive spill prevention program that minimizes the potential for discharges from specific sources, such as oil-containing transformers.

Federal Water Pollution Control Act

The USEPA designates hazardous substances under the Federal Water Pollution Control Act (40 CFR, Chapter I, Subchapter D Parts 116 and 117) and determines quantities of designated hazardous substances that must be reported (40 CFR Part 116) or that may be discharged into waters of the United States (40 CFR Part 117).

U.S. Department of Transportation Hazardous Materials Regulations

The U.S. Department of Transportation (DOT) Hazardous Materials Regulations (Title 49 CFR Parts 100–185) cover all aspects of hazardous materials packaging, handling, and transportation.

State

Hazardous Waste Control Law

The Hazardous Waste Control Law (HWCL) (California HSC Chapter 6.5 Section 25100 et seq.) authorizes the California Environmental Protection Agency (Cal/EPA) and the Department of Toxic Substances Control (DTSC), a department within Cal/EPA, to regulate the generation, transportation, treatment, storage, and disposal of hazardous wastes. DTSC can also delegate enforcement responsibilities to local jurisdictions that enter into agreements with DTSC for the generation, transport, and disposal of hazardous materials under the authority of HWCL. Businesses that store more than threshold quantities of hazardous materials must prepare a Hazardous Materials Business Plan, which includes spill prevention and response provisions.

Hazardous Substance Account Act

The Hazardous Substance Account Act (HSAA) (California HSC Chapter 6.8 Section 25300 et seq.) is California's equivalent to CERCLA. It addresses hazardous waste sites and apportions liability for them. The HSAA also provides that owners are responsible for the cleanup of such sites and the removal of toxic substances, where possible.

The two state agencies with primary responsibility for enforcing federal and state regulations related to hazardous material transport, and responding to hazardous materials transportation emergencies, are the California Highway Patrol (CHP) and California Department of Transportation (Caltrans), respectively.

Occupational Health and Safety

The California Division of Occupational Safety and Health (Cal/OSHA) assumes primary responsibility for developing and enforcing workplace safety regulations within the state (CCR Title 8). Cal/OSHA standards are more stringent than federal Occupational Safety and Health Administration regulations and take precedence.

Hazardous Materials Management

The California Office of Emergency Services is the state office responsible for establishing emergency response and spill notification plans related to hazardous materials accidents. Title 26 of the California Code of Regulations (CCR) is a compilation of the chapters or titles of the CCR that are applicable to hazardous materials management.

Porter-Cologne Water Quality Control Act

As discussed in more detail in Section 3.9, Hydrology and Water Quality, the Porter-Cologne Water Quality Control Act (California Water Code, Division 7) is the provision of the California Water Code that regulates water quality in California and authorizes the State Water Resources Control Board and nine Regional Water Quality Control Boards to implement and enforce the regulations. Porter-Cologne provides several means of enforcement for unauthorized discharge of pollutants to waters of the state, including cease and desist orders, cleanup and abatement orders, administrative civil liability orders, civil court actions, and criminal prosecution. The project area is under the jurisdiction of the Central Valley RWQCB.

Unified Hazardous Waste and Hazardous Materials Management Regulatory Program

The Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program) (CCR Title 27) was mandated by the State of California in 1993. The Unified Program was created to consolidate, coordinate, and make consistent the administrative requirements, permits, inspections, and enforcement activities for six hazardous materials programs. The program has six elements, including:

- Hazardous Waste Generators and Hazardous Waste On-site Treatment
- Underground Storage Tanks
- Aboveground Petroleum Storage Act
- Hazardous Materials Release Response Plans and Inventories
- California Accidental Release Prevention
- Uniform Fire Code Hazardous Materials Management Plans and Hazardous Materials Inventory Statements

At the local level, this is accomplished by identifying a Certified Unified Program Agency (CUPA) that coordinates all of these activities to streamline the process for local businesses. The San Joaquin County Environmental Health Department is approved by Cal/EPA as the CUPA for San Joaquin County.

Rules for Overhead Electric Line Construction

Under Section 35 of General Order 95, the CPUC regulates all aspects of design, construction, operation, and maintenance of electrical power lines and fire safety hazards for utilities subject to their jurisdiction.

California Fire Code

The California Fire Code 2010 (CCR Title 24, Part 9) is based on the International Fire Code from the International Code Council and contains consensus standards related to establishing good practices to safeguard the public health, safety, and general welfare from the hazards of fire, explosion, or dangerous conditions in new or existing buildings, structures, and premises.

Local

Because the CPUC has exclusive jurisdiction over the siting, design, and construction of the project, the project is not subject to local discretionary regulations. This section provides information on adopted airport land use plans and adopted emergency response plans or evacuation plans for informational purposes and to assist with CEQA review.

Airport Land Use Plans

The nearest airport is located 6.5 miles from the project. There are no land use plans applicable to the project area.

Adopted Emergency Response Plans/Evacuation Plans

Emergency plans in effect in the project area are as follows:

The San Joaquin County Office of Emergency Services (OES) and the San Joaquin County Flood Control and Water Conservation District (Flood Control District) provide hazard mitigation and emergency response protocols in the project area.

San Joaquin County Office of Emergency Services. The San Joaquin County OES is the key disaster preparedness office for the county, and has direct responsibility to support and coordinate emergency and disaster response efforts in the field. The OES provides disaster information and logistical support, and facilitates mutual aid requests and inter-jurisdictional coordination with city agencies, including the City of Lathrop. The OES also provides interactive maps and produces brochures designating evacuation zones and routes within the City of Lathrop.

San Joaquin County Flood Control and Water Conservation District. The San Joaquin County Flood Control Zone 9 Emergency Operations Plan serves as the emergency response plan for flood events within San Joaquin County, including the City of Lathrop. Reviewed and approved by the San Joaquin County Board of Supervisors in 2016, the plan identifies hazard areas and evacuation routes within the county. The plan is also distributed to the San Joaquin County OES and the City of Lathrop City Manager and Police Services.

3.8.2.2 Methodology

The methodology for analyzing impacts from hazards and hazardous materials includes identifying general types of hazardous materials and activities used during project construction, operation, and maintenance. Potential impacts on the environment and public health from hazards and hazardous materials were further evaluated using information about the existing uses of the project site and adjacent properties, historical uses, and known contamination, to determine the likelihood of encountering hazardous materials.

A corridor study report was obtained from Environmental Data Resources Inc. (EDR) (EDR 2016) and was reviewed to screen for hazardous waste sites in the project area. The EDR report includes: 1) information on sites within 0.25 mile on either side of the project that were identified in federal, state, and local databases related to hazardous materials and wastes and 2) maps showing the locations of these sites. The database search process reviews multiple lists for historically contaminated properties and businesses that use, generate, or dispose of hazardous materials or petroleum products in their operation. In addition, the EDR search reviews lists of active contaminated sites that are currently undergoing monitoring and remediation.

As specified by CEQA significance criteria (see Table 3.8-1), the EDR report was used to identify sites along the route that are included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 ("Cortese List"). The EDR report's listing of Cortese List sites was supplemented by reviewing the following:

- Sites listed on DTSC's Envirostor database (DTSC 2017)
- Sites listed on the SWRCB's GeoTracker database (SWRCB 2017)
- SWRCB lists of sites: 1) with reported waste constituents above hazardous waste levels outside the waste management unit; 2) with active Cease and Desist Orders and Cleanup and Abatement Orders for hazardous wastes; or 3) identified by DTSC as subject to corrective action pursuant to Section 25187.4 of the California Health and Safety Code (Cal/EPA 2017).

The EDR report was also used to screen for nearby hazardous waste sites that could potentially affect the project based on the significance criteria summarized in Table 3.8-1.

The potential for activities and equipment that could pose fire hazards was evaluated through review of state fire hazard maps (CAL FIRE 2007).

ERM-West, Inc. completed a Phase 1 Environmental Site Assessment in January 2018 of the land to be acquired for the substation expansion, and a limited surface soil investigation was completed on March 23, 2018.

3.8.3 Environmental Setting

The project is located within the City of Lathrop. Vierra Substation is on a parcel of agricultural land, and the alignment for the new power line crosses agricultural, commercial, and industrial land uses. It is an unstaffed substation that has been in operation since 1998, and houses mineral oil-filled equipment (e.g., transformers, regulators, oil circuit breakers) and associated equipment, material, and controls. Diesel and gasoline are needed for motor vehicle operation during routine inspections and maintenance activities. There is also potential for the presence of pesticides and herbicides in the soil, as the land surrounding the substation is used for agriculture.

3.8.3.1 Airports

No public or private use airports, and no airstrips are located within 2 miles of the project alignment or substation. The nearest airport is the Stockton Metropolitan Airport, located approximately 6.5 miles northeast.

3.8.3.2 Schools

No schools are located within 0.25 mile of the project alignment.

3.8.3.3 Existing Hazardous Materials/Sites

The EDR report (EDR 2017) included five listings for sites in the immediate vicinity of the proposed project area, and numerous others within 0.25 mile of the project. Most listings, including those in the immediate vicinity of the project, were administrative in nature and did not state any known hazardous conditions or releases.

The SWRCB GeoTracker and DTSC Envirostor online databases did not identify any open leaking underground storage tank (LUST) or other open contamination sites within 0.25 mile of the project alignment. The GeoTracker database did identify one closed cleanup program listing at the southeast corner of Vierra Road and McKinley Avenue, approximately 0.20 mile east of Vierra Substation. The listing was for the rupture of a Pacific Gas and Electric Company (PG&E) transformer in 2006, which released a minor amount of mineral oil into the surrounding soils. Cleanup was completed by removing the transformer and soil with the oversight of the San Joaquin County Environmental Health Department. No project activities will occur in the described location.

The Phase I Environmental Site Assessment identified the potential for groundwater contamination from nitrate, sulfate, ammonium, and sulfolane (a chemical solvent) associated with fertilizer production and discharge settling ponds belonging to the J.R Simplot Company fertilizer plant located approximately 0.43 mile to the north of the substation. A plume of contamination related to the release associated with the settling ponds extends southwards toward the substation. Additionally, the Phase I Environmental Site Assessment identified the potential for residual agricultural chemicals in the soil or groundwater due to historical agricultural operations. However, the subsequently-performed limited soil investigation did not identify organochlorine pesticides or herbicides above laboratory reporting limits, and sulfolane was not detected. The soil was also analyzed for metals; arsenic exceeded screening levels, but was within the background concentration of naturally-occurring concentrations for California and Western United States soils. Additional testing will be performed to determine if groundwater contamination is present on the project site.

3.8.3.4 Wildland Fire Hazards

As defined by CAL FIRE, the Vierra Reinforcement Project area is located outside of a State Responsibility area (SRA)[1] or a Local Responsibility Area (LRA). Fire protection services near the project are discussed in Section 3.14, Public Services.

3.8.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for impacts related to hazards and hazardous materials derived from Appendix G of the CEQA Guidelines, provide APMs, and assess potential project-related construction and operational impacts related to hazards and hazardous materials.

3.8.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, “a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project.” As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts related to hazards and hazardous materials were evaluated for each of the criteria listed in Table 3.8-1, as discussed in Section 3.8.4.3.

[1] SRAs are the areas where the State of California is financially responsible for preventing and suppressing wildfires. SRAs do not include lands within city boundaries or in federal ownership.

3.8.4.2 Applicant-Proposed Measures

PG&E will implement the following APMs:

APM HM-1: Worker Environmental Training Program

An environmental training program will be established to communicate environmental concerns and appropriate work practices to all construction field personnel. The training program will emphasize site-specific physical conditions to improve hazard prevention, and will include a review of the Stormwater Pollution Prevention Plan (SWPPP), which will also address spill response. The worker environmental training program will be provided to CPUC staff for review prior to construction.

APM HM-2: Update Spill Prevention Control and Counter Measures (SPCC) Plan and Hazardous Materials Business Plan (HMBP)

The expanded substation will be equipped with a retention basin that meets SPCC Guidelines (40 Code of Federal Regulations 112). Prior to operation of the project, PG&E will update the existing SPCC Plan and HMBP for Vierra Substation to include all new equipment and on-site hazardous materials associated with the substation expansion, and to address containment from an accidental spill. A copy of the updated SPCC Plan and HMBP will be submitted to the CPUC for record keeping.

APM HM-3: Emergency Spill Response Equipment and Training

Emergency spill response and cleanup kits will be readily available at Vierra Substation for cleanup of an accidental spill. Construction crews will be trained in safe handling and cleanup responsibilities.

APM HM-4: Soil and Groundwater Testing and Disposal

Soil and groundwater sampling will be performed in the area of the substation expansion prior to construction. The sampling will extend to the maximum depth of construction excavation. Analysis of soil, and groundwater if encountered, will determine if any special handling is required during excavation or disposal of soil and groundwater during construction.

In other areas of the project, in the event soils suspected of being contaminated (on the basis of visual, olfactory, or other evidence) are removed during site grading or excavation activities, the excavated soil will be tested, and if measured above hazardous waste levels, will be contained and disposed of at a licensed waste facility. The presence of known or suspected contaminated soil will require testing and investigation procedures to be supervised by a qualified person, as appropriate, to meet state and federal regulations.

3.8.4.3 Potential Impacts

Project impacts related to hazards and hazardous materials were evaluated against the CEQA significance criteria and are discussed below. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance phase.

As described in Chapter 2.0, Project Description, the project includes installing approximately 1 mile of 115 kV power line on TSPs, improving and expanding PG&E's existing Vierra Substation, and establishing temporary work areas to construct these improvements.

a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? *Less-than-Significant Impact*

Construction

The project will not create a hazard to the public or the physical environment through the routine transport, use, or disposal of hazardous materials. Other than substances associated with construction vehicles and equipment (e.g., fuels, oils, lubricants, and solvents), and SF_6 used in the installation of circuit breakers, no hazardous materials will be associated with project construction. Minor spills or releases of hazardous materials could occur during construction activities, and PG&E will follow its existing programs for proper handling to reduce the potential for a spill during construction, or reduce exposure of workers or the public to hazardous materials. Implementation of APM HM-1 and HM-3 will further reduce the potential for releases of hazardous materials. Hazardous materials used during construction will be used within designated staging or construction areas.

The project will not create a significant hazard to the public or environment, and impacts will be less than significant.

Operation and Maintenance

Operation and maintenance activities at the substation will require the routine use of the same types of hazardous materials currently used, and appropriate safety measures and practices will continue to be implemented. Hazardous materials will be handled in accordance with the substation's HMBP and SPCC Plan, which will be updated to include the expanded substation, and other standard safety practices (APM HM-2).

The new power line will be regularly inspected and maintained using construction vehicles and equipment as needed by operation and maintenance staff trained in spill response procedures. Impacts will be less than significant.

b) Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? *Less-than-Significant Impact*

Construction

The project will not create a significant hazard involving release of hazardous materials. Project construction will require the use of motorized heavy equipment, such as vehicles, backhoes, graders, pickup trucks, line trucks, and bucket trucks. During construction activities, an increased potential will exist for an accidental spill or release of fluids from a vehicle or motorized piece of equipment. However, the effects will not be substantial because of the limited amounts and types of hazardous materials proposed for use during construction. When not in use, large equipment will be staged in designated areas. All construction work will be conducted in accordance with appropriate regulations and existing PG&E safety procedures. Implementation of worker training as describe in APM HM-1 and APM HM-3 will further reduce less-than-significant impacts related to the upset or accidental spills of hazardous materials during construction.

Operation and Maintenance

Continuing operations and maintenance activities will not create a significant hazard involving release of hazardous materials. Activities at the substation will continue to comply with existing laws and PG&E safety requirements to prevent accidents involving the release of hazardous materials. Routine operation and maintenance activities associated with the new power line, such as pole and line inspections and equipment maintenance and repairs, will be performed by operation and maintenance staff trained in spill response procedures, and impacts associated with operation and maintenance activities at the substation will be less than significant. Implementation of APM HM-2 (updating the existing SPCC Plan and HMBP) will further reduce potential impacts related to the release of hazardous materials.

c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school? *No Impact*

No schools are located within 0.25 mile of the project alignment. The nearest school to the project alignment is the Mossdale Elementary School, located approximately 0.85 mile northwest. No impacts will occur.

d) Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? *No Impact*

No known or suspected hazardous materials sites that could create a significant hazard to the public or the environment were identified along the project alignment. The EDR database report for the project area identified seven listings for sites enrolled under CUPA programs in the vicinity of the project alignment. However, the listings were administrative in nature and no violations or releases were noted; therefore, no project-related impacts are anticipated to occur.

Review of the DTSC Envirostor and RWQCB GeoTracker online databases did not identify any hazardous materials cases along the project alignment. As described above, the GeoTracker database identified one closed program cleanup site for a ruptured PG&E transformer in 2006 (Case# T10000008823) approximately 0.20 mile east of Vierra Substation. Site cleanup is complete and no project activities will occur in the described location; therefore, the listing will not affect the project. Soil and groundwater testing at the substation site will be performed prior to the start of construction as follow-up to the Phase I Environmental Site Assessment that identified the existence a plume of groundwater contamination extending southward from the fertilizer plant toward the substation site.

In the event unanticipated contaminated soils are encountered, PG&E will implement APM HM-4, which requires testing of the soil and properly disposing of affected soil according to all applicable regulations. Therefore, no hazards will create a risk to the public or environment, and no impacts will occur.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area? *No Impact*

No public or private use airports and no airstrips are located within 2 miles of the project alignment or substation. The nearest airport is the Stockton Metropolitan Airport, located approximately 6.5 miles northeast. Therefore, no impacts will occur.

f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area? *No Impact*

No private use airports or airstrips are located within the vicinity of the project alignment or substation. No impacts will occur.

g) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? *No Impact*

The project will not impair the implementation of or physically interfere with an adopted emergency response or evacuation plan. Use of public roadways by construction and operation and maintenance vehicles for project access and materials transportation could potentially briefly interfere with emergency routes in the immediate area by disrupting traffic flow as a result of temporary lane closures. However, the project alignment is not located along any designated emergency response or evacuation routes designated in a plan. Therefore, no impact will occur.

h) Would the project expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? *No Impact*

The project is not adjacent to wildlands, and is within the urbanized area of Lathrop. Therefore, construction activities and operation and maintenance activities will not expose people or structures to a significant risk involving wildland fires. No impact will occur.

3.8.5 REFERENCES

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3.9 HYDROLOGY AND WATER QUALITY

3.9.1 INTRODUCTION

This section describes existing conditions and potential impacts to hydrological resources, water quality, and flood control as a result of construction, operation, and maintenance of the project. The analysis concludes that impacts will be less than significant in these areas, and the implementation of Applicant-Proposed Measures (APMs) described in Section 3.9.4 will further reduce less-than-significant impacts. The project's potential effects on hydrology, water quality, and flood control were evaluated using the significance criteria set forth in Appendix G of the California Environmental Quality Act (CEQA) Guidelines. The conclusions are summarized in Table 3.9-1 and discussed in more detail in Section 3.9.4.

Table 3.9-1: CEQA Checklist for Hydrology and Water Quality

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☐	☒
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☒	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
f) Otherwise substantially degrade water quality?	☐	☐	☐	☒

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☒	☐
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

3.9.2 Regulatory Background and Methodology

3.9.2.1 Regulatory Background

Federal

National Flood Insurance Program

The Federal Emergency Management Agency (FEMA) is responsible for determining flood elevations and floodplain boundaries based on USACE studies. FEMA is also responsible for distributing the Flood Insurance Rate Maps used in the National Flood Insurance Program (NFIP) (42 USC Ch. 50, Section 4102). These maps identify the locations of special flood hazard areas, including 100-year floodplains. FEMA allows non-residential development in the floodplain; however, FEMA has criteria to "constrict the development of land which is exposed to flood damage where appropriate" and "guide the development of proposed construction away from locations which are threatened by flood hazards." Federal regulations governing development in a floodplain are set forth in Title 44, Part 60 of the Code of Federal Regulations, enabling the FEMA to require municipalities that participate in the NFIP to adopt certain flood hazard reduction standards for construction and development in 100-year floodplains.

State

Clean Water Act Section 402

Under CWA Section 402 (33 USC Section 1251 et seq.), the National Pollutant Discharge Elimination System (NPDES) controls water pollution by regulating point sources of pollution to waters of the U.S. The SWRCB administers the NPDES permit program in California. Projects that disturb 1 or more acres of soil are required to obtain coverage under the state NPDES General Permit for Discharges of Storm Water Associated with Construction Activity. A Storm Water Pollution Prevention Plan (SWPPP) must be developed and implemented for each project covered by the general permit. The SWPPP must include BMPs that are designed to reduce potential impacts to surface water quality during project construction and operation.

Some local agencies operate storm water systems under a federal municipal storm water permit (MS4 permit) issued by the SWRCB and/or RWQCB. To comply with their permit, the local agency may impose post-construction storm water requirements for new facilities, such as substations, through municipal ordinances and regulations. The City of Lathrop's Post-Construction Stormwater Standards Manual requires excess stormwater runoff from newly created impervious surfaces greater than 5,000 contiguous square feet to be managed through the use of practices identified in the USEPA's *Managing Wet Weather with Green Infrastructure Municipal Handbook Green Streets*. Although PG&E will comply with storm water requirements derived from state and federal law, local ordinances do not otherwise apply to the project.

Local

Because the CPUC has exclusive jurisdiction over project siting, design, and construction, the project is not subject to local discretionary regulations. PG&E will secure ministerial permits, as required.

The Building and Safety Division of the City of Lathrop Department of Public Works requires and enforces standards contained in the California Building Code related to grading and construction, including those that may directly or indirectly affect surface water quality by contributing to erosion or siltation or alter existing drainage patterns.

3.9.2.2 Methodology

Water resources and potential impacts on hydrology and water quality as a result of the project were evaluated by reviewing information from federal, state, and local water resource agencies with jurisdiction in the project area. These included the California Department of Water Resources (DWR), SWRCB, South San Joaquin County Irrigation District, United States Fish and Wildlife Service, and City of Lathrop. Aerial photography and National Wetland Inventory maps were also reviewed to identify major water features, wetlands, and drainage patterns. FEMA maps were referenced to identify flood zones in proximity to the project area. Information regarding local groundwater formations was also researched through the DWR website. Information on surface water and groundwater in the project area was obtained from published studies prepared by state, county, and local water agencies. A biological resource survey was conducted on May 25, 2017, to confirm the presence of any jurisdictional wetlands and drainages.

3.9.3 Environmental Setting

3.9.3.1 Regional Setting

The project is located within the City of Lathrop in the San Joaquin Valley. The San Joaquin Valley is separated into two hydrologic regions by an indistinct divide consisting of accumulated alluvium that interrupts the lengthwise slope of the valley. The Tulare Lake Hydrologic Region is the southern region and drains internally, except when rare flooding carries its water north across the divide into the San Joaquin River. The rivers in the Tulare Lake Hydrologic Region include the Kings, Kaweah, Tule, and Kern rivers. The San Joaquin River Hydrologic Region comprises the northern portion of the San Joaquin Valley and is drained toward the Sacramento-San Joaquin Delta by the San Joaquin River and its tributaries, including the Fresno, Merced, Tuolumne, and Stanislaus rivers (DWR 2006). The San Joaquin River Hydrologic Region relies heavily on groundwater, which makes up approximately 30 percent of the annual supply for agricultural and urban uses (DWR 2006).

The project site is located in the San Joaquin River Hydrologic Region, which covers approximately 9.7 million acres and includes all of Calaveras, Tuolumne, Mariposa, Madera, San Joaquin, and Stanislaus counties, most of Merced and Amador counties, and parts of seven other counties (DWR 2006). The region contains the entire Yosemite Valley Basin and Los Banos Creek Valley Basin, and part of the San Joaquin Valley Groundwater Basin. The project is located within the San Joaquin Valley Groundwater Basin in the Merced Subbasin.

The San Joaquin River is approximately 1.7 miles west of Vierra Substation and 0.8 mile west of the new power line. The surface topography is flat, and project site elevation ranges from approximately 20 feet above sea level (asl) at the substation, to 13 feet asl at the western end of the new power line (Google Earth Pro 2017). The project is located in a primarily industrial area.

3.9.3.2 Climate

The project is located in a Mediterranean-type climate zone typical of central California. This zone is characterized by hot, dry summers and mild winters, with winds typically blowing from the northwest. Typical of the San Joaquin Valley, the project is situated in the rain shadow of the Coast Ranges, resulting in average annual precipitation of 17.85 inches, with a majority of the rainfall occurring during the months of October through April (California Department of Forestry and Fire Protection [CDF] 2017). Periods of abundant rainfall and prolonged droughts are frequent in the historical record.

3.9.3.3 Surface Water

No rivers or streams flow through the project area and no wetlands are present. The nearest surface waterbodies are the San Joaquin River, approximately 0.8 mile west of the project, and Oakwood Lake, a man-made lake in a residential area approximately 0.8 mile south of the project.

3.9.3.4 Groundwater

The project is located within the Eastern San Joaquin Subbasin (being east of the San Joaquin River) of the Eastern San Joaquin County Groundwater Basin, which is in the Sacramento-San Joaquin Delta sub-region, a part of the Central Valley aquifer system in central California between the Sierra Nevada and the Coastal Range Mountains. Water-bearing formations of significance in the Eastern San Joaquin Subbasin consist of the Alluvium and Modesto/Riverbank Formations, Flood Basin Deposits, Laguna Formation, and Mehrten Formation.

Most of the fresh groundwater is encountered at depths of less than 1,000 feet, and most of this shallow groundwater is unconfined. Several hydrologic formations underlie the Lathrop area; however, only the top two, the Victor and Laguna formations, are currently being used as a source of fresh water. The Victor formation is the uppermost formation, and extends from the ground surface to a maximum depth of about 150 feet. The Laguna formation is hydraulically connected to the Victor formation and is estimated to be 750 to 1,000 feet thick, with moderate permeability. Most of the municipal and industrial wells in the Lathrop area penetrate through the Victor formation into the Laguna formation. Underlying Lathrop, the groundwater surface generally slopes from south to north, with the highest groundwater elevations occurring near Yosemite Avenue east of McKinley Avenue. Groundwater elevations in the fall average approximately 3 feet lower than groundwater elevations in the spring. The use of groundwater throughout the region as a water supply source has created overdraft conditions and contamination of the groundwater aquifer. Most city wells are treated for arsenic (City of Lathrop 2005).

A geotechnical investigation performed at Vierra Substation (1997) drilled two borings to 28.5 feet and one boring to 27 feet below existing ground surface (bgs). Silty to clean loose sand was the predominant soil material encountered in each boring from near the surface to approximately 15 feet bgs. Below 15 feet, the sandy material was interbedded by intermittent sequences of sand, clayey or silty sand; silt, clayey or sandy silt; and lean clay, sandy, or silty lean clay. PG&E's boring logs also indicate that the groundwater table was encountered at 7 to 8 feet in each boring.

3.9.3.5 Flood Potential

The San Joaquin River is located west and south of the project site, and is the primary source of flooding within the city. FEMA Flood Insurance Rate Maps indicate that the project site lies within a flood hazard area, defined as having a 0.2 percent annual chance of flood (500-year storm event) (MSRSIP 2016). The project site is in an area protected from the 100-year flood by FEMA-accredited levees, and is also within the boundary of a 200-year floodplain. The affected flood depth for a 200-year flood in the project area is greater than 3 feet, with the exception of the parcel north of Howland Road and West of D'Arcy Parkway, which has a flood depth of less than 3 feet. In 2007, the State of California approved SB 5, which requires urban and urbanizing areas within the Sacramento-San Joaquin watershed to achieve a 200-year level of flood protection for dwellings intended for human occupancy. While the City of Lathrop has developed a plan to bring the levees into compliance, development restrictions imposed by SB 5 do not apply to the project.

The project is also located in a potential dam failure inundation area from the San Luis Dam, located approximately 50 miles south of the project, and the New Melones Dam, located approximately 42 miles northeast of the project. The dams are owned by the Bureau of Reclamation and operated by the DWR. If the dams were to fail, it would take approximately 8 hours for water from the New Melones Dam to affect Lathrop, and approximately 34 hours for water from the San Luis Dam to affect Lathrop.

3.9.4 Applicant-Proposed Measures and Potential Impacts

The following sections describe significance criteria for hydrology and water quality impacts derived from Appendix G of the CEQA Guidelines, provide APMs, and assess potential project-related construction and operational hydrology and water quality impacts.

3.9.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, “a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project.” As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts related to hydrology and water quality were evaluated for each of the criteria listed in Table 3.9-1, as discussed in Section 3.9.4.3.

3.9.4.2 Applicant-Proposed Measures

PG&E will implement the following APMs:

APM HYDRO-1: Stormwater Pollution Prevention Plan

PG&E will prepare and implement a SWPPP to help stabilize disturbed areas and reduce erosion and sedimentation. A monitoring program will also be established to ensure that the prescribed BMPs are followed during project construction. A qualified SWPPP practitioner will oversee the implementation of the SWPPP and associated BMPs. The following measures are generally drawn from the permit and will be included in the SWPPP prepared for the construction of the project:

- All BMPs will be on site and ready for installation before the start of construction activities.
- BMPs will be developed to prevent the acceleration of natural erosion and sedimentation rates, such as the use of silt fence and wattles.
- Prior to conducting clearing activities during the wet season and before the onset of winter rains or any anticipated storm events, erosion-control measures will be installed. Temporary measures such as silt fences or wattles, which are intended to minimize sediment transport from temporarily disturbed areas, will remain in place until disturbed areas have stabilized.

3.9.4.3 Potential Impacts

Project impacts related to hydrology and water quality were evaluated against the CEQA significance criteria, as discussed below. This section evaluates potential project impacts from the construction phase and the operation and maintenance phase. For impacts to federally protected wetlands and other sensitive natural communities, refer to Section 3.4 Biological Resources.

As described in Chapter 2.0, Project Description, the project includes installing approximately 1 mile of 115 kV power line on TSPs, improving and expanding PG&E’s existing Vierra Substation, and establishing temporary work areas to construct these improvements.

a) Would the project violate any water quality standards or waste discharge requirements? ***No Impact***

Construction

The project will not violate any water quality standards or waste discharge requirements. The project is not in the vicinity of any surface waters. However, it is anticipated that groundwater could be encountered during excavation, as water was documented at 7 feet bgs at the substation site during a geotechnical survey performed in 1997. If dewatering is required, the water will be used for dust control activities or discharged to the surrounding area in accordance with the SWPPP, and allowed to infiltrate back into the ground. Dewatering would not violate water quality standards or waste discharge requirements. Implementation of APM HYDRO-1 will further ensure that water quality standards and waste discharge requirements will not be violated, as it will specify measures for each activity that has the potential to degrade surrounding water quality through erosion, sediment runoff, and the presence of other pollutants. These measures will be implemented and monitored throughout the project by a qualified stormwater pollution prevention plan practitioner to ensure water quality standards and waste discharge requirements are not violated. Therefore, no impact will occur.

Operation and Maintenance

Operation and maintenance activities at the substation will not change with expansion of the substation, and will not violate water quality standards or waste discharge requirements. The substation expansion will include construction of an additional retention basin that will capture stormwater runoff from the newly created impervious surfaces within the substation and prevent excess stormwater runoff and any accidental spills or releases, such as mineral oil, from entering groundwater to ensure water quality standards and waste discharge requirements are not violated.

The new power line will be regularly inspected and maintained as needed by operation and maintenance staff, consistent with ongoing activities on nearby lines. These activities will not violate water quality standards or waste discharge requirements. Although operation and maintenance will require the use of vehicles and other tools that have the potential to result in inadvertent spills or discharges, all materials will be applied, stored, and disposed of in accordance with applicable regulations, making an accidental release during operation and/or maintenance of the power line route unlikely to occur. Further, maintenance will generally occur over a few days each year and will be limited to specific segments of the power line or particular structures. Operation and maintenance will not violate water quality standards or waste discharge requirements, and no impact will occur.

b) Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level? ***Less-than-Significant Impact***

Construction

The project's negligible water use during construction will not deplete or interfere with groundwater supply or recharge. A water truck will be available to support project construction activities and dust suppression. The water is expected to be obtained from local municipal sources (i.e., water hydrants), which are typically supplied through surface water reservoirs. Dewatering may be necessary if groundwater is encountered during subsurface construction activities, such as trenching or pole installation. However, the amount of groundwater removed would be negligible, and it would be used as dust suppression or released to the surrounding area and allowed to percolate back into the groundwater table. Therefore, a substantial groundwater depletion or interference will not occur and any impact will be less than significant.

Operation and Maintenance

Operation and maintenance of the substation will not change with the expansion of the substation, and will not affect groundwater supplies or recharge. No groundwater will be used for the operation and maintenance of the substation or power line. Inspections will occur on a routine basis, but will not require ground disturbance that will reach the water table or require dewatering. A retention basin will be constructed within the expanded substation that will capture runoff from the substation and allow the water to percolate into the ground; this groundwater recharge will not be affected by the construction of impervious surfaces, such as the control building and paved areas. As a result, there will be no impact on groundwater supplies or groundwater recharge from operation and maintenance of the project.

c) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or sedimentation on- or off-site)? ***Less-than-Significant Impact***

Construction

The project will not substantially alter site drainage or result in substantially increased erosion or siltation. The project area is generally flat and is not in the vicinity of any waterways, streams, or rivers. Although grading will be required for the substation expansion, and fill will be imported to bring the area of expansion up to the same elevation of the existing substation, this work will be done in a manner to prevent erosion or sedimentation on or off the substation site. Mowing of vegetation and minor grading may be needed in temporary work areas along the power line alignment to improve project access or establish stable work areas to accommodate equipment; however, this ground disturbance will be limited in scope. Therefore, any impact from erosion or sedimentation will be less than significant.

To further reduce these impacts, appropriate BMPs will be implemented per the SWPPP, as described in APM HYDRO-1. After project construction is completed, temporary work areas will be returned to approximate pre-project conditions, unless otherwise requested by the landowner. Through project design and implementation of the SWPPP, the temporary and short-term effects of erosion or siltation from site runoff will be addressed. Therefore, the impact will be less than significant.

Operation and Maintenance

Operation and maintenance activities associated with the new line and expanded substation will not alter the existing drainage pattern of the site or area or involve activities that will result in substantial erosion or sedimentation on or off site, and therefore, will result in no impacts.

d) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site? ***Less-than-Significant Impact***

Construction

The project will not result in increased flooding. The project will not alter the course of a stream or river, as no watercourses are within the project area. The project is located on generally level land, and grading for substation expansion and other project work areas will not substantially increase the rate or amount of surface runoff in a manner that will result in flooding on or off site. Fill will be imported to increase the elevation of the substation expansion to that of the existing substation. During construction, implementation of a SWPPP will require that appropriate erosion and sediment controls are used to control the flow of any incidental surface runoff while the retention basin is under construction. Installing poles for the new power line will result in minimal impervious footprints, and will not alter drainage or surface flows in the area. Thus, the project will not result in flooding either on site or off site, and impacts will be less than significant.

Operation and Maintenance

Ongoing operation and maintenance activities associated with the expanded Vierra Substation and the power line will not change from those at the existing substation and adjacent lines, and will not involve activities that will alter existing drainage patterns of the site or area. A retention basin within the expanded substation will capture runoff from the substation and allow the water to percolate into the ground. Operation and maintenance of the power line will not involve activities that will alter the drainage patterns of the area or contribute to surface runoff. No impacts will occur.

e) Would the project create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff? ***Less-than-Significant Impact***

Construction

Activities associated with project construction and the use of construction equipment will not exceed the capacity of or provide substantial additional sources of polluted runoff into the city's stormwater system. Construction activities will involve the use of water for dust control, concrete mixing, and other construction activities, and construction equipment and vehicles will use minor amounts of hazardous materials such as fuel, oils, and lubricants, which, if spilled, could enter the stormwater system. Water will be used conservatively and will be limited to the minimum needed such that runoff is minimized, and in the event of a spill or leak from equipment, the spill will be cleaned up promptly in accordance with emergency spill response equipment and training protocols. Therefore, any impacts from water runoff will be less than significant. Implementation of APM HYDRO-1 (requiring a SWPPP), APM HM-1 (worker environmental training), and APM HM-3 (emergency spill response equipment and training) will further reduce these less-than-significant impacts.

Operation and Maintenance

As discussed in Section 3.8, Hazards and Hazardous Materials, operation and maintenance activities at the substation and along the power line will require the routine use of the same types of hazardous materials currently used, and appropriate safety measures and practices will continue to be implemented. Hazardous materials at the substation will be handled in accordance with the substation's HMBP and SPCC Plan—which will be updated to include the expanded substation—and other standard safety practices, and on-site personnel will be prepared to adequately respond to an accidental spill (refer to APMs HM-2 and HM-3). Furthermore, the substation expansion will include construction of an additional retention basin, which will capture stormwater runoff and contain any accidental spills or releases that could contribute to polluted runoff. If a release were to occur from equipment or vehicles used during power line inspection, maintenance or repair, power line operation and maintenance staff are trained in spill response procedures, and will promptly address a spill should one occur. Therefore, impacts will be less than significant.

f) Would the project otherwise substantially degrade water quality? *No Impact*

No additional impacts on water quality beyond those previously described are anticipated. Therefore, the project will not substantially degrade water quality, and no impact will occur.

g) Would the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map? *No Impact*

The project will not involve housing construction; therefore, no impact will occur.

h) Would the project place within a 100-year flood hazard area structures that would impede or redirect flood flows? *No Impact*

The project is located within a 100-year flood hazard area, but is protected by FEMA-accredited levees. Neither the substation expansion nor the pole structures of the power line are of sufficient size to result in the impediment or redirection of floodwaters in the unlikely event of failure of the accredited levees during a 100-year flood. As a result, no impacts will occur.

i) Would the project expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam? *Less-than-Significant Impact*

Construction

The project will not expose people or structures to a significant risk of loss, injury, or death involving flooding. The project site is located within a 100-year flood hazard area, as indicated by the General Plan and by FEMA information. The project area is also within a 200- and 500-year floodplain. The levee along the San Joaquin River is accredited by FEMA as meeting federal design, construction, maintenance and operation standards to adequately reduce the risk of flooding from a 100-year flood, and the city is working with agencies responsible for levees to correct any deficiencies that would prevent the city from meeting the 200-year flood protection standards. The project is also located in a potential dam failure inundation area from the San Luis Dam, located approximately 50 miles south of the project, and the New Melones Dam, located approximately 42 miles northeast of the project. The dams are owned by the Bureau of Reclamation and operated by the DWR. The DWR is responsible for dam safety, and inspects operating dams on an annual basis to ensure the dam is safe and not developing problems. A seismic risk analysis for the San Luis Dam completed in 2006 determined dam failure to be very unlikely in any particular year. Due to the low potential of levee or dam failure, project damage as a result of dam failure is considered to be unlikely. As a result, the project's risk of loss, injury or death from levee or dam failure is less than significant.

Operation and Maintenance

The entire project area is within a 100-, 200-, and 500-year floodplain. However, operation and maintenance activities at the substation and new power line will not change materially from existing activities and will not involve construction of new structures that would be exposed to significant flooding risks within flood zones or near levees or dams. No impact will occur related to operation and maintenance activities.

j) Would the project cause inundation by seiche, tsunami, or mudflow? *No Impact*

No waterbodies capable of generating seiches or tsunamis that could result in inundation of the project are located in the vicinity of the project. Mudflows require super-saturated slope conditions. The topography within and adjacent to the project site is generally level. Slopes capable of generating mudflows are not present and will not be created by project construction or grading activities. Therefore, no impacts associated with seiches, tsunamis, or mudflow will occur.

3.9.5 REFERENCES

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3.10 LAND USE AND PLANNING

3.10.1 INTRODUCTION

This section describes existing land use in the vicinity of the project and assesses potential project-related impacts on land use and planning, including an analysis of project compatibility with land use and/or habitat plans. The analysis concludes that no impacts related to land use and planning will occur as a result of construction, operation, and maintenance of the project and no Applicant-Proposed Measures (APMs) are needed. The project's potential effects on land use and planning were evaluated using the significance criteria set forth in Appendix G of the California Environmental Quality Act (CEQA) Guidelines. The conclusions are summarized in Table 3.10-1 and discussed in more detail in Section 3.10.4.

Table 3.10-1: CEQA Checklist for Land Use and Planning

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

3.10.2 REGULATORY BACKGROUND AND METHODOLOGY

3.10.2.1 Regulatory Background

Federal

Section 10 of the Federal Endangered Species Act (FESA) allows for the creation of HCPs to protect listed and candidate species in connection with the issuance of an Incidental Take Permit for federally listed species. PG&E has an HCP to cover operations and maintenance (O&M) activities in the San Joaquin Valley (PG&E San Joaquin Valley Operations & Maintenance Habitat Conservation Plan). This HCP covers O&M activities for PG&E's electric and gas transmission and distribution systems within nine counties of the San Joaquin Valley HCP, including San Joaquin County. Although construction of the new power line and substation expansion is not a covered activity, the project area is located within the boundaries of this HCP.

As discussed in Section 3.4, Biological Resources, the City of Lathrop is a Permittee under the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan; however, the project is not a covered activity since PG&E is not a permittee/participant in this HCP.

State

California Public Utilities Commission

The California Public Utilities Commission (CPUC) has exclusive jurisdiction over the design, siting, installation, operation, maintenance, and repair of electric transmission facilities, pursuant to Article XII, Section 8 of the California Constitution. The CPUC is the Lead Agency for CEQA review for this project and has authority over the discretionary project approval.

Local

Because the 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. This section identifies local land use plans and regulations for informational purposes and to assist with CEQA review.

As shown in Figure 3.10-1: General Plan Land Use Designations Map, the project area is located within the City of Lathrop. Local regulation of land use and planning is codified in the City of Lathrop General Plan and the City of Lathrop Zoning Ordinance within the City of Lathrop Municipal Code. The City of Lathrop General Plan contains certain policies that PG&E has considered, consistent with CPUC jurisdiction over the project. The Lathrop Gateway Business Park Specific Plan is also evaluated in this section.

Although PG&E is not subject to local discretionary permitting, ministerial permits will be secured, as required.

3.10.2.2 Methodology

Analysis of land use and planning included a review of the following plans and policies:

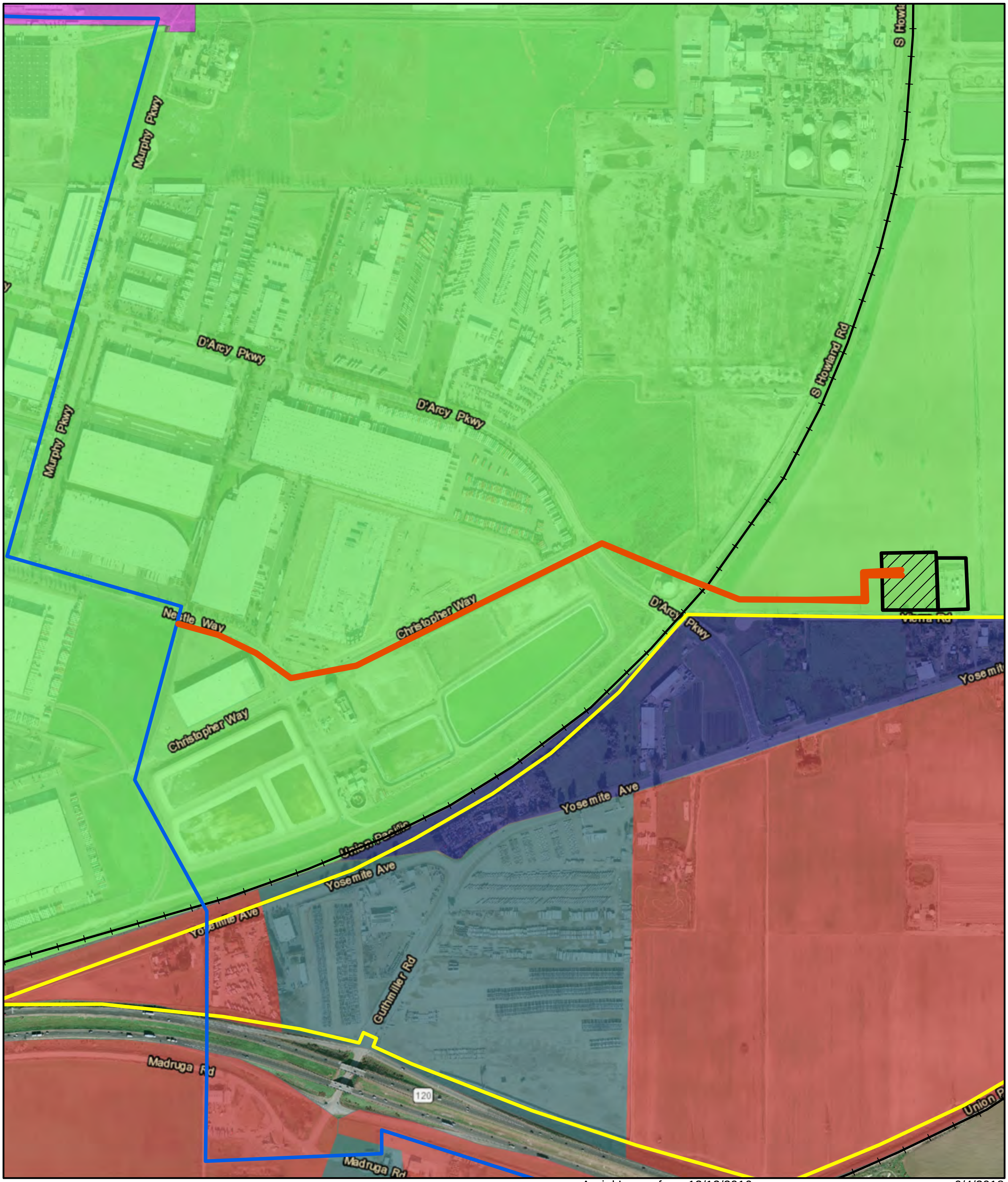
- City of Lathrop General Plan
- City of Lathrop Zoning Ordinance
- Lathrop Gateway Business Park Specific Plan

In addition, a field visit to the site was conducted to gather relevant information pertaining to the land uses at the project site and surrounding areas. Several meetings were held with the City of Lathrop Planning Department and Mayor of Lathrop to discuss the project. PG&E has also completed outreach to landowners that will be affected by the project.

3.10.3 ENVIRONMENTAL SETTING

3.10.3.1 Regional Setting

The project is located in the City of Lathrop in south-central San Joaquin County. The approximately 1-mile-long new power line will extend from Vierra Substation to the existing Tesla-Stockton Cogen Junction 115 kV Power Line located off of Nestle Road. The substation expansion is in an area of agricultural land use, and the new power line will traverse agricultural, commercial, and industrial land uses.



S:\7-SANDBOX\chaworth\WorkDocs\PG&E\Vierra PEA\mxd\Figure 3_10-1 General Plan Land Use Designations Map.mxd

Aerial Image from 12/12/2016

6/4/2018

New 115 kV Line to be Installed

Existing Tesla-Stockton Cogen Jct 115 kV

Union Pacific Railroad

Lathrop Gateway Business Park

Existing Vierra Substation Footprint

Planned Vierra Substation Expansion

General Plan Land Use Designations

Commercial Office

Freeway Commercial

General Industrial

Limited Industrial

Service Commercial

0 250 500 1,000

Feet

N

Figure 3.10-1 - General Plan Land Use Designations Map

Vierra Reinforcement Project

PG&E

TRC Results you can rely on

3.10.3.2 Local Land Use Setting (Existing Land Use)

The existing Vierra Substation is located adjacent to the north side of Vierra Road, approximately 0.20 mile west of McKinley Avenue, and is surrounded by agricultural land owned by the J.R. Simplot Company. The alignment of the power line extends westward from the expanded substation, crossing agricultural land and paralleling Vierra Road, and then heads northwest to cross Union Pacific Railroad tracks and a parcel owned by the City of Lathrop, currently being utilized as a sprayfield for wastewater treatment. The alignment crosses D'Arcy Parkway at the intersection with Christopher Way, and continues southwest on city property along the south side of Christopher Way, adjacent to a water treatment plant and opposite warehouses associated with the commercial-industrial land use of the Crossroads Business Park. The alignment crosses Christopher Way and then Nestle Way, extending along the south side of Nestle Way, before crossing a privately owned rail spur servicing the Crossroads Business Park and terminating at the Tesla-Stockton Cogen Junction 115 kV Power Line.

In accordance with CPUC filing requirements, a preliminary list of parcels within 300 feet of the project—including the APN number, mailing address, and parcel's physical address—is provided in Appendix A.

Zoning and General Plan Land Use Designations

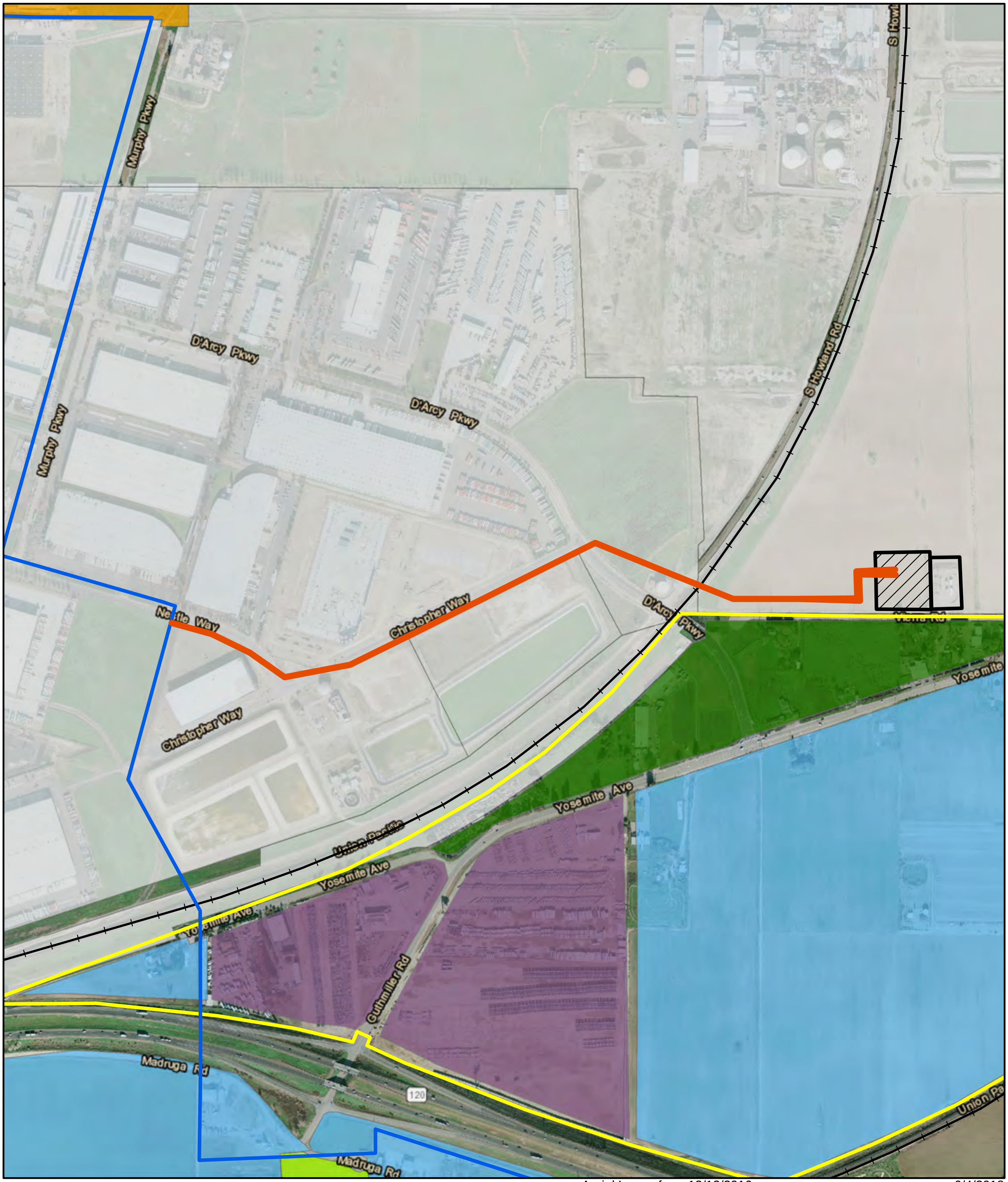
The project is located entirely within the City of Lathrop. Figure 3.10-1: General Plan Land Use Designations Map illustrates the general plan land use designations and applicable specific plans in the project area, and Figure 3.10-2: Zoning Designations Map illustrates the zoning designations in the project area. Public utility facilities regulated by the CPUC are not subject to local land use and zoning regulations.

3.10.3.3 Local Plans and Policies

As previously stated, the project is not subject to local agency regulations. However, PG&E has considered the following local plans and policies in its design of the proposed project. The project's consistency with particular policies within these documents is discussed in Section 3.10.4.3, Potential Impacts, below.

The City of Lathrop General Plan does not include specific polices related to the siting of new public utilities, including power lines and substations. The City of Lathrop Municipal Code zoning code includes public utilities and public service structures and facilities as a permitted use under the general industrial zoning district.

Tree removal may be required along Nestle Way and Christopher Way, if landscaping planted prior to project construction is not compatible with the overhead power line. Section 12.08.340 of the City of Lathrop zoning code outlines regulations regarding tree trimming and removal, and section 12.16.060 outlines responsibility for replacement of trees in accordance with the comprehensive street plan or master guidelines for trees. Because the City of Lathrop does not have jurisdiction over the project, these regulations do not apply to the Vierra Reinforcement Project, although PG&E generally designs its projects to be consistent with such local tree ordinances where feasible and will do so here.



S:\7-SANDBOX\chaworth\WorkDocs\PG&E\Vierra PEA\mxd\Figure 3_10-2 General Plan Zoning Designations Map.mxd

Aerial Image from 12/12/2016

6/4/2018

New 115 kV Line to be Installed

Existing Tesla-Stockton Cogen Jct 115 kV

Union Pacific Railroad

Lathrop Gateway Business Park

Existing Vierra Substation Footprint

Planned Vierra Substation Expansion

Zoning Designations

Commercial Office Lathrop Gateway

Commercial Office South Lathrop

General Industrial

Highway Commercial

Limited Industrial Lathrop Gateway

Service Commercial Lathrop Gateway

0 250 500 1,000

Feet

N

Figure 3.10-2 - General Plan Zoning Designations Map

Vierra Reinforcement Project

PG&E

Habitat Conservation Plans

As noted above, although the project is located within the Plan Area of both the PG&E San Joaquin Valley O&M HCP and the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan, project construction activities are not covered by either plan. However future O&M activities would be considered covered activities under the PG&E HCP.

3.10.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for land use impacts derived from Appendix G of the CEQA Guidelines, provide APMs, and assess potential project-related construction and operational land use impacts. Because the project will have no impact on land use, APMs have not been included for this section.

3.10.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, “a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project.” As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts on land use and planning were evaluated for each of the criteria listed in Table 3.10-1, as discussed in Section 3.10.4.3.

3.10.4.2 Applicant-Proposed Measures

The project will have no impact on land use planning and no APMs are proposed.

3.10.4.3 Potential Impacts

Project impacts related to land use were evaluated against the CEQA significance criteria and are discussed below. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance phase. An analysis of impacts to adjacent land uses during construction and operation of the project is included in other sections of the PEA, including Aesthetics, Air Quality, Hazards and Hazardous Materials, Noise, Recreation, and Transportation and Traffic.

As described in Chapter 2.0, Project Description, the project includes installing approximately 1 mile of 115 kV power line on TSPs, improving and expanding PG&E’s existing Vierra Substation, and establishing temporary work areas to construct these improvements.

a) Would the project physically divide an established community? *No Impact*

Construction

The project will not physically divide an established community. Implementation of the project will require the acquisition of new easements for the new power line, as well as acquisition of property for the expansion of Vierra Substation. The easement for the new power line will be adjacent to an existing easement, sited along the edge of industrial parcels, or along existing roadways. Construction of the power line will not create a physical barrier that impedes pedestrian, vehicle, or transit access in the City of Lathrop. Construction of the project will require the use of temporary construction work areas along the project alignment and adjacent to Vierra Substation. Use of these work areas will be temporary and short term, and will be immediately adjacent to the existing and proposed utility easements. Therefore, construction of the project will not create new divisions of established communities, and no impact will occur.

Operation and Maintenance

Operation and maintenance personnel will continue to visit the project site periodically for routine inspection and maintenance procedures. These infrequent activities will not change materially from existing activities or physically divide an established community, and there will be no impact.

b) Would the project conflict with applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect? *No Impact*

Construction

Because local agencies do not have jurisdiction over the project, and no state or federal land use plans, policies, or regulations are applicable, the project will not conflict with any applicable land use policy, plan, or regulation. Even if local land use regulations did apply, the project would not conflict with the general plan and is consistent with permitted uses under the general industrial zoning district. No impacts related to land use will occur as a result of construction activities.

Operation and Maintenance

Operation and maintenance personnel will continue to visit the project site periodically for routine inspection and maintenance procedures. This infrequent activity will not conflict with any land use plans or policies, and there will be no impact.

c) Would the project conflict with any applicable habitat conservation plan or natural community conservation plan? *No Impact*

The project does not conflict with PG&E's San Joaquin Valley O&M HCP or the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan.

PG&E's O&M HCP enables the company to continue to conduct current and future O&M activities in the San Joaquin Valley while minimizing, avoiding, and compensating for possible direct, indirect, and cumulative adverse effects on threatened and endangered species that could result from such management activities. Minor construction activities covered by the HCP include installing new or replacement structures to upgrade existing facilities or extend service to new customers. These activities are limited to constructing 1 mile or less of new electric or gas line and 0.5 acre or less of permanent facilities (e.g., substations) (Jones and Stokes 2006). The HCP is not applicable to construction of the project as the substation expansion exceeds the 0.5-acre limit for coverage. However, construction activities will not conflict with the HCP, and PG&E will operate and maintain the facilities in accordance with the plan.

As discussed in Section 3.4, Biological Resources, the City of Lathrop is a Permittee under the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan; however, the project is not a covered activity since PG&E is not a permittee/participant in this HCP.

No other HCPs or NCCPs have been adopted in the project area. No impacts will occur.

3.10.5 REFERENCES

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3.11 MINERAL RESOURCES

3.11.1 INTRODUCTION

This section describes existing conditions and potential impacts on mineral resources as a result of construction, operation, and maintenance of the project. The analysis concludes that the project will have no impact on mineral resources. The project's potential effects on mineral resources were evaluated using the significance criteria set forth in Appendix G of the California Environmental Quality Act (CEQA) Guidelines. The conclusions are summarized in Table 3.11-1 and discussed in more detail in Section 3.11.4.

Table 3.11-1: CEQA Checklist for Mineral Resources

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

3.11.2 REGULATORY BACKGROUND AND METHODOLOGY

3.11.2.1 Regulatory Background

Federal

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

State

The California Surface Mining and Reclamation Act (SMARA) of 1975 requires that the State Geologist classify land into mineral resource zones (MRZ) according to the known or inferred mineral potential of the land (Public Resources Code Sections 2710-2796).

Local

Because the CPUC has exclusive jurisdiction over project siting, design, and construction, the project is not subject to local discretionary regulations. Although PG&E has considered local plans and policies as part of the environmental review process, the San Joaquin County General Plan and the City of Lathrop General Plan do not designate any regionally-significant or known locally important mineral resources in the project area.

3.11.2.2 Methodology

Information on mineral resources was compiled from published literature, maps, and review of aerial photographs. Geologic units and structural features were obtained from maps published by the California Geological Survey (CGS), U.S. Geological Survey (USGS), San Joaquin General Plan (2014), and City of Lathrop General Plan (2017). Mineral resources impacts that can result from project construction and operational activities were evaluated qualitatively based on site conditions, expected construction practices, materials, locations, and duration of project construction and operational activities.

3.11.3 ENVIRONMENTAL SETTING

According to the San Joaquin County General Plan, the mineral resources of San Joaquin County consist primarily of sand and gravel aggregate, with limited mining of peat, gold, and silver. Sand and gravel extraction constitute the major portion of the county's mining activity, both in terms of quantity of material produced and value of extracted resources. According to the CGS publication Special Report 199 (2012), the project crosses a northwest-to-southeast oriented MRZ boundary, where the alignment crosses South Howland Road, with MRZ-1 to the west and MRZ-3 to the east. MRZ-1 refers to an area where available geologic information indicates that little likelihood exists for the presence of significant mineral resources. MRZ-3 refers to an area containing known mineral occurrences of undetermined mineral resource significance. This potential resource is a part of the Modesto Formation alluvium, which may be a sand and gravel resource. USGS (Wagner et. al, 1991) mapped this potential resource as underlying the entire project area.

3.11.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for impacts on mineral resources derived from Appendix G of the CEQA Guidelines and assess potential project-related construction and operational impacts. Because the project will have no impact on mineral resources, APMs have not been included for this section.

3.11.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts on mineral resources were evaluated for each of the criteria listed in Table 3.11-1, as discussed in Section 3.11.4.3.

3.11.4.2 Applicant-Proposed Measures

The project will have no impact on mineral resources and no APMs are proposed.

3.11.4.3 Potential Impacts

Project impacts related to mineral resources were evaluated against the CEQA significance criteria and are discussed below. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance phase.

As described in Chapter 2.0, Project Description, the project includes installing approximately 1 mile of 115 kV power line on TSPs, improving and expanding PG&E's existing Vierra Substation, and establishing temporary work areas to construct these improvements.

a) Would the project result in the loss of availability of a known mineral resource that would be of value to the region and residents of the state? *No Impact*

Construction

The project will not be located within any area classified as MRZ-2 (areas with known mineral resources). The western portion of the project area will be located in an area classified as MRZ-1, which is defined as having little likelihood for the presence of significant mineral resources, and the eastern portion will be located in an area classified as MRZ-3, defined as an area with potential mineral resources. Construction activities will include a minimal amount of ground disturbance associated with placement of new power poles and the expansion of Vierra Substation. These activities will not inhibit the ability to recover known mineral resources in the future if these resources are determined to be present. Therefore, no impact will occur.

Operation and Maintenance

Operation and maintenance activities will not change materially from existing activities. In any event, ground-disturbing operation and maintenance activities will be infrequent, and will not inhibit the ability to recover known mineral resources in the future if these resources are determined to be present. Therefore, no impact will occur.

b) Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan? *No Impact*

According to the City of Lathrop General Plan Map dated February 14, 2017, the project is within the city limits in an area designated as General Industry land use. The project is not within an MRZ-2 area on the City of Lathrop General Plan map showing *Lands Having Sand Deposits of Regional Significance*, nor is it within any of the sectors on the entitled *Lands Designated as Regionally Significant Construction Aggregate Resource Areas*. The project area is not mapped on a local general plan, specific plan, or other use plan as a MRZ-2 area, or as another locally important mineral resource recovery site. Therefore no impact is anticipated to occur.

3.11.5 References

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3.12 NOISE

3.12.1 INTRODUCTION

This section describes potential noise impacts associated with construction, operation, and maintenance of the project, and concludes that impacts will be less than significant in these areas. The Applicant-Proposed Measure(s) (APMs) described in Section 3.12.4.2 will further reduce potential less-than-significant impacts. The project's potential noise-related effects were evaluated using the significance criteria set forth in Appendix G of the California Environmental Quality Act (CEQA) Guidelines. The conclusions are summarized in Table 3.12-1 and discussed in more detail in Section 3.12.4.

Table 3.12-1: CEQA Checklist for Noise

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

3.12.1.1 Fundamentals of Noise

Noise is generally defined as loud, unpleasant, unexpected, or undesired sound that is typically associated with human activity and that interferes with or disrupts normal activities. Although prolonged exposure to high noise levels has been demonstrated to cause hearing loss, the principal human response to environmental noise is annoyance. The response of individuals to similar noise events is diverse and influenced by the type of noise; the perceived importance of the noise, and its appropriateness in the setting; the time of day and the type of activity during which the noise occurs; and the sensitivity of the individual. Airborne sound is the fluctuation of air pressure above and below atmospheric pressure. Several ways exist to measure sound, depending on the source, receiver, and reason for the measurement.

Community sound levels are generally presented in terms of A-weighted decibels (dBA). The A-weighting network measures sound in a similar fashion to how a person perceives or hears sound, thus achieving a strong correlation with how people perceive acceptable and unacceptable sound levels. Table 3.12-2: Typical Sound Levels Measured in the Environment and Industry, presents A-weighted sound levels and the general subjective responses associated with common sources of noise in the physical environment.

Table 3.12-2: Typical Sound Levels Measured in the Environment and Industry

Noise Source at a Given Distance	Sound Level in A-weighted Decibels (dBA)	Qualitative Description
Carrier deck jet operation	140	
	130	Pain threshold
Jet takeoff (200 feet)	120	
Auto horn (3 feet)	110	Maximum vocal effort
Jet takeoff (1,000 feet) Shout (0.5 foot)	100	
New York subway station Heavy truck (50 feet)	90	Very annoying; Hearing damage (8-hour, continuous exposure)
Pneumatic drill (50 feet)	80	Annoying
Freight train (50 feet) Freeway traffic (50 feet)	70 to 80 70	Intrusive (telephone use difficult)
Air conditioning unit (20 feet)	60	
Light auto traffic (50 feet)	50	Quiet
Living room Bedroom	40	
Library Soft whisper (5 feet)	30	Very quiet
Broadcasting/Recording studio	20	
	10	Just audible
Source: Adapted from Table E, "Assessing and Mitigating Noise Impacts" (New York Department of Environmental Conservation 2001).		

A-weighted sound levels are typically measured or presented as the equivalent sound pressure level (L_{eq}), which is defined as the average noise level on an equal-energy basis for a stated period of time and commonly is used to measure steady-state sound that is usually dominant. Statistical methods are used to capture the dynamics of a changing acoustical environment. Statistical measurements are typically denoted by L_n, where "n" represents the percentile of time that the sound level is exceeded. Therefore, L90 represents the noise level that is exceeded during 90 percent of the measurement period, which typically represents a continuous noise source. Similarly, L10 represents the noise level exceeded for 10 percent of the measurement period.

Another metric used in determining the impact of environmental noise is the differences in response that people have to daytime and nighttime noise levels. During the evening and at night, exterior background noises generally are lower than daytime levels. However, most household noise also decreases at night, and exterior noise becomes more noticeable. Furthermore, most people sleep at night and are sensitive to intrusive noises. To account for human sensitivity to evening and nighttime noise levels, the day-night sound level (L_{dn}) (also referred to as DNL) and the community noise equivalent level (CNEL) were developed. The L_{dn} is a noise metric that accounts for the greater annoyance of noise during the nighttime hours (10 p.m. to 7 a.m.). The CNEL is a noise index that accounts for the greater annoyance of noise during both the evening hours (7 p.m. to 10 p.m.) and nighttime hours.

L_{dn} values are calculated by averaging hourly L_{eq} sound levels for a continuous 24-hour period on an energy basis, applying a weighting factor of 10 decibels (dB) to the nighttime values. CNEL values are calculated similarly, except that a 5-dB weighting factor also is added to evening L_{eq} values. The applicable adjustments, which reflect the increased sensitivity to noise during evening and nighttime hours, are applied to each hourly L_{eq} sound level for the calculation of L_{dn} and CNEL. For the purposes of assessing noise, the 24-hour day is divided into three time periods, with the following adjustments:

- Daytime hours: 7 a.m. to 7 p.m. (12 hours)—adjustment of 0 dBA
- Evening hours (for CNEL only): 7 p.m. to 10 p.m. (3 hours)—adjustment of +5 dBA
- Nighttime hours (for both CNEL and L_{dn}): 10 p.m. to 7 a.m. (9 hours)—adjustment of +10 dBA

The hourly adjusted time-period noise levels are then averaged (on an energy basis) to compute the overall L_{dn} or CNEL value. For a continuous noise source, such as a transformer, the L_{dn} value can be computed by adding 6.4 dBA to the overall 24-hour noise level (L_{eq}). For example, if the expected continuous noise level from a noise source is 60.0 dBA, the resulting L_{dn} from the source will be 66.4 dBA. Similarly, the CNEL for a continuous noise source is computed by adding 6.7 dBA to the overall 24-hour L_{eq}.

The general human response to changes in noise levels that are similar in frequency content (such as comparing increases in continuous (L_{eq}) traffic noise levels) are summarized as follows:

- A 3-dB change in sound level is considered to be a barely noticeable difference.
- A 5-dB change in sound level typically is noticeable.
- A 10-dB increase is considered to be a doubling in loudness.

Corona Noise

Corona generates audible noise during operation of high-voltage transmission lines. Under certain conditions, the localized electric field near an energized conductor can be sufficiently concentrated to produce a tiny electric discharge that can ionize air close to the conductors. This partial discharge of electrical energy is called corona discharge, or corona. Several factors, including conductor voltage, shape and diameter, and surface irregularities such as scratches, nicks, dust, or water drops, can affect a conductor's electrical surface gradient and its corona performance. Corona is the physical manifestation of energy loss, and can transform discharge energy into very small amounts of sound, radio noise, heat, and chemical reactions of the air components.

Transmission lines can generate a small amount of sound energy during corona activity. This noise from higher voltage lines is not normally audible to adjacent receptors in fair weather conditions. During wet weather conditions (such as rain or fog), water drops collect on the conductor and increase corona activity so that a crackling or humming sound may be heard near the line. This noise is caused by small electrical discharges from the water drops. However, during heavy rain, the ambient noise generated by the falling raindrops will typically be greater than the noise generated by corona. Corona noise is generally more noticeable on high-voltage lines, and is usually not a design issue for power lines rated at 230 kV and lower.

Vibration

Generally speaking, vibration is energy transmitted in waves through the ground. Because energy is lost during the transfer of energy from one particle to another, vibratory energy is reduced with increasing distance from the source. Human perception of vibration varies with the individual and is a function of physical setting and the type of vibration. Persons exposed to elevated ambient vibration levels, such as people in an urban environment, may tolerate a higher vibration level. Ground-borne vibration is almost never annoying to people who are outdoors; without the effects associated with the shaking of a building, the rumble noise of vibrations is not perceptible.

The California Department of Transportation has developed guidance on addressing vibration issues associated with construction, operation, and maintenance of transportation projects (Caltrans 2006). Based on this guidance, continuous/frequent intermittent vibration sources are significant when their peak particle velocity (PPV) exceeds 0.1 inch per second. Table 3.12-3: Human Response to Transient Vibration, outlines additional specific criteria for human annoyance due to vibration. Though the guidance is non-enforceable, it provides a basis for evaluating potential vibration from the proposed project.

Table 3.12-3: Human Response to Transient Vibration

Human Response	PPV (inches/second)
Severe	2.0
Strongly Perceptible	0.9
Distinctly Perceptible	0.24
Barely Perceptible	0.035
Source: Caltrans 2013	

3.12.2 Regulatory Background and Methodology

3.12.2.1 Regulatory Background

Federal

No federal regulations limit overall environmental noise levels.

State

No state regulations limit environmental noise impacts.

Local

Because the CPUC has exclusive jurisdiction over the siting, design, and construction of the project, the project is not subject to local discretionary noise requirements. This section includes a summary of local noise standards or ordinances in the project area for informational purposes and to assist with CEQA review. Safety concerns around airports are discussed in Section 3.8, Hazards and Hazardous Materials.

Section 8.20.110 of the Lathrop Municipal Code applies to construction of project and indicates that it is "unlawful for any person within a residential zone or within a radius of five hundred (500) feet therefrom, to operate equipment or perform any outside construction or repair work on buildings, structures or projects or to operate any pile driver, power shovel, pneumatic hammer, derrick, power hoist, or any other construction type device outside of specified hours, in such a manner that a reasonable person of normal sensitiveness residing in the area is caused discomfort or annoyance unless beforehand a permit therefore has been duly obtained from the office or body of the city having the function to issue permits of this kind." Residential zone construction hours specified in the code are "between 7:00 a.m. and 10:00 p.m., and commencing at 9:00 a.m. on Saturday, Sunday, and legal holidays, and extending to 11:00 p.m. on Friday, Saturday, and the evening before a legal holiday."

Section 8.20.100 of the Lathrop Municipal Code applies to permanent equipment and/or post-construction operational noise and states that "it is unlawful for any person to operate any machinery, equipment, pump, fan, air conditioning apparatus, or similar mechanical device in any manner so as to create any noise which would cause the noise level at the property line of any property to exceed the ambient base noise level by more than five decibels."

3.12.2.2 Methodology

Evaluation of potential noise impacts from the project included reviewing county, community, and city noise standards, characterizing the existing noise environment, and predicting noise levels and related impacts during both construction and operation.

3.12.3 Environmental Setting

The project alignment runs between Vierra Substation and the Tesla-Stockton Co-Gen Junction 115 kV line, located west of Vierra Substation in the City of Lathrop in southern San Joaquin County (see Figure 2.0-2: Project Overview Map). The project is situated in close proximity to various land uses, primarily industrial, commercial, agricultural, and residential. The route travels parallel to public roadway corridors, including Vierra Road, D'Arcy Parkway, Christopher Way, and Nestle Way. Contributors to the noise environment primarily consist of continuous sounds of traffic along highways and city roads, airplane noise, agricultural activities, sounds emanating from residents nearby, and naturally occurring sounds (e.g., wind). The existing substation contains two 3-phase 45-MVA distribution transformers, which are the primary sound sources associated with the operation of the power lines and substation, and contribute a constant low-level humming noise (noise associated with this size of transformer is typically on the order of 60 dBA at the source [Heathcote 2007]).

3.12.3.1 Sensitive Receptors

Noise-sensitive receptors generally are defined as locations where people reside or where the presence of unwanted sound may adversely affect the existing land use. Typically, noise-sensitive land uses include residences, hospitals, places of worship, libraries, performance spaces, offices, and schools, as well as nature and wildlife preserves, recreational areas, and parks. Sensitive receptors within 500 feet of the project alignment were analyzed for potential impacts as a result of project construction and operation.

The nearest sensitive receptors to the project are five residences located on the south side of Vierra Road across from the existing substation on commercial- and industrial-zoned properties. The residences range between approximately 100 and 275 feet from the existing substation property. The westernmost residence is also approximately 100 feet from the expansion area of the substation. Light of the World Christian Center on Yosemite Avenue is located approximately 500 feet south of the substation. The alignment of the new double-circuit 115 kV line runs through an area that is primarily industrial and commercial. There is one residence at the western end of Vierra Road and two residences on Yosemite Road that are approximately 100 and 500 feet from the alignment, respectively. No residential zones are within 500 feet of the project. No schools, hospitals, parks, other residences, or other sensitive facilities are located within 0.5 mile of the project.

No public airports or private air strips were identified within 2 miles of the project alignment.

3.12.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for noise-related impacts derived from Appendix G of the CEQA Guidelines, provide APMs, and assess potential project-related construction and operational noise impacts.

3.12.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts related to noise were evaluated for each of the criteria listed in Table 3.12-1, as discussed in Section 3.12.4.3.

3.12.4.2 Applicant-Proposed Measures

PG&E will implement the following APMs:

APM NOI-1: Construction Schedule Limits

Construction hours within the project area, which is industrially-zoned, will typically occur between the hours of 7:00 a.m. and 7:00 p.m., Monday through Friday, and between 9:00 a.m. and 7:00 p.m. Saturday, although work could be scheduled with a rotation of 11 days on and 3 days off. Nighttime work is not anticipated but may occur to take advantage of line clearances during off-peak hours, which would be short in duration. If nighttime work is needed because of clearance restrictions on the existing power lines connected to Vierra Substation, PG&E will take appropriate measures to minimize disturbances to local residents, including contacting nearby residences within 500 feet of the activity to inform them of the work schedule and probable inconveniences.

APM NOI-2: Construction Equipment Noise Reduction Devices

Construction equipment will use noise reduction devices that are no less effective than those originally installed by the manufacturer.

APM NOI-3: Placement of Stationary Construction Equipment

Stationary equipment used during construction will be located as far as practical from sensitive noise receptors.

APM NOI-4: Minimization of Unnecessary Engine Idling

Construction crews will limit unnecessary engine idling. (See APM GHG-1.)

APM NOI-5: Use of "Quiet" Construction Equipment

Where feasible, construction equipment will be used that is specifically designed for low-noise emissions or that is powered by electric or natural gas as opposed to diesel or gasoline.

APM NOI-6: Sensitive Receptor Notification

Sensitive receptors in areas of heavy construction noise, including helicopter usage, will be notified prior to commencing construction activities. Notification will include written notice and posting signs in appropriate locations, with a contact number to call with questions and concerns.

3.12.4.3 Potential Impacts

Project impacts related to noise were evaluated against the CEQA significance criteria and are discussed below. This section evaluates potential project impacts during the construction phase and the operation and maintenance phase.

As described in Chapter 2.0, Project Description, the project includes installing approximately 1 mile of 115 kV power line on TSPs, improving and expanding PG&E's existing Vierra Substation, and establishing temporary work areas to construct these improvements.

a) Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? *Less-than-Significant Impact*

Although the project is exempt from local land use and zoning regulations, the project will nevertheless be consistent with local noise standards.

Construction

The City of Lathrop Municipal Code restricts hours of construction activity within 500 feet of a residential zone, but the project is not within 500 feet of a residential zone. While there are residences along the south side of Vierra Road that are in commercial or industrial zones within 500 feet of the project, temporary construction noise will generally comply with the hourly limits set by the local noise ordinance for residential zones. If nighttime construction is necessary to continue work until a safe stopping point is reached or if planned electrical outages (clearances) are scheduled at night, activities will be infrequent and short-term. The construction noticing described in APM NOI-6 will include information about the potential for infrequent and short-term nighttime construction. Construction of the project will result in less-than-significant impacts under this criterion. The implementation of APMs will further minimize exposure of receptors to construction noise.

Operation and Maintenance

No new noise sources will be installed in the expanded substation as part of the project, therefore the project will not operate mechanical devices that would cause the noise level at the property line to exceed the ambient base noise level by more than five decibels as specified in the City of Lathrop Municipal Code. Transformers are the primary source of noise associated with substations, and no transformers will be installed at this time. Even if a third transformer is added at some point in the future, no noticeable increase in noise under general operating conditions is anticipated. Substation operation noise will not exceed local standards and there will be no impact.

Power line maintenance will generate periodic noise, but the minimal noise produced will be short term and temporary, and will not exceed local noise standards. Maintenance activities currently performed at Vierra Substation will continue to occur over short timeframes and generate minimal noise, all within local noise standards. No impact will result.

b) Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels? *Less-than-Significant Impact*

Construction

Construction activities (e.g., ground-disturbing activities, including grading and movement of heavy construction equipment) may generate localized groundborne vibration and noise. The human response thresholds for vibration (refer to Table 3.12-3: Human Response to Transient Vibration) indicate that vibration is barely perceptible with a PPV of 0.035. Table 3.12-4: Vibration Source Levels for Construction Equipment at 50 Feet provides vibration source levels for some construction equipment that is expected to be utilized for the project. The source levels have been normalized to a reference distance of 50 feet, which is less than the distance of the closest any one single residence would be to any construction area.

Table 3.12-4: Vibration Source Levels for Construction Equipment at 50 Feet

Equipment[1]	PPV at 50 Feet
Caisson Drill (drilling rig)	0.031
Loaded Truck	0.027
Bulldozer	0.001

Notes:
1 Vibration levels listed are for typical equipment used during construction, and not all potential equipment used for the project is listed herein. The equipment used is considered to be representative of the equipment that will be used during construction of the project.
Source: Federal Transit Administration 2006

Referring to the data in Table 3.12-4: Vibration Source Levels for Construction Equipment at 50 Feet, vibration levels will be below the barely perceptible response level. Additionally, groundborne vibration and noise will occur during daytime hours and will be short term in duration. Therefore, construction of the proposed project will result in a less-than-significant impact.

Operation and Maintenance

No vibration will result from operation and maintenance of the substation and power lines.

c) Would the project result in substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? *Less-than-Significant Impact*

Construction

Project construction will not result in a permanent increase in ambient noise levels. Therefore there will be no impact under this criterion.

Operation and Maintenance

No increases in permanent ambient noise levels are expected from the proposed modifications at Vierra Substation. Likewise, operation of the electrical power lines typically will not generate noticeable noise. Corona noise associated with moisture on the new electrical wires is anticipated to be minimal. The conductor size selected for the project's power line (115 kV) is of sufficient diameter to lower the localized electrical stress on the air at the conductor surface and will further reduce already low conductor surface gradients so that little or no corona activity will exist under most operating conditions. The Bonneville Power Administration (BPA) has done extensive measurement and modeling of corona noise for high-voltage transmission lines. Based on modeling for a 500 kV transmission line (which would be expected to generate more audible noise than lower voltage lines), audible noise levels of approximately 40 to 49 A-weighted decibels (dBA) would occur at the edge of the easement during wet weather conditions (Bracken 2010). These calculated levels are below the U.S. Environmental Protection Agency (EPA) outdoor activities noise guideline of 55 dBA, and are similar to the range of audible noise levels measured in general rain conditions (41 - 63 dBA) (EPA 1974; Miller 1978). Under fair weather conditions, BPA estimates audible noise levels would be approximately 20 dBA lower (if corona were present). These noise levels are below the sound level for a library (35 dBA). Audible corona noise levels will decrease with distance away from the transmission line. Due to these factors, impacts from corona noise will be less than significant. Maintenance activities associated with the substation and new power line will continue to be temporary and periodic, and are addressed under the next criterion.

d) Would the project result in substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project? *Less-than-Significant Impact*

Construction

Increases in ambient noise levels in the project vicinity during construction will vary depending on the location of the receptor. Receptors located near transmission lines will be exposed to short-term, intermittent, and temporary construction noise, while those located near the substation expansion will be exposed to longer-term construction activities. Adverse construction noise conditions (e.g., nighttime construction near residences) are not anticipated. Construction noise impacts from the proposed project will be a less-than-significant impact under this criterion. Implementation of APM NO-1, APM NO-2, APM NO-3, APM NO-4, and APM NO-5 will further minimize temporary impacts related to construction equipment noise.

Operation and Maintenance

No substantial temporary or periodic noise impacts will result from operation of the expanded Vierra Substation or new 115 kV power line. Routine inspection and maintenance activities currently performed at the substation and on surrounding lines will continue and will include all new project components. Maintenance activities will continue to occur over short timeframes each year and generate minimal noise. Operation will not change from existing conditions to result in substantial temporary or periodic increase in ambient noise levels in the project vicinity above existing levels. Therefore, no noise impacts from O&M of the project will occur under this criterion.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, will the project expose people residing or working in the project area to excessive noise levels? *No Impact*

The project is not located within an airport land use plan or within 2 miles of a pubic airport or public use airport; therefore, the project will result in no impacts under this criterion.

f) For a project within the vicinity of a private airstrip, will the project expose people residing or working in the project area to excessive noise levels? *No Impact*

No private airstrips are located within 2 miles of the project; therefore, the project will result in no impacts under this criterion.

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3.13 POPULATION AND HOUSING

3.13.1 INTRODUCTION

This section describes existing conditions and potential impacts on population and housing as a result of project construction, operation, and maintenance. The analysis concludes that the project will have no impact. The project's potential effects on population and housing were evaluated using the significance criteria set forth in Appendix G of the California Environmental Quality Act (CEQA) Guidelines. The conclusions are summarized in Table 3.13-1 and discussed in more detail in Section 3.13.4.

Table 3.13-1: CEQA Checklist for Population and Housing

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

3.13.2 REGULATORY BACKGROUND AND METHODOLOGY

3.13.2.1 Regulatory Background

No regulatory background information is relevant to addressing project-related impacts on population and housing.

3.13.2.2 Methodology

To evaluate potential effects on population and housing resources, the City of Lathrop's General Plan Housing Section, San Joaquin Regional Housing Needs Assessment, and U.S. Census Bureau data were reviewed. In addition, a site walk of the construction work areas was conducted.

3.13.3 ENVIRONMENTAL SETTING

Regional

The project is located in the City of Lathrop in San Joaquin County. In 2016, the population of San Joaquin County was approximately 733,709 people.

Local

The City of Lathrop has an estimated land area of approximately 23.03 square miles. In 2010, the City of Lathrop had a population of approximately 18,023 people, and approximately 5,261 housing units with a vacancy rate of 9.10 percent. The estimated 2016 population for the City of Lathrop was 22,073 people.

For the period of 2014 to 2023, the regional housing needs assessment for the City of Lathrop is 5,156 new housing units, for a projected 11,543 housing units by 2023. The project alignment is located within a predominately industrial area, and the majority of residential development in Sub-Plan Area #1, the planning area in which the project is located, will occur north of Lathrop Road, and north of the project.

Although the City of Lathrop has only approximately five hotels within city limits, it is located just south of the City of Stockton, which has more than 30 hotels available.

3.13.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for impacts on population and housing derived from Appendix G of the CEQA Guidelines, and assess potential project-related construction and operational impacts. Because the project will have no impact on population and housing, APMs have not been included for this section.

3.13.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts on population and housing were evaluated for each of the criteria listed in Table 3.13-1, as discussed in Section 3.13.4.3.

3.13.4.2 Applicant-Proposed Measures

The project will have no impact on population and housing and no APMs are proposed.

3.13.4.3 Potential Impacts

Project impacts on population and housing were evaluated against the CEQA significance criteria, as discussed below. This section evaluates potential project impacts from both the construction phase and operation and maintenance phase.

As described in Chapter 2.0, Project Description, the project includes installing approximately 1 mile of 115 kV power line on TSPs, improving and expanding PG&E's existing Vierra Substation, and establishing temporary work areas to construct these improvements.

a) Would the project induce substantial population growth in area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure? *No Impact*

Construction

The project does not include new housing, businesses, or land use changes that will induce population growth in the area. The objective of the project is to improve transmission system reliability and capacity by connecting the Tesla-Stockton Cogen Junction 115 kV Power Line into Vierra Substation, which will benefit the Tesla 115 kV system—and the 60 kV systems it feeds at Kasson, Manteca, and Salado substations—by providing more capacity and better reliability. The purpose of the project is to strengthen the existing power infrastructure by reducing the loading on the existing four transmission paths from Tesla Substation, which will better serve existing customers in the area by preventing service interruptions. The project will not eliminate barriers to development like the creation of a significant new supply of water, nor will PG&E’s minor construction activities lead to growth in areas not previously approved for growth by local agencies.

During peak construction periods, a maximum of approximately 20 crewmembers and other workers are anticipated to be working on the project at any given time. Many project crewmembers will commute from the surrounding areas and are expected to be drawn from the local and/or regional labor pool. However, if necessary, there is sufficient temporary housing in the project vicinity to accommodate the temporary housing needs of construction crewmembers and other workers. Because the duration of construction is anticipated to be short, occurring over an approximately 18-22-month period, it is not expected that the construction workforce will permanently relocate to the area.

Therefore, the project will not cause an increase in population growth, and there will be no impact.

Operation and Maintenance

Operation and maintenance personnel will continue to visit the project area periodically for routine inspection and maintenance procedures. These activities will continue to be infrequent and will not result in personnel permanently relocating to the area. Therefore, there will be no impact.

b) Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere? *No Impact*

Project construction, operation, and maintenance will not displace existing housing, nor will replacement housing need to be constructed; therefore, no impact will occur.

c) Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere? *No Impact*

Project construction, operation, and maintenance will not displace people, nor will replacement housing need to be constructed; therefore, no impact will occur.

3.13.5 REFERENCES

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3.14 PUBLIC SERVICES

3.14.1 INTRODUCTION

This section describes existing conditions and potential impacts on public services as a result of construction, operation, and maintenance of the project, and concludes that less-than-significant impacts will occur. Public services include fire and emergency protection, police protection, and maintenance of public facilities such as schools and parks. Emergency access is discussed in Section 3.16, Transportation and Traffic. Potential impacts on parks and recreational facilities are discussed in Section 3.15, Recreation.

The project's potential effects on public services were evaluated using the significance criteria set forth in Appendix G of the California Environmental Quality Act (CEQA) Guidelines. The conclusions are summarized in Table 3.14-1 and discussed in more detail in Section 3.14.4.

Table 3.14-1: CEQA Checklist for Public Services

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☒	☐
Police protection?	☐	☐	☒	☐
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

3.14.2 REGULATORY BACKGROUND AND METHODOLOGY

3.14.2.1 Regulatory Background

No regulatory background information for public services is relevant to the project.

3.14.2.2 Methodology

Public services include fire and police protection, and maintenance of public facilities such as schools and parks. This section was prepared by reviewing online websites for the Lathrop-Manteca Fire District, Lathrop Police Services, Lathrop Parks and Recreation, San Joaquin County Parks, and Manteca Unified School District.

3.14.3 Environmental Setting

3.14.3.1 Fire Protection

The Lathrop-Manteca Fire District provides fire protection of the City of Lathrop, rural Lathrop, and rural Manteca. The fire district staffs four stations that cover approximately 100 square miles and over 30,000 residents, and are staffed 24 hours a day. The authorized career personnel strength of the Fire District includes 33 uniformed employees and three office staff employees. A reserve firefighter roster of 25 members is maintained on the district's force. The district's fire station headquarters is located in the center of the City of Lathrop. Lathrop-Manteca Fire Station 34 is approximately 2.3 miles from Nestle Way at the western end of the project, and 3.0 miles from Vierra Substation.

3.14.3.2 Police Protection

The City of Lathrop Police Services, a division of the San Joaquin County's Sheriff's Office, provides law enforcement services to the City of Lathrop, including the project area.

3.14.3.3 Schools

Schools within the City of Lathrop are part of the Manteca Unified School District (MUSD). MUSD has three K-8 schools and one high school in the City of Lathrop. The closet school to the project is Mossdale Elementary School, located approximately 0.85 mile northwest of the project alignment, west of Interstate Highway 5.

3.14.3.4 Parks

San Joaquin County Parks and City of Lathrop Parks and Recreation manage public parks in the project area. The closet park to the project is Mossdale Crossing Regional Park, located approximately 0.80 mile southwest of the project alignment. Additional information about impacts on recreational resources is provided in Section 3.15, Recreation.

3.14.3.5 Other Public Facilities

The Lathrop Branch Library is located approximately 2 miles northwest of the project alignment. Lathrop Urgent Care, located approximately 1.5 miles north of the project.

3.14.4 Applicant-Proposed Measures and Potential Impacts

The following sections describe significance criteria for impacts on public services derived from Appendix G of the CEQA Guidelines and assess potential project-related construction and operational impacts. Because the project will have no impact on public services, APMs have not been included for this section.

3.14.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project-related impacts on public services was evaluated for each of the criteria listed in Table 3.14-1, as discussed in Section 3.14.4.3.

3.14.4.2 Applicant-Proposed Measures

The project will have a less-than-significant impact on public services and no APMs are proposed.

3.14.4.3 Potential Impacts

Project impacts on public services were evaluated against the CEQA significance criteria and are discussed in further detail below. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance phase.

As described in Chapter 2.0, Project Description, the project includes installing approximately 1 mile of 115 kV power line on TSPs, improving and expanding PG&E's existing Vierra Substation, and establishing temporary work areas to construct these improvements.

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered government 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: fire protection, police protection, schools, parks, other public facilities? *Less-than-Significant Impact*

Construction

Project construction will result in a temporary, short-term increase of up to approximately 20 construction workers. Although construction workers traveling to the project area may use existing public services or amenities, this potential increase in demand will be minimal and temporary, and will not require new or altered government facilities. The project will not include development of new residential units that will directly or indirectly increase population; therefore, no increase in the demand for public services in the area will occur. Furthermore, no new or altered public facilities are needed. Impacts will be less than significant.

Fire and Police Protection

As described in Section 3.16, Transportation and Traffic, PG&E will coordinate any road closures with emergency service providers during project construction, so that response times will not be affected and impacts will be less than significant.

Schools

The project will not involve developing new residential units or services that will generate a new residential population in the area. Therefore, the project will not cause an increase in the demand on existing schools that would affect school enrollment or performance objectives. No impact will occur.

Parks

The project will not directly affect parks, as none are crossed or adjacent to the project area. No new or altered park facilities will be required to serve workers during construction, and operation does not require new permanent workers; therefore, no impact on public parks will occur.

Other Public Facilities

The project will have no impact on the Lathrop Branch Library, located approximately 2 miles northwest of the project alignment. No medical facilities are located in the immediate vicinity of the project, and the project will have no impact on Lathrop Urgent Care, located approximately 1.5 miles north of the project. Therefore, no impact will occur.

Operation and Maintenance

The new power line will be inspected annually or as needed when driven by an event, such as an emergency. As discussed in Section 3.16, Transportation and Traffic, operation and maintenance equipment will be staged on road shoulders to conduct necessary repairs and inspections. This could have the potential to impact emergency operations along these roadways due to temporary lane closures. However, the inspections and repairs will be infrequent and temporary in nature, and will not result in a full road closure that could impact emergency operations. Therefore, impacts will be less than significant.

Operation and maintenance personnel visiting the substation and power line periodically for routine inspection and maintenance may continue to use existing public services or amenities. However, there will be no material increase in demand, and use of public services will continue to be minimal and temporary given the infrequency of operation and maintenance activities. Therefore, there will be no impact.

3.14.5 REFERENCES

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City of Lathrop Parks and Recreation. 2017. Facilities. Online: https://lathrop.recdesk.com/Community/Facility. Visited on August 8, 2017.

Lathrop-Manteca Fire District. 2015. Online: http://www.lmfire.org/. Visited on August 8, 2017.

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San Joaquin County Parks. 2017. Mossdale Crossing Reginal Park. Online: http://www.sjparks.com/parks/mossdale-crossing-regional-park.aspx. Visited on August 8, 2017.

3.15 RECREATION

3.15.1 INTRODUCTION

This section describes existing conditions and potential impacts on recreation as a result of construction, operation, and maintenance of the project, and concludes that no impacts on recreational will occur. The project will not introduce new housing or a significant number of jobs into the area that could increase the use of existing parks and will not require the introduction of new park facilities. The project's potential effects on recreation were evaluated using the significance criteria set forth in Appendix G of the California Environmental Quality Act (CEQA) Guidelines. The conclusions are summarized in Table 3.15-1 and discussed in more detail in Section 3.15.4.

Table 3.15-1: CEQA Checklist for Recreation

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

3.15.2 REGULATORY BACKGROUND AND METHODOLOGY

3.15.2.1 Regulatory Background

No federal, state, or local regulations related to recreation are applicable to the project.

3.15.2.2 Methodology

Recreation resources include recreational facilities such as state, local, and regional parks. The City of Lathrop Parks and Recreation website and City of Lathrop General Plan were reviewed as a part of the recreational resources evaluation, as was the California Protected Areas database.

3.15.3 ENVIRONMENTAL SETTING

3.15.3.1 Local Setting

The project is located within the City of Lathrop, in San Joaquin County. No parks are adjacent to the project, and it is not located on any land currently used or proposed for use for recreational purposes. The closest recreational resources are Mossdale Crossing Regional Park and Big League Dreams Park, located approximately 0.80 mile southwest and approximately 0.87 southeast of the project, respectively. Mossdale Crossing Regional Park is located in the City of

Lathrop and is managed by San Joaquin County Parks, and Big League Dreams Park is located in the City of Manteca and is privately owned.

3.15.4 Applicant-Proposed Measures and Potential Impacts

The following sections describe significance criteria for impacts on recreation facilities derived from Appendix G of the CEQA Guidelines and assess potential project-related construction and operational impacts. Because the project will have no impact on recreation facilities, APMs have not been included for this section.

3.15.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, “a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project.” As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts on recreation were evaluated for each of the criteria listed in Table 3.15-1, as discussed in Section 3.15.4.3.

3.15.4.2 Applicant-Proposed Measures

The project will have no impact on recreational facilities and no APMs are proposed.

3.15.4.3 Potential Impacts

Potential project impacts on recreation were evaluated against the CEQA significance criteria and are discussed below. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance phase.

As described in Chapter 2.0, Project Description, the project includes installing approximately 1 mile of 115 kV power line on TSPs, improving and expanding PG&E’s existing Vierra Substation, and establishing temporary work areas to construct these improvements.

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? *No Impact*

Construction

The project will not include any residential or commercial development that will result in increased use of existing parks or other recreational facilities. Workers may use nearby park facilities during project construction, but any increase associated with such use will be negligible and temporary and will not cause or accelerate substantial physical deterioration of existing facilities. Therefore, no impact will occur.

Operation and Maintenance

Operation and maintenance personnel will continue to visit the project site periodically for routine inspection and maintenance procedures. Workers may use nearby park facilities during inspection and maintenance, but no material change associated with such use is anticipated, and the project will not contribute substantially to the physical deterioration of existing facilities. Therefore, no impact will occur.

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? *No Impact*

The project will not include recreational facilities or require the construction or expansion of recreational facilities. Therefore, no impact will occur.

3.15.5 REFERENCES

Big League Dreams Park. 2017. Manteca, CA. Online: http://manteca.bigleaguedreams.com. Visited on August 5, 2017.

California Protected Areas Data Portal. 2017. Online: http://www.calands.org/. Visited on August 6, 2017.

San Joaquin County Parks. 2017. Mossdale Crossing Regional Park. Online: http://www.sjparks.com/parks/mossdale-crossing-regional-park.aspx. Visited on August 5, 2017.

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3.16 TRANSPORTATION AND TRAFFIC

3.16.1 INTRODUCTION

This section describes existing conditions and potential impacts on transportation and traffic as a result of construction, operation, and maintenance of the project. The analysis concludes that, although existing traffic conditions will be temporarily affected by project construction, project-related impacts on traffic and transportation will be less than significant. The Applicant-Proposed Measures (APMs) as described in Section 3.16.4.2 will further reduce impacts. The project's potential effects on transportation and traffic were evaluated using the significance criteria set forth in Appendix G of the California Environmental Quality Act (CEQA) Guidelines. The conclusions are summarized in Table 3.16-1 and discussed in more detail in Section 3.16.4.

Table 3.16-1: CEQA Checklist for Transportation and Traffic

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☒	☐
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☐	☒
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☒	☐
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
e) Result in inadequate emergency access?	☐	☐	☒	☐
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☒	☐

3.16.2 REGULATORY BACKGROUND AND METHODOLOGY

3.16.2.1 Regulatory Background

Federal

Aviation Regulations

The U.S. Department of Transportation (USDOT) and the Federal Aviation Administration (FAA) are the administrating agencies for the following regulations:

- 14 CFR 77.13(2)(i) requires an applicant to notify the FAA of the construction of structures within 20,000 feet of the nearest point of the nearest runway of an airport with at least one runway longer than 3,200 feet.
- 14 CFR 77.17 requires an applicant to submit a Notice of Proposed Construction or Alteration (FAA Form No. 7460-1) to the FAA for construction within 20,000 feet of the nearest runway of an airport with at least one runway longer than 3,200 feet.
- 14 CFR 77.21, 77.23, and 77.25 outline the criteria used by the FAA to determine whether an obstruction would create an air navigation conflict.

State

Caltrans owns the rights-of-way for State Routes (SR), including any on- and off-ramps that provide access to the project area. Any project-related work within SR rights-of-way requires an encroachment permit from Caltrans.

Caltrans is also the administrating agency for regulations related to traffic safety, including the licensing of drivers, weight and load limitations, transportation of hazardous and combustible materials, and the safe operation of vehicles.

Local

Because the CPUC has exclusive jurisdiction over project siting, design, and construction, the project is not subject to local discretionary regulations. This section includes a summary of local transportation policies, plans or programs for informational purposes and to assist with CEQA review.

San Joaquin County

The San Joaquin Council of Governments (SJCOG) is the designated traffic congestion management agency for San Joaquin County, and is responsible for monitoring the achievement of the level of service (LOS) standards and performance measures established under the Congestion Management Program (CMP), in order to monitor congestion, identify congestion problems, and establish a programming mechanism to reduce congestion. The CMP identifies LOS standards for the county system, including the City of Lathrop. The San Joaquin County standard for LOS thresholds is LOS D, as defined in the CMP. Information on LOS is provided in Table 3.16-2: Definitions of Study Area Roadway Characteristics.

The San Joaquin County Regional Transit Systems Plan is a long-range transit plan that looks at bus and rail transit needs, costs, and financial forecasting for the county.

Table 3.16-2: Definitions of Study Area Roadway Characteristics

LOS	V/C[1] Ratio	Traffic Flow Characteristics
A	0.00 – 0.60	Free flow; insignificant delays
B	0.61 – 0.70	Stable operations; minimal delays
C	0.71 – 0.80	Stable operation, acceptable delays
D	0.81 – 0.90	Approaching unstable flow; queues develop rapidly but no excessive delays
E	0.91 – 1.00	Unstable operation; significant delays
F	>1.00	Forced flow; jammed conditions

Note: LOS = Level of Service
[1] V/C is volume/capacity ratio, which is an indicator of traffic conditions, speeds, and driver maneuverability.
Source: Transportation Research Board 2000

City of Lathrop

Section B, Transportation, Circulation, and Traffic, of the City of Lathrop General Plan provides goals and policies aimed at improving transportation and circulation in the city. The City of Lathrop supports alternative transportation through the City of Lathrop Bicycle Master Plan.

The Lathrop Gateway Business Park Specific Plan—which covers the area south of Vierra Road and north of SR 120— contains proposed road improvements, including widening Yosemite Avenue and Guthmiller Road to four and six lanes, respectively, and improvements to Vierra Road and the interchange of Guthmiller Road and State Route (SR) 120.

3.16.2.2 Methodology

Traffic data and other transportation system information were obtained from maps, literature searches, and aerial photos. LOS data for regional and local roadways were obtained from the SJCOG CMP. Transit data were obtained from various transit agency websites.

3.16.3 ENVIRONMENTAL SETTING

This section includes a description of the roadways that will be used by workers and delivery trucks during construction. Access routes will vary depending on the origin of the worker or truck, and the type of activity that day. Therefore, the roads that are most likely to be affected are described. The highest-volume roadways are described first.

3.16.3.1 Regional Roadways

Interstate 5 (I-5) and SR 120 provide regional access to Vierra Substation and the power line alignment. I-5 is a major north-south route of the U.S. Highway System, and the main interstate highway on the west coast of the U.S., from Mexico to Canada. SR-120 extends from I-5 in

Lathrop, east to U.S. Route 6 in Mono County. Both I-5 and SR 120 will be used for regional access to the project area during construction and operation.

3.16.3.2 Local Roadways

The local transportation network in the vicinity of the project includes city- and county-maintained roads. The first approximately 0.5 mile of the project alignment is located just off of paved roadways, while the latter half of the alignment parallels local collector roads. Use of all larger local arterials and smaller collector roads along the project alignment will be necessary for access and construction during pole and conductor installation activities.

Arterial Roads and Local Roads

Several major arterial roads provide access to project work areas and collector roads. Arterials located in the vicinity of the project include Yosemite Avenue, McKinley Avenue, Louise Avenue, Harlan Road, and South Howland Road, which the project alignment crosses. The project alignment also crosses or parallels collector roads—including D'Arcy Parkway, Christopher Way, and Nestle Way—which will also be used for project access. The minor road that will be utilized for access to the project alignment is Vierra Road, where Vierra Substation is located, west of McKinley Avenue.

3.16.3.3 Existing Traffic Volumes and Levels of Service

To evaluate the operational characteristics of a roadway segment, a simple grading system is used to compare the traffic volume carried by a road with the capacity of that road. The volume/capacity (V/C) ratio is an indicator of traffic conditions, speeds, and driver maneuverability. Table 3.16-2: Definitions of Study Area Roadway Characteristics presents roadway traffic flow characteristics for LOS.

Table 3.16-3: Roadway Characteristics and Existing Traffic Operations summarizes roadway characteristics and LOS for primary roadways in the project area.

Table 3.16-3: Roadway Characteristics and Existing Traffic Operations

Roadway	Classification	Physical Relationship to Power Line	AM Peak LOS	PM Peak LOS
I-5 NB from Jct. Route 205 West to Jct. Route 120 East	Freeway segment	Access road	D	F
I-5 NB Ramps and Louise Avenue	Arterial intersection	Access road	B	F
I-5 SB Ramps and Louise Avenue	Arterial intersection	Access road	D	C
Airport Way and Yosemite Avenue	Arterial intersection	Access road	D	D
South Howland Road	Arterial	Crosses alignment	n/a	n/a
D'Arcy Parkway	Collector	Crosses alignment	n/a	n/a
Christopher Way	Collector	Within power line alignment	n/a	n/a

Roadway	Classification	Physical Relationship to Power Line	AM Peak LOS	PM Peak LOS
Nestle Way	Collector	Within power line alignment	n/a	n/a
Vierra Road	Minor	Access road	n/a	n/a
Note: LOS = Level of Service n/a = not available Source: SJCOG 2017				

3.16.3.4 Bicycle Facilities

The City of Lathrop Bicycle Plan describes existing and proposed bikeways in the City of Lathrop. Class II bikeways are defined as on-street routes intended to provide continuity to bikeway systems. Class III bikeways provide for shared use with pedestrian and motor vehicle traffic. The project alignment does not cross any existing bikeways in the City of Lathrop; however, the plan identifies Nestle Way, which the project alignment crosses and parallels, as a road that may be suitable for a Class II or Class III bikeway with the addition of road striping and proper signage. The City of Lathrop General Plan outlines street improvements for Yosemite Avenue that includes Class II Bike Lanes.

The SJCOG Regional Bicycle, Pedestrian, and Safe Routes to School Master Plan identifies Yosemite Avenue as a proposed Class II bikeway under the city's priority projects, and D'Arcy Parkway and Christopher Way as proposed Class II bike lanes as a part of the City's Vision Network, which was developed with guidance from the Lathrop Bicycle Transportation Plan and the Lathrop General Plan Circulation Element.

3.16.3.5 Air Traffic

No airports are located within 2 miles of the project.

3.16.3.6 Transit and Rail Services

San Joaquin Regional Transit District (SJRTD) operates two bus routes, Route 90 and 97, serving the cities of Lathrop, Stockton, and Tracy. Neither route crosses the project alignment, but both use some of the project access roads, including Louise Road.

The Altamont Commuter Express (ACE) Lathrop-Manteca station is located approximately 0.5 mile east of Vierra Substation. ACE provides service to Stockton to the north and San Jose via Tracy, Pleasanton, and Fremont to the west and south.

The project alignment crosses Union Pacific Railroad (UPRR) tracks approximately 0.25 mile west of Vierra Substation, and crosses a private spur rail owned by the Crossroads Commerce Center just before the alignment tie-in at the Tesla Stockton Cogen Junction 115 kV Power Line.

3.16.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

The following sections describe significance criteria for transportation and traffic impacts derived from Appendix G of the CEQA Guidelines, provide APMs, and assess potential project-related construction and operation and maintenance impacts on transportation and traffic.

3.16.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts related to transportation and traffic were evaluated for each of the criteria listed in Table 3.16-1, as discussed in Section 3.16.4.3.

3.16.4.2 Applicant-Proposed Measures

PG&E will implement the following APMs:

APM TRA-1: Temporary Traffic Controls

PG&E will obtain any necessary transportation and/or encroachment permits, including those for transport of oversized loads and certain materials, and will comply with permit requirements designed to prevent excessive congestion or traffic hazards during lane closures. PG&E will develop lane closure/width reduction or traffic diversion plans, as required by the encroachment permits. Construction activities that are in, along, or cross local roadways and rail lines will follow best management practices to minimize impacts on traffic and transportation in the project area.

APM TRA-2: Air Transit and Neighborhood Coordination

PG&E will implement the following protocols that pertain to helicopter use and air traffic during construction:

- PG&E will comply with all applicable FAA regulations regarding air traffic within 2 miles of the project alignment.
- PG&E's helicopter operator will coordinate all project helicopter operations with the local airport before and during project construction.

APM TRA-3: Crossroads Commerce Center Coordination

Prior to the start of construction, PG&E will consult with the Crossroads Commerce Center regarding the schedule of traffic using the private rail spur that crosses Nestle Way to reduce potential interruption of rail services serving the industrial park.

3.16.4.3 Potential Impacts

Project impacts on transportation and traffic were evaluated against the CEQA significance criteria and are discussed below. The impact analysis evaluates potential project impacts during the construction phase and the operation and maintenance phase.

As described in Chapter 2.0, Project Description, the project includes installing approximately 1 mile of 115 kV power line on TSPs, improving and expanding PG&E's existing Vierra Substation, and establishing temporary work areas to construct these improvements.

a) Would the project conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit? ***Less-than-Significant Impact***

Construction

Project construction will not conflict with an applicable transportation plan, ordinance or policy. The anticipated temporary and short-term construction-related traffic impacts will be related to truck routes and project area access routes. However, traffic volume increases will be spread out over the entire project alignment, and the number of vehicle trips during peak construction will be only fractionally higher in comparison to typical traffic volumes in the vicinity. Furthermore, construction is anticipated to require only approximately 18 to 22 months to complete, and large equipment will not be moved daily once it is staged in the project work area (including the project alignment and substations).

Temporary road closures may be required at various locations to ensure public safety. Although no existing bike routes are crossed by the project alignment, operation of proposed Class II and III bike routes in the project area may be temporarily affected when sections of the line are being installed at road overhead crossings. The project alignment does not cross the ACE transit line or the two SJRTD bus routes located in the project area. Construction-related traffic will not conflict with any traffic plans, ordinances, or policies that establish measures of effectiveness for the performance of the circulation system; thus, the project will have a less-than-significant impact. Implementation of APM TRA-1 will ensure that traffic controls and other traffic safety measures are in place to maintain proper traffic flow during temporary construction activities and will further reduce the project's less-than-significant impacts.

Operation and Maintenance

Project operation and maintenance will not conflict with an applicable transportation plan, ordinance or policy. The new power line will be inspected annually or as needed when driven by an event, such as an emergency, and Vierra Substation will continue to be inspected monthly or as needed. Staging of operation and maintenance equipment on road shoulders to make power line repairs and inspections will be required, and could have the potential to impact traffic along those roadways due to temporary lane closures. However, these inspections and repairs will be infrequent and temporary in nature; therefore, impacts on nearby traffic would be less than significant. There will be no material increase in substation traffic.

b) Would the project conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways? *No Impact*

Construction

The project will not conflict with an applicable traffic management program or plan. Although construction activities may generate slight increases in traffic on interstate highways, arterials, and local roads as a result of truck trips and project access, the effects will be minimal, short term, and periodic. Existing LOS standards for roads in the project area generally range from LOS B to D during AM peak hours; therefore, the existing roadway network in the project area generally has adequate capacity to handle the minor increase in traffic volume due to construction. A segment of I-5 just south of the project area and the I-5 Louise Avenue intersection is operating at peak PM LOS F. The project alignment does not cross, nor is it within these roadways, and no lane closures of these roads would be necessary. However, both roadways will be utilized for project access. Because the number of truck round-trips during peak construction will be only fractionally higher in comparison to the average daily traffic volume of roads in the vicinity, there will be no conflict with existing LOS. Traffic volume increases will be spread out over the entire project alignment, and no new permanent paved or public roads will be constructed as part of the project. Furthermore, LOS standards for roadways are intended to regulate long-term traffic increases generated by new developments, and do not apply to temporary construction projects, and APM TRA-2 will ensure that traffic controls and other traffic safety measures are in place to maintain proper traffic flow during temporary construction activities. Therefore, there will be no impact.

Operation and Maintenance

Operation and maintenance will not change materially from existing activities and will not conflict with an applicable traffic management program or plan. The new power line will be inspected annually or as needed when driven by an event, such as an emergency. While staging of operations and maintenance equipment on road shoulders to make necessary repairs and inspections could have the potential to impact traffic along those roadways due to temporary lane closures, these inspections and repairs will be infrequent and temporary in nature, as will worker visits to the unmanned substation; therefore, there will be no impact on traffic management plans.

c) Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks? *Less-than-Significant Impact*

Construction

Project construction will not change air traffic patterns or result in substantial safety risks. After TSPs are installed along the project alignment, one small helicopter will be used to install the stringing rollers on the cross-arms at each TSP and a pulling line between each TSP. Use of the helicopter to install the pulling line will decrease the duration of construction. The pulling line will be connected to the conductor and will pull the new conductor through the stringing rollers, to be clipped into the insulators. The helicopter will be staged at one of the project's staging areas along the project alignment, or at a nearby airport. The helicopter crew and operator will obtain all necessary FAA permits and coordinate with local airports regarding protocols and air traffic prior to all construction-related helicopter operations.

Helicopter use will be limited to 1 day of construction work along the alignment, and the helicopter will follow a designated flight path to the project and along the alignment, to the extent possible, to avoid potential risk to the public. Helicopters that are carrying equipment or construction materials will not pass over major highways, and they will pass near, but not directly over, a limited area containing habitable structures. Implementation of APM TRA-1 will further reduce the project's less-than-significant impacts.

Operation and Maintenance

Project operation and maintenance will not change air traffic patterns or result in substantial safety risks. No helicopter use will occur during operation and maintenance of the substation. Helicopters will likely be used periodically (currently biannually) to inspect the new power line; when this occurs, the PG&E helicopter crew and operator will obtain all necessary FAA permits and coordinate with local airports regarding protocols and air traffic prior to all operation and maintenance-related helicopter operations.

d) Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? *Less-than-Significant Impact*

Project construction, operation, and maintenance will not alter any public roadways or intersections—including access roads to power lines, poles, and substations—nor will it introduce incompatible uses to the project area. Minor modifications to one access road—an existing access road within the city's percolation field—may be required as part of the construction activities. If necessary, modifications to this access road will likely consist of the application of gravel if construction is during the wet season, and any such modifications will be performed after consultation with the City.

Any road closures that will occur on City roads will be temporary and short term, consistent with applicable regulations, and will be coordinated with the City. Increased hazards could occur during temporary lane closures; however, impacts will be minimized through implementation of requirements contained in encroachment permits. In addition, traffic controls—such as signage and flagging personnel—will be implemented during lane closures, minimizing hazards to the public. PG&E will obtain an encroachment permit from UPRR for the power line crossing of the UPRR tracks. Implementing APM TRA-3 will reduce potential conflicts with the private spur rail serving the industrial park off of Nestle Way. Therefore, the project will not increase hazards due to design features of roadways, and impacts will be less than significant.

e) Would the project result in inadequate emergency access? *Less-than-Significant Impact*

Construction

The project will not result in inadequate emergency access. Emergency access routes will be maintained throughout project construction, operation, and maintenance. Construction vehicles and equipment are anticipated to access project construction areas for poles by using existing paved and/or dirt roads. Construction vehicles and equipment needed at the pull sites are expected to be staged or parked within approved temporary construction work areas, or alongside access roads, necessitating temporary lane closures. In addition, a helicopter will be used during one phase of conductor installation activities, requiring temporary road closures along the alignment when the helicopter is pulling the new line across each of Nestle Way, Christopher Way, and D'Arcy Parkway. Road closures will last up to approximately 5 minutes, and the temporary lane and road closures will be coordinated with the City to maintain emergency access. Therefore, the impact will be less than significant. APM TRA-1 will further minimize any less-than-significant impacts on traffic congestion.

Operation and Maintenance

Project operation and maintenance will not change materially from existing activities and will not result in inadequate emergency access. As with nearby lines, the new power line will be inspected annually or as needed when driven by an event, such as an emergency. While staging of operation and maintenance equipment on road shoulders to make necessary repairs and inspections has the potential to impact emergency access along those roadways due to temporary lane closures, these inspections and repairs will continue to be infrequent and temporary in nature, and any impacts from necessary lane closures will be minimized through implementation of requirements contained in encroachment permits. Impacts on emergency access during operation and maintenance will continue to be less than significant.

f) Would the project conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities? *Less-than-Significant Impact*

Construction

Project construction will have a less-than-significant conflict with polices, plans or programs for public transit, bicycle or pedestrian facilities and will not decrease the performance or safety of such facilities. The ACE Lathrop-Manteca station is located approximately 0.5 mile east of Vierra Substation, and SJRTD operates bus routes 90 and 97 on nearby roads, such as Louise Avenue, that will be utilized for project access. The project alignment will not cross the ACE transit line or either bus route, and will have minimal impact on these services. Although several proposed Class II and III bicycle routes are crossed by the project alignment, including Nestle Way, Christopher Way, and D'Arcy Parkway, and could be temporarily impacted by construction if they are built by the time project construction begins, construction impacts will be brief and, therefore, less than significant. Implementation of APM TRA-1 and TRA-2 will further reduce any less-than-significant project impacts.

Operation and Maintenance

Operation and maintenance will not change materially from existing activities and will not conflict with local transportation programs. While the new power line will require periodic maintenance and could have the potential to temporarily impact bicycle routes due to temporary lane closures, these inspections and repairs will be infrequent and temporary in nature, and therefore, impacts on nearby traffic will be less than significant.

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3.17 UTILITIES AND SERVICE SYSTEMS

3.17.1 INTRODUCTION

This section describes existing conditions and potential impacts on utilities and service systems as a result of construction, operation, and maintenance of the project, and concludes that no impacts will occur in these areas. Under CEQA, utilities and service systems include water, wastewater, and solid waste collection and treatment. This section also addresses potential impacts on power and natural gas.

The proposed project's potential effects on utilities and service systems were evaluated to using the significance criteria set forth in Appendix G of the California Environmental Quality Act (CEQA) Guidelines. The conclusions are summarized in Table 3.17-1 and discussed in more detail in Section 3.17.4.

Table 3.17-1: CEQA Checklist for Utilities and Service Systems

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the Provider's existing commitments?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

3.17.2 REGULATORY BACKGROUND AND METHODOLOGY

3.17.2.1 Regulatory Background

Federal

No federal regulations pertaining to utilities and service systems are applicable to the proposed project.

State

California Government Code

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 (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.

Local

Because the CPUC has exclusive jurisdiction over the siting, design, and construction of the project, the project is not subject to local discretionary regulations. The following summary of local statues and regulations relating to solid waste is provided for informational purposes and to assist with CEQA review.

3.17.2.2 Methodology

The San Joaquin County and City of Lathrop general plans, along with city and county ordinances, were reviewed for regulatory and background information related to wastewater collection and treatment, water supply, stormwater drainage, solid waste disposal, electricity, and natural gas service providers for the project area. Other official local websites reviewed for related information included the websites of the Regional Water Quality Control Board (RWQCB), the Water Agencies of San Joaquin County, and the City of Lathrop. The CalRecycle Solid Waste Information System, San Joaquin County Solid Waste Division, and Lathrop Solid Waste Management Division websites were also reviewed for solid waste disposal information and regulations.

3.17.3 ENVIRONMENTAL SETTING

3.17.3.1 Wastewater Collection and Treatment Services

The City of Lathrop Department of Public Works, Utilities Division, operates and maintains the city's wastewater collection and treatment services. Wastewater is collected and treated at the Manteca-Lathrop Water Quality Control Facility (WQCF), located within the City of Lathrop. The WQCF is co-owned and operated by the cities of Lathrop and Manteca. Wastewater in the project area is conveyed and treated at the Lathrop Water Recycling Plant (WRP) No. 1. The plant treats about 0.75 million gallons per day of raw sewage. The treated effluent (recycled water) meets Title 22 for re-use standards. The recycled water is utilized for a variety of purposes, including landscape irrigation and farming activities for fodder crops. It is anticipated that the plant will expanded in the future to treat about 10 million gallons per day of raw sewage.

3.17.3.2 Water Supply

The City of Lathrop Department of Public Works, Utilities Division, provides potable water for the City of Lathrop. Water is supplied from the South San Joaquin Irrigation District to the project area. The City of Lathrop's wastewater treatment plant is located within the project area on the south side Christopher Way (see Figure 2.0-3: Project Overview Map). Several fire hydrants are located along the project route.

3.17.3.3 Stormwater Drainage

The City of Lathrop Department of Public Works, Utilities Division, manages stormwater drainage in the City of Lathrop. Much of the City's stormwater consists of surface runoff to detention basins, which then discharge into pipes or pump stations that convey it to the San Joaquin River. The city currently maintains 16 storm drain pump stations and three outfall structures to the river. The city is covered by the Central Valley Regional Water Quality Control Board General Permit for the Discharge of Storm Water from Small MS4s (WQ Order No. 2003-0005-DWQ), under which it prepared a Storm Water Management Plan. Storm drain inlets are located along D'Arcy Parkway, Christopher Way, and Nestle Way.

3.17.3.4 Solid Waste Disposal

Solid waste disposal within the City of Lathrop is contracted to Republic Services, who provides services within the project area. Waste is transferred to the Vasco Road landfill facility located in Livermore, California.

3.17.3.5 Electricity and Natural Gas

PG&E provides electrical power and natural gas to the City of Lathrop. Electricity for the Lathrop community of River Islands, located west of the San Joaquin River, is provided by the Lathrop Irrigation District, which began retail electrical service in 2013.

3.17.4 Applicant-Proposed Measures and Potential Impacts

The following sections describe significance criteria for impacts on utilities and service systems derived from Appendix G of the CEQA Guidelines and assess potential project-related construction and operational impacts. Because the project will have no impact on utilities and service systems, APMs have not been included for this section.

3.17.4.1 Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. Per Appendix G of the CEQA Guidelines, the potential significance of project impacts on utilities and service systems was evaluated for each of the criteria listed in Table 3.17-1, as discussed in Section 3.17.4.3.

3.17.4.2 Applicant-Proposed Measures

The project will have no impact on utilities and service systems and no APMs are proposed.

3.17.4.3 Potential Impacts

Project impacts on utilities and service systems were evaluated against the CEQA significance criteria as discussed below. This section evaluates potential project impacts from both the construction phase and the operation and maintenance phase.

As described in Chapter 2.0, Project Description, the project includes installing approximately 1 mile of 115 kV power line on TSPs, improving and expanding PG&E's existing Vierra Substation, and establishing temporary work areas to construct these improvements.

PG&E's engineering team has taken into consideration the location of other underground and overhead utilities in designing the project. Additional utilities identification will occur in the final design stages. As required by state law, PG&E will notify other utility companies (via Underground Service Alert) to locate and mark existing underground structures along the proposed alignment prior to any excavation or augering activities. In addition, PG&E will probe and expose existing utilities, in accordance with state law, before using power equipment. PG&E has conducted existing utilities surveys as part of its feasibility study and routing analysis. Based on these surveys and during detailed design, PG&E will design the project to have no permanent impact on power, natural gas, communications systems, or any other utilities that are specifically documented.

Also during the detailed design phase, PG&E will assess whether the temporary interruption of other utilities will be necessary. If deemed necessary, PG&E will obtain timely approval from other utilities and closely coordinate with them until those utilities are returned to service. Prior to construction, PG&E will obtain emergency contact information for utilities that may be in close proximity or require monitoring during construction of the project. In case of accidental service interruption to another utility, PG&E will immediately contact the affected utility to coordinate actions to restore service in a safe and timely manner.

The substation expansion will provide space for a future transformer that is not expected to be needed for at least 10 years. No additional impacts to utilities and service systems are anticipated at this time as a result of this future project.

a) Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? *No Impact*

Construction

A minimal amount of effluent will be generated temporarily by construction workers during project construction, but construction will not otherwise generate wastewater. Portable restrooms will be provided and maintained by a licensed sanitation contractor for on-site use by construction workers. The licensed contractor will dispose of the wastewater at a sewage treatment plant and in compliance with standards established by the RWQCB. Because the construction workforce will be relatively small, and wastewater will be properly disposed of off site, no impact will occur.

Operation and Maintenance

Operation and maintenance of the project will not generate wastewater requiring treatment, and no impact will occur.

b) Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? *No Impact*

Construction

Although project construction will require the use of water and wastewater facilities by construction workers, this use will be temporary and short term. Furthermore, the construction workforce will be relatively small, and minimal water use and wastewater generation will occur. Wastewater service will be provided by portable toilets, and waste will be disposed of at appropriately licensed off-site facilities. Water will be used for dust control, and will likely be obtained from the city's wastewater treatment plant on Christopher Way, or existing fire hydrants along the power line route. These uses will be temporary and short term, and will not require construction of new water or wastewater treatment facilities. Existing water and wastewater facilities are sufficient to serve project needs. Therefore, no impact will occur.

Operation and Maintenance

Operation and maintenance of the project will not generate wastewater and will not require construction of new wastewater treatment facilities. Water may be required during operation and maintenance activities for dust suppression, but any such use will not change materially from existing use, and will be short term and infrequent. The substation is unmanned and does not require a source of potable water. Therefore, no impact will occur.

c) Would the project require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? *No Impact*

Construction

Construction of the power line and expanded substation will not require service through any new or expanded stormwater or drainage facilities. Storm flows during construction will be managed under the project's construction general permit and its required Storm Water Pollution Prevention Plan. Any disturbed stormwater facilities or infrastructure will be restored upon the conclusion of the construction activities. No impact will occur.

Operation and Maintenance

Operation and maintenance of the power line will not require service through any new or expanded stormwater or drainage facilities. Storm flows on undeveloped parcels will continue to percolate into the ground or follow natural contours of the site. Flows in developed portions will flow into the city's existing stormwater system. Expansion of the substation will minimally increase the amount of impervious surface at the substation site. Construction at the substation will include a stormwater detention basin within the expanded substation site. It will be constructed in cultivated farmland and will not significantly impact any existing stormwater drainage patterns. Runoff from the expanded substation facility will drain to the basin where it will then filter through the underlying soils or evaporate. Runoff will be contained entirely on site. As a result, no impact will occur.

d) Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed? *No Impact*

Construction

Potable water will be supplied to construction workers for drinking, and will be delivered to project work areas by construction vehicles. During project construction, water will be used for dust-control applications, but the amount of water necessary will be small and existing municipal water supplies will be sufficient to serve the project's temporary needs. A water truck will be used to support project construction activities and dust suppression unless water is made available from adjacent sources or dewatering. Existing off-site water entitlements and resources will be sufficient to accommodate the project's minor temporary and short-term construction-related water needs, and there will be no impact.

Operation and Maintenance

Operation of the project will not require use of municipal water supply, and no impact will occur.

e) Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? *No Impact*

Construction

Portable toilets will be provided for construction workers during construction. Sanitary waste will be disposed of at appropriately licensed facilities in the project area that have adequate capacity to accommodate project needs. Therefore, no impact will occur.

Operation and Maintenance

Wastewater will not be generated during project-related operation and maintenance activities, and no impact will occur.

f) Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs? *No Impact*

Construction

The project will generate a relatively small amount of solid waste as a result of construction debris in the form of materials generated from the expansion of Vierra Substation, and other miscellaneous sources, such as wrappers from materials and trash created by construction workers. Construction debris will be taken to the Republic Services Vasco Road Landfill in Livermore, California, or other facilities determined by PG&E at the time of construction, which have sufficient capacity to accept the relatively small amount of solid waste that will be generated by the project. The Vasco Road landfill is scheduled to cease accepting waste and initiate closure procedures in 2031. Therefore, there will be no impact.

Operation and Maintenance

Operation and maintenance activates will continue to generate minimal amounts of solid waste due to any necessary replacement of parts during operation. Any disposal of such materials will constitute a negligible amount in comparison to the capacity at existing landfills, and maintenance activities will occur infrequently. Landfill facilities used by PG&E to dispose of these materials will continue to have sufficient capacity to accept minimal amounts of solid waste, and there will be no impact.

g) Would the project comply with federal, state, and local statutes and regulations related to solid waste? *No Impact*

Construction

All construction debris associated with construction of the power line and substation expansion will be collected and hauled off site for recycling or disposal. PG&E will comply with all federal, state, and local statutes and regulations related to solid waste. Therefore, no impact will occur.

Operation and Maintenance

There will be no change to solid waste disposal activities. Any hazardous waste generated from power line and substation operation (e.g., substation batteries) will continue to be disposed of by PG&E at appropriate facilities, following all applicable regulations at the time of disposal. Therefore, the project will not violate any solid waste statutes or regulations, and there will be no impact.

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3.18 MANDATORY FINDINGS OF SIGNIFICANCE AND CUMULATIVE IMPACT ANALYSIS

3.18.1 INTRODUCTION AND METHODOLOGY

This section discusses mandatory findings of significance as well as potential cumulative impacts related to the Vierra Reinforcement Project. Cumulative impacts, as defined in Section 15355 of the CEQA Guidelines, refer to two or more individual impacts that, when considered together, are considerable or that compound or increase other environmental impacts. A cumulative impact is the change in the environment that results from the incremental impact of a project when added to other closely related past, present, or reasonably foreseeable future projects. Cumulative impacts can result from individually minor but collectively significant impacts occurring over time.

An analysis of potential cumulative impacts for each relevant resource topic is provided in Section 3.18.5, immediately following Table 3.18-2, which lists projects within approximately 0.5 mile of the project area. The projects listed in Table 3.18-2, developed from available information on websites and with input and review by the involved agencies, were included if they had potential environmental impacts, geographic scope and location, and/or timing and duration of implementation similar to those of the Vierra Reinforcement Project. The analysis considered the potential cumulative impacts that could result when impacts of the proposed project are considered in combination with impacts of other past, present, and reasonably foreseeable future projects. Some reasonably foreseeable future projects listed in Table 3.18-2 might not be approved or could be modified prior to approval; however, for the purpose of this analysis, approval and construction of identified projects was assumed.

3.18.2 MANDATORY FINDINGS OF SIGNIFICANCE

The analysis presented in this section is based on consideration of the CEQA checklist questions presented in Table 3.18-1. The analysis indicates that there is no substantial evidence, in the light of the whole record, that any of the conditions set forth in Table 3.18-1 will occur.

Table 3.18-1: CEQA Checklist for Mandatory Findings of Significance

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☒	☐

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
b) Have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals?	☐	☐	☐	☒
c) Have possible environmental effects that are individually limited, but cumulatively considerable? Cumulatively considerable means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☒	☐
d) Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

a) Would the project have the potential to substantially degrade the quality of the environment; substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; substantially reduce the number or restrict the range of an endangered, rare or threatened species; or eliminate important examples of the major periods of California history or prehistory? ***Less-than-Significant Impact***

The project will not 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, or substantially reduce the number or restrict the range of an endangered, rare, or threatened species.

The project is located predominately within existing roadways and industrial areas, therefore the potential to degrade environmental quality is low. Construction activities may have minor, short-term effects on species habitat, however, substantial effects to plant or animal populations, communities, or habitats are not anticipated. No wetlands, watercourses, riparian habitats, or sensitive natural communities are present within the project area. The project area is highly developed, few opportunities for wildlife movement are present, and the new power line and expanded substation will not fragment the landscape or interfere substantially with the movement of fish or wildlife. PG&E will implement Applicant-Proposed Measures (APM) BIO-1 through APM BIO-3, which will further ensure that species habitats, populations, and communities are not substantially reduced.

The project will not substantially reduce the range of an endangered, rare, or threated species. Twenty-seven special-status wildlife species have potential to occur in the project area (as summarized in Table 3.4-3: Special-Status Wildlife Species). Of these, 24 species are absent or are unlikely to occur in or near the project area because the project area is outside of the species' known ranges or there is no suitable habitat in the project area. Raptors and migratory birds, including white-tailed kite, Swainson's hawk, and burrowing owl, have the potential to nest in or near the project area. Implementation of APM BIO-2 through APM BIO-3 during the nesting season will reduce the potential for adverse effects to these and other breeding migratory birds. Twenty-five special-status plant species have potential to occur in the project area (as summarized in Table 3.4-2: Special-Status Plant Species). However, surveys for special-status plants were conducted, and all of the 25 species were determined to be absent from or unlikely to occur in the project area. Implementation of APM BIO-1 will reduce impacts if rare plants were to establish in construction work areas prior to construction.

The project will not eliminate important examples of the major periods of California history or pre-history. Cultural resources surveys and records searches identified 21 cultural resources within 0.5 mile of the project area. Only one these resources overlap the project area and it will be avoided. In the unlikely event that cultural resources are discovered during construction activities, APM CUL-2 will be implemented so that the project will not eliminate important examples of major periods of California history or prehistory. The impact will be less than significant.

b) Would the project have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals*? No Impact*

The project will not achieve short-term environmental goals to the disadvantage of long-term environmental goals, and will result in either no impact or less-than-significant impacts in both the short and long term. The Vierra Reinforcement Project will be compatible with local environmental goals and will not conflict with federal or state environmental policies and regulations. Therefore, no impact will occur.

c) Would the project have possible environmental effects that are individually limited, but cumulatively considerable? Cumulatively considerable means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)*? Less-than-Significant Impact*

A cumulative impact analysis is presented in Section 3.18.5. As shown in Chapter 3.0, the project will have minimal or no impact on land use, minerals, population, public services, recreation, and utilities, and will have no contribution to cumulative impacts in these areas. The project will contribute incrementally to cumulative impacts in the project area related to aesthetics, agricultural and forest resources, air quality, biology, cultural resources, geology and soils, greenhouse gases, hazards, hydrology and water quality, noise, and traffic; however, the project will not contribute substantially to these cumulative impacts. Thus, the Vierra Reinforcement Project will not have environmental effects that are individually limited but cumulatively considerable, and the impact will be less than significant.

d) Would the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? *Less-than-Significant Impact*

The project will not adversely affect human beings, either directly or indirectly. Potential construction impacts associated with human health include the presence of hazards, hazardous materials use, and temporary air quality and GHG impacts. As discussed in Section 3.3, Air Quality, Section 3.7, Greenhouse Gas Emissions, and 3.8, Hazards and Hazardous Materials, respectively, construction impacts associated with air quality, GHGs, and with hazards and hazardous materials will be less than significant. Implementation of APMs will further reduce the potential for adverse effects. The project will have a beneficial effect on human beings in the project area by increasing electrical service reliability. Therefore, the impact will be less than significant.

3.18.3 CUMULATIVE IMPACTS

Projects included in the cumulative impact assessment were identified by using a list approach (CEQA Guidelines Section 15130[b][1][A]), including all pending development projects within an approximately 0.5-mile radius of the Vierra Reinforcement Project. Table 3,18-2: Cumulative Projects in the Project Vicinity (presented at the end of this section) summarizes these pending development projects.

3.18.4 KEY PROJECTS IN THE PROJECT VICINITY

Of the projects in Table 3.18-2: Cumulative Projects in the Project Vicinity, the following projects are within 0.5 mile of a component of the Vierra Reinforcement Project and may overlap with its construction timeline. Therefore, additional information is provided on the timeline and status of these projects.

3.18.4.1 South Lathrop Specific Plan

The South Lathrop Specific Plan project is located south of Highway 120, east of I-5, and north of Chiavari Way. The plan includes approximately 10 acres of commercial office uses, 22 acres of limited industrial uses, and 83 acres of open space, roads, and public facility sites. Construction is slated to begin in early spring 2018, and is anticipated to take approximately 12 to 18 months to complete. The South Lathrop Specific Plan project is located approximately 0.5 mile south of the project.

3.18.4.2 Lathrop Gateway Business Park Specific Plan

The Lathrop Gateway Business Park is located south of Vierra Road and Yosemite Avenue, between two Union Pacific Railroad tracks that pass through southern Lathrop, east of the I-5 freeway and north of SR-120. The land use plan proposes approximately 57 acres of commercial office use, 168 acres of limited industrial uses, and 83 acres of service commercial uses; and the remaining 77 acres are dedicated to roads and public facilities sites. The City of Lathrop has approved the Final Environmental Impact Report for the plan, and conceptual layouts have been prepared. Applications for development have yet to be submitted and a timeframe for construction is unknown at this time. The Lathrop Gateway Business Park Specific Plan is located across Vierra Road from Vierra Substation.

3.18.4.3 ACE Forward

The Altamont Corridor Express (ACE) is a commuter rail that connects Stockton and San Jose. The Lathrop/Manetca station is presently located at 17800 Schideler Parkway, approximately 0.5 mile east of Vierra Substation. On May 31, 2017, ACE released a Draft Environmental Impact Report (DEIR) addressing potential near-term and long-term improvements to their system, including relocating the Lathrop/Manteca station closer to State Route 120, and constructing a connection between the parallel set of railroad tracks in the vicinity of Lathrop. Near-term improvements could be implemented as early as 2019. Comments on the DEIR were due

Table 3.18-2: Cumulative Projects in the Project Vicinity

Project Name	Description / Location	Proximity to Project Route* (miles)
PG&E Ripon Substation New 115 kV Line	PG&E is constructing a new 115 kV line between Ripon Substation and Riverbank Junction Switching Station-Manteca 115 kV Line.	7.5
PG&E Central Bundle 8	PG&E is installing SCADA switches at the Tesla Motors 115 kV Tap on the Tesla - Stockton Cogen Junction 115 kV Line	0.2
South Lathrop Specific Plan	Construction of commercial, office, and industrial uses. Open space, roads and public facility sites are also proposed.	0.5 mile south
Lathrop Gateway Business Park Specific Plan	Construction of commercial, office, and limited industrial uses. Roads and public facilities sites include constructing an interchange on SR 120 at McKinley Avenue and improvements to the interchange at Guthmiller Road.	Adjacent, south
ACE Forward	Potential relocation of the Lathrop/Manteca station closer to SR 120, in the vicinity of McKinley Avenue, and construction of a connection between existing parallel rail lines in the vicinity of the City of Lathrop. .	0.5

Note: * Distances are approximate.

Sources: City of Lathrop 2011, City of Lathrop 2017 personal communication between Rebecca Schmidt/Lathrop and Janet Liver/TRC, ACEforward 2017.

July 31, 2017, and extended to August 31, 2017. The Final EIR, which will include the preferred alternative, is expected to be approved in early 2018.

3.18.5 ANALYSIS OF CUMULATIVE IMPACTS

No significant long-term project impacts have been identified in any impact area. Implementation of APMs will further minimize less-than-significant short-term construction impacts related to aesthetics, agricultural and forest resources, air quality, biology, cultural resources, geology and soils, greenhouse gases, hazards, hydrology and water quality, noise, and traffic. Potential cumulative impacts in these areas are discussed below. As shown in Chapter 3.0, the project will have no or minimal impact on land use, minerals, population, public services, recreation, and utilities, and they will have no cumulatively considerable contribution to cumulative impacts in the area.

A discussion regarding potential cumulative impacts in each relevant resource area is provided in the following paragraphs.

Aesthetics. The overall project area is a relatively flat, rural landscape located at the southern edge of the City of Lathrop. Industrial development is the predominant land use. Views across the area are relatively open, although buildings, other structures, and vegetation—including individual and clusters of mature trees—provide intermittent screening. Utility structures that are seen in the immediate project area include overhead power lines, power poles, and substation facilities, as well as streetlights, water storage tanks, and railroad crossing structures. There are a limited number of residents, including occupants of rural residences located along Vierra Road and Yosemite Avenue near Vierra Substation. Motorists are the largest affected viewer group. Roadway views are typically brief in duration, and, at many locations, further away from the immediate project area; motorists' views are screened by vegetation, development, and topography. While the project will be noticeable to some viewers, the changes are generally incremental, particularly when viewed in the context of the surrounding landscape. The project will not result in cumulatively considerable impacts to aesthetic resources in the project vicinity.

Agricultural and Forest Resources. The project is located in a predominantly industrial area within the City of Lathrop. The expanded substation area and two other parcels crossed by the new power line are located on designated farmland, resulting in approximately 2.5 acres of permanent impacts on farmland, mostly in the substation expansion area. O&M activities will have no additional impact on farmland. While currently in agricultural use, the substation expansion area has been zoned by the City of Lathrop for industrial use. While other projects in the vicinity will also convert agricultural lands to non-agricultural use, the Vierra Reinforcement Project's small permanent impacts to agricultural lands represent a minimal percentage of farmland in the region, and will not result in cumulatively considerable impacts on agricultural resources in the project vicinity.

Air Quality. The air emissions from construction of the Vierra Reinforcement Project and nearby projects will contribute marginally to cumulative air quality issues, particularly by slightly increasing the quantity of regional nonattainment air quality pollutants (Ozone, $PM_{2.5}$, and PM_{10}). Because air emissions will be temporary and minor, and will only occur periodically during the project construction period, the project will not have a substantial contribution to the region's air quality. Additionally, the SJVAPCD has established recommended guidelines for management of emissions during construction of projects within the region; the APMs in this document follow those guidelines, thereby further minimizing the significance of the project's contribution to regional air quality.

Biological Resources. The project is located in a highly disturbed and predominately industrial area. Round-leaved filaree has the potential to occur in one of the project staging areas, however no round-leaved filaree individuals were documented during rare plant surveys performed at the site, and APM BIO-1 will reduce impacts if rare plants were to establish at the site prior to construction. Raptors and migratory birds, including white-tailed kite, Swainson's hawk, and burrowing owl, have the potential to nest in or near the project area. Implementation of APM BIO-2 through APM BIO-3 during the nesting season will reduce the potential for adverse effects to these and other breeding migratory birds. It is anticipated that other projects would be subject to similar protection measures. Therefore, the project's impacts will not be cumulatively considerable, even if other projects occur in the project vicinity. There are no other sensitive biological resources (e.g., fish, mammals, invertebrates) in the project area or vicinity. The project will not contribute substantially to any overall cumulative impacts on biological resources.

Cultural and Paleontological Resources. The record search identified 14 previous cultural resources investigations within 0.5 mile of the project, 7 of which overlapped the project area. A total of 22 cultural resources have been previously recorded within 0.5 mile of the project, and only one of the previously recorded resources overlaps the project area. This resource, the San Joaquin Valley Mainline of the Southern Pacific Railroad, and will be avoided by PG&E as the new power line will span the railroad tracks. No historic properties listed on the NRHP or CRHR are located within the project area. Implementation of APMs CUL-1 through CUL-5 will ensure a less-than-significant impact on potential cultural resources during project construction, and no substantial contribution to any potential cumulative effects on unknown cultural resources.

While excavation activities within the moderately paleontologically sensitive (PFYC 3) Modesto Formation could have a less-than-significant impact on paleontological resources with APMs incorporated, the project will not contribute substantially to any cumulative impacts on paleontological resources.

Greenhouse Gas Emissions. GHG emissions directly generated during construction will result in a less-than-significant, short-term impact on climate change. GHG emissions will be further reduced with implementation of APMs GHG-1 and GHG-2. As shown in Table 3.7-2, the GHG emissions from the construction phase of the project, with or without APM GHG-1, are expected to be well below the threshold of 10,000 metric tons of CO_2e per year. As a result, the project will not contribute significantly to the emissions associated with the construction of other projects planned in the area, and thus, impacts will not be cumulatively considerable.

While Vierra Substation circuit breakers may emit a minor amount of SF_6 due to leakage during project operations, these emissions will be tracked annually per CARB's Regulation for Reducing SF_6 Emissions from Gas Insulated Switchgear, and will generate a minor and insignificant amount of CO_2e emissions. In addition, the new SF_6 circuit breakers will have an annual guaranteed maximum leakage rate of 0.5 percent. Therefore, operation of the project will not contribute substantially to climate change.

Geology and Soils. The project is located in a seismically active area with underlying young geologic deposits. Geologic and seismic hazards with the greatest potential to impact the project include strong ground shaking and seismic-induced ground failure. The impacts of the project are not individually significant and will not contribute significantly to any potential hazard when considered in the context of each other and along with other projects that have been identified for development in the area.

Hazards and Hazardous Materials. All potential impacts related to hazards and hazardous materials will be less than significant or nonexistent with implementation of the APMs described in Section 3.8, Hazards and Hazardous Materials. During construction activities, any increased potential for accidental release of fluids from a vehicle or motorized piece of equipment will be less than significant with APMs incorporated, and will not be cumulatively considerable. Implementation of PG&E's standard hazardous substance control, emergency response, and health and safety procedures will further minimize less-than-significant impacts.

Hydrology and Water Quality. Although project activities have the potential to affect groundwater quality through the release of fuels or other hazardous materials, and increased erosion caused by grading and vegetation clearing, implementing the APMs described in Section 3.9, Hydrology and Water Quality, will reduce less-than-significant impacts on hydrology and water quality; the project will not contribute substantially to any potential cumulative impacts on water quality. Potential operational impacts on water quality will continue to be less than significant and will not be cumulatively considerable. Other ground-disturbing projects constructed using heavy equipment in the vicinity must similarly follow the applicable federal and state rules and regulations required to protect water quality from hazardous materials and sedimentation.

Noise. The project will not have any long-term ambient noise impacts. Short-term construction noise impacts may occur simultaneously at a few work locations along the overall length of the project, but will be primarily limited to daytime hours, in accordance with local noise ordinances. Unplanned nighttime work will be infrequent, will occur in limited locations, and will be short-term. Implementation of APMs NOI-1 through NOI-6 will minimize noise during project construction, even when considered along with any other nearby project that may have overlapping construction periods. Therefore, the project will not contribute significantly to cumulative noise impacts.

Transportation and Traffic. The project's contribution to area traffic will be limited to a minor increase in vehicular traffic on roadways in the project vicinity during the construction period. This minor increase would be temporary and managed through the implementation of APM TR-1. The minor increase will not represent a substantial increase in traffic volumes on local roads, or use of public transit, bicycle, and pedestrian facilities, parking facilities, or emergency access. Operation and maintenance will not change materially from existing activities and will not result in a noticeable increase in vehicle traffic after construction is completed, as these ongoing inspections and repairs are infrequent and temporary in nature, and impacts on nearby traffic conditions will continue to be less than significant. Under cumulative conditions, the project will not alter the demand for existing or planned multimodal transportation options. Therefore, the project will not have cumulatively considerable transportation-related impacts.

3.18.6 REFERENCES

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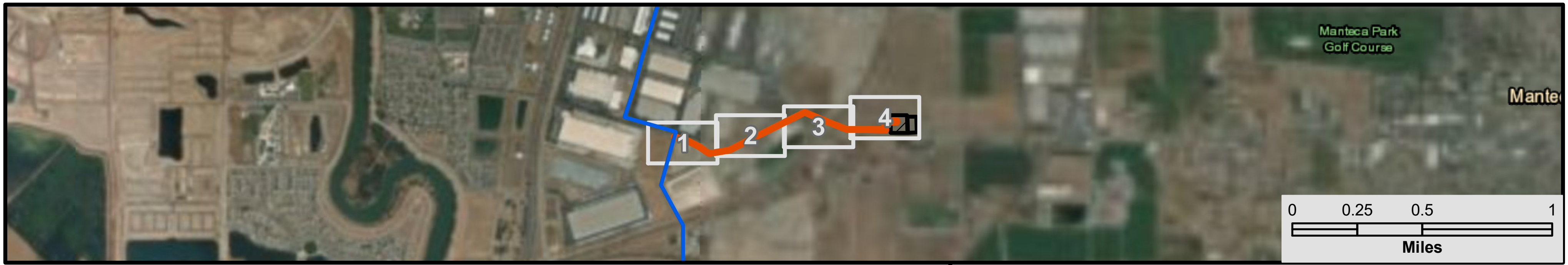

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4/10/2018

- Remote-end Substation Work Locations
- New 115 kV Line to be Installed
- Existing Tesla-Stockton Cogen Jct 115 kV
- Existing Vierra Substation
- Planned Vierra Substation Expansion

Appendix A: Project Route Map Index

Vierra Reinforcement Project

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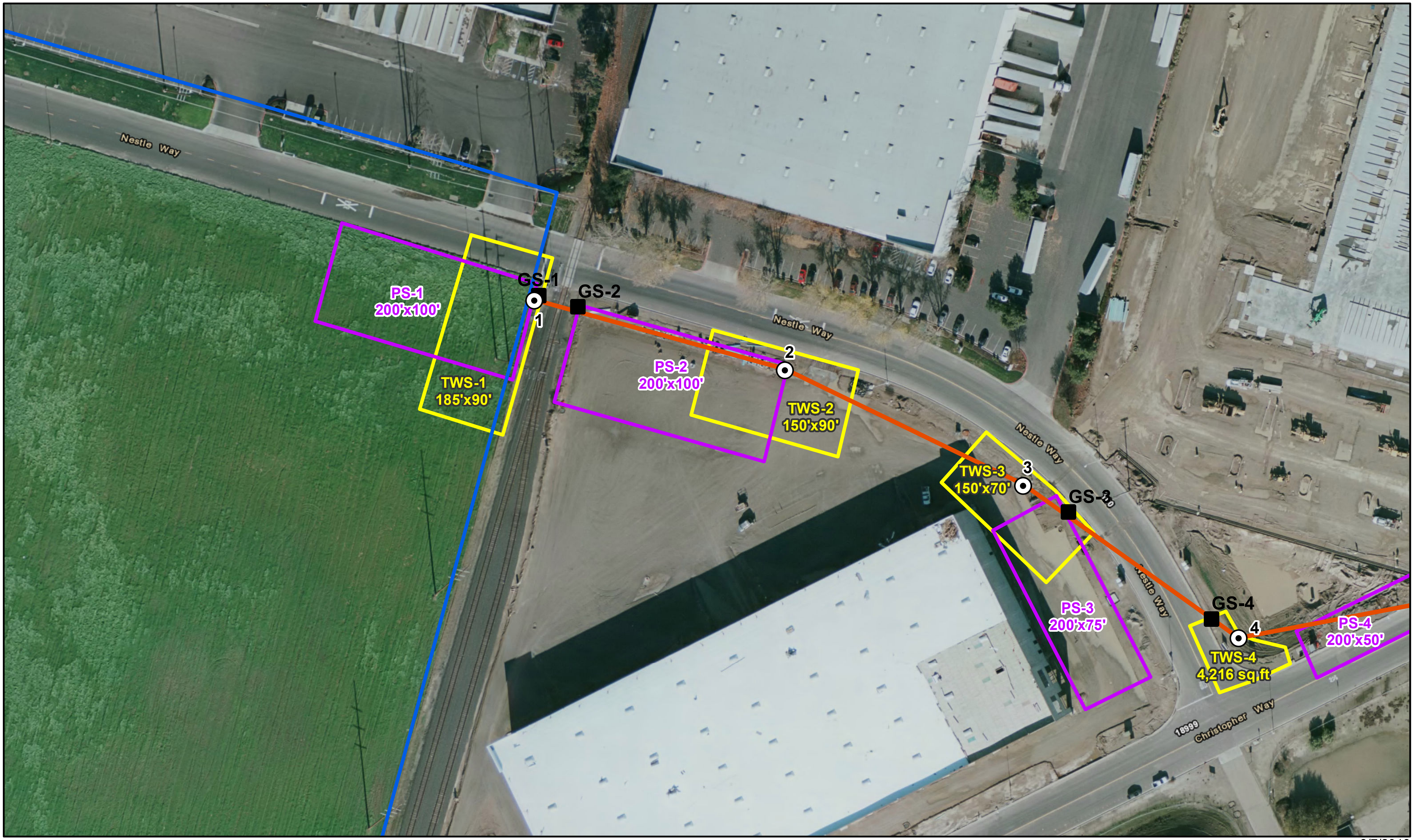

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- New Pole to be Installed
- Existing Pole to be Removed
- Guard Structures
- New 115 kV Line to be Installed
- Existing Howland Road Tap
- Existing Tesla-Stockton Co Gen Jct 115 kV

Vierra-Tracy-Kasson 115 kV Power Line

- Existing to be Removed
- To be Relocated
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- Overland Access
- Union Pacific Railroad
- Existing Vierra Substation
- Planned Vierra Substation Expansion
- Guard Structure Work
- Pole Work Areas
- Pull Sites
- Staging Areas

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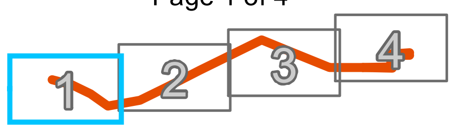

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Appendix A: Project Route Map

Vierra Reinforcement Project

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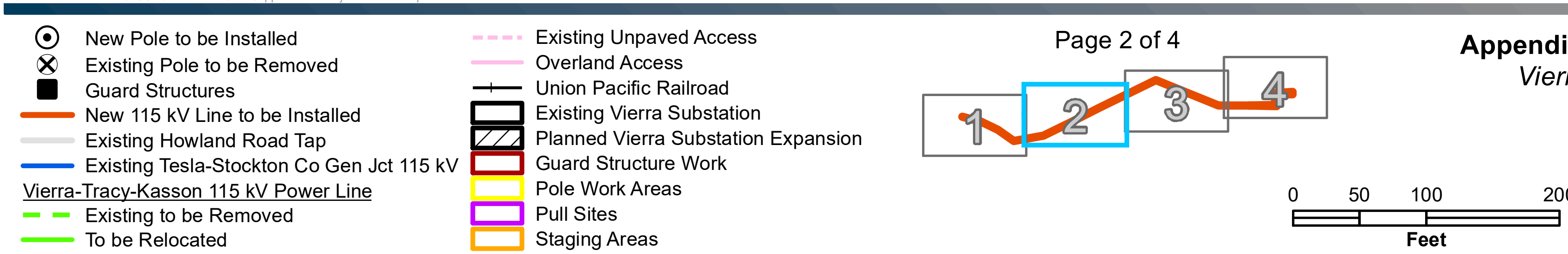

Appendix A: Project Route Map
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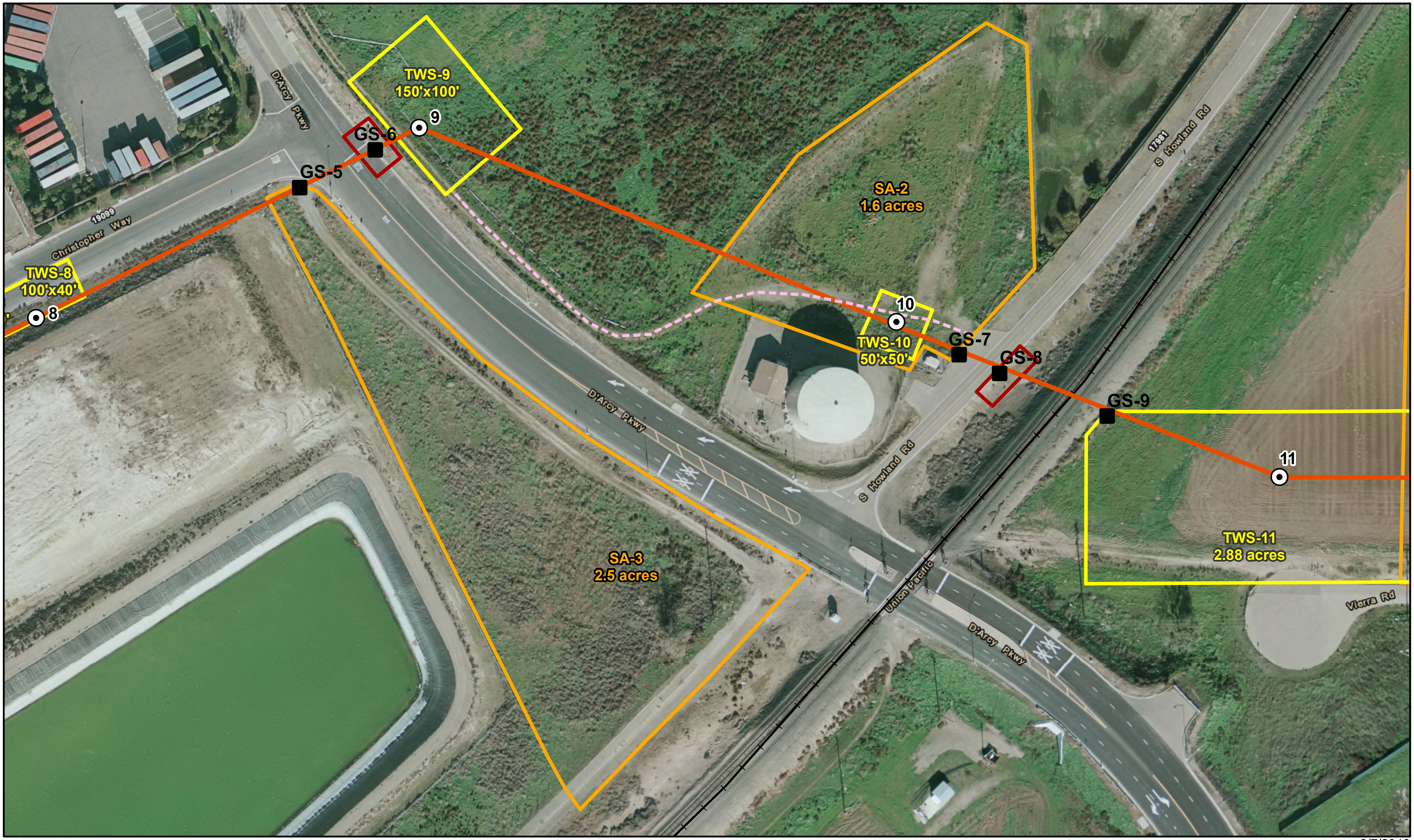

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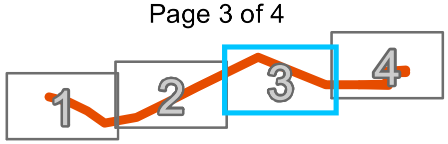

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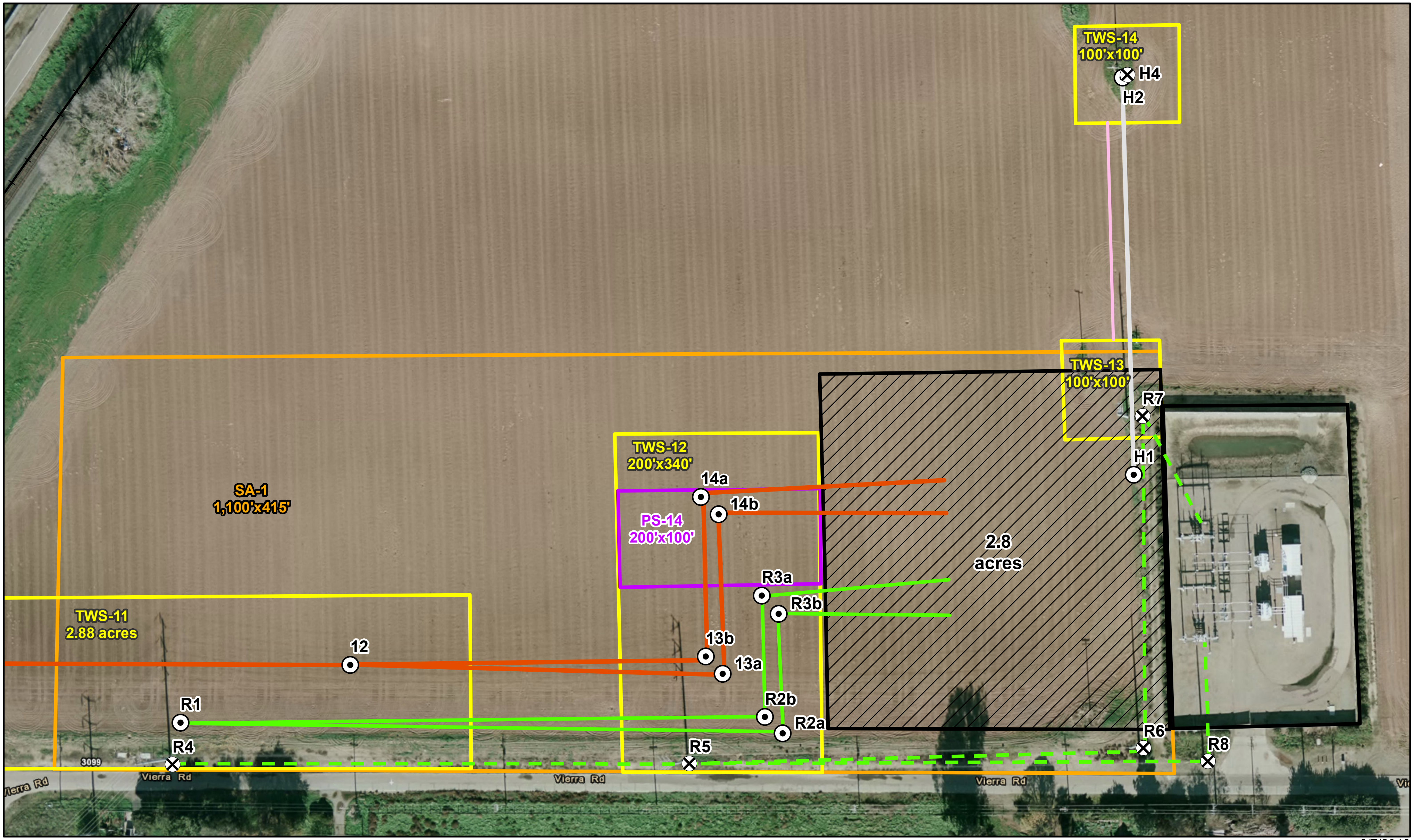

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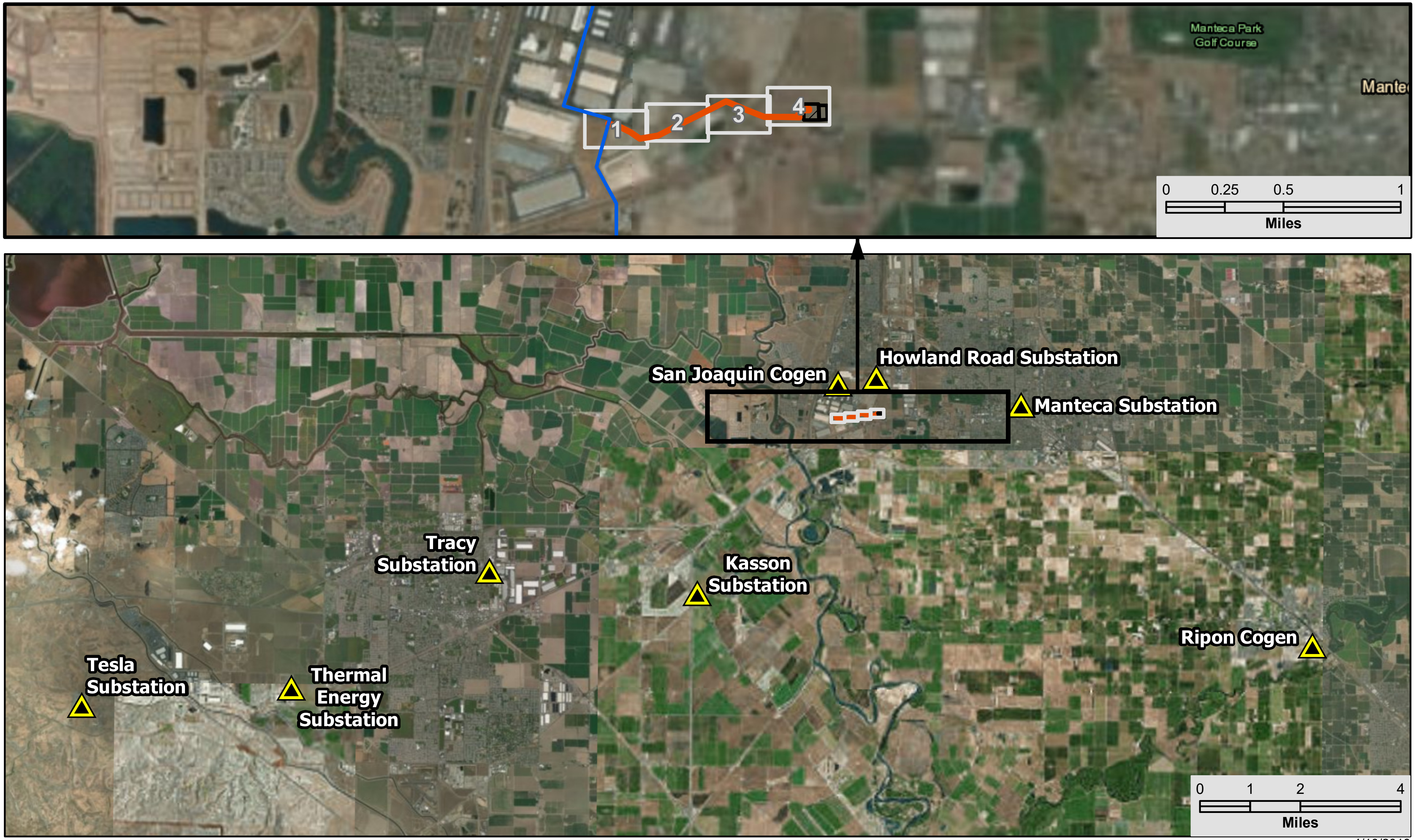

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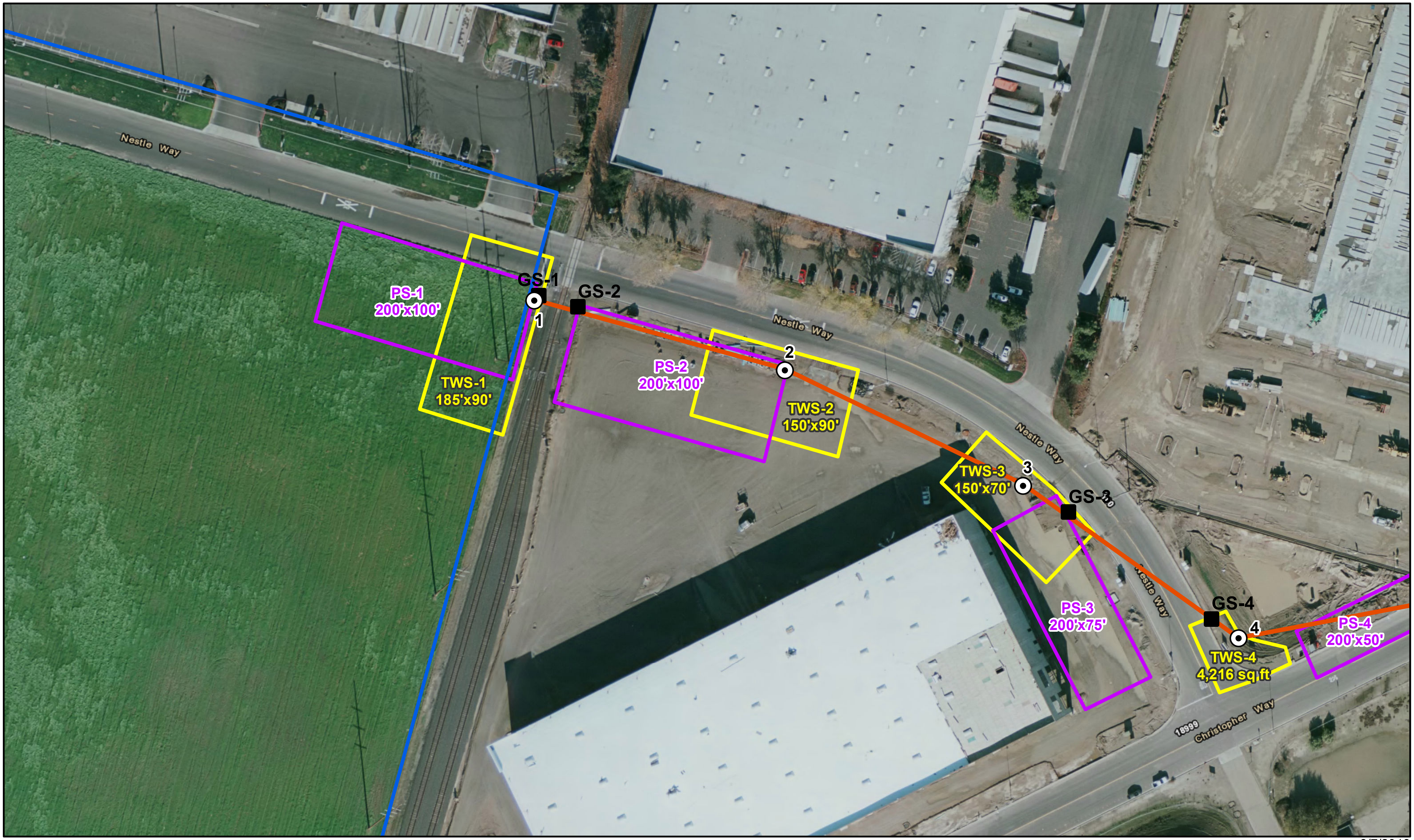

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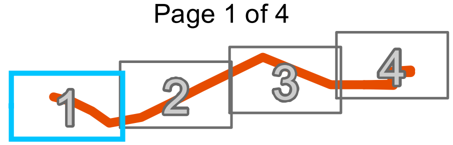

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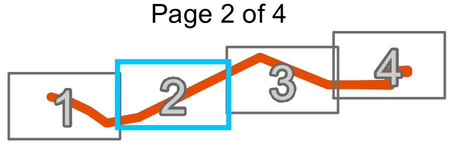
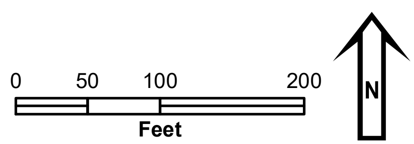
- Staging Areas



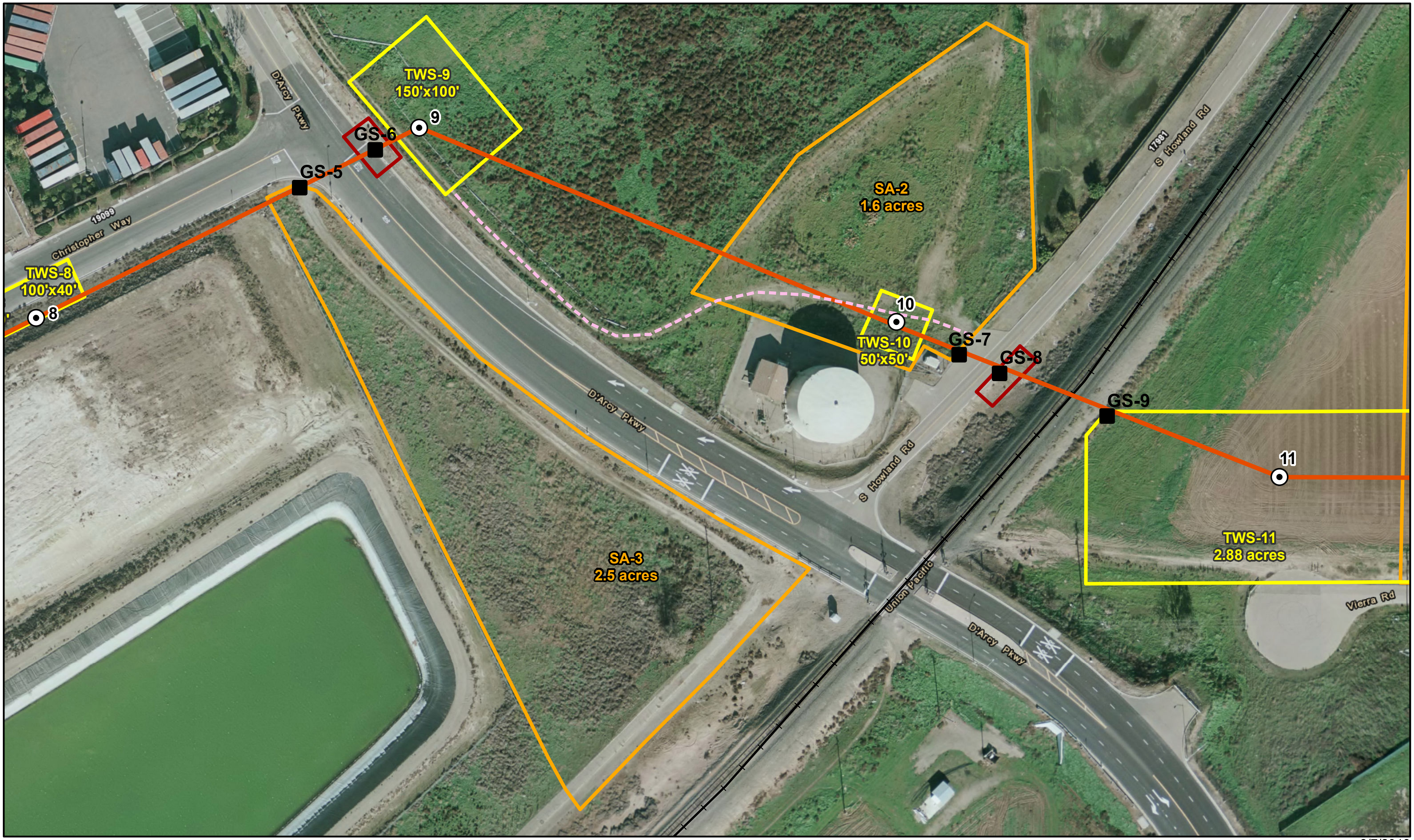


Appendix A: Project Route Map

Vierra Reinforcement Project

PG&E

TRC
Results you can rely on



Z:\Amazon WorkDocs\PG&E\Vierra PEA\mxd\Appendix A Project Route Map.mxd

3/7/2018

New Pole to be Installed
Existing Pole to be Removed
Guard Structures
New 115 kV Line to be Installed
Existing Howland Road Tap
Existing Tesla-Stockton Co Gen Jct 115 kV
Vierra-Tracy-Kasson 115 kV Power Line
Existing to be Removed
To be Relocated

Existing Unpaved Access
Overland Access
Union Pacific Railroad
Existing Vierra Substation
Planned Vierra Substation Expansion
Guard Structure Work
Pole Work Areas
Pull Sites
Staging Areas

Page 3 of 4

1 2 3 4

0 50 100 200
Feet

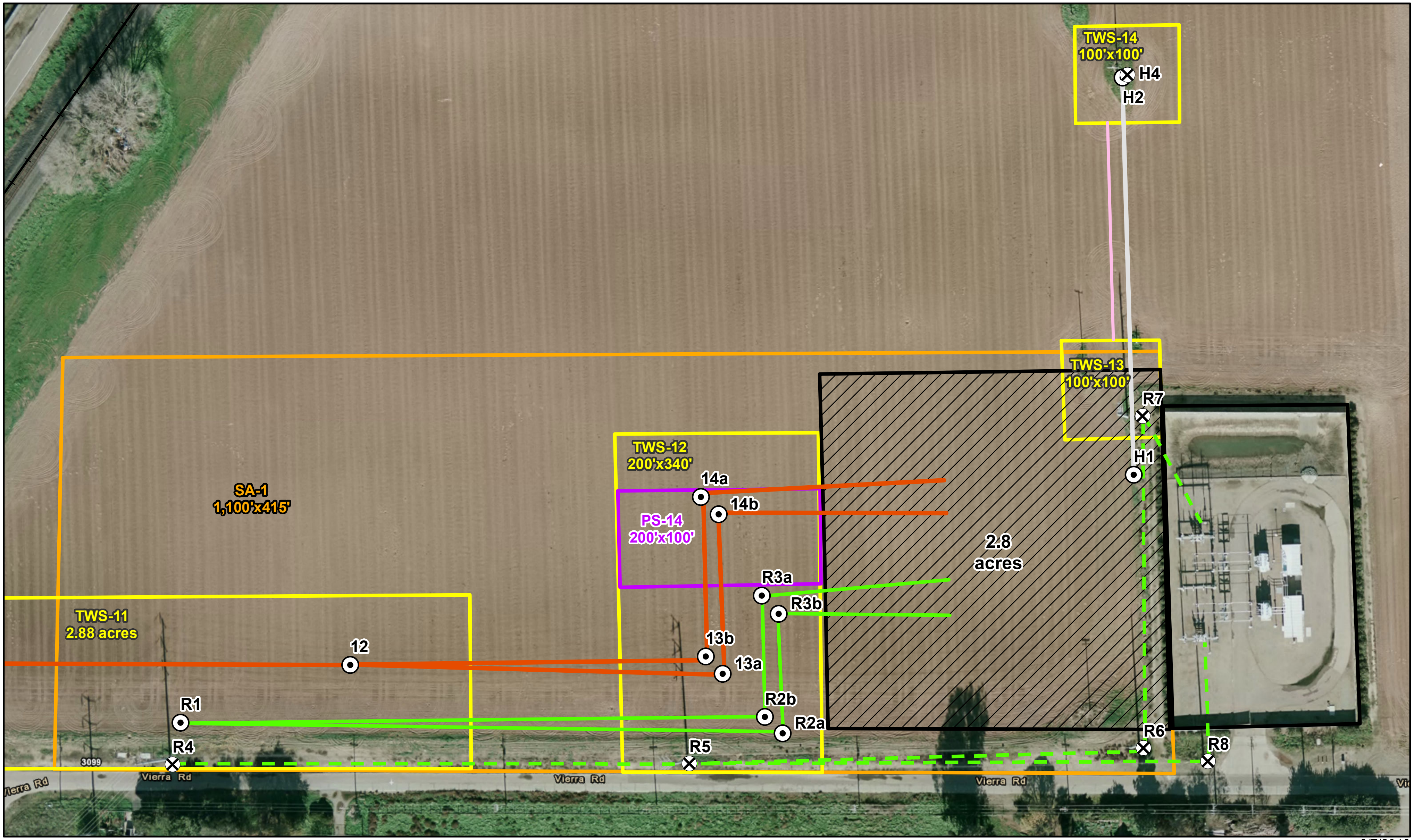
N

Appendix A: Project Route Map

Vierra Reinforcement Project

PG&E

TRC Results you can rely on



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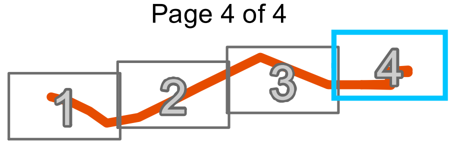
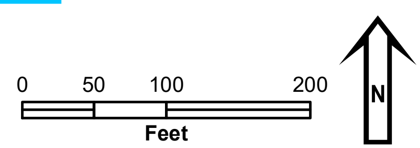
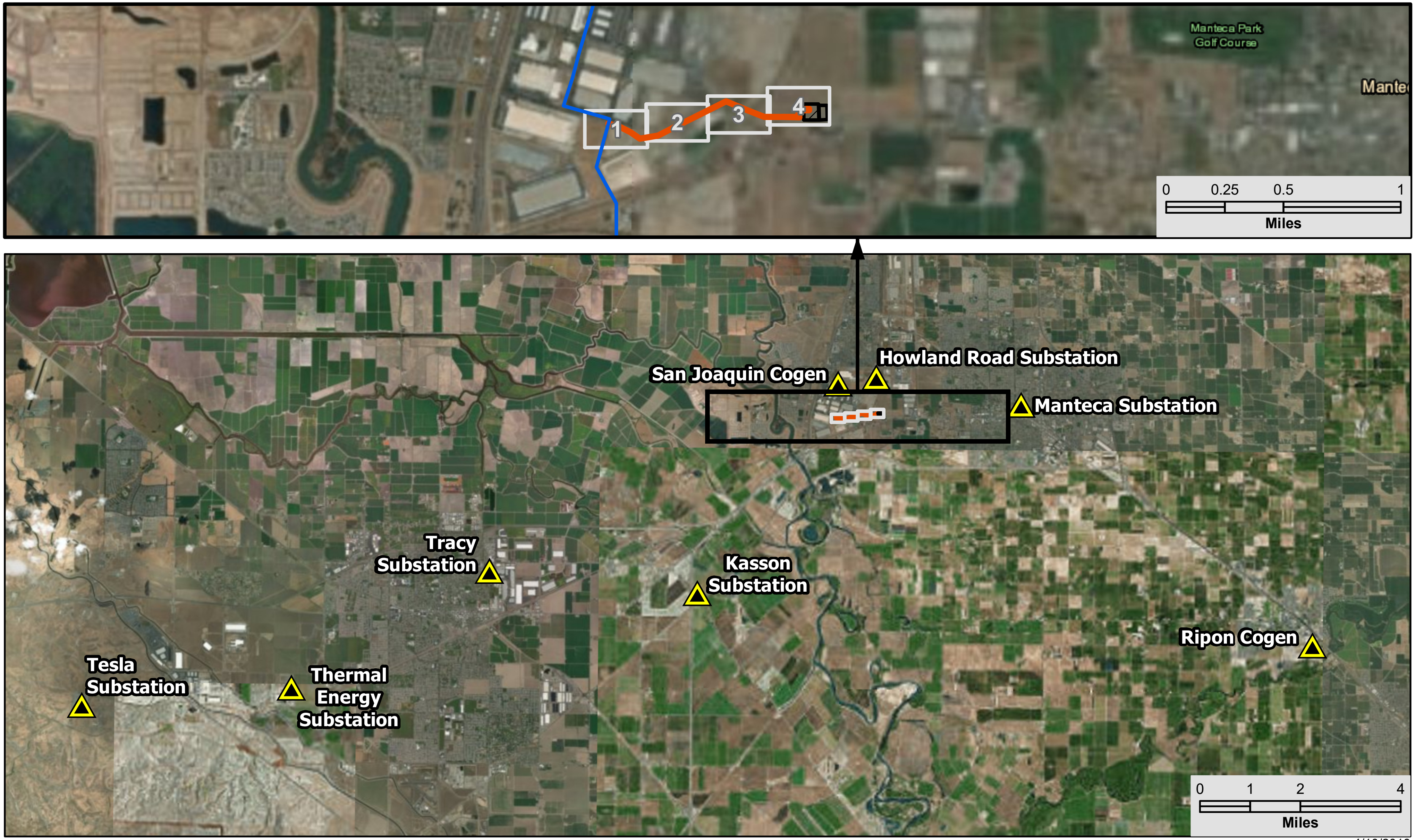
Pull Sites
Staging Areas



Appendix A: Project Route Map
Vierra Reinforcement Project
PG&E



Results you can rely on



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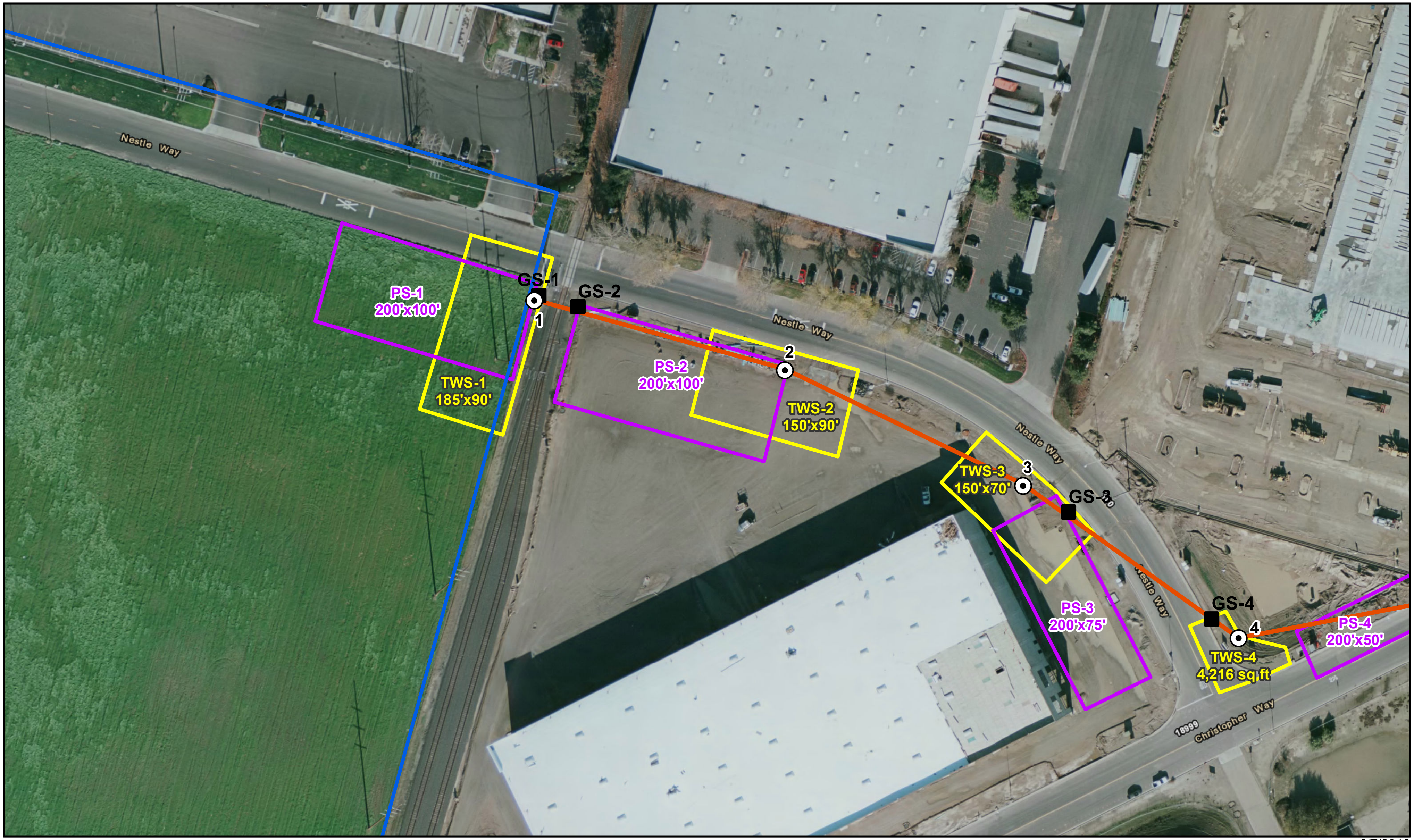
Remote-end Substation Work Locations
New 115 kV Line to be Installed
Existing Tesla-Stockton Cogen Jct 115 kV
Existing Vierra Substation
Planned Vierra Substation Expansion

Appendix A: Project Route Map Index
Vierra Reinforcement Project
PG&E

N

TRC
Results you can rely on



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3/7/2018

- New Pole to be Installed
- Existing Pole to be Removed
- Guard Structures
- New 115 kV Line to be Installed
- Existing Howland Road Tap
- Existing Tesla-Stockton Co Gen Jct 115 kV

Vierra-Tracy-Kasson 115 kV Power Line

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- To be Relocated
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- Overland Access
- Union Pacific Railroad
- Existing Vierra Substation
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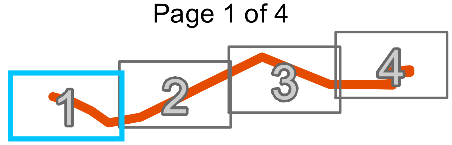
- Guard Structure Work
- Pole Work Areas
- Pull Sites
- Staging Areas



Appendix A: Project Route Map

Vierra Reinforcement Project

PG&E

0 50 100 200

Feet

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TRC

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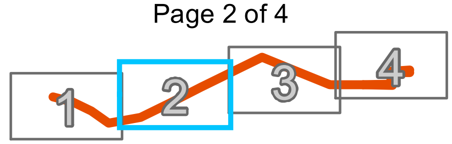

Appendix A: Project Route Map

Vierra Reinforcement Project

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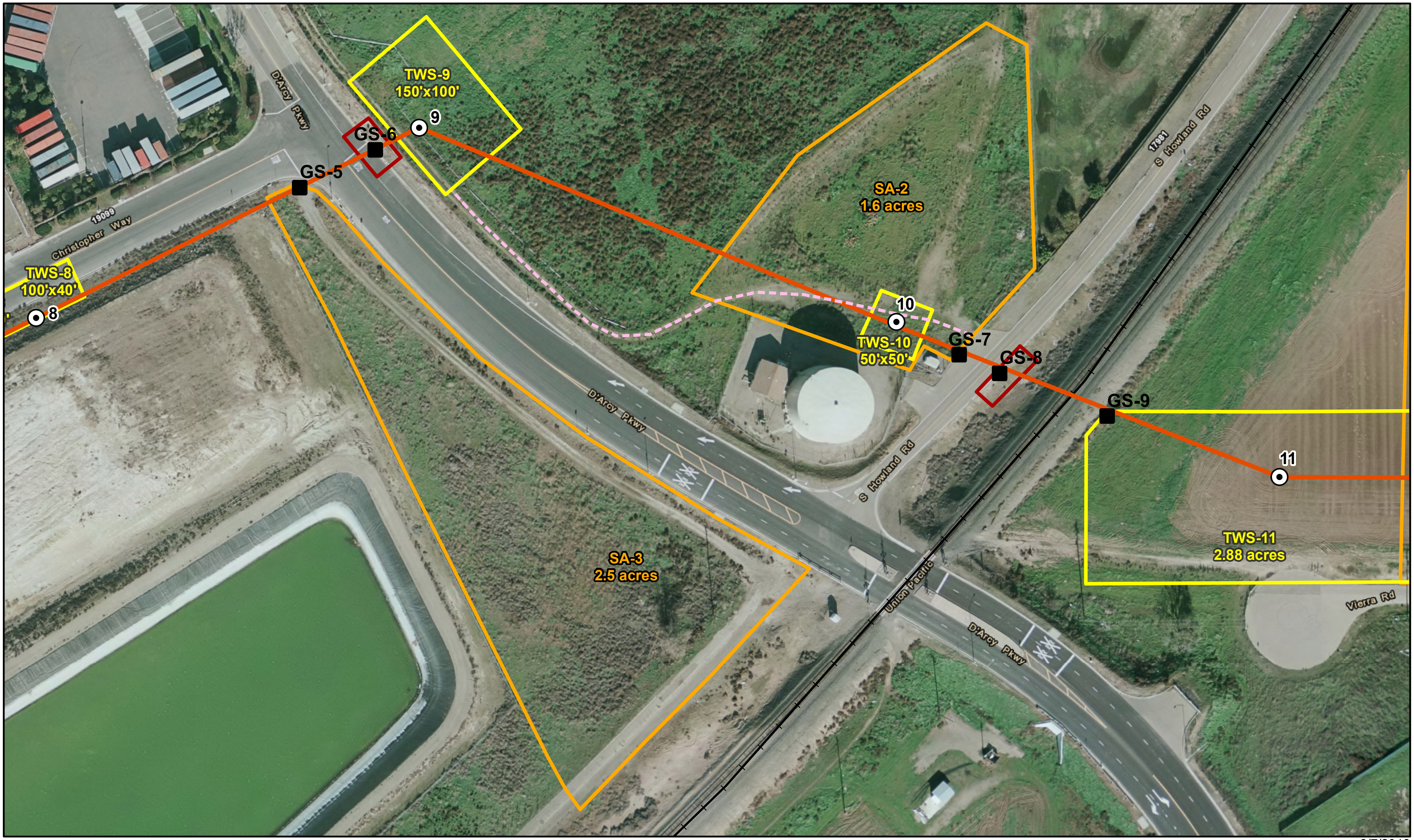

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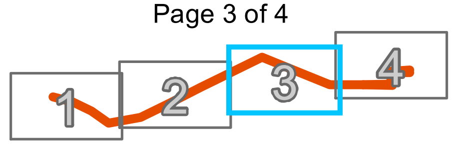

Appendix A: Project Route Map

Vierra Reinforcement Project

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0 50 100 200

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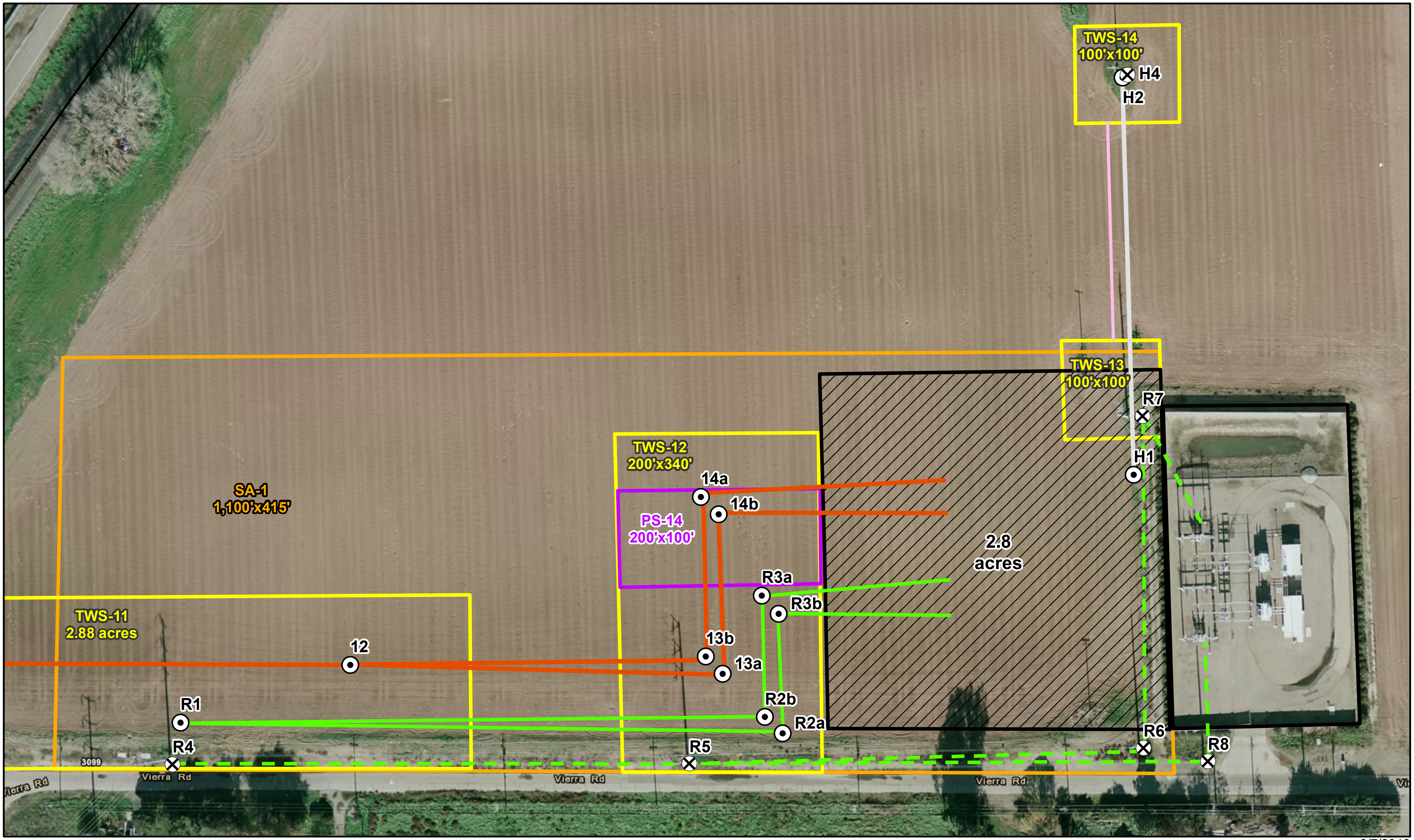

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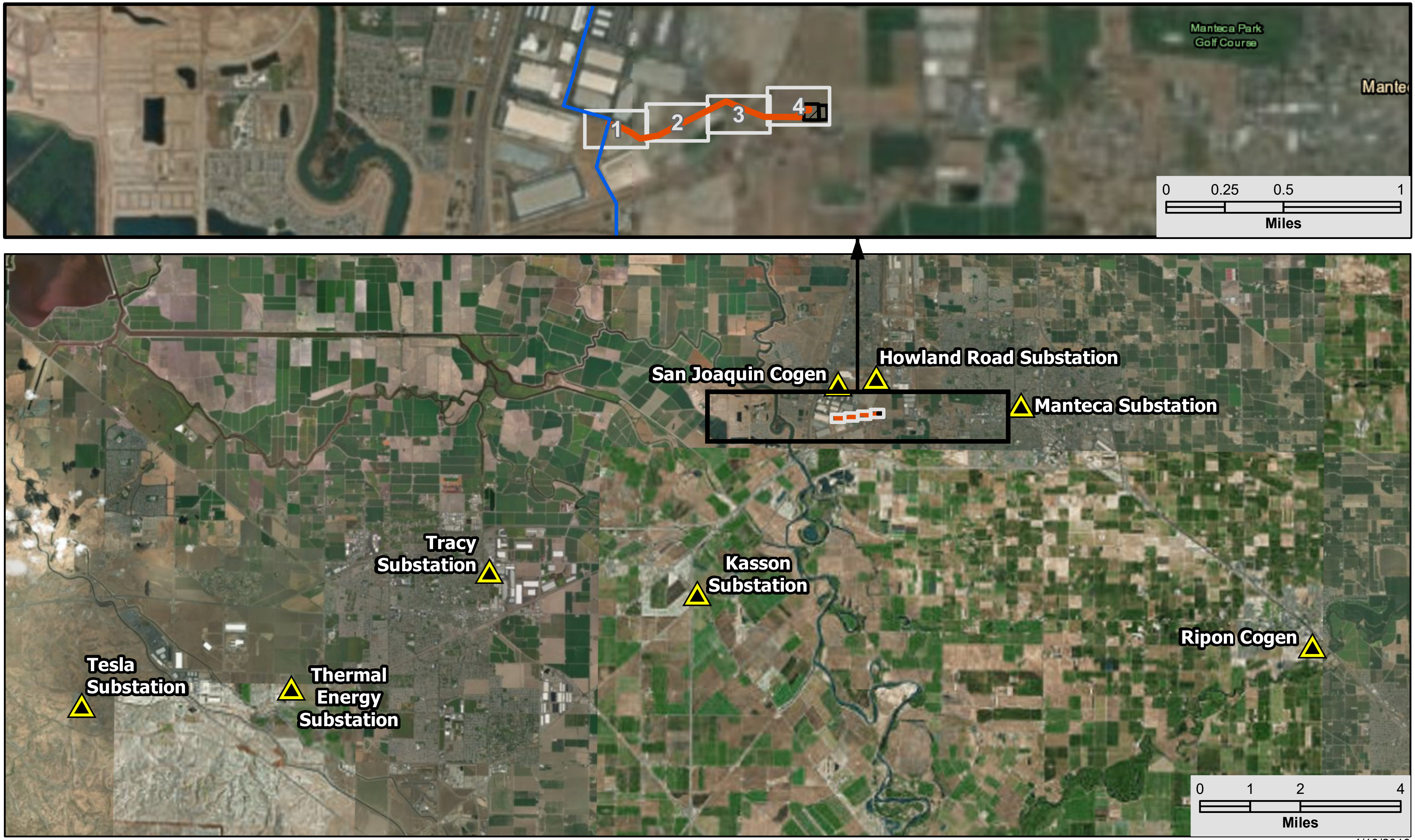
Appendix A: Project Route Map
Vierra Reinforcement Project
PG&E

TRC
Results you can rely on



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4/10/2018

Remote-end Substation Work Locations

New 115 kV Line to be Installed

Existing Tesla-Stockton Cogen Jct 115 kV

Existing Vierra Substation

Planned Vierra Substation Expansion

Appendix A: Project Route Map Index

Vierra Reinforcement Project

PG&E

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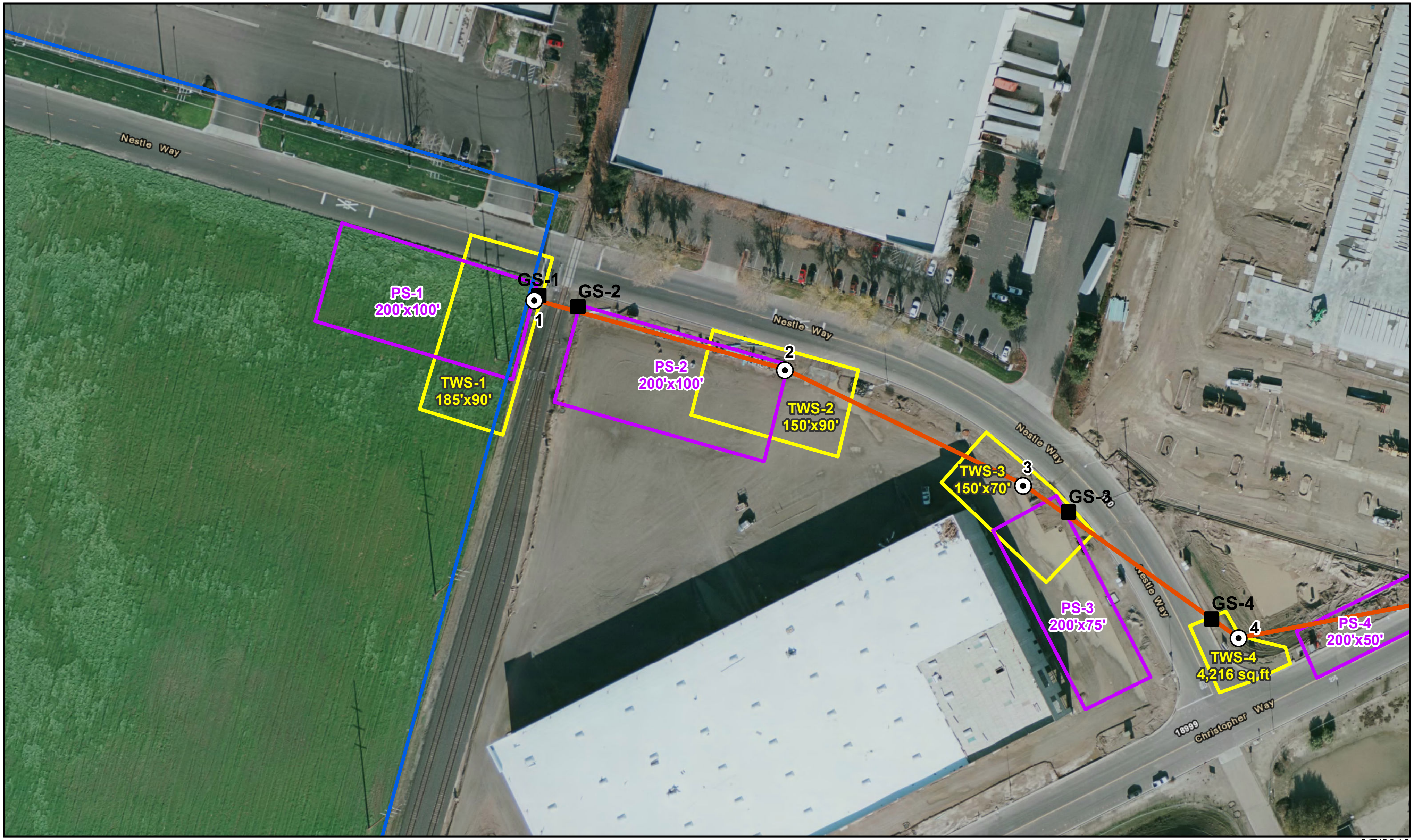

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3/7/2018

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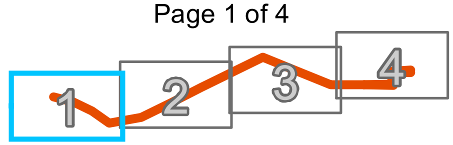

0 50 100 200
Feet

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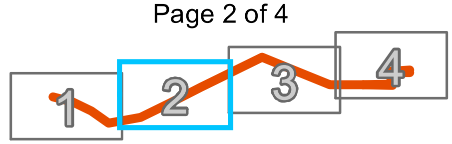

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Vierra Reinforcement Project

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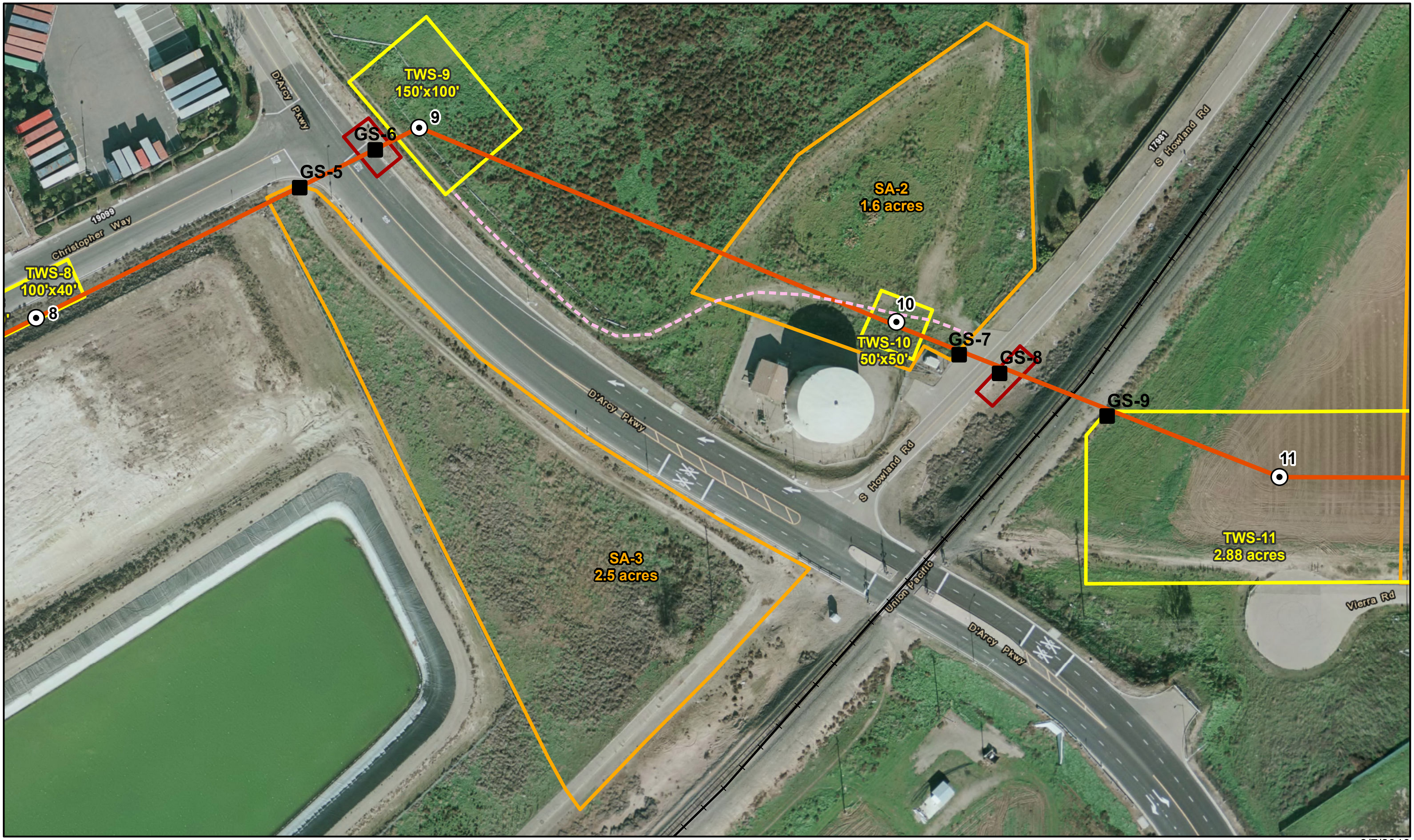

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Appendix A: Project Route Map
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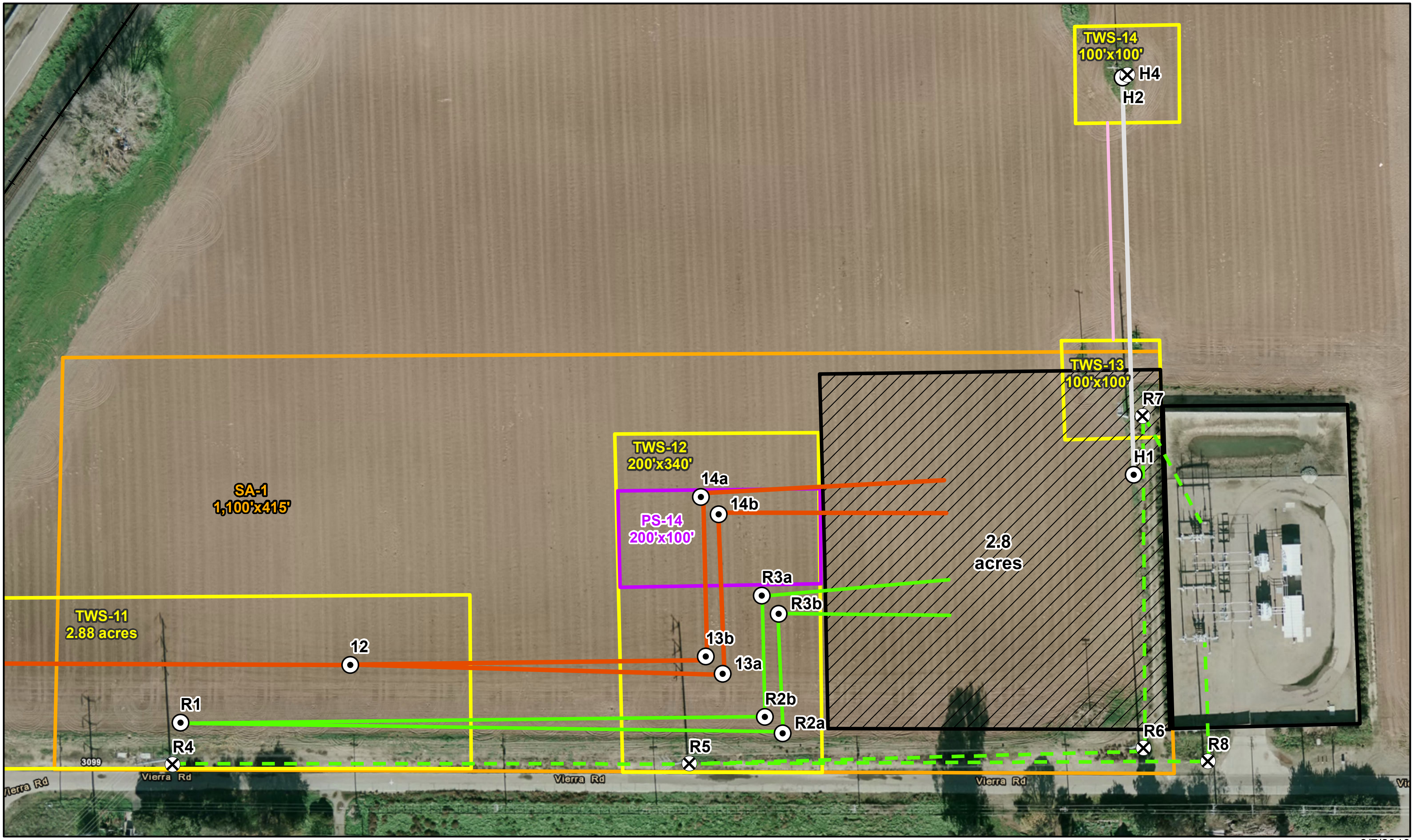

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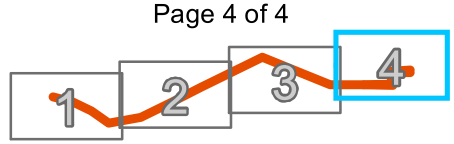

Appendix A: Project Route Map

Vierra Reinforcement Project

PG&E

0 50 100 200

Feet

N

Results you can rely on

Affected Properties within 300 Feet

APN	ADDRESS	CITY	STATE	ZIPCODE
19813035	18800 CHRISTOPHER WAY	LATHROP	CA	953308686
19813019	19100 CHRISTOPHER WAY	LATHROP	CA	95330
19813036	18600 CHRISTOPHER WAY	LATHROP	CA	95330
19813056	D ARCY PARK	LATHROP	CA	95330
19815008	17831 MCKINLEY AVE	LATHROP	CA	95330
24139010	3303 YOSEMITE AVE	LATHROP	CA	953309748
19813011	18300 HOWLAND RD	LATHROP	CA	95330
19813021	19094 CHRISTOPHER WAY	LATHROP	CA	953308772
19813057	D ARCY PARK	LATHROP	CA	95330
19815004	2035 VIERRA RD	LATHROP	CA	95330
19813058	1501 D ARCY PARK	LATHROP	CA	95330
19819021	401 NESTLE WAY	LATHROP	CA	953308752
19822011	601 NESTLE WAY	LATHROP	CA	953308759
19822010	601 NESTLE WAY	LATHROP	CA	953308759
19813062	18601 CHRISTOPHER WAY	LATHROP	CA	95330
19813030	700 DARCY PKWY	LATHROP	CA	953308755
19813042	18300 S HARLAN RD	LATHROP	CA	953308765
19815009	2131 VIERRA RD	LATHROP	CA	95330
19813029	2 NESTLE WAY	LATHROP	CA	953309707
19815006	17681 HOWLAND RD	LATHROP	CA	95330
19813063	18551 CHRISTOPHER WAY	LATHROP	CA	95330
19813039	18290 S HARLAN RD	LATHROP	CA	953308757
24139011	EL RANCHO PESCA	LATHROP	CA	95330
24139021	D ARCY PARK	LATHROP	CA	95330
24139008	1970 VIERRA RD	LATHROP	CA	953309749
19813007	2 NESTLE WAY	LATHROP	CA	953309707
24139007	1866 VIERRA RD	LATHROP	CA	953309749
19815007	17681 HOWLAND RD	LATHROP	CA	95330
19813055	D ARCY PARK	LATHROP	CA	95330
19813061	19107 CHRISTOPHER WAY	LATHROP	CA	95330
21709142	630 ROBIN LN	MANTECA	CA	953364409
21711014	609 W CENTER ST	MANTECA	CA	953374456
21711004	232 HEMLOCK AVE	MANTECA	CA	953374419
21715002	215 ELM AVE	MANTECA	CA	953364558
21711016	617 W CENTER ST	MANTECA	CA	953374456
21709211	412 GREENBRIER AVE	MANTECA	CA	953364406
21709144	641 SAN JUAN ST	MANTECA	CA	953364450
21719004	534 SAN JUAN ST	MANTECA	CA	953364531
21720053	240 ELM AVE	MANTECA	CA	953364570
APN	**ADDRESS**	**CITY**	**STATE**	**ZIPCODE**

21720048	233 ACACIA AVE A	MANTECA	CA	953364574
21719006	522 SAN JUAN ST	MANTECA	CA	953364531
21767047	393 VICTORY AVE	MANTECA	CA	953364403
21711007	220 HEMLOCK AVE	MANTECA	CA	953374419
21719007	516 SAN JUAN ST	MANTECA	CA	953364531
21711005	228 HEMLOCK AVE	MANTECA	CA	953374419
21709149	660 SAN JUAN ST	MANTECA	CA	953364449
21719025	517 W NORTH ST	MANTECA	CA	953364529
21719016	539 CAROL ST	MANTECA	CA	953364545
21720012	527 W CENTER ST	MANTECA	CA	953364534
21720005	228 ELM AVE	MANTECA	CA	953364571
21719015	533 CAROL ST	MANTECA	CA	953364545
21709147	657 SAN JUAN ST	MANTECA	CA	953364450
21719012	515 CAROL ST	MANTECA	CA	953364545
21716031	606 SAN JUAN ST	MANTECA	CA	953364449
21709151	650 SAN JUAN ST	MANTECA	CA	953364449
21711013	212 N VEACH AVE	MANTECA	CA	953374410
21709140	648 ROBIN LN	MANTECA	CA	953364409
21716007	405 ELM AVE	MANTECA	CA	953364514
21709139	654 ROBIN LN	MANTECA	CA	953364409
21709154	632 SAN JUAN ST	MANTECA	CA	953364449
21720023	510 W NORTH ST	MANTECA	CA	953364530
21719026	523 W NORTH ST	MANTECA	CA	953364529
21720006	226 ELM AVE	MANTECA	CA	953364570
21710002	W ALAMEDA ST	MANTECA	CA	
21720052	240 ELM AVE	MANTECA	CA	953364570
21767004	396 VICTORY AVE	MANTECA	CA	953364403
21767008	370 VICTORY AVE	MANTECA	CA	953364403
21767009	367 VICTORY AVE	MANTECA	CA	953364403
21719013	521 CAROL ST	MANTECA	CA	953364545
21709152	646 SAN JUAN ST	MANTECA	CA	953364449
21720016	215 ACACIA AVE	MANTECA	CA	953364507
21715010	601 W CENTER ST	MANTECA	CA	95337
21709148	663 SAN JUAN ST	MANTECA	CA	953364450
21716033	618 SAN JUAN ST	MANTECA	CA	953364449
21716020	409 CHESTNUT AVE	MANTECA	CA	953364512
21767003	402 VICTORY AVE	MANTECA	CA	953364446
21767045	364 VICTORY AVE	MANTECA	CA	95336
21720049	229 ACACIA AVE	MANTECA	CA	953364575
21716008	406 ELM AVE	MANTECA	CA	953364515
21719005	528 SAN JUAN ST	MANTECA	CA	953364531
21716009	410 ELM AVE	MANTECA	CA	953364515
APN	**ADDRESS**	**CITY**	**STATE**	**ZIPCODE**
21720018	221 ACACIA AVE	MANTECA	CA	953364507

21709137	672 ROBIN LN	MANTECA	CA	953364448
21710003	245 ELM AVE	MANTECA	CA	95336
21767007	376 VICTORY AVE	MANTECA	CA	953364403
21720051	535 W CENTER ST	MANTECA	CA	953364534
21719019	522 CAROL ST	MANTECA	CA	953364546
21719018	528 CAROL ST	MANTECA	CA	953364546
21709150	656 SAN JUAN ST	MANTECA	CA	953364449
21711006	224 HEMLOCK AVE	MANTECA	CA	953374419
21711012	216 N VEACH AVE	MANTECA	CA	953374410
21719017	534 CAROL ST	MANTECA	CA	953364546
21719020	516 CAROL ST	MANTECA	CA	953364546
21767005	390 VICTORY AVE	MANTECA	CA	953364403
21716006	409 ELM AVE	MANTECA	CA	953364514
21720022	237 ACACIA AVE	MANTECA	CA	953364507
21720017	217 ACACIA AVE	MANTECA	CA	95336
21720007	220 ELM AVE	MANTECA	CA	953364587
21711015	613 W CENTER ST	MANTECA	CA	953374456
21711003	236 HEMLOCK AVE	MANTECA	CA	953374419
21720009	204 ELM AVE	MANTECA	CA	953364533
21719024	511 W NORTH ST	MANTECA	CA	953364529
21719028	535 W NORTH ST	MANTECA	CA	953364529
21720008	218 ELM AVE	MANTECA	CA	953364568
21716021	405 CHESTNUT AVE	MANTECA	CA	953364512
21716032	612 SAN JUAN ST	MANTECA	CA	953364449
21767006	382 VICTORY AVE	MANTECA	CA	953364403
21720011	531 W CENTER ST	MANTECA	CA	953364534
21709145	647 SAN JUAN ST	MANTECA	CA	953364450
21719003	540 SAN JUAN ST	MANTECA	CA	953364531
21709138	658 ROBIN LN	MANTECA	CA	953364409
21709153	640 SAN JUAN ST	MANTECA	CA	953364449
21720004	232 ELM AVE	MANTECA	CA	953364570
21709143	635 SAN JUAN ST	MANTECA	CA	953364450
21709157	620 SAN JUAN ST	MANTECA	CA	953364449
21709210	418 GREENBRIER AVE	MANTECA	CA	953364406
21705040	MANTECA	MANTECA	CA	
21711017	621 W CENTER ST	MANTECA	CA	953374456
21719014	527 CAROL ST	MANTECA	CA	953364545
21709141	642 ROBIN LN	MANTECA	CA	953364409
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21720002	516 W NORTH ST	MANTECA	CA	953364530
APN	**ADDRESS**	**CITY**	**STATE**	**ZIPCODE**
21711001	240 HEMLOCK AVE	MANTECA	CA	953374419
21709146	651 SAN JUAN ST	MANTECA	CA	953364450

21711011	215 N VEACH AVE	MANTECA	CA	953374410
21767046	385 VICTORY AVE	MANTECA	CA	953364403
21767010	373 VICTORY AVE	MANTECA	CA	953364403
21720001	246 N ELM AVE	RIPON	CA	953662441
25026009	1447 MARIANI CT	TRACY	CA	953762825
23909004	23851 KASSON RD	TRACY	CA	95304
23906013	23210 KASSON RD	TRACY	CA	95304
23340502	1620 FRANKLIN AVE	TRACY	CA	953763134
23340503	1610 FRANKLIN AVE	TRACY	CA	953763134
23340110	1625 FRANKLIN AVE	TRACY	CA	953763133
23912002	23300 KASSON RD	TRACY	CA	953049575
25027061	1945 N MACARTHUR DR	TRACY	CA	953762833
23346007	426 E GRANT LINE RD	TRACY	CA	953762811
23340504	1600 FRANKLIN AVE	TRACY	CA	953763134
25001011	PEREIRA TRACT	TRACY	CA	
23906014	23210 KASSON RD	TRACY	CA	95304
25027062	1941 N MACARTHUR DR	TRACY	CA	953762833
23911008	23623 KASSON RD	TRACY	CA	953049518
23340501	1630 FRANKLIN AVE	TRACY	CA	953763134
25027008	502 E GRANT LINE RD	TRACY	CA	953762800
25027060	2015 N MACARTHUR DR	TRACY	CA	953762850
25001010	PEREIRA TRACT	TRACY	CA	
25027010	1925 N MACARTHUR DR	TRACY	CA	953762835
23912001	23500 KASSON RD	TRACY	CA	95304

1.0 Electric and Magnetic Fields

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

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

1.1 ELECTRIC FIELDS

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

1.2 MAGNETIC FIELDS

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

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

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

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

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

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

1.3 POSSIBLE HEALTH EFFECTS

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

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

1.4 CALIFORNIA PUBLIC UTILITIES COMMISSION DECISION SUMMARY

Background

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

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

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

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

- The CPUC affirmed its existing policy of requiring no-cost and low-cost mitigation measures to reduce EMF levels from new utility transmission lines and substation projects.

- The CPUC adopted rules and policies to improve utility design guidelines for reducing EMF, and provides for a utility workshop to implement these policies and standardize design guidelines.

- Despite numerous studies, including one ordered by the Commission and conducted by the California Department of Health Services, the CPUC stated “we are unable to determine whether there is a significant scientifically verifiable relationship between EMF exposure and negative health consequences.”

- The CPUC said it will “remain vigilant” regarding new scientific studies on EMF, and if these studies indicate negative EMF health impacts, the Commission will reconsider its EMF policies and open a new rulemaking if necessary.

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

1.5 REVIEWS OF EMF STUDIES

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

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

1.6 NATIONAL INSTITUTE OF ENVIRONMENTAL HEALTH SCIENCES

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

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

The NIEHS report also included the following conclusions:

> The National Toxicology Program routinely examines environmental exposures to determine the degree to which they constitute a human cancer risk and produces the 'Report on Carcinogens' listing agents that are 'known human carcinogens' or 'reasonably anticipated to be human carcinogens.' It is our opinion that based on evidence to date, ELF-EMF exposure would not be listed in the 'Report on Carcinogens' as an agent 'reasonably anticipated to be a human carcinogen.' This is based on the limited epidemiological evidence and the findings from the EMF-RAPID Program that did not indicate an effect of ELF-EMF exposure in experimental animals or a mechanistic basis for carcinogenicity.
>
> The NIEHS agrees that the associations reported for childhood leukemia and adult chronic lymphocytic leukemia cannot be dismissed easily as random or negative findings. The lack of positive findings in animals or in mechanistic studies weakens the belief that this association is actually due to ELF-EMF, but cannot completely discount the finding. The NIEHS also agrees with the

> conclusion that no other cancers or non-cancer health outcomes provide sufficient evidence of a risk to warrant concern.
>
> Epidemiological studies have serious limitations in their ability to demonstrate a cause and effect relationship whereas laboratory studies, by design, can clearly show that cause and effect are possible. Virtually all of the laboratory evidence in animals and humans and most of the mechanistic work done in cells fail to support a causal relationship between exposure to ELF-EMF at environmental levels and changes in biological function or disease status. The lack of consistent, positive findings in animal or mechanistic studies weakens the belief that this association is actually due to ELF-EMF, but it cannot completely discount the epidemiological findings.
>
> The NIEHS suggests that the level and strength of evidence supporting ELF-EMF exposure as a human health hazard are insufficient to warrant aggressive regulatory actions; thus, we do not recommend actions such as stringent standards on electric appliances and a national program to bury all transmission and distribution lines. Instead, the evidence suggests passive measures such as a continued emphasis on educating both the public and the regulated community on means aimed at reducing exposures. NIEHS suggests that the power industry continue its current practice of siting power lines to reduce exposures and continue to explore ways to reduce the creation of magnetic fields around transmission and distribution lines without creating new hazards. We also encourage technologies that lower exposures from neighborhood distribution lines provided that they do not increase other risks, such as those from accidental electrocution or fire.

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

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

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

The following specific recommendations are made by the committee:

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

World Health Organization

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

A Task Group of scientific experts was convened in 2005 to assess any risks to health that might exist from exposure to ELF electric and magnetic fields. Previously in 2002, the International Agency for Research on Cancer (IARC) examined the evidence regarding cancer; this Task Group reviewed evidence for a number of health effects, and updated the evidence regarding cancer. The conclusions and recommendations of the Task Group are presented in a WHO report titled: “Extremely Low Frequency Fields Environmental Health

Criteria Monograph No.238" and Factsheet No 322.

> "New human, animal and in vitro studies, published since the 2002 IARC monograph, do not change the overall classification of ELF magnetic fields as a possible human carcinogen."
>
> "A number of other diseases have been investigated for possible association with ELF magnetic field exposure. These include cancers in both children and adults, depression, suicide, reproductive dysfunction, developmental disorders, immunological modifications and neurological disease. The scientific evidence supporting a linkage between ELF magnetic fields and any of these diseases is much weaker than for childhood leukaemia and in some cases (for example, for cardiovascular disease or breast cancer) the evidence is sufficient to give confidence that magnetic fields do not cause the disease."
>
> "the epidemiological evidence is weakened by methodological problems, such as potential selection bias. In addition, there are no accepted biophysical mechanisms that would suggest that low-level exposures are involved in cancer development. Thus, if there were any effects from exposures to these low-level fields, it would have to be through a biological mechanism that is as yet unknown. Additionally, animal studies have been largely negative. Thus, on balance, the evidence related to childhood leukaemia is not strong enough to be considered causal."
>
> "Policy-makers should establish an ELF EMF protection programme that includes measurements of fields from all sources to ensure that the exposure limits are not exceeded either for the general public or workers."
>
> "Government and industry should monitor science and promote research programmes to further reduce the uncertainty of the scientific evidence on the health effects of ELF field exposure."
>
> "Policy-makers, community planners and manufacturers should implement very low-cost measures when constructing new facilities and designing new equipment including appliances."
>
> "Changes to engineering practice to reduce ELF exposure from equipment or devices should be considered, provided that they yield other additional benefits, such as greater safety, or little or no cost."
>
> "When changes to existing ELF sources are contemplated, ELF field reduction should be considered alongside safety, reliability and economic aspects."

International Agency for Research on Cancer

In June of 2001, the International Agency for Research on Cancer (IARC), a branch of the

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

> In June 2001, an expert scientific working group of IARC reviewed studies related to the carcinogenicity of static and ELF electric and magnetic fields. Using the standard IARC classification that weighs human, animal and laboratory evidence, ELF magnetic fields were classified as possibly carcinogenic to humans based on epidemiological studies of childhood leukaemia. Evidence for all other cancers in children and adults, as well as other types of exposures (i.e. static fields and ELF electric fields) was considered not classifiable either due to insufficient or inconsistent scientific information.
>
> "Possibly carcinogenic to humans" is a classification used to denote an agent for which there is limited evidence of carcinogenicity in humans and less than sufficient evidence for carcinogenicity in experimental animals.
>
> This classification is the weakest of three categories ("is carcinogenic to humans", "probably carcinogenic to humans" and "possibly carcinogenic to humans") used by IARC to classify potential carcinogens based on published scientific evidence. Some examples of well-known agents that have been classified by IARC are listed below:

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

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

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

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

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

Childhood leukaemia is a rare disease with 4 out of 100,000 children between the age of 0 to 14 diagnosed every year. Also average magnetic field exposures above 0.3 or 0.4 μT in residences are rare. It can be estimated from the epidemiological study results that less than 1% of populations using 240 volt power supplies are exposed to these levels, although this may be higher in countries using 120 volt supplies.

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

American Cancer Society

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

> Evidence suggesting that exposure to EMF may or may not promote human carcinogenesis is mostly based on...epidemiologic observations.... While those observations may suggest such a relationship for leukemia and brain cancer in particular, the findings are weak, inconsistent, and inconclusive.... The weakness and inconsistent nature of epidemiologic data, combined with the continued dearth of coherent and reproducible findings from experimental

laboratory research, leave one uncertain and rather doubtful that any real biologic link exists between EMF exposure and carcinogenicity.

American Medical Association

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

- Although no scientifically documented health risk has been associated with the usually occurring levels of electromagnetic fields, the AMA should continue to monitor developments and issues related to the subject.

- The AMA should encourage research efforts sponsored by agencies such as the National Institutes of Health, the U.S. Department of Energy, and the National Science Foundation. Continuing research should include study of exposures to EMF and its effects, average public exposures, occupational exposures, and the effects of field surges and harmonics.

- The AMA should support the meeting of an authoritative, multidisciplinary committee under the auspices of the National Academy of Sciences or the National Council on Radiation Protection and Measurements to make recommendations about exposure levels of the public and workers to EMF and radiation.

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Nesting Birds: Species-Specific Buffers for PG&E Activities

Within PG&E's Avian Program, standard nest buffers were developed for all common and special-status birds present within its Service Territory. There are no standard nest buffers specified in the Migratory Bird Treaty Act (MBTA) or within California Fish and Game Code. Table 1 provides nest buffers based on the best available information, including relevant literature review and avian biology. Disturbance factors including *nest location*, *human activity*, *activity duration*, and *noise level* may influence nesting behavior and reproductive success, and were each considered in establishing standard buffer distances for individual species. Where regulatory agencies have provided information on nest buffer distances for special-status species, those buffer distances are primarily used as *standard buffers* in Table 1. *Standard buffers* are species-specific buffer distances between occupied nest sites and work activities where work will not occur while the nest is active (containing eggs or young). These standard buffers are intended to be applied to nests located in proximity to PG&E activities at a sufficient distance to provide suitable nest protection. For example, a nesting black-crowned night heron has a standard buffer distance of 400 feet (Table 1).

Because it is not always possible to apply the standard buffer, non-standard species-specific buffer distances have also been established. As part of the determination of these non-standard buffers, PG&E activities are assigned disturbance rankings (Low, Medium, or High) for each factor identified above. Evaluation of all disturbance factors combined produces an overall disturbance category by assessing each disturbance factor for one or more PG&E activities. If the overall disturbance category is high, the standard buffer will generally apply. If the evaluation results in low or medium overall disturbance categories, the standard buffer is applied as feasible or reduced buffers may be appropriate. For example, in some circumstances it may be necessary to perform certain types of work within the standard buffer. In these cases, biologists consider all relevant site-specific conditions, including the species' tolerance for disturbance, work activity type, noise levels, and distance to nest to determine if reducing the standard buffer is appropriate. Alternatively, the buffer may be increased beyond the standard buffer for certain exceptions. Helicopters are the main exception that may require increased buffers.

Table 1 lists the standard buffers and non-standard buffer ranges for activities with low-medium and medium-high disturbances. Nest buffers will be implemented and adjusted by the biologist[1].

The following site-specific conditions are considered in determining if a reduced or increased buffer is appropriate:

- **Disturbance**. Evaluate nest disturbance, including consideration of activity intensity and duration, construction type, amount of habitat disturbance, level of human disturbance or acclimation, activity length, and the amount of noise generated by the activity.
- **Existing Conditions**. Assess site conditions to determine if there is acclimation to human disturbance.
- **Nest Concealment**. Evaluate surrounding habitat for its ability to provide visual and/or acoustic barriers between the nest and construction.
- **Species Natural History**. Consider individual species' natural history, nest stage (incubation, rearing, fledging), and known tolerances to disturbance.
- **Habituation**. Consider species habituation to new or ongoing activities.
- **Environmental Conditions**. Consider weather and other related factors.
- **Helicopter Use.** Consider helicopter type, flight plans, and duration.

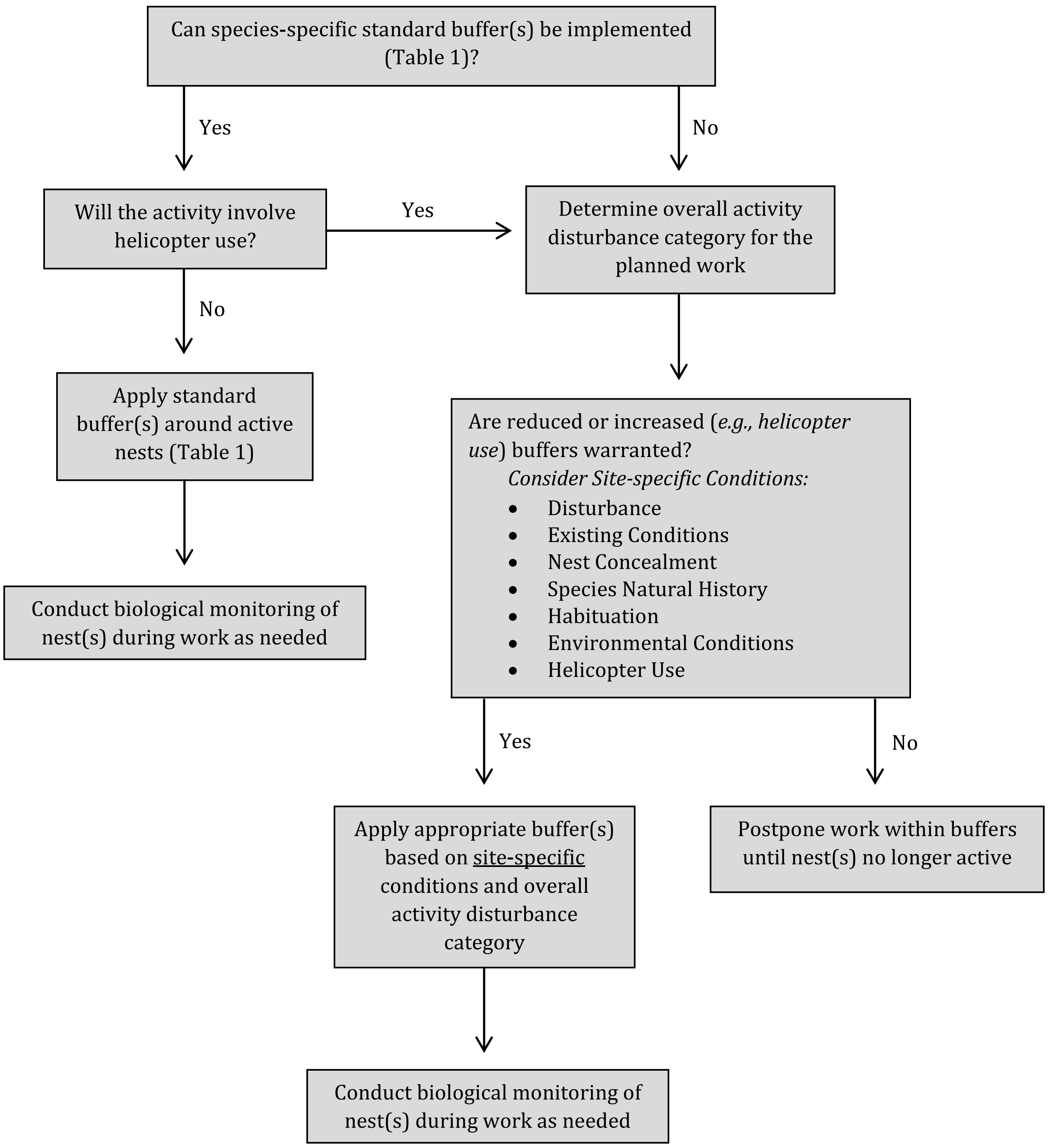
Nest Buffer Implementation Guidelines

Step/Task/Responsible	Outcome and Components
1. Desktop review *Biologist*	• Assess habitat types and potential nesting bird species • Identify potentially appropriate buffers for the species that may nest
2. Preconstruction nesting bird surveys *Biologist*	• Conduct preconstruction surveys within the standard buffers • Document species detections including nests and active nests
3. Assign Buffers *Biologist*	• Assess intensity/duration of activity • Assess acclimation to human disturbance • Assess site-specific conditions • Consider species' natural history, reproductive stage, tolerances to disturbance, and observed behavior • Evaluate and assign standard, reduced, or increased buffers
4. Implement Buffers *Biologist/Biological Monitor*	• Implement buffers when work activities are occurring • Conduct periodic biological monitoring where needed • Adjust buffers as appropriate

[1] Biologist refers to an individual with a bachelor's degree or above in a field related to biological sciences and demonstrated field expertise in ornithology, in particular, nesting behavior; these qualified biologists may be PG&E employees or contractors.

Species-Specific Buffers for PG&E Activities

Buffer Assignment Process – Quick Reference



Other Biological Considerations in Determining Buffers

- Provisioning frequency of hatchlings or older young
- Egg turning
- Egg incubation (female or male or combination)
- Egg hardiness
- Ambient Temperatures
- Heat tolerance (eggs or nestlings)
- Cold tolerance (eggs or nestlings)
- Unsheltered nest risk
- Premature fledging risk
- Unattended nests and predation risk

Time on Nest is Important. An egg initially requires a controlled heat input, but later in incubation the embryo may produce more heat and may need to be cooled rather than heated. Ambient temperatures need to be considered. Unattended unsheltered nests may experience temperature extremes (heat or cold). Egg turning during incubation is also a critical component for successful hatching; absence of turning during incubation will result in reduced and delayed hatching. During the nestling stage for altricial birds (i.e., birds that typically require feeding by adults), adults must provision food to nestlings. Provisioning rate is highly variable between species and is correlated to clutch size and body size, but most birds make frequent trips to attend nestlings. Collectively referred to as brooding, these forms of parental care are essential for reproductive success. Unattended nests also may experience increased rates of predation. Premature fledging is more likely to occur during later nest stages, when young are nearing fledging stage but not yet capable of flight.

Table 1. Species-specific Nest Buffers for PG&E Work Activities

**Atypically high-intensity activities, such as helicopter use usually require increased buffers beyond the standard buffer*

Common Name	Scientific Name	Nest Location, Substrate, and Habitat	Vertical Height	Peak Breeding Season/Number of Broods per Season	Incubation Duration/Chick-rearing Duration	Standard Buffer* (feet)	Medium to High Disturbance Category Buffer (feet)	Low to Medium Disturbance Category Buffer (feet)
Mallard	*Anas platyrhynchos*	Scrapes under overhanging cover or in dense vegetation in uplands near water.	Ground	March through June; single brood.	Clutch incubated for 26–29 days by female; young are precocial.	100	30–100	15–30
Cinnamon Teal	*Anas cyanoptera*	Scrapes under overhanging cover or in dense vegetation in uplands near water.	Ground	April through August; single brood.	Clutch incubated for 24–25 days by female; young are precocial.	100	30–100	15–30
Canada Goose	*Branta canadensis*	Scrapes on slightly elevated, firm ground in uplands near water.	Ground	February through June; single brood.	Clutch incubated for 27–28 days by female; young are precocial.	100	30–100	15–30
Wood Duck	*Aix sponsa*	Cavities in riparian woodlands and other woodland habitats near water.	Up to 60 feet	April through August; single or double brood.	Clutch incubated for 27–35 days by female; young are precocial.	100	30–100	15–30
Blue-winged Teal	*Anas discors*	Scrapes in dense grass or forbs in wetlands or grasslands near water.	Ground	June through July; single brood	Clutch incubated for 23–24 days by female; young are precocial.	100	30–100	15–30
Northern Shoveler	*Anas clypeata*	Scrapes in low grasses or forbs in uplands near water.	Ground	March through July; single brood.	Clutch incubated for 25–27 days by female; young are precocial.	100	30–100	15–30
Gadwall	*Anas strepera*	Scrapes in dense, low emergent vegetation or grasses in uplands near water.	Ground	April through July; single brood.	Clutch incubated for 22–29 days by female; young are precocial.	100	30–100	15–30
American Wigeon	*Anas americana*	Scrapes in dense vegetation cover in uplands near water.	Ground	May through July; single brood.	Clutch incubated for 24–25 days by female; young are precocial.	100	30–100	15–30

Common Name	Scientific Name	Nest Location, Substrate, and Habitat	Vertical Height	Peak Breeding Season/Number of Broods per Season	Incubation Duration/Chick-rearing Duration	Standard Buffer* (feet)	Medium to High Disturbance Category Buffer (feet)	Low to Medium Disturbance Category Buffer (feet)
Redhead	*Aythya americana*	Platform nests over water in dense vegetation; occasionally nests in uplands near water.	Ground	April through June; single brood.	Clutch incubated for 24–26 days by both sexes; young are precocial.	100	30–100	15–30
Ring-necked Duck	*Aythya collaris*	Platform nests over water in dense emergent vegetation in wetlands.	Ground	May through August; single brood.	Clutch incubated for approximately 26 days by female; young are precocial.	100	30–100	15–30
Common Merganser	*Mergus merganser*	Cavities in trees, snags and stumps in riparian woodlands.	Up to 200 feet	March through September; single brood.	Clutch incubated for 28–32 days by female; young are precocial.	100	30–100	15–30
Ruddy Duck	*Oxyura jamaicensis*	Platform nests constructed on shallow water in dense, tall emergent vegetation.	Ground	April through October; single or double brood.	Clutch incubated for approximately 23 days by female; young are precocial.	100	30–100	15–30
Pied-billed Grebe	*Podilymbus podiceps*	Platform nests constructed in emergent vegetation bordering open water.	Ground	March through July; double brood.	Clutch incubated for approximately 23 days by both sexes; young are precocial.	100	30–100	15–30
Eared Grebe	*Podiceps nigricollis*	Platform nests in water on emergent wetland vegetation.	Ground	April through July; single brood.	Clutch incubated for approximately 21 days by both sexes by both sexes; young are precocial.	100	30–100	15–30
Western Grebe	*Aechmophorus occidentalis*	Platform nests in emergent vegetation or open water or, less frequently, on dry land near water.	Ground	May through August; single brood.	Clutch incubated for approximately 23 days by both sexes; young are precocial.	100	30–100	15–30

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Clark's Grebe	*Aechmophorus clarkii*	Platform nests constructed in emergent vegetation or open water or, less frequently, on dry land near water.	Ground	May through August; single brood.	Clutch incubated for approximately 23 days by both sexes; young are precocial.	100	30–100	15–30
Double-crested Cormorant	*Phalacrocorax auritus*	Platform nests on islands, on the ground or in trees; also in power poles and other artificial structures. Colonial nester.	Ground	March through August; single brood.	Clutch incubated for 25–29 days by both sexes; altricial young fledge at 37–44 days.	400	75–400	50–75
Pelagic Cormorant	*Phalacrocorax pelagicus*	Platform nests on steep cliffs along rocky and exposed shorelines along outer coasts, bays, inlets, estuaries, rapids, coves, surge narrows, harbors, lagoons, and coastal log-storage sites. Colonial nester.	Ground	April through August; single or double brood	Clutch incubated for 28–32 days by both sexes; altricial young fledge at approximately 47 days	400	75–400	50–75
American Bittern	*Botaurus lentiginosus*	Platform nests in shallow water or on ground near water.	Ground	April through July; single brood.	Clutch incubated for approximately 24 days by female; altricial young fledge at approximately 14 days.	100	50–100	25–50
Least Bittern	*Ixobrychus exilis*	Platform nests about a foot above the water in freshwater marshes.	Ground	March through July; double brood.	Clutch incubated for 16–19 days by both sexes; altricial young fledge at 13–15 days.	100	50–100	25–50

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Great Blue Heron	*Ardea herodias*	Platform nests in tall trees or other types of vegetation near water. Colonial nester.	Up to 130 feet	January through July; single brood.	Clutch incubated for 25–29 days by both sexes; altricial young fledge at approximately 60 days.	400	75–400	50–75
Great Egret	*Ardea alba*	Platform nests in tall trees or other types of vegetation near water. Colonial nester.	10–80 feet	March through July; single brood.	Clutch incubated for approximately 26 days; semi-altricial young fledge at approximately 35–42 days.	400	75–400	50–75
Snowy Egret	*Egretta thula*	Platform nests in tall trees or other types of vegetation near water. Colonial nester.	Up to 30 feet but usually 10–15 feet	March through July; single brood.	Clutch incubated for 20–24 days by both sexes; semi-altricial young fledge at 21–28 days.	400	75–400	50–75
Cattle Egret	*Bubulcus ibis*	Platform nests in tall shrubs and trees near water.	Up to 30 feet but usually 5–15 feet	April to July; single brood.	Clutch incubated for 23–25 days; semi-altricial young fledge at about 40 days.	400	75–400	50–75
Green Heron	*Butorides striatus*	Platform nests in shrubs, trees, thickets, or other vegetation near water.	10–30 feet, sometimes higher	March through July; single or double brood.	Clutch incubated for 19–21 days by both sexes; semi-altricial young fledge at 21–23 days.	100	50–100	25–50
Black-crowned Night-Heron	*Nycticorax*	Platform nests in shrubs, trees, thickets, or other vegetation near water. Colonial nester.	Up to 150 feet	January through June; double brood.	Clutch incubated for approximately 24 days by female; semi-altricial young fledge at 42–49 days.	400	75–400	50–75
White-faced Ibis	*Plegadis chihi*	Platform nests of emergent wetland vegetation in extensive wetlands. Colonial nester.	Ground	May to July; single brood.	Clutch incubated for 20–26 days by both sexes; altricial young fledge at 10–12 days.	400	75–400	50–75

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Turkey Vulture	*Cathartes aura*	Caves, rock crevices, possibly abandoned buildings, or other dark, secluded sites.	Up to 20 feet	March through June; single brood.	Clutch incubated for 37–41 days by both sexes; semi-altricial young fledge at approximately 77 days.	300	100–300	50–100
California Condor	*Gymnogyps californianus*	Caves on high, remote cliff-faces or in hollow in large redwood snag.	Cliff	Year-round, with egg-laying usually occurring in January or February; single brood.	Clutch incubated for 42–50 days by both sexes; semi-altricial young fledge at 35–49 days.	3,960	CR[a]	CR
White-tailed Kite	*Elanus caeruleus*	Platform nests in tall trees near grasslands, oak savannah, or other open habitats.	12–60 feet	February through July; sometimes double brood.	Clutch incubated for 28–30 days by both sexes; semi-altricial young fledge at 34–40 days.	300	200–300	100–200
Osprey	*Pandion haliaetus*	Platform nests on treetops, rocky outcrops, or utility poles near water.	Up to 60 feet	Mid-March through August; single brood.	Clutch incubated for 32–33 days by both sexes; semi-altricial young fledge at 51–59 days.	300	100–300	50–100
Bald Eagle	*Haliaeetus leucocephalus*	Platform nests in large trees or rocky outcrops close to lakes and large rivers.	50–180 feet	January to August; single brood.	Clutch incubated for 35–46 days by both sexes; semi-altricial young fledge at 70–77 days.	2,640	CR	CR
Northern Harrier	*Circus cyaneus*	Platform nests on ground in grasslands and open marshland with vegetative cover.	Ground	March through August; single brood.	Clutch incubated for 29–39 days by both sexes; altricial young fledge at 37 days.	300	200–300	100–200
Sharp-shinned Hawk	*Accipiter striatus*	Platform nests in trees in riparian woodland or other forested habitat with thick cover.	10–60 feet	April through August; single brood.	Clutch incubated for 30–35 days by both sexes; semi-altricial young fledge at approximately 23 days.	300	100–300	50–100

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Cooper's Hawk	*Accipiter cooperii*	Platform nests in trees in riparian woodlands or other forested habitat.	20–60 feet	March through July; single brood.	Clutch incubated for 36 days by female while male provisions her; semi-altricial young fledge at 30–34 days.	300	100–300	50–100
Northern Goshawk	*Accipiter gentilis*	Platform nests in top of tall coniferous or deciduous trees in mature forest.	Up to 75 feet	April through August; single brood.	Clutch incubated for 36–41 days by female while male provisions her; semi-altricial young fledge at 45 days old	1,320	200–1,320	100–200
Red-shouldered Hawk	*Buteo lineatus*	Platform nests below canopy in a variety of tree species.	20–60 feet	March through June; single brood.	Clutch incubated for 23–25 days by both sexes; semi-altricial young fledge at 35–42 days.	300	100–300	50–100
Swainson's Hawk	*Buteo swainsoni*	Platform nests in isolated trees in grasslands and agricultural areas.	5–30 feet	April through late June; single brood.	Clutch incubated for approximately 28 days by both sexes; semi-altricial young fledge at 28–35 days.	1,320–2,640	CR	CR
Red-tailed Hawk	*Buteo jamaicensis*	Platform nests in tall trees and other structures in a variety of open habitats.	35–90 feet	February through September; single brood.	Clutch incubated for 28–32 days by both sexes; semi-altricial young fledge at approximately 42 days.	250	100–300	50–100
Ferruginous Hawk	*Buteo regalis*	Nest in substrates ranging from cliffs, trees, utility structures, and farm buildings to haystacks and relatively level ground.	Up to 70 feet	Early March through May; single brood	Clutch incubated for 32–33 days by both sexes; altricial and nidicolous young fledge at 38–50 days.	300	100–300	50–100

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Golden Eagle	*Aquila chrysaetos*	Platform nests on rock ledges of outcrops or cliffs, and occasionally trees, in proximity to grassland, farmland, oak savannah, and other foraging grounds.	10–100 feet or higher on cliffs	February through July; single brood.	Clutch incubated for 43–45 days by female and occasionally male; semi-altricial young fledge at 63–70 days.	2,640	CR	CR
American Kestrel	*Falco sparverius*	Cavities in trees or other structures near grasslands, agricultural areas, oak savannah, or other open areas.	7–80 feet	March through July; may double brood.	Clutch incubated for 29–30 days by female while male provisions her; semi-altricial young fledge at approximately 30 days.	200	50–200	25–50
Prairie Falcon	*Falco mexicanus*	Ledges under overhangs on rock outcrops or cliffs near grassland, farmland, oak savannah, or other foraging habitat.	30–40 feet	March to May; single brood.	Clutch incubated for 29–31 days by female while male provisions her; semi-altricial young fledge at 40 days.	300	100–300	50–100
American Peregrine Falcon	*Falco peregrinus*	Cliff ledges, tall buildings, high bridges, and other high locations near open habitats.	High on cliffs or tall structures	March through June; single brood.	Clutch incubated for 28–29 days by both sexes; semi-altricial young fledge at 35–42 days.	500	CR	CR
Mount Pinos Sooty Grouse	*Dendragapus fuliginosus*	Scrapes near logs, shrubs, or other cover in coniferous forests, shrub-steppe habitat, and subalpine forests.	Ground	April through August; single brood.	Clutch incubated for 26–28 days by female; young are precocial.	100	50–100	25–50
Ruffed Grouse	*Bonasa umbellus*	Scrapes near the base of stumps, trees, or logs in forested habitat.	Ground	February through August; single brood.	Clutch incubated for approximately 24 days by female; young are precocial.	100	50–100	25–50

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Wild Turkey	*Meleagris gallopavo*	Scrapes in thick, low vegetation in oak woodlands and forest edges and clearings.	Ground	March through August; single brood.	Clutch incubated for approximately 28 days by female; young are precocial.	100	30–100	15–30
Gambel's Quail	*Callipepla gambellii*	Scrapes under shrubs in desert habitats.	Ground	April through June; single or (rarely) double brood	Clutch incubated for 21–23 days by female while male guards; young are precocial.	100	50–100	25–50
California Quail	*Callipepla californica*	Scrapes under shrubs in riparian woodland, coastal scrub, chaparral, shrub-steppe, and mixed-hardwood forest.	Ground	March through July; single or double brood.	Clutch incubated for 21–23 days by female; young are precocial.	100	50–100	25–50
Mountain Quail	*Oreortyx pictus*	Scrapes under shrubs in mountain woodland and scrub habitats, usually near water.	Ground	April through June; single brood.	Clutch incubated for 24–25 days by female; young are precocial.	100	50–100	25–50
California Black Rail	*Laterallus jamaicensis coturniculus*	Cup nests on or near ground at upper edges of tidal marshes.	0–1 foot	March through July; single brood.	Clutch incubated for 17–20 days by both sexes; young are semi-precocial.	300–600	CR	CR
Clapper Rail (California, Yuma, Light-footed)	*Rallus longirostris obscurus/yumanensis/levipes*	Platform nests in dense tidal marsh vegetation dominated by cordgrass or gumplant.	0–1 foot	February through August; single or double brood.	Clutch incubated for 23–29 days by both sexes; young are semi-precocial.	700	CR	CR
Virginia Rail	*Rallus limicola*	Platform nests in dense emergent vegetation in freshwater or estuarine marshes.	0–1 foot	April through June; single or double brood.	Clutch incubated for 14–16 days by both sexes; young are precocial.	100	50–100	25–50
Sora	*Porzana carolina*	Cup nests secured to reeds and rushes in freshwater or estuarine marshes.	0–1 foot	April through August; single brood.	Clutch incubated for approximately 14 days by both sexes; young are precocial.	100	50–100	25–50

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Common Gallinule	*Gallinula galeata*	Platform nests in dense vegetation at edge of marshes and other freshwater habitats.	Ground or water level	April through June; single or double brood.	Clutch incubated for 19–22 days by both sexes; young are precocial.	100	50–100	25–50
American Coot	*Fulica americana*	Platform nests in dense vegetation at edge of marshes and other freshwater habitats.	Ground or water level	March through July; single or double brood.	Clutch incubated for 21–24 days by both sexes; young are precocial.	100	30–100	15–30
Greater Sandhill Crane	*Grus canadensis tabida*	Platform nests in wetland vegetation on dry ground or shallow water in extensive marsh systems or grasslands.	Ground	April through August; single brood.	Clutch incubated for approximately 30 days by both sexes; young are precocial.	500	CR	CR
Western Snowy Plover	*Charadrius alexandrinus nivosus*	Scrapes on sand beaches/bars, salt pannes, or dry river beds.	Ground	April through August; double or triple brood.	Clutch incubated for approximately 24 days by both sexes; young are precocial.	600 (coastal) 300 (interior)	CR (coastal) 200–300 (interior)	CR (coastal) 100–200 (interior)
Killdeer	*Charadrius vociferus*	Scrapes in open places usually in areas with short grass, sand, or gravel.	Ground	March through June; sometimes double brood.	Clutch incubated for 24–26 days by both sexes; young are precocial.	75	30–75	15–30
Black-necked Stilt	*Himantopus mexicanus*	Scrapes or plant tufts/ tussocks in fresh, brackish, or salt marshes.	Ground	April through June; single brood.	Clutch incubated for 25–26 days by both sexes; young are precocial.	150	50–150	25–50
American Avocet	*Recurvirostra americana*	Scrapes on salt pannes, dikes, levees, and bare islands.	Ground	April through June; single brood.	Clutch incubated for 22–24 days by both sexes; young are precocial.	150	50–150	25–50

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Spotted Sandpiper	*Actitis macularia*	Scrapes in grasses among rocks, wrack, or driftwood.	Ground	April through August; single brood.	Clutch incubated for approximately 21 days by male; young are precocial.	75	30–75	15–30
Wilson's Snipe	*Gallinago gallinago*	Scrapes in dense, medium to tall marshy or wet meadow vegetation.	Ground	April to August; single brood.	Clutch incubated for 17–20 days by female; young are precocial.	75	30–75	15–30
Lesser Yellowlegs	*Tringa flavipes*	Scrapes on shallow wetlands, trees or shrubs, and open areas.	Ground	Late April to mid-May; single brood.	Clutch incubated for 22–23 days by both sexes; young are precocial.	75	30–75	15–30
Whimbrel	*Numenius phaeopus*	Hummocks or mounds near dwarfed shrub, flat heath tundra, in grass or sedge tussocks, and on gravel.	Ground	Early June to early July; single brood.	Clutch incubated 22–28 days by both sexes; young are precocial.	75	30–75	15–30
Black Skimmer	*Rynchops niger*	Saucer-shaped depressions on beaches, bars, dredge deposition, salt marsh.	Ground	May through August; single brood.	Clutch incubated 21–23 days by both sexes; young are semi-precocial.	300	100–300	50–100
Long-billed Curlew	*Numenius americanus*	Scrapes in short-grass or mixed-prairie habitat with flat to rolling topography.	Ground	Mid-late March to early July; single brood.	Clutch incubated for 27–29 days by both sexes; young are precocial.	75	30–75	15-30
Marbled Godwit	*Limosa fedoa*	Scrapes in short, sparsely to moderately vegetated landscapes that include native grassland and wetland complexes with a variety of wetland classes (ephemeral to semipermanent).	Ground	Mid-May to late June; single brood.	Clutch incubated for 23–26 days by both sexes; young are precocial	75	30–75	15–30

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California Gull	*Larus californicus*	Scrapes on islands in alkali or freshwater lakes and ponds or salt ponds.	Ground	April through August; single brood.	Clutch incubated for 23–27 days by both sexes; young are precocial.	150	50–150	25–50
Western Gull	*Larus occidentalis*	Ledges on cliffs, bluffs, bridges, buildings, and other areas inaccessible to nest predators.	Ground/cliff	April through August; single brood.	Clutch incubated for 30–32 days by both sexes; young are semi-precocial.	150	50–150	25–50
Caspian Tern	*Sterna caspia*	Scrapes on islands, beaches, and levees.	Ground	April through August; single brood.	Clutch incubated for approximately 20 days by both sexes; semi-precocial young fledge at approximately 14 days.	300	100–300	50–100
Forster's Tern	*Sterna forsteri*	Scrapes on open levees, islands, and occasionally reed beds.	Ground	April through September; single brood.	Clutch incubated for approximately 23 days by both sexes; semi-altricial young fledge after approximately 7 days.	300	100–300	50–100
California Least Tern	*Sterna antillarum*	Scrapes on bare sandy or gravelly substrates in undisturbed areas.	Ground	May through June; single brood.	Clutch incubated for 20–25 days by both sexes; young are semi-precocial.	600	CR	CR
Black Tern	*Chlidonias niger*	Platform nests constructed of dead plant stems in freshwater wetlands and flooded rice fields.	Ground	May through August; single brood.	Clutch incubated for 20–22 days by both sexes; semi-precocial young fledge at approximately 14 days.	300	100–300	50–100

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Marbled Murrelet	*Brachyramphus marmoratus*	Horizontal limbs of large, old-growth conifers.	20–250 feet	March through September; likely a single brood.	Clutch incubated for approximately 30 days by both sexes; semi-precocial young fledge at approximately 21 days.	1,320 (high disturbance)[b]	CR	CR
Cassin's Auklet	*Ptychoramphus aleuticus*	Excavates burrows in soft soil, sod or natural cavities such as rock crevices and under trees, cacti or logs. Colonial nester.	Ground/cliff	Varies within November through May; single and double brood.	Clutch incubated 37–42 days by both sexes; altricial young confined to nest for 30 days.	400	75–400	50–75
Band-tailed Pigeon	*Columba fasciata*	Platform nests in trees or shrubs in oak woodlands, mixed hardwood forests, and mixed coniferous forests, usually in areas with oak trees.	5–180 feet	March through November; double or triple brood.	Clutch incubated for 18–20 days by both sexes; altricial young fledge at 25–30 days.	75	50–75	25–50
Mourning Dove	*Zenaida macroura*	Platform nests in a tree or shrub, but also on buildings or on ground, in a variety of habitats.	0–25 feet	February through September; several broods.	Clutch incubated for 14–15 days by both sexes; altricial young fledge at 13–15 days.	50	20–50	10–20
Western Yellow-billed Cuckoo	*Coccyzus americanus*	Platform nests in bushes or trees in dense, wide riparian woodlands.	2–20 feet	June through July; single brood.	Clutch incubated for 9–11 days by both sexes; altricial young fledge at 21 days.	500	CR	CR
Greater Roadrunner	*Geococcyx californianus*	Cup nests in dense, brushy habitats in desert, sagebrush, and chaparral habitats.	3–15 feet	April through June; double brood.	Clutch incubated for 16–20 days by male; altricial young fledge at 18–30 days.	100	50–100	25–50

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Barn Owl	*Tyto alba*	Cavities in trees, buildings, crevices in rocks, outcrops, cliffs and quarries.	1–400 feet	January through May; often double broods.	Clutch incubated for 32–34 days by female while male provisions her; altricial young fledge at 60 days.	150	100–150	50–100
Flammulated Owl	*Otus flammeolus*	Cavities in trees, including aspens, oaks, pines, or other trees in forested areas.	10–40 feet	May through October; single brood.	Clutch incubated for 21–24 days by female while male provisions her; altricial young fledge at 20–26 days	200	100–200	50–100
Western Screech Owl	*Otus kennicottii*	Cavities in trees, particularly cottonwoods, in open woodlands.	10–30 feet	March through June; single brood.	Clutch incubated for 21–30 days by female while male provisions her; altricial young fledge at approximately 28 days.	200	100–200	50–100
Great Gray Owl	*Strix nebulosa*	Near high elevation meadows, on broken top trees or stick nests of other species.	30-50 feet	Late March through early July; single brood	Average clutch incubated for 29.7 days by female, with male provisioning her; semi-precocial young fledge at 21-28 days but can be dependent on nest site and male parent until fall.	1,320	CR	CR
Great Horned Owl	*Bubo virginianus*	Cavities or large nest platforms of other species in trees, rock ledges, or caves.	Uses existing platforms at various heights	January through May; single brood.	Clutch incubated for 26–35 days by female while male provisions her; altricial young fledge at 28–35 days.	300	100–300	50–100

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Northern Pygmy Owl	*Glaucidium gnoma*	Cavities in trees in oak woodlands and coniferous forests.	8–20 feet	April through August; number of broods unknown.	Clutch incubated for 25–30 days by female while male provisions her; semi-altricial young fledge at approximately 23 days.	200	50–200	25–50
Spotted Owl (Northern/California)	*Strix occidentalis caurina/occidentalis*	Cavities or platforms (natural or old nests of other species) in coniferous or mixed hardwood forests.	30–165 feet	March through August; single brood.	Clutch incubated for 29–30 days by female while male provisions her; altricial young fledge at 34–36 days.	1,320 (high disturbance)[b]	CR	CR
Burrowing Owl	*Athene cunicularia*	Small mammal burrows in open grasslands or at the edge of agricultural areas.	Ground	February through August; single brood.	Clutch incubated for 27–30 days by female while male provisions her; altricial young fledge at 40–45 days.	250	CR	CR
Long-eared Owl	*Asio otus*	Platform nests built by other species high in trees in coniferous forests or mixed woodlands.	10–30 feet	February through May; single brood.	Clutch incubated for 25–30 days by female while male provisions her; altricial young fledge at 23–24 days.	300	100–300	50–100
Short-eared Owl	*Asio flammeus*	Scrapes in tall, dense vegetation in grasslands and freshwater or brackish marshes.	Ground	March through July; single or possibly double brood.	Clutch incubated for 21–28 days by female while male provisions her; semi-altricial young leave nest at 31–36 days.	300	100–300	50–100
Northern Saw-whet Owl	*Aegolius acadicus*	Cavities in trees in forested areas.	5–50 feet	March through August; single or double brood.	Clutch incubated for 21–28 days by female; semi-altricial young fledge at approximately 30 days.	200	100–200	50–100

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Lesser Nighthawk	*Chordeiles acutipennis*	Scrapes on bare gravelly or sandy ground in desert and sparsely vegetated habitats.	Ground	April through July; single or double brood.	Clutch incubated for 18–19 days by female; semi-precocial young fledge after 3 weeks.	75	30–75	20–30
Common Nighthawk	*Chordeiles minor*	Scrapes on bare gravelly or sandy ground in open areas within chaparral, grasslands, and forest openings.	Ground	June through July; double brood.	Clutch incubated for 18–20 days by female; semi-precocial young fledge after about 21 days.	75	30–75	20–30
Common Poorwill	*Phalaenoptilus nuttallii*	Scrapes on bare gravelly, sandy, or leaf-litter-covered ground in grasslands and desert habitats.	Ground	March through August; double brood.	Clutch incubated for 20–21 days by both sexes; young are precocial.	75	30–75	20–30
Black Swift	*Cypseloides niger*	Sheltered crevices or ledges on cliff faces on coast or under waterfall.	20–45 feet	May through September; single brood.	Clutch incubated for 21–27 days by both sexes; altricial young fledge at 45–49 days.	75	30–75	15–30
Vaux's Swift	*Chaetura vauxi*	Cavities in redwoods, other conifers, and occasionally sycamores, chimneys, and buildings.	Up to 50 feet	May through August; single brood.	Clutch incubated for 18–20 days; altricial young fledge at approximately 28 days.	75	30–75	15–30
White-throated Swift	*Aeronautes saxatalis*	Rock cracks and crevices on cliffs and tall bridges.	10–195 feet	May through July; single brood.	Clutch incubated for 20–27 days; altricial young fledge at 40–46 days.	75	30–75	15–30
Black-chinned Hummingbird	*Arcgilochus alexandri*	Cup nests in trees and shrubs in woodlands, urban areas, and other habitats with nectar sources.	4–10 feet	April through June; two or three broods.	Clutch incubated for 13–16 days by female; altricial young fledge at approximately 21 days.	50	20–50	15–20

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Anna's Hummingbird	*Calypte anna*	Cup nests in trees and shrubs in woodlands, urban areas, and other habitats with nectar sources.	1–30 feet	December through June; two or three broods.	Clutch incubated for 16–17 days by female; altricial young fledge at 25–26 days.	50	20–50	15–20
Costa's Hummingbird	*Calypte costae*	Cup nests in trees and shrubs in riparian scrub, urban areas, and other habitats with nectar sources.	4–5 feet	April through July; single or occasionally double brood.	Clutch incubated for 15–18 days by female; altricial young fledge at 20–23 days.	50	20–50	15–20
Calliope Hummingbird	*Stellula calliope*	Cup nests in montane or riparian woodlands.	2–70 feet	May through August; single brood.	Clutch incubated for 15–16 days by female; altricial young fledge at 21–23 days.	50	20–50	15–20
Allen's Hummingbird	*Selasphorus sasin*	Cup nests in shrubs, trees, or vines in a variety of forest and woodland types, as well as coastal scrub.	1–10 feet; occasionally as high as 90 feet	February through August; double brood.	Clutch incubated for 16–22 days by female; altricial young fledge at approximately 22 days.	50	20–50	15–20
Belted Kingfisher	*Ceryle alcyon*	Burrow in banks near fresh water.	Ground	April through July; single brood.	Clutch incubated for 23–24 days by both sexes; altricial young fledge at 30–35 days.	100	50–100	25–50
Lewis's Woodpecker	*Melanerpes lewis*	Cavities in snags or dead branches in oak woodlands and mixed hardwood forests.	5–80 feet	May through July; single brood.	Clutch incubated for 13–14 days by both sexes; altricial young fledge at 28–34 days.	50	15–50	10–15
Acorn Woodpecker	*Melanerpes formicivorous*	Cavities in trees or snags in open woodlands, partly wooded areas, or utility poles near a source of acorns.	5–25 feet	April through July; two or three broods.	Clutch incubated for approximately 11 days by both sexes; altricial young fledge at approximately 31 days.	50	15–50	10–15

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Red-breasted Sapsucker	*Sphyrapicus ruber*	Cavities in trees or snags in coniferous or mixed forest.	5–45 feet	May through June; single brood.	Clutch incubated for 12–14 days by both sexes; altricial young fledge at 23–28 days.	50	15–50	10–15
Williamson's Sapsucker	*Sphyrapicus thyroideus*	Tree cavities in conifer and mixed conifer-deciduous forests.	8–52 feet	Late April through late July; single brood.	Clutch incubated 12–14 days by both sexes; altricial young fledge at 31–32 days.	50	15–50	10–15
Ladder-backed Woodpecker	*Picoides scalaris*	Cavities in trees and cactus.	4-20 feet	Unknown in CA; single brood.	Clutch incubated 14 days by both sexes; altricial young with unknown fledging period.	50	15–50	10–15
Nuttall's Woodpecker	*Picoides nuttallii*	Cavities in trees or snags in oak woodlands, or less frequently riparian or other woodlands.	2–60 feet	April through June; single brood.	Clutch incubated for approximately 14 days by both sexes; altricial young fledge at approximately 29 days.	50	15–50	10–15
Downy Woodpecker	*Picoides pubescens*	Cavities in trees or snags in riparian or other deciduous woodlands, or less frequently in coniferous forests.	3–44 feet	April through May; double brood.	Clutch incubated for approximately 12 days by both sexes; altricial young fledge at 20–22 days.	50	15–50	10–15
Hairy Woodpecker	*Picoides villosus*	Cavities in snags or dead branches in woodlands and coniferous forests.	3–102 feet	March through August; single brood.	Clutch incubated for 11–15 days by both sexes; altricial young fledge at 28–30 days.	50	15–50	10–15
White-headed Woodpecker	*Picoides albolarvatus*	Cavities in snags or stumps at least 2 feet in diameter in pine forests.	6–50 feet	April through August; single brood.	Both sexes incubate clutch for 13–15 days; altricial young fledge at approximately 26 days.	50	15–50	10–15

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Northern Flicker	*Colaptes auratus*	Cavities in tree trunks or snags in open or sparsely wooded areas; more often in live wood.	8–45 feet	April through June; single brood.	Clutch incubated for 11–13 days by both sexes; altricial young fledge at 25–28 days.	50	15–50	10–15
Pileated Woodpecker	*Dryocopus pileatus*	Cavities in snags or dead branches in mature forests.	15–70 feet	March to July; single brood	Clutch incubated for approximately 18 days by both sexes; altricial young fledge at 26–28 days.	50	15–50	10–15
Olive-sided Flycatcher	*Contopus cooperi*	Cup nest in trees in open conifer forest or mixed woodland.	5–70 feet	June through July; single brood.	Clutch incubated for 16–17 days by female; altricial young fledge at 15–19 days.	75	30–75	15–30
Western Wood-Pewee	*Contopus sordidulus*	Cup nests in trees, mainly coniferous but sometimes deciduous woodlands near watercourses.	15–30 feet	May through July; single brood.	Clutch incubated for approximately 12 days by female; altricial young fledge at 14–18 days.	75	30–75	15–30
Willow Flycatcher (Southwestern, Little, *adastus*)	*Empidonax traillii extimus/brewsteri/adastus*	Cup nests in densely vegetated riparian associations of cottonwoods and willows.	5–20 feet	May through July; single brood.	Clutch incubated for 12–13 days by female; altricial young fledge at 14 days.	300	CR	CR
Vermilion Flycatcher	*Pyrocephalus rubinus*	Loosely constructed nest in wooded riparian areas.	8-55 feet	Mid-March through mid-July; single or double brood.	Clutch incubated for 14-15 days by female; altricial young fledge at 14-16 days.	75	30–75	15–30
Hammond's Flycatcher	*Empidonax hammondii*	Cup nests in trees in forests and woodlands.	6–65 feet	May through July; single brood.	Clutch incubated for 12–15 days by female; altricial young fledge at 17–18 days .	75	30–75	15–30

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Dusky Flycatcher	*Empidonax oberholseri*	Cup nests in small trees or shrubs pine forests	3–20 feet	May through July; single brood.	Clutch incubated for 12–15 days by female; altricial young fledge at approximately 18 days.	75	30–75	15–30
Western (Pacific-slope and Cordilleran) Flycatcher	*Empidonax difficilis/occidentalis*	Cup nests in cavities or tree stumps or on ledges or crevices in woodlands and forests often in riparian areas.	0–30 feet	April through July; sometimes double brood.	Clutch incubated for 14–15 days by female; altricial young fledge at 15–18 days.	75	30–75	15–30
Black Phoebe	*Sayornis nigricans*	Cup nests of mud cemented to vertical structures, often under an overhang.	3–10 feet	March through June; double brood.	Clutch incubated for 15–18 days by female; altricial young fledge at approximately 21 days.	75	30–75	15–30
Say's Phoebe	*Sayornis saya*	Cup nests on ledges with overhang or under a bridge; nest not made of mud like black phoebe.	0–79 feet	March through June; double brood.	Clutch incubated for 12–14 days by female; altricial young fledge at 14–18 days.	75	30–75	15–30
Ash-throated Flycatcher	*Myiarchus cinerascens*	Cavities in trees and other structures in open deciduous woodland.	2–70 feet	May through July; single brood.	Clutch incubated for approximately 15 days by female; altricial young fledge at 16–17 days.	50	15–50	10–15
Cassin's Kingbird	*Tyrannus vociferans*	Cup nests in trees in savannahs and other open habitats.	25–74 feet	April through June; double brood.	Clutch incubated for 12–14 days by female; altricial young fledge at 14 days.	75	30–75	15–30
Western Kingbird	*Tyrannus verticalis*	Cup nests in trees and artificial structures (e.g., power poles) in variety of open habitats.	13–55 feet	April through June; double brood.	Clutch incubated for 12–14 days by both sexes; altricial young fledge at 13–19 days.	75	30–75	15–30

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Loggerhead Shrike	*Lanius ludovicianus*	Cup nests in dense shrubs near grasslands and other open habitats.	3–8 feet	February through June; two or three broods.	Clutch incubated for 14–16 days by female while male provisions her; altricial young fledge at 17–21 days.	75	30–75	15–30
Least Bell's Vireo	*Vireo bellii pusillus*	Cup nests in dense shrubs and small trees in dense riparian areas.	1–3 feet	April through August; double brood.	Clutch incubated for approximately 14 days by both sexes; altricial young fledge at 10–12 days.	500	CR	CR
Arizona Bell's Vireo	*Vireo bellii arizonae*	Cup nests in dense shrubs and small trees in dense riparian areas.	1–3 feet	April through August; double brood.	Clutch incubated for approximately 14 days by both sexes; altricial young fledge at 10–12 days.	500	CR	CR
Cassin's Vireo	*Vireo cassinii*	Cup nests in a trees or shrubs in oak or oak-coniferous or mixed riparian woodland.	5–35 feet	April through July; single brood.	Clutch incubated for approximately 15 days by both sexes; altricial young fledge at 13 days.	75	30–75	15–30
Hutton's Vireo	*Vireo huttoni*	Cup nests on a twig forks in oaks and other trees along streams and canyons.	3–45 feet	March thorugh June; single or double brood.	Clutch incubated for 14–16 days by both sexes; altricial young fledge at approximately 14 days.	75	30–75	15–30
Warbling Vireo	*Vireo gilvus*	Cut nests high in trees in mature oak woodlands and mixed deciduous forests.	20–60 feet	May through July; double brood.	Clutch incubated for 12–13 days by both sexes; altricial young fledge at approximately 14 days.	75	30–75	15–30
Gray Vireo	*Vireo vicinior*	Nests in thorn scrub or pinyon-juniper woodland, low in thorny or twiggy shrub or tree.	2–8 feet	Mid-April through mid-August	Clutch incubated 13-14 days by both sexes; altricial young fledge at 13-14 days.	75	30–75	15–30

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Gray Jay	*Perisoreus canadensis*	Cup nests in shrubs or trees in coniferous forests and sometimes oak woodlands.	5–30 feet	March through July; single brood.	Clutch is incubated for 16–18 days; altricial young fledge at approximately 15 days.	75	30–75	15–30
Steller's Jay	*Cyanocitta stelleri*	Cup nests in trees or shrubs in coniferous or mixed hardwood forests or other woodlands.	7–16 feet	April through June; likely single brood.	Clutch incubated for approximately 16 days by female while male provisions her; altricial young fledge at 18 days.	75	30–75	15–30
Western Scrub-jay	*Aphelocoma californica*	Platform nests in shrubs, trees, bushes or vine tangles in a wide variety of habitats, including oak woodlands, savannah, agricultural, and suburban.	2–50 feet	March through June; single brood.	Clutch incubated for 15–17 days by female while male provisions her; altricial young fledge at 18 days.	75	30–75	15–30
Pinyon Jay	*Gymnorhinus cyanocephalus*	Cup nests in trees in ponderosa-pine forest.	3–115 feet	Mid-March through late June; single brood.	Clutch incubated 17 days by female, male provisions female; altricial young fledge at 21–22 days.	75	30–75	15–30
Clark's Nutcracker	*Nucifraga columbiana*	Cup nests in pines, junipers, and firs in mountain coniferous forests.	8–45 feet	February through August; single brood.	Clutch incubated for 16–18 days by both sexes; altricial young fledge at approximately 22 days.	75	30–75	15–30
Yellow-billed Magpie	*Pica nuttallii*	Platform nests in oak trees and occasionally other trees in savannah.	30–80 feet	February through July; single brood.	Clutch incubated for 16–18 days by female while male provisions her; altricial young fledge at approximately 30 days.	75	30–75	15–30

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American Crow	*Corvus brachyrhynchos*	Platform nests in variety of large trees, usually near the trunk, and artificial structures in a wide variety of habitats.	10–70 feet	February through July; single brood.	Clutch incubated for approximately 18 days by female and possibly helpers; altricial young fledge at 35 days.	50	30–50	15–30
Common Raven	*Corvus corax*	Platform nests on sheltered rock ledges or in forks of large trees and artificial structures in a wide variety of habitats.	45–80 feet	February through July; single brood.	Clutch incubated for 20–21 days by female while male provisions her; altricial young fledge at 35–42 days.	50	30–50	15–30
Western Bluebird	*Sialia mexicana*	Cavities in woodland clearings, savannahs, and other open habitats.	4–48 feet	April through June; double brood.	Clutch incubated for 13–14 days by female; altricial young fledge at approximately 20 days.	50	15–50	10–15
Townsend's Solitaire	*Myadestes townsendi*	Cup nests on ground usually on cutbanks and other slopes in mountain coniferous forests.	0–12 feet	April through June; single or double brood.	Clutch incubated for 11–14 days by female; altricial young fledge at 10–14 days.	75	30–75	15–30
Swainson's Thrush	*Catharus ustulatus*	Cup nests in dense shrubs, often in riparian woodlands and mixed coniferous forests.	2–20 feet	April through August; single or (rarely) double brood.	Clutch incubated for 10–13 days by female; altricial young fledge after 10–12 days.	75	30–75	15–30
Hermit Thrush	*Catharus guttatus*	Cup nests in dense shrubs variety of forests and woodlands.	2–10 feet	June through July; single or double brood.	Clutch incubated for 12–13 days by female; altricial young fledge at 12–13 days.	75	30–75	15–30
American Robin	*Turdus migratorius*	Cup nests in trees or shrubs, ledges of buildings, or in a tree forks in variety of open habitats.	3–25 feet	May through July; two or three broods.	Clutch incubated for 11–14 days by female; altricial young fledge at 14–16 days.	75	30–75	15–30

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Varied Thrush	*Ixoreus maevius*	Cup nests on horizontal branches of trees in moist coniferous forests.	5–20 feet	April through August; double brood.	Clutch incubated for approximately 14 days by female; altricial young fledge at 13–15 days.	75	30–75	15–30
Horned Lark	*Eremophila alpestris*	Scrapes in a small hollow usually sheltered by plant tufts in grasslands and other open habitats.	Ground	February through August; two or three broods.	Clutch incubated for 10–14 days by female; altricial young fledge at 9–12 days.	75	30–75	15–30
Purple Martin	*Progne subis*	Cavities in trees in mountain forests, particularly burned areas with snags.	10–34 feet	April through August; single brood	Clutch incubated for 15–18 days by the female; altricial young fledge at 24–31 days.	75	30–75	15–30
Tree Swallow	*Tachycineta bicolor*	Cavities in open habitats, such as grasslands or wetlands with dead standing trees; usually near water.	10–16 feet	April through August; double brood.	Clutch is incubated for 13–16 days; altricial young fledge at 16–20 days.	50	30–50	15–30
Violet-green Swallow	*Tachycineta thalassina*	Cavities or occasionally on cliffs or banks in deciduous, coniferous, and mixed woodlands.	9–17 feet	April through August; single brood.	Clutch is incubated for 13–15 days; altricial young fledge at 16–24 days.	50	30–50	15–30
Northern Rough-winged Swallow	*Stelgidopteryx serripennis*	Cavities on a steep slope or use crevices and holes in bridges and buildings.	Ground/cliff	April through June; single brood.	Clutch incubated for 15–16 days by female; altricial young fledge at 18–21 days.	75	30–75	15–30
Bank Swallow	*Riparia riparia*	Cavities in sandy banks or cliffs along rivers.	Ground/cliff	May through July; single brood.	Clutch incubated for 12–16 days by both sexes; altricial young fledge at 18–24 days.	100	CR	CR

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Barn Swallow	*Hirundo rustica*	Cup nests often on buildings and bridges in open habitats near water.	6–40 feet	April through July; double brood.	Clutch incubated for 14–16 days by both sexes; altricial young fledge at 17–24 days.	50	30–50	15–30
Cliff Swallow	*Petrochelidon pyrrhonota*	Closed mud nests often on cliff faces, buildings, or bridges in open habitats near water.	5 feet and higher	April through June; double brood.	Clutch incubated for 12–14 days by both sexes; altricial young fledge at approximately 23 days.	50	30–50	15–30
Mountain Chickadee	*Poecile gambeli*	Cavities in trees in coniferous mountain forests.	16–50 feet	April through August; single or double brood.	Clutch is incubated for 14 days; altricial young fledge at 20 days.	50	15–50	10–15
Chestnut-backed Chickadee	*Poecile rufescens*	Cavities trees in coniferous forests and deciduous woodlands.	0–80 feet	March through July; single or (rarely) double brood.	Clutch is incubated for 12–14 days by female; altricial young fledge at 18–21 days.	50	15–50	10–15
Oak Titmouse	*Baeolophus inornatus*	Cavities in trees in oak woodlands.	2–40 feet	March through June; single brood.	Clutch incubated for 14–16 days by female; altricial young fledge at 17 days.	50	15–50	10–15
Bushtit	*Psaltriparus minimus*	Pendulous nests in trees and shrubs in a variety of habitats.	3–98 feet	February through June; double brood.	Clutch incubated for 12–13 days by both sexes; altricial young fledge at 14–15 days.	50	30–50	15–30
Red-breasted Nuthatch	*Sitta canadensis*	Cavities in trees in coniferous forests and mixed woodlands.	5–40 feet	April through July; single or (rarely) double brood.	Clutch incubated for approximately 12 days by female while male provisions her; altricial young fledge at 18–21 days.	75	30–75	15–30
White-breasted Nuthatch	*Sitta carolinensis*	Cavities in trees in deciduous woodlands and mixed coniferous forests.	1–50 feet	March through June; single brood.	Clutch incubated for 12–14 days by female while male provisions her; altricial young fledge at 14–16 days.	50	15–50	10–15

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Pygmy Nuthatch	*Sitta pygmaea*	Cavities in dead trees or dead portions of trees in long-needled pine forests.	20–70 feet	May through July; single or double brood.	Clutch incubated for 15–16 days by female while male provisions her; altricial young fledge at 20–21 days.	75	30–75	15–30
Brown Creeper	*Certhia americana*	Cup nests concealed behind loose bark, in crevices on a trees in coniferous forests and mixed coniferous forests..	5–15 feet	May through July; single brood.	Clutch incubated for 15–18 days by female while male provisions her; altricial young fledge at 21 days.	75	30–75	15–30
Rock Wren	*Salpinctes obsoletus*	Cavities on rocky slopes	Ground/cliff	March through June; double or triple brood.	Clutch incubated for 12–14 days by female; altricial young fledge at 14–16 days.	75	30–75	15–30
Canyon Wren	*Catherpes mexicanus*	Cup nests in rock crevices or ledges in rocy habitats.	Ground/cliff	March through July; double brood.	Clutch incubated for 12–18 days by female; altricial young fledge at approximately 15 days.	75	30–75	15–30
Bewick's Wren	*Thryomanes bewickii*	Cavities in trees, brush, or between rocks in open woodlands and shrubby areas.	0–20 feet	March through July; double or triple brood.	Clutch incubated for approximately 14 days by female while male provisions her; altricial young fledge at approximately 14 days.	75	30–75	15–30
House Wren	*Troglodytes aedon*	Cavities in shrubby cover and thickets in open woodlands and hedgerows.	0–20 feet	April through July; double brood.	Clutch incubated for 13–15 days by female; altricial young fledge at 12–18 days.	50	30–50	15–30
Pacific Wren	*Troglodytes pacificus*	Cavities or crevices in logs, stumps, root balls, or trees in variety of forests.	0–10 feet	March through August; single or double brood.	Clutch is incubated for 14–17 days by female; altricial young fledge at approximately 19 days.	75	30–75	15–30

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Marsh Wren	*Cistothorus palustris*	Domed nests over the water in tall rushes and marsh grasses in wetland habitats.	1–5 feet	March through July; double or triple brood.	Clutch incubated for 12–14 days by female; altricial young fledge at 13–15 days.	75	30–75	15–30
American Dipper	*Cinclus mexicanus*	Domed nests in crevices in rocks, logs, bridges, or other protected areas immediately adjacent to water.	0–30 feet	March through August; single or double brood.	Clutch is incubated for approximately 16 days by female; altricial young fledge at 18–25 days.	75	30–75	15–30
Golden-crowned Kinglet	*Regulus satrapa*	Hanging nests woven onto conifer twigs in coniferous forests and mixed woodlands.	6–50 feet	May through August; single or double brood.	Clutch is incubated for 14–15 days by female; altricial young fledge at 16–19 days.	75	30–75	15–30
Ruby-crowned Kinglet	*Regulus calendula*	Cup nests in trees in coniferous woodlands.	4–100 feet	May through July; single brood.	Clutch incubated for 12–14 days by female; altricial young fledge at 16 days.	75	30–75	15–30
Blue-gray Gnatcatcher	*Polioptila caerulea*	Cup nests in trees or shrubs in a variety of habitats from shrublands to mature forests.	3–80 feet	April through July; double brood.	Clutch incubated for approximately 15 days by both sexes; altricial young fledge at 12–13 days.	75	30–75	15–30
Coastal California Gnatcatcher	*Polioptila californica californica*	Cup nests in coastal sage scrub and chaparral.	2–3 feet	February through August; double brood.	Clutch incubated for approximately 14 days by both sexes; altricial young fledge at 15–16 days.	500	CR	CR
Wrentit	*Chamaea fasciata*	Cup nests in coastal sage scrub and chaparral.	1–4 feet	March through July; double brood.	Clutch incubated for 15–16 days by both sexes; altricial young fledge at 15–16 days.	75	30–75	15–30

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Northern Mockingbird	*Mimus polyglottos*	Cup nests in shrubs and trees in variety of habitats, including woodlands and in developed areas.	3–10 feet	March through July; double or triple brood.	Clutch incubated for 11–14 days by female; altricial young fledge at 12–14 days.	75	30–75	15–30
Sage Thrasher	*Oreoscoptes montanus*	Cup nests in low shrubs in sagebrush habitat.	2–3 feet	April through August; single or double brood.	Clutch is incubated for 13–17 days; altricial young fledge at approximately 11 days.	75	30–75	15–30
Le Conte's Thrasher	*Toxostoma lecontei*	Cup nests in cholla or a low tree, in desert areas with shrubby growth.	2–8 feet	February through June; double or triple brood.	Clutch incubated for 14–20 days by both sexes; altricial young fledge at 14–17 days.	75	30–75	15–30
California Thrasher	*Toxostoma redivivum*	Cup nests in low trees or shrubs in sage scrub and chaparral.	2–4 feet	February through July; double brood.	Clutch incubated for approximately 14 days by both sexes; altricial young fledge at 12–14 days.	75	30–75	15–30
Bendire's Thrasher	*Toxostoma bendirei*	Cup nests in shrubs, cacti, or trees.	2–5 feet	Late February through April; single, double, or triple brood.	Clutch incubated 12–14 days by both parents; altricial young fledge at 12–13 days.	75	30–75	15–30
Cedar Waxwing	*Bombycilla cedrorum*	Cup nests in forks of trees in riparian or redwood forests.	5–50 feet	June through August; single or double brood.	Clutch is incubated for 12–14 days; altricial young fledge at 16–18 days	75	30–75	15–30
Phainopepla	*Phainopepla nitens*	Cup nests in trees in desert scrub and coastal chaparral.	6–11 feet	Late February—desert; April through June—coastal; double brood.	Clutch incubated for 14–15 days by both sexes; altricial young fledge at 18–19 days.	75	30–75	15–30

Common Name	Scientific Name	Nest Location, Substrate, and Habitat	Vertical Height	Peak Breeding Season/Number of Broods per Season	Incubation Duration/Chick-rearing Duration	Standard Buffer* (feet)	Medium to High Disturbance Category Buffer (feet)	Low to Medium Disturbance Category Buffer (feet)
Orange-crowned Warbler	*Oreothlypis celata*	Cup nests on the ground or in crevices near ground in a variety of habitats, often where woodland and chaparral habitats meet.	Ground	April through July; single or double brood.	Clutch incubated for 12–14 days by female; altricial young fledge at 12–13 days.	75	30–75	15–30
Nashville Warbler	*Oreothlypis ruficapilla*	Cup nests on ground concealed in bushes or small trees in woodland edges or shrubby areas.	Ground	May through July; single brood.	Clutch incubated for 11–12 days by female; altricial young fledge at 11 days.	75	30–75	15–30
Yellow Warbler	*Setophaga petechia*	Cup nests in trees or shrubs in shrubby growth in riparian areas.	2–12 feet	April through July; single brood.	Clutch incubated for 11–12 days by female; altricial young fledge at days.	75	30–75	15–30
Yellow-rumped Warbler	*Setophaga coronata*	Cup nests in trees in coniferous woodlands.	4–50 feet	April through July; single or (rarely) double brood.	Clutch incubated for 12–13 days by female; altricial young fledge at 12–14 days.	75	30–75	15–30
Black-throated Gray Warbler	*Setophaga nigrescens*	Cup nests in trees or shrubs in open woodlands in mountainous areas.	8–35 feet	May through July; single or double brood.	Clutch incubated by female; young are altricial. Length of incubation period and age at fledging undocumented.	75	30–75	15–30
Hermit Warbler	*Setophaga occidentalis*	Cup nests high in trees in coniferous forests	20–40 feet	May through July; single brood.	Clutch incubated for approximately 12 days by both sexes; altricial young fledge at 8–10 days.	75	30–75	15–30

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MacGillivray's Warbler	*Geothlypis tolmiei*	Cup nests in low thick shrub in riparian woodlands and coniferous or mixed forests.	1–5 feet	May through July; single brood.	Clutch incubated for 11–13 days by female; altricial young fledge at 8–10 days.	75	30–75	15–30
Common Yellowthroat	*Geothlypis trichas*	Cup nests in reeds and other wetland vegetation over water or near water.	1–3 feet	April through July; single brood.	Clutch incubated for approximately 12 days by female; altricial young fledge at 9–10 days.	75	30–75	15–30
Wilson's Warbler	*Cardellina pusilla*	Cup nests on ground, hidden by vegetation in shrub habitats in forests and chaparral.	Ground	April through June; single or (rarely) double brood.	Clutch incubated for 11–13 days by female; altricial young fledge at 10–11 days.	75	30–75	15–30
Yellow-breasted Chat	*Icteria virens*	Cup nests in a dense shrub or tangle in thick riparian vegetation.	1–8 feet	April through July; single or (rarely) brood.	Clutch incubated for 11–12 days by female; altricial young fledge at 8–11 days.	75	30–75	15–30
Western Tanager	*Piranga ludoviciana*	Cup nests high in trees on outer branches in coniferous and mixed hardwood forests.	8–75 feet	May through July; single brood.	Clutch incubated for approximately 13 days by female; altricial young fledge at 10–11 days.	75	30–75	15–30
Green-tailed Towhee	*Pipilo chlorulus*	Cup nests in or at base of low shrubs in chaparral and disturbed (low growth) forest habitats.	0–2 feet	April through August; single or double brood.	Clutch incubated for 11–13 days by female; altricial young fledge at 11–14 days.	75	30–75	15–30
Spotted Towhee	*Pipilo maculatus*	Cup nests usually on the ground or very low in bushes shrubby habitats.	2–12 feet	April through July; single or double brood.	Clutch incubated for 12–13 days by female; altricial young fledge at approximately 9 days.	75	30–75	15–30

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California Towhee	*Melozone crissalis*	Cup nests in shrubs or small trees in brushy habitats.	4–12 feet	March through July; double or triple brood.	Clutch incubated for approximately 14 days by female; altricial young fledge at approximately 10 days.	75	30–75	15–30
Rufous-crowned Sparrow	*Aimophila ruficeps*	Cup nests at the base of a grass clumps, in dry rocky areas with sparse undergrowth.	0–2 feet	April through June; single or double brood.	Clutch incubated for 11–13 days by female; altricial young fledge at 9 days.	75	30–75	15–30
Chipping Sparrow	*Spizella passerina*	Cup nests in trees or shrubs in open woodlands.	3–20 feet	April through July; double brood.	Clutch incubated for 11–14 days by female; altricial young fledge at 9–12 days.	75	30–75	15–30
Black-chinned Sparrow	*Spizella atrogularis*	Cup nests in shrubs in chaparral habitat.	1–3 feet	April through August; single brood.	Clutch incubated for 12–13 days by female; altricial young fledge at approximately 10 days.	75	30–75	15–30
Lark Sparrow	*Chondestes grammacus*	Cup nests usually in scrapes on ground in open grasslands, or cup nests in herbaceous or woody shrubs.	0–9 feet	April through July; double brood.	Clutch incubated for 11–13 days by female; altricial young fledge at 9–10 days.	75	30–75	15–30
Black-throated Sparrow	*Amphispiza bilineata*	Cup nests in thorny shrubs or cactus in chaparral or desert habitats.	1 foot	April through June; single or double brood.	Clutch incubated for 12–13 days by female; altricial young fledge at approximately 9.5 days.	75	30–75	15–30
Sage Sparrow	*Artemisiospiza belli*	Cup nests in thick bushes in chaparral and desert habitats.	1 foot	March through June; double brood.	Clutch incubated for 10–16 days by female; altricial young fledge at 9–10 days.	75	30–75	15–30

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Bryant's Savannah Sparrow	*Passerculus sandwichensis alaudinus*	Cup nests on ground in dense, moist grasslands, ruderal vegetation, or saltmarsh vegetation.	Ground	April through July; single or double brood.	Clutch incubated for 10–13 days; altricial young fledge at 7–14 days.	75	30–75	15–30
Belding's Savannah Sparrow	*Passerculus sandwichensis beldingi*	Cup nests on ground in dense, moist grasslands, ruderal vegetation, or saltmarsh vegetation.	Ground	April through July; single or double brood.	Clutch incubated for 10–13 days; altricial young fledge at 7–14 days.	75	CR	CR
Grasshopper Sparrow	*Ammodramus savannarum*	Ground nest at the base of bunchgrass or other vegetation in grasslands.	Ground	April through July; double or triple brood.	Clutch incubated for 11–12 days by female; altricial young fledge after 9 days.	75	30–75	15–30
Song Sparrow	*Melospiza melodia*	Cup nests in low grass and shrubs or thickets in a variety of forest, shrub, grassland, marsh, and riparian habitats.	1–3 feet	March through July; double, triple, or quadruple brood.	Clutch incubated for 12–14 days by female; altricial young fledge at 10 days.	75	30–75	15–30
Suisun Song Sparrow	*Melospiza melodia maxillaris*	Cup nests in low grass and shrubs or thickets in a variety of forest, shrub, grassland, marsh, and riparian habitats.	1–3 feet	March through July; double, triple, or quadruple brood.	Clutch incubated for 12–14 days by female; altricial young fledge at 10 days.	75	30–75	15–30
Alameda Song Sparrow	*Melospiza melodia pusillula*	Cup nests in low grass and shrubs or thickets in a variety of forest, shrub, grassland, marsh, and riparian habitats.	1–3 feet	March through July; double, triple, or quadruple brood.	Clutch incubated for 12–14 days by female; altricial young fledge at 10 days.	75	30–75	15–30

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San Pablo Song Sparrow	*Melospiza melodia samuelis*	Cup nests in low grass and shrubs or thickets in a variety of forest, shrub, grassland, marsh, and riparian habitats.	1–3 feet	March through July; double, triple, or quadruple brood.	Clutch incubated for 12–14 days by female; altricial young fledge at 10 days.	75	30–75	15–30
Lincoln's Sparrow	*Melospiza lincolnii*	Cup nests in depressions on the ground in shrubby growth at forest edges, clearings; often near wet areas	Ground	May through July; double brood.	Clutch incubated for 13–14 days by female; altricial young fledge at 10–12 days.	75	30–75	15–30
White-crowned Sparrow	*Zonotrichia leucophrys*	Cup nests on ground or in shrubs or small trees in coastal or mountain chaparral and mountain forests.	0–5 feet	May through September; double or triple brood.	Clutch incubated for 9–15 days; altricial young fledge at 9–11 days	50	30–50	15–30
Dark-eyed Junco	*Junco hyemalis*	Cup nests in depressions on the ground among tree roots or brush in variety of woodland habitats; also on building ledges or in trees.	Ground, but up to 8 feet on ledges or trees	April through July; double or triple brood.	Clutch incubated for 12–13 days by female; altricial young fledge at 10–13 days.	50	30–50	15–30
Black-headed Grosbeak	*Pheucticus melanocephalus*	Cup nests in trees or shrubs in thickets, under trees along streams in riparian woodlands or coniferous or mixed forests near edges.	6–12 feet	April through July; single brood.	Clutch incubated for 12–13 days by both sexes; altricial young fledge at 12 days.	75	30–75	15–30

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Blue Grosbeak	*Guiraca caerulea*	Cup nests small trees, shrubs, or other low vegetation, usually near open areas in desert, chaparral, savannah, and forest edge habitats.	<1–16 feet	April through August; single or double brood.	Clutch incubated for 11–12 days by female; altricial young fledge at 9–13 days.	75	30–75	15–30
Lazuli Bunting	*Passerina amoena*	Cup nests in low thick shrubby riparian or chaparral habitat.	1–10 feet	May through July; double brood.	Clutch incubated for approximately 12 days by female; altricial young fledge at 10–15 days.	75	30–75	15–30
Red-winged Blackbird	*Agelaius phoeniceus*	Cup nests in cattails, bulrushes, and other marsh vegetation or in shrubs in grasslands and shrubby habitats.	1–13 feet	March through June; double brood.	Clutch incubated for 10–12 days by female; altricial young fledge at 10–11 days.	75 350 (Kern Red-winged Blackbird)	30–75 200–350 (Kern Red-winged Blackbird)	15–30 100–200 (Kern Red-winged Blackbird)
Tricolored Blackbird	*Agelaius tricolor*	Cup nests in cattails and bulrushes in marshes and shrubby areas in uplands and agricultural areas. Colonial nester.	1–5 feet	April through June; double brood.	Clutch incubated for approximately 11 days by female; altricial young fledge at 13 days.	350	CR	CR
Yellow-headed Blackbird	*Xanthocephalus xanthocephalus*	Cup nests cattails or other emergent vegetation over water in marshes with thick vegetative growth. Colonial nester.	2–3 feet	May through June; single brood.	Clutch incubated for 10–13 days by female; altricial young fledge at 9–12 days old	350	200–350	100–200
Brewer's Blackbird	*Euphagus cyanocephalus*	Cup nests high in trees or shrubs near water in agricultural or suburban/urban areas.	8–43 feet	March through July; single or double brood.	Clutch incubated for 12–13 days by female; altricial young fledge at approximately 13 days.	50	30–50	15–30

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Western Meadowlark	*Sturnella neglecta*	Domed nests on ground in open grasslands.	Ground	March through June; double brood.	Clutch incubated for 13–15 days by female; altricial young fledge at 10–12 days.	75	30–75	15–30
Hooded Oriole	*Icterus cucullatus*	Closed cup nests high in trees (often palm treets) or shrubs, often in riparian habitat and in suburban areas.	10–45 feet	April through August; double or triple brood.	Clutch incubated for 12–14 days by female; altricial young fledge at approximately 14 days.	75	30–75	15–30
Bullock's Oriole	*Icterus bullockii*	Pensile cup nests in twig fork of trees in riparian and oak woodlands.	6–15 feet	April through July; single brood.	Clutch incubated for approximately 14 days by female; altricial young fledge at approximately 14 days.	75	30–75	15–30
Pine Grosbeak	*Pinicola enucleator*	Cup nests near the end of horizontal tree branches in coniferous forests.	16–35 feet	May through August; single brood.	Clutch incubated for 13–14 days by female; altricial young fledge at approximately 14 days.	75	30–75	15–30
Purple Finch	*Haemorhous purpureus*	Cup nests high in trees well hidden by foliage, in coniferous forests and woodlands.	5–60 feet	April through June; double brood.	Clutch incubated for approximately 13 days by female; altricial young fledge at approximately 14 days.	75	30–75	15–30
House Finch	*Haemorhous mexicanus*	Cup nests in trees, building ledges, and other locations in urban/suburban, agriculture, woodlands, desert, and chaparral habitats.	5–7 feet	March through July; double or triple brood.	Clutch incubated for 12–14 days by female; altricial young fledge at 14–16 days.	50	15–30	10–15
Red Crossbill	*Loxia curvirostra*	Loose cup constructed near the end of horizontal branch in coniferous forests.	6–60 feet	February through June; single brood.	Clutch incubated for 12–16 days by female; altricial young fledge at 17–22 days.	75	30–75	15–30

Common Name	Scientific Name	Nest Location, Substrate, and Habitat	Vertical Height	Peak Breeding Season/Number of Broods per Season	Incubation Duration/Chick-rearing Duration	Standard Buffer* (feet)	Medium to High Disturbance Category Buffer (feet)	Low to Medium Disturbance Category Buffer (feet)
Pine Siskin	*Spinus pinus*	Cup nest constructed on conifer or hardwood in coniferous or mixed hardwood forests.	3–50 feet	April through July; single or double brood.	Clutch incubated for approximately 13 days; altricial young fledge at 14–15 days.	75	30–75	15–30
Lesser Goldfinch	*Spinus psaltria*	Cup nests in trees and shrubs in a variety of open habitats including oak woodlands, mixed coniferous forests, riparian woodlands, chaparral, agricultural and suburban habitats.	3–36 feet	April through July; single or double brood.	Clutch incubated for approximately 12 days by female; altricial young fledge at 11 days.	75	30–75	15–30
Lawrence's Goldfinch	*Spinus lawrencei*	Cup nests in scattered trees in oak woodlands and savannahs.	3–40 feet	April through July; single or (rarely) double brood	Clutch incubated for 12–13 days by female; altricial young fledge at approximately 11 days.	75	30–75	15–30
American Goldfinch	*Spinus tristis*	Cup nests in a variety of shrubs in variety of open habitats including ruderal fields and grasslands with shrub component nearby.	3–10 feet	April through August; single or double brood.	Clutch incubated for 12–14 days by female; altricial young fledge at 11–17 days.	75	30–75	15–30
Evening Grosbeak	*Coccothraustes vespertinus*	Cup nests in fir or other conifers in coniferous forests.	30–60 feet	June through August; single or (rarely) double brood.	Clutch incubated for 12–14 days by female; altricial young fledge at 13–14 days.	75	30–75	15–30

[a] Consultation recommended to perform work within the standard buffer. Confer internally on avoidance and minimization approach.

[b] The 1,320-foot (0.25-mile) buffer applies to the highest noise level category (90 dB or greater measured at 50 feet). Smaller buffers may be appropriate based on the noise levels of the project. Biologists should follow the methodology found in *Estimating the Effects of Auditory and Visual Disturbance to Northern Spotted Owls and Marbled Murrelets in Northwestern California* (U.S. Fish and Wildlife Service 2006) to determine the noise level and appropriate buffer for their specific project.

Pacific Gas and Electric Company

Leslie Smirnoff Sakowicz
Cultural Resources Specialist
Environmental Management –Generation

2730 Gateway Oaks Drive, Suite 220
Sacramento, CA 95833
Office: 916-923-7094
Email: lssh@pge.com

July 8, 2016

Silvia Burley, Chairperson
California Valley Miwok Tribe
4620 Shippee Lane
Stockton, CA 95212

Re: Initial Scoping for the Vierra Reinforcement Project (Vierra 115 kV Loop In) –San Joaquin County, CA

Dear Ms. Burley:

Pacific Gas and Electric Company (PG&E) is preparing to initiate environmental and cultural resource studies for the proposed Vierra Reinforcement Project (Vierra 115 kV Loop In). The Vierra Reinforcement Project includes expanding PG&E's existing Vierra Substation and building a new 115 kV transmission line between Vierra Substation and the existing Tesla-Stockton Co-Gen Jct 115 kV transmission line to increase the reliability and capacity of the electric transmission grid serving Manteca and Lathrop. The enclosed map shows the broad study area the project team is currently considering.

The project will bring new transmission infrastructure to northern San Joaquin County to provide increased reliability and efficiency for more than 120,000 households and businesses in Lathrop and Manteca. The region's residential, agricultural and industrial growth has increased demand in the region. This growth has driven the need for new energy infrastructure to handle the area's growing demand. A new transmission line in the area will create a more direct connection to the region's electrical generation sources, making the system more efficient.

We are initiating Phase 1 of the scoping and routine studies, which includes introducing the project to stakeholders, educating the community about the process and gathering community input before developing potential routes. Phase 2 will include additional stakeholder meetings, hosting public workshops and open houses to engage the local community about initial project routes and the process (Phase 2). During Phase 3 potential project routes and alternatives will be proposed, Native American community engagement will continue and alternatives, and continue community engagement leading up to submitting the project for regulatory approval.

At this early stage a preferred route has not been selected, but we would like to invite you to comment early in the process so that your input is integrated into the decision-making process. As we move into the next phase we will continue our engagement and provide opportunities to meet specifically to discuss all potential resources of concern to Native American communities. PG&E is dedicated to engaging Native American stakeholders early in the planning process, helping ensure their feedback shapes the final project. Throughout the process, we will proactively listen to and address community concerns, while soliciting feedback on potential routes.

If you have any information, questions or concerns regarding this project please feel free to call or email me.

Sincerely,

L. Sakowicz

Cultural Resources Specialist

Enclosure (Two maps of project area)

Pacific Gas and Electric Company

Leslie Smirnoff Sakowicz
Cultural Resources Specialist
Environmental Management –Generation

2730 Gateway Oaks Drive, Suite 220
Sacramento, CA 95833
Office: 916-923-7094
Email: lssh@pge.com

July 8, 2016

Raymond Hitchcock, Chairperson
Wilton Rancheria
9728 Kent Street
Elk Grove, CA 95624

Re: Initial Scoping for the Vierra Reinforcement Project (Vierra 115 kV Loop In) –San Joaquin County, CA

Dear Mr. Hitchcock:

Pacific Gas and Electric Company (PG&E) is preparing to initiate environmental and cultural resource studies for the proposed Vierra Reinforcement Project (Vierra 115 kV Loop In). The Vierra Reinforcement Project includes expanding PG&E's existing Vierra Substation and building a new 115 kV transmission line between Vierra Substation and the existing Tesla-Stockton Co-Gen Jct 115 kV transmission line to increase the reliability and capacity of the electric transmission grid serving Manteca and Lathrop. The enclosed map shows the broad study area the project team is currently considering.

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Sincerely,

L. Sakowicz

Cultural Resources Specialist

Enclosure (Two maps of project area)

Pacific Gas and Electric Company

Leslie Smirnoff Sakowicz
Cultural Resources Specialist
Environmental Management –Generation

2730 Gateway Oaks Drive, Suite 220
Sacramento, CA 95833
Office: 916-923-7094
Email: lssh@pge.com

July 8, 2016

Lois Martin, Chairperson
Southern Sierra Miwuk Nation
P.O. Box 186
Mariposa, CA 95338

Re: Initial Scoping for the Vierra Reinforcement Project (Vierra 115 kV Loop In) –San Joaquin County, CA

Dear Ms. Martin:

Pacific Gas and Electric Company (PG&E) is preparing to initiate environmental and cultural resource studies for the proposed Vierra Reinforcement Project (Vierra 115 kV Loop In). The Vierra Reinforcement Project includes expanding PG&E's existing Vierra Substation and building a new 115 kV transmission line between Vierra Substation and the existing Tesla-Stockton Co-Gen Jct 115 kV transmission line to increase the reliability and capacity of the electric transmission grid serving Manteca and Lathrop. The enclosed map shows the broad study area the project team is currently considering.

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Sincerely,

L. Sakowicz

Cultural Resources Specialist

Enclosure (Two maps of project area)

Pacific Gas and Electric Company

Leslie Smirnoff Sakowicz
Cultural Resources Specialist
Environmental Management –Generation

2730 Gateway Oaks Drive, Suite 220
Sacramento, CA 95833
Office: 916-923-7094
Email: lssh@pge.com

July 8, 2016

Yvonne Miller, Chairperson
Ione Band of Miwok Indians
P.O. Box 699
Plymouth, CA 95669

Re: Initial Scoping for the Vierra Reinforcement Project (Vierra 115 kV Loop In) –San Joaquin County, CA

Dear Ms. Miller:

Pacific Gas and Electric Company (PG&E) is preparing to initiate environmental and cultural resource studies for the proposed Vierra Reinforcement Project (Vierra 115 kV Loop In). The Vierra Reinforcement Project includes expanding PG&E's existing Vierra Substation and building a new 115 kV transmission line between Vierra Substation and the existing Tesla-Stockton Co-Gen Jct 115 kV transmission line to increase the reliability and capacity of the electric transmission grid serving Manteca and Lathrop. The enclosed map shows the broad study area the project team is currently considering.

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Sincerely,

L. Sakowicz

Cultural Resources Specialist

Enclosure (Two maps of project area)

Pacific Gas and Electric Company

Leslie Smirnoff Sakowicz
Cultural Resources Specialist
Environmental Management –Generation

2730 Gateway Oaks Drive, Suite 220
Sacramento, CA 95833
Office: 916-923-7094
Email: lssh@pge.com

July 8, 2016

Katherine Erolinda Perez, Chairperson
North Valley Yokuts Tribe
P.O. Box 717
Linden, CA 95236

Re: Initial Scoping for the Vierra Reinforcement Project (Vierra 115 kV Loop In) –San Joaquin County, CA

Dear Ms. Perez:

Pacific Gas and Electric Company (PG&E) is preparing to initiate environmental and cultural resource studies for the proposed Vierra Reinforcement Project (Vierra 115 kV Loop In). The Vierra Reinforcement Project includes expanding PG&E's existing Vierra Substation and building a new 115 kV transmission line between Vierra Substation and the existing Tesla-Stockton Co-Gen Jct 115 kV transmission line to increase the reliability and capacity of the electric transmission grid serving Manteca and Lathrop. The enclosed map shows the broad study area the project team is currently considering.

The project will bring new transmission infrastructure to northern San Joaquin County to provide increased reliability and efficiency for more than 120,000 households and businesses in Lathrop and Manteca. The region's residential, agricultural and industrial growth has increased demand in the region. This growth has driven the need for new energy infrastructure to handle the area's growing demand. A new transmission line in the area will create a more direct connection to the region's electrical generation sources, making the system more efficient.

We are initiating Phase 1 of the scoping and routine studies, which includes introducing the project to stakeholders, educating the community about the process and gathering community input before developing potential routes. Phase 2 will include additional stakeholder meetings, hosting public workshops and open houses to engage the local community about initial project routes and the process (Phase 2). During Phase 3 potential project routes and alternatives will be proposed, Native American community engagement will continue and alternatives, and continue community engagement leading up to submitting the project for regulatory approval.

At this early stage a preferred route has not been selected, but we would like to invite you to comment early in the process so that your input is integrated into the decision-making process. As we move into the next phase we will continue our engagement and provide opportunities to meet specifically to discuss all potential resources of concern to Native American communities. PG&E is dedicated to engaging Native American stakeholders early in the planning process, helping ensure their feedback shapes the final project. Throughout the process, we will proactively listen to and address community concerns, while soliciting feedback on potential routes.

If you have any information, questions or concerns regarding this project please feel free to call or email me.

Sincerely,

L. Sakowicz

Cultural Resources Specialist

Enclosure (Two maps of project area)

Pacific Gas and Electric Company

Leslie Smirnoff Sakowicz
Cultural Resources Specialist
Environmental Management –Generation

2730 Gateway Oaks Drive, Suite 220
Sacramento, CA 95833
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Email: lssh@pge.com

July 8, 2016

Rhonda Morningstar Pope, Chairperson
Buena Vista Rancheria
1418 20th Street, Suite 200
Sacramento, CA 95811

Re: Initial Scoping for the Vierra Reinforcement Project (Vierra 115 kV Loop In) –San Joaquin County, CA

Dear Ms. Pope:

Pacific Gas and Electric Company (PG&E) is preparing to initiate environmental and cultural resource studies for the proposed Vierra Reinforcement Project (Vierra 115 kV Loop In). The Vierra Reinforcement Project includes expanding PG&E's existing Vierra Substation and building a new 115 kV transmission line between Vierra Substation and the existing Tesla-Stockton Co-Gen Jct 115 kV transmission line to increase the reliability and capacity of the electric transmission grid serving Manteca and Lathrop. The enclosed map shows the broad study area the project team is currently considering.

The project will bring new transmission infrastructure to northern San Joaquin County to provide increased reliability and efficiency for more than 120,000 households and businesses in Lathrop and Manteca. The region's residential, agricultural and industrial growth has increased demand in the region. This growth has driven the need for new energy infrastructure to handle the area's growing demand. A new transmission line in the area will create a more direct connection to the region's electrical generation sources, making the system more efficient.

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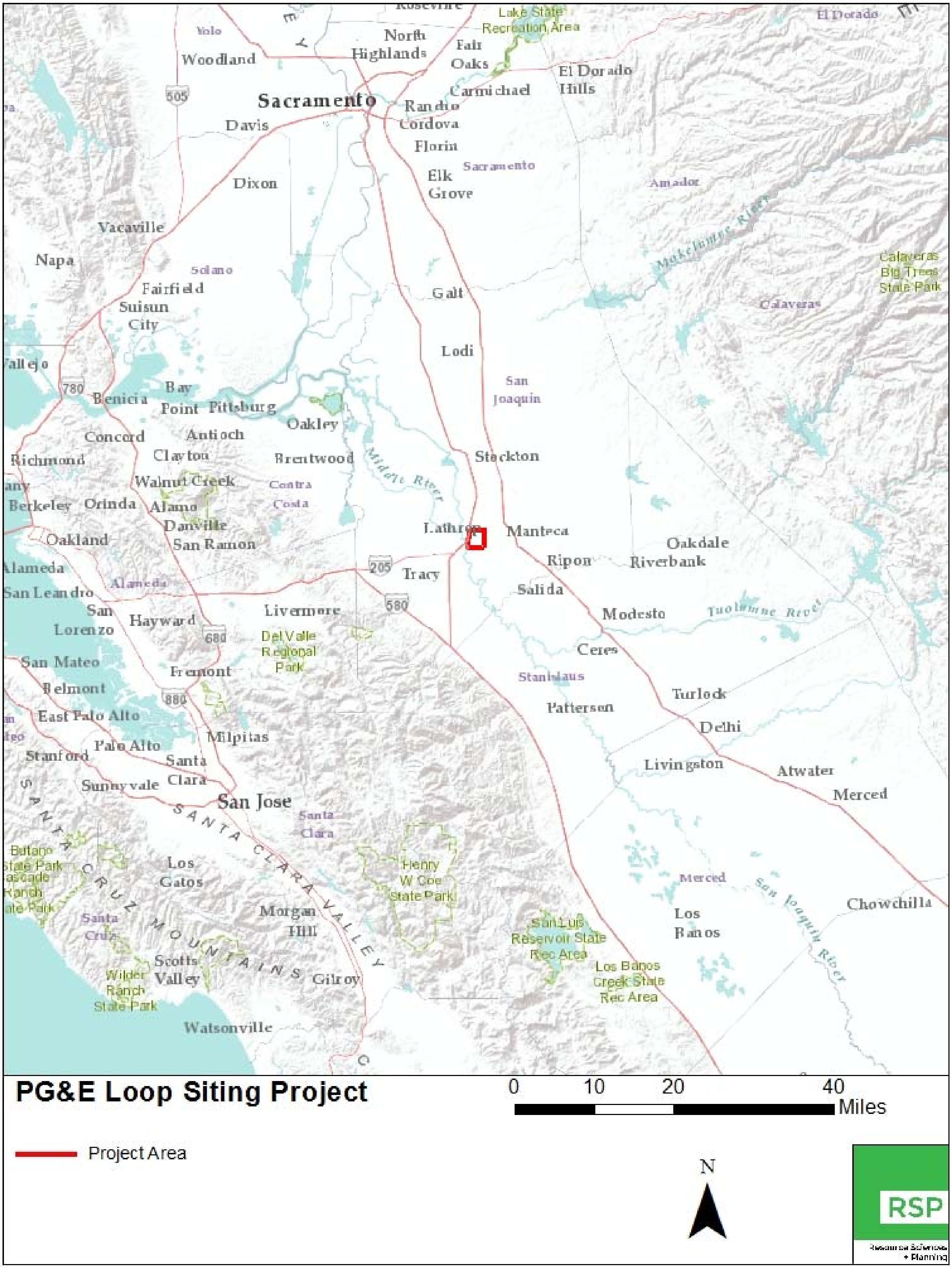
If you have any information, questions or concerns regarding this project please feel free to call or email me.

Sincerely,

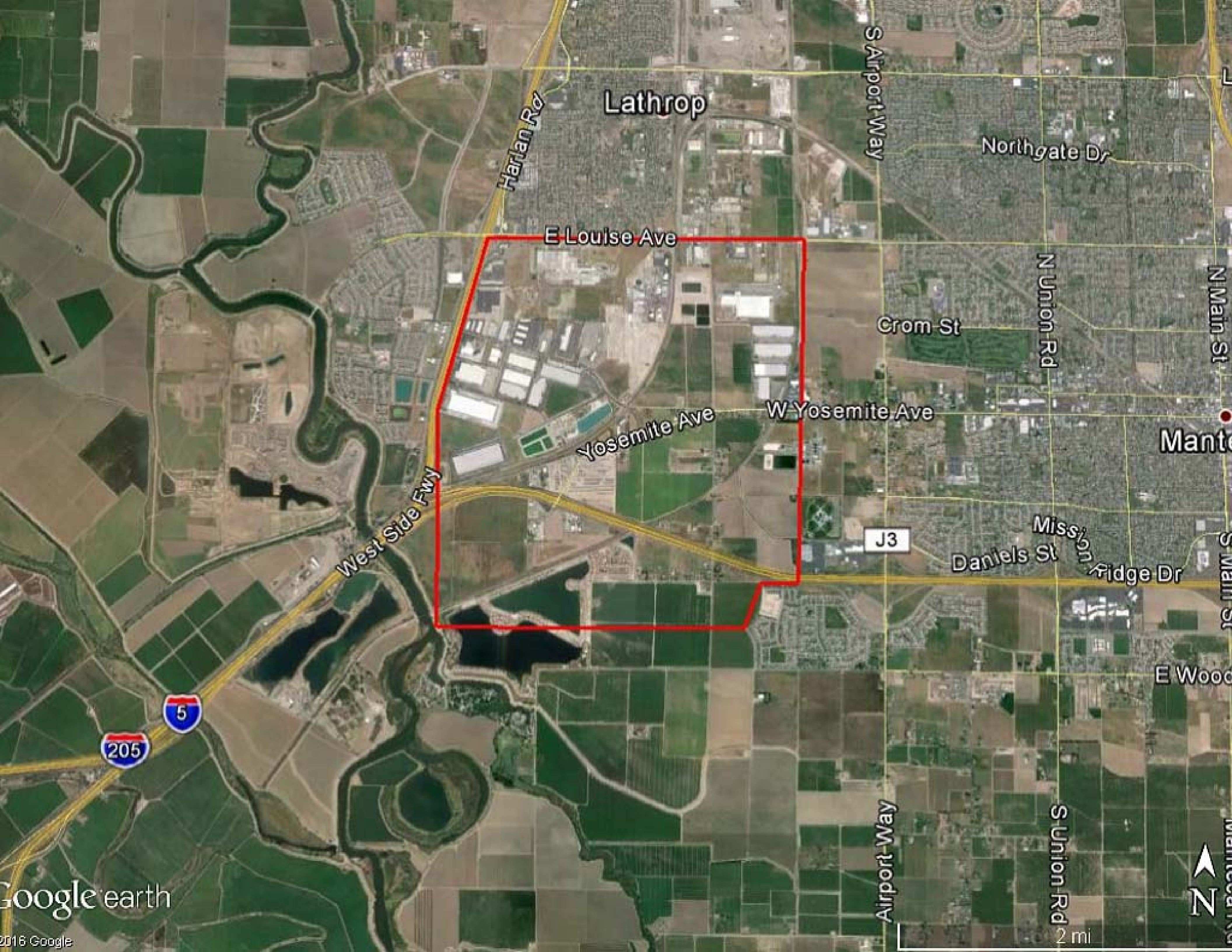
L. Sakowicz

Cultural Resources Specialist

Enclosure (Two maps of project area)



Map 1. Project area location overview.



Lathrop
Harlan Rd
S Airport Way
Northgate Dr
E Louise Ave
N Union Rd
N Main St
Crom St
W Yosemite Ave
Yosemite Ave
Mante
West Side Fwy
J3
Mission Ridge Dr
Daniels St
S Main St
E Wood
5
205
Airport Way
S Union Rd
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Pacific Gas and Electric Company

Leslie Smirnoff Sakowicz
Cultural Resources Specialist
Environmental Management –Generation

2730 Gateway Oaks Drive, Suite 220
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September 26, 2017

Raymond Hitchcock, Chairperson
Wilton Rancheria
9728 Kent Street
Elk Grove, CA 95624

Re: Vierra Reinforcement Project, Lathrop, San Joaquin County, California

Dear Mr. Hitchcock:

Pacific Gas and Electric Company (PG&E) is continuing the environmental review process and cultural resource studies for the proposed Vierra Reinforcement Project (project). The purpose of the project is to increase the reliability and capacity of the electric transmission grid serving the communities of Lathrop and Manteca to meet their increasing needs for electricity because of the region's residential, agricultural and industrial growth. The project includes expanding PG&E's existing Vierra Substation and installing a new 1-mile long, double circuit, 115kV line to the west of the substation. The two lines along the double circuit will be known as the Tesla-Vierra line and the Vierra-Stockton Co-Gen Junction line. As a part of the project, PG&E proposes to expand the existing Vierra Substation westward by approximately 340 feet and install approximately 15 new poles. Associated work areas consist of pole work areas, pull sites, access areas, and staging and laydown yards.

The proposed project is located the City of Lathrop. The alignment begins at the Vierra Substation, located 0.2 mile west of the intersection of McKinley Avenue and Vierra Road. From there, the alignment proceeds westward along Vierra Road, heads northwest on D'Arcy Parkway, turns southwest on Christopher Way, and turns northwest on Nestle Way, before terminating 0.15 mile east of the intersection of Murphy Parkway and Nestle Way. The total length of the project area is approximately 1.03 miles. The project encompasses approximately 16.3 acres and is illustrated in the attached Vicinity and Location Maps.

In 2016, PG&E initiated Phase 1 of the scoping and routine studies, which included introducing the project to stakeholders, educating the community about the process, and gathering community input before developing potential routes. As part of that process, PG&E contacted you about the project in July 2016. Phase 2 included stakeholder meetings to engage the local community about potential project routes and the process. PG&E will soon be commencing Phase 3, which includes identifying the proposed project route and alternatives, continued Native American community engagement, and continued community engagement leading up to submitting the project for regulatory approval.

As part of the environmental review process, cultural resources investigations are being conducted by Paleo Solutions under subcontract to PG&E. The investigations have included a records search with the Central California Information Center, field survey of all undeveloped portions of the project area, and an updated Sacred Lands File (SLF) search with the Native American Heritage Commission (NAHC). As a result of the records search and field survey, only one cultural resource, P-39-000002 (CA-SJO-000250H), the historic-age San Joaquin Valley Mainline of the Southern Pacific Railroad, was identified within the project area. This resource has been evaluated and recommended not eligible for inclusion in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR). No prehistoric archaeological sites have been identified within the project area or within a 0.5-mile radius.

A 2016 search of the SLF by the NAHC for the larger study area had negative results. The updated SLF search completed in August 2017, however, has indicated the presence of Native American resources located within or near the proposed project route, but no additional information on the location or nature of the resource was provided. As recommended by the NAHC, PG&E is contacting you for any information you can provide on resources sensitive or sacred to the Tribe that could be subject to impacts from the proposed project. Your participation in this process is encouraged to ensure your input is integrated into the decision-making process.

PG&E is dedicated to engaging Native American stakeholders throughout the planning process to ensure their feedback shapes the final project. If you have any information, questions or concerns regarding the project, please feel free to call or email me.

Sincerely,

L. Sakowicz

Cultural Resources Specialist

Enclosure (Two maps of project area)

Pacific Gas and Electric Company

Leslie Smirnoff Sakowicz
Cultural Resources Specialist
Environmental Management –Generation

2730 Gateway Oaks Drive, Suite 220
Sacramento, CA 95833
Office: 916-923-7094
Email: lssh@pge.com

September 26, 2017

Lois Martin, Chairperson
Southern Sierra Miwuk Nation
P.O. Box 186
Mariposa, CA 95338

Re: Vierra Reinforcement Project, Lathrop, San Joaquin County, California

Dear Ms. Martin:

Pacific Gas and Electric Company (PG&E) is continuing the environmental review process and cultural resource studies for the proposed Vierra Reinforcement Project (project). The purpose of the project is to increase the reliability and capacity of the electric transmission grid serving the communities of Lathrop and Manteca to meet their increasing needs for electricity because of the region's residential, agricultural and industrial growth. The project includes expanding PG&E's existing Vierra Substation and installing a new 1-mile long, double circuit, 115kV line to the west of the substation. The two lines along the double circuit will be known as the Tesla-Vierra line and the Vierra-Stockton Co-Gen Junction line. As a part of the project, PG&E proposes to expand the existing Vierra Substation westward by approximately 340 feet and install approximately 15 new poles. Associated work areas consist of pole work areas, pull sites, access areas, and staging and laydown yards.

The proposed project is located the City of Lathrop. The alignment begins at the Vierra Substation, located 0.2 mile west of the intersection of McKinley Avenue and Vierra Road. From there, the alignment proceeds westward along Vierra Road, heads northwest on D'Arcy Parkway, turns southwest on Christopher Way, and turns northwest on Nestle Way, before terminating 0.15 mile east of the intersection of Murphy Parkway and Nestle Way. The total length of the project area is approximately 1.03 miles. The project encompasses approximately 16.3 acres and is illustrated in the attached Vicinity and Location Maps.

In 2016, PG&E initiated Phase 1 of the scoping and routine studies, which included introducing the project to stakeholders, educating the community about the process, and gathering community input before developing potential routes. As part of that process, PG&E contacted you about the project in July 2016. Phase 2 included stakeholder meetings to engage the local community about potential project routes and the process. PG&E will soon be commencing Phase 3, which includes identifying the proposed project route and alternatives, continued Native American community engagement, and continued community engagement leading up to submitting the project for regulatory approval.

As part of the environmental review process, cultural resources investigations are being conducted by Paleo Solutions under subcontract to PG&E. The investigations have included a records search with the Central California Information Center, field survey of all undeveloped portions of the project area, and an updated Sacred Lands File (SLF) search with the Native American Heritage Commission (NAHC). As a result of the records search and field survey, only one cultural resource, P-39-000002 (CA-SJO-000250H), the historic-age San Joaquin Valley Mainline of the Southern Pacific Railroad, was identified within the project area. This resource has been evaluated and recommended not eligible for inclusion in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR). No prehistoric archaeological sites have been identified within the project area or within a 0.5-mile radius.

A 2016 search of the SLF by the NAHC for the larger study area had negative results. The updated SLF search completed in August 2017, however, has indicated the presence of Native American resources located within or near the proposed project route, but no additional information on the location or nature of the resource was provided. As recommended by the NAHC, PG&E is contacting you for any information you can provide on resources sensitive or sacred to the Tribe that could be subject to impacts from the proposed project. Your participation in this process is encouraged to ensure your input is integrated into the decision-making process.

PG&E is dedicated to engaging Native American stakeholders throughout the planning process to ensure their feedback shapes the final project. If you have any information, questions or concerns regarding the project, please feel free to call or email me.

Sincerely,

Cultural Resources Specialist

Enclosure (Two maps of project area)

Pacific Gas and Electric Company

Leslie Smirnoff Sakowicz
Cultural Resources Specialist
Environmental Management –Generation

2730 Gateway Oaks Drive, Suite 220
Sacramento, CA 95833
Office: 916-923-7094
Email: lssh@pge.com

September 26, 2017

Silvia Burley, Chairperson
California Valley Miwok Tribe
4620 Shippee Lane
Stockton, CA 95212

Re: Vierra Reinforcement Project, Lathrop, San Joaquin County, California

Dear Ms. Burley:

Pacific Gas and Electric Company (PG&E) is continuing the environmental review process and cultural resource studies for the proposed Vierra Reinforcement Project (project). The purpose of the project is to increase the reliability and capacity of the electric transmission grid serving the communities of Lathrop and Manteca to meet their increasing needs for electricity because of the region's residential, agricultural and industrial growth. The project includes expanding PG&E's existing Vierra Substation and installing a new 1-mile long, double circuit, 115kV line to the west of the substation. The two lines along the double circuit will be known as the Tesla-Vierra line and the Vierra-Stockton Co-Gen Junction line. As a part of the project, PG&E proposes to expand the existing Vierra Substation westward by approximately 340 feet and install approximately 15 new poles. Associated work areas consist of pole work areas, pull sites, access areas, and staging and laydown yards.

The proposed project is located the City of Lathrop. The alignment begins at the Vierra Substation, located 0.2 mile west of the intersection of McKinley Avenue and Vierra Road. From there, the alignment proceeds westward along Vierra Road, heads northwest on D'Arcy Parkway, turns southwest on Christopher Way, and turns northwest on Nestle Way, before terminating 0.15 mile east of the intersection of Murphy Parkway and Nestle Way. The total length of the project area is approximately 1.03 miles. The project encompasses approximately 16.3 acres and is illustrated in the attached Vicinity and Location Maps.

In 2016, PG&E initiated Phase 1 of the scoping and routine studies, which included introducing the project to stakeholders, educating the community about the process, and gathering community input before developing potential routes. As part of that process, PG&E contacted you about the project in July 2016. Phase 2 included stakeholder meetings to engage the local community about potential project routes and the process. PG&E will soon be commencing Phase 3, which includes identifying the proposed project route and alternatives, continued Native American community engagement, and continued community engagement leading up to submitting the project for regulatory approval.

As part of the environmental review process, cultural resources investigations are being conducted by Paleo Solutions under subcontract to PG&E. The investigations have included a records search with the Central California Information Center, field survey of all undeveloped portions of the project area, and an updated Sacred Lands File (SLF) search with the Native American Heritage Commission (NAHC). As a result of the records search and field survey, only one cultural resource, P-39-000002 (CA-SJO-000250H), the historic-age San Joaquin Valley Mainline of the Southern Pacific Railroad, was identified within the project area. This resource has been evaluated and recommended not eligible for inclusion in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR). No prehistoric archaeological sites have been identified within the project area or within a 0.5-mile radius.

A 2016 search of the SLF by the NAHC for the larger study area had negative results. The updated SLF search completed in August 2017, however, has indicated the presence of Native American resources located within or near the proposed project route, but no additional information on the location or nature of the resource was provided. As recommended by the NAHC, PG&E is contacting you for any information you can provide on resources sensitive or sacred to the Tribe that could be subject to impacts from the proposed project. Your participation in this process is encouraged to ensure your input is integrated into the decision-making process.

PG&E is dedicated to engaging Native American stakeholders throughout the planning process to ensure their feedback shapes the final project. If you have any information, questions or concerns regarding the project, please feel free to call or email me.

Sincerely,

L. Sakowicz

Cultural Resources Specialist

Enclosure (Two maps of project area)

Pacific Gas and Electric Company

Leslie Smirnoff Sakowicz
Cultural Resources Specialist
Environmental Management –Generation

2730 Gateway Oaks Drive, Suite 220
Sacramento, CA 95833
Office: 916-923-7094
Email: lssh@pge.com

September 26, 2017

Crystal Martinez-Alire, Chairperson
Ione Band of Miwok Indians
P.O. Box 699
Plymouth, CA 95669

Re: Vierra Reinforcement Project, Lathrop, San Joaquin County, California

Dear Ms. Martinez-Alire:

Pacific Gas and Electric Company (PG&E) is continuing the environmental review process and cultural resource studies for the proposed Vierra Reinforcement Project (project). The purpose of the project is to increase the reliability and capacity of the electric transmission grid serving the communities of Lathrop and Manteca to meet their increasing needs for electricity because of the region's residential, agricultural and industrial growth. The project includes expanding PG&E's existing Vierra Substation and installing a new 1-mile long, double circuit, 115kV line to the west of the substation. The two lines along the double circuit will be known as the Tesla-Vierra line and the Vierra-Stockton Co-Gen Junction line. As a part of the project, PG&E proposes to expand the existing Vierra Substation westward by approximately 340 feet and install approximately 15 new poles. Associated work areas consist of pole work areas, pull sites, access areas, and staging and laydown yards.

The proposed project is located the City of Lathrop. The alignment begins at the Vierra Substation, located 0.2 mile west of the intersection of McKinley Avenue and Vierra Road. From there, the alignment proceeds westward along Vierra Road, heads northwest on D'Arcy Parkway, turns southwest on Christopher Way, and turns northwest on Nestle Way, before terminating 0.15 mile east of the intersection of Murphy Parkway and Nestle Way. The total length of the project area is approximately 1.03 miles. The project encompasses approximately 16.3 acres and is illustrated in the attached Vicinity and Location Maps.

In 2016, PG&E initiated Phase 1 of the scoping and routine studies, which included introducing the project to stakeholders, educating the community about the process, and gathering community input before developing potential routes. As part of that process, PG&E contacted your Tribe about the project in July 2016. Phase 2 included stakeholder meetings to engage the local community about potential project routes and the process. PG&E will soon be commencing Phase 3, which includes identifying the proposed project route and alternatives, continued Native American community engagement, and continued community engagement leading up to submitting the project for regulatory approval.

As part of the environmental review process, cultural resources investigations are being conducted by Paleo Solutions under subcontract to PG&E. The investigations have included a records search with the Central California Information Center, field survey of all undeveloped portions of the project area, and an updated Sacred Lands File (SLF) search with the Native American Heritage Commission (NAHC). As a result of the records search and field survey, only one cultural resource, P-39-000002 (CA-SJO-000250H), the historic-age San Joaquin Valley Mainline of the Southern Pacific Railroad, was identified within the project area. This resource has been evaluated and recommended not eligible for inclusion in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR). No prehistoric archaeological sites have been identified within the project area or within a 0.5-mile radius.

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Sincerely,

L. Sakowicz

Cultural Resources Specialist

cc: Randy Yonemura, Cultural Committee Chair

Enclosure (Two maps of project area)

Pacific Gas and Electric Company

Leslie Smirnoff Sakowicz
Cultural Resources Specialist
Environmental Management –Generation

2730 Gateway Oaks Drive, Suite 220
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Email: lssh@pge.com

September 26, 2017

Katherine Erolinda Perez, Chairperson
North Valley Yokuts Tribe
P.O. Box 717
Linden, CA 95236

Re: Vierra Reinforcement Project, Lathrop, San Joaquin County, California

Dear Ms. Perez:

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Sincerely,

L. Sakowicz

Cultural Resources Specialist

Enclosure (Two maps of project area)

Pacific Gas and Electric Company

Leslie Smirnoff Sakowicz
Cultural Resources Specialist
Environmental Management –Generation

2730 Gateway Oaks Drive, Suite 220
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September 26, 2017

Gene Whitehouse, Chairperson
United Auburn Indian Community of the Auburn Rancheria
10720 Indian Hill Road
Auburn, CA 95603

Re: Vierra Reinforcement Project, Lathrop, San Joaquin County, California

Dear Mr. Whitehouse:

Pacific Gas and Electric Company (PG&E) is conducting the environmental review process and cultural resource studies for the proposed Vierra Reinforcement Project (project). The purpose of the project is to increase the reliability and capacity of the electric transmission grid serving the communities of Lathrop and Manteca to meet their increasing needs for electricity because of the region's residential, agricultural and industrial growth. The project includes expanding PG&E's existing Vierra Substation and installing a new 1-mile long, double circuit, 115kV line to the west of the substation. The two lines along the double circuit will be known as the Tesla-Vierra line and the Vierra-Stockton Co-Gen Junction line. As a part of the project, PG&E proposes to expand the existing Vierra Substation westward by approximately 340 feet and install approximately 15 new poles. Associated work areas consist of pole work areas, pull sites, access areas, and staging and laydown yards.

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Sincerely,

L. Sakowicz

Cultural Resources Specialist

Enclosure (Two maps of project area)

Pacific Gas and Electric Company

Leslie Smirnoff Sakowicz
Cultural Resources Specialist
Environmental Management –Generation

2730 Gateway Oaks Drive, Suite 220
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Email: lssh@pge.com

September 26, 2017

Rhonda Morningstar Pope, Chairperson
Buena Vista Rancheria of Me-Wuk Indians
1418 20th Street, Suite 200
Sacramento, CA 95811

Re: Vierra Reinforcement Project, Lathrop, San Joaquin County, California

Dear Ms. Morningstar Pope:

Pacific Gas and Electric Company (PG&E) is continuing the environmental review process and cultural resource studies for the proposed Vierra Reinforcement Project (project). The purpose of the project is to increase the reliability and capacity of the electric transmission grid serving the communities of Lathrop and Manteca to meet their increasing needs for electricity because of the region's residential, agricultural and industrial growth. The project includes expanding PG&E's existing Vierra Substation and installing a new 1-mile long, double circuit, 115kV line to the west of the substation. The two lines along the double circuit will be known as the Tesla-Vierra line and the Vierra-Stockton Co-Gen Junction line. As a part of the project, PG&E proposes to expand the existing Vierra Substation westward by approximately 340 feet and install approximately 15 new poles. Associated work areas consist of pole work areas, pull sites, access areas, and staging and laydown yards.

The proposed project is located the City of Lathrop. The alignment begins at the Vierra Substation, located 0.2 mile west of the intersection of McKinley Avenue and Vierra Road. From there, the alignment proceeds westward along Vierra Road, heads northwest on D'Arcy Parkway, turns southwest on Christopher Way, and turns northwest on Nestle Way, before terminating 0.15 mile east of the intersection of Murphy Parkway and Nestle Way. The total length of the project area is approximately 1.03 miles. The project encompasses approximately 16.3 acres and is illustrated in the attached Vicinity and Location Maps.

In 2016, PG&E initiated Phase 1 of the scoping and routine studies, which included introducing the project to stakeholders, educating the community about the process, and gathering community input before developing potential routes. As part of that process, PG&E contacted you about the project in July 2016. Phase 2 included stakeholder meetings to engage the local community about potential project routes and the process. PG&E will soon be commencing Phase 3, which includes identifying the proposed project route and alternatives, continued Native American community engagement, and continued community engagement leading up to submitting the project for regulatory approval.

As part of the environmental review process, cultural resources investigations are being conducted by Paleo Solutions under subcontract to PG&E. The investigations have included a records search with the Central California Information Center, field survey of all undeveloped portions of the project area, and an updated Sacred Lands File (SLF) search with the Native American Heritage Commission (NAHC). As a result of the records search and field survey, only one cultural resource, P-39-000002 (CA-SJO-000250H), the historic-age San Joaquin Valley Mainline of the Southern Pacific Railroad, was identified within the project area. This resource has been evaluated and recommended not eligible for inclusion in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR). No prehistoric archaeological sites have been identified within the project area or within a 0.5-mile radius.

A 2016 search of the SLF by the NAHC for the larger study area had negative results. The updated SLF search completed in August 2017, however, has indicated the presence of Native American resources located within or near the proposed project route, but no additional information on the location or nature of the resource was provided. As recommended by the NAHC, PG&E is contacting you for any information you can provide on resources sensitive or sacred to the Tribe that could be subject to impacts from the proposed project. Your participation in this process is encouraged to ensure your input is integrated into the decision-making process.

PG&E is dedicated to engaging Native American stakeholders throughout the planning process to ensure their feedback shapes the final project. If you have any information, questions or concerns regarding the project, please feel free to call or email me.

Sincerely,

Cultural Resources Specialist

Enclosure (Two maps of project area)

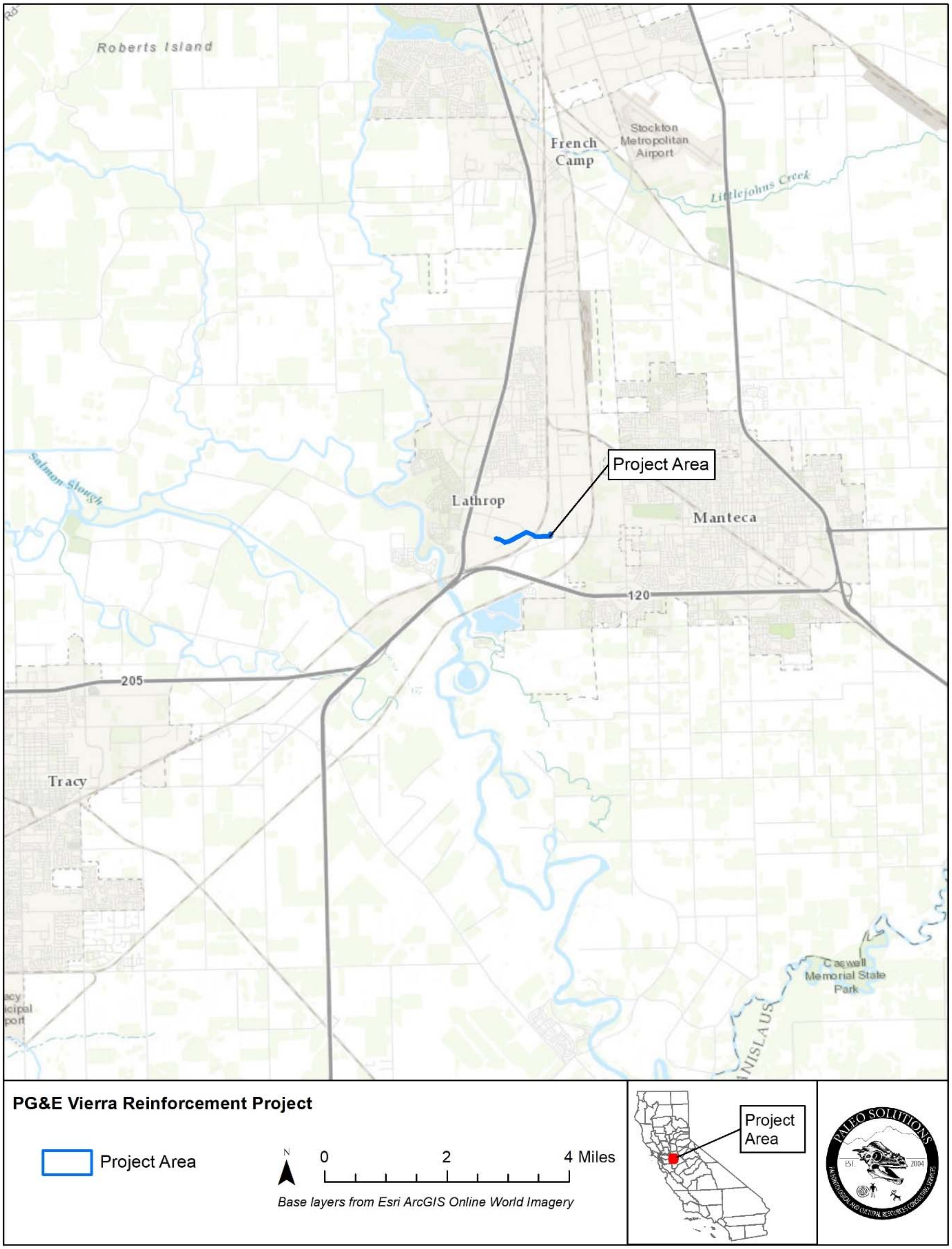

Figure 1. Project Location and Vicinity.

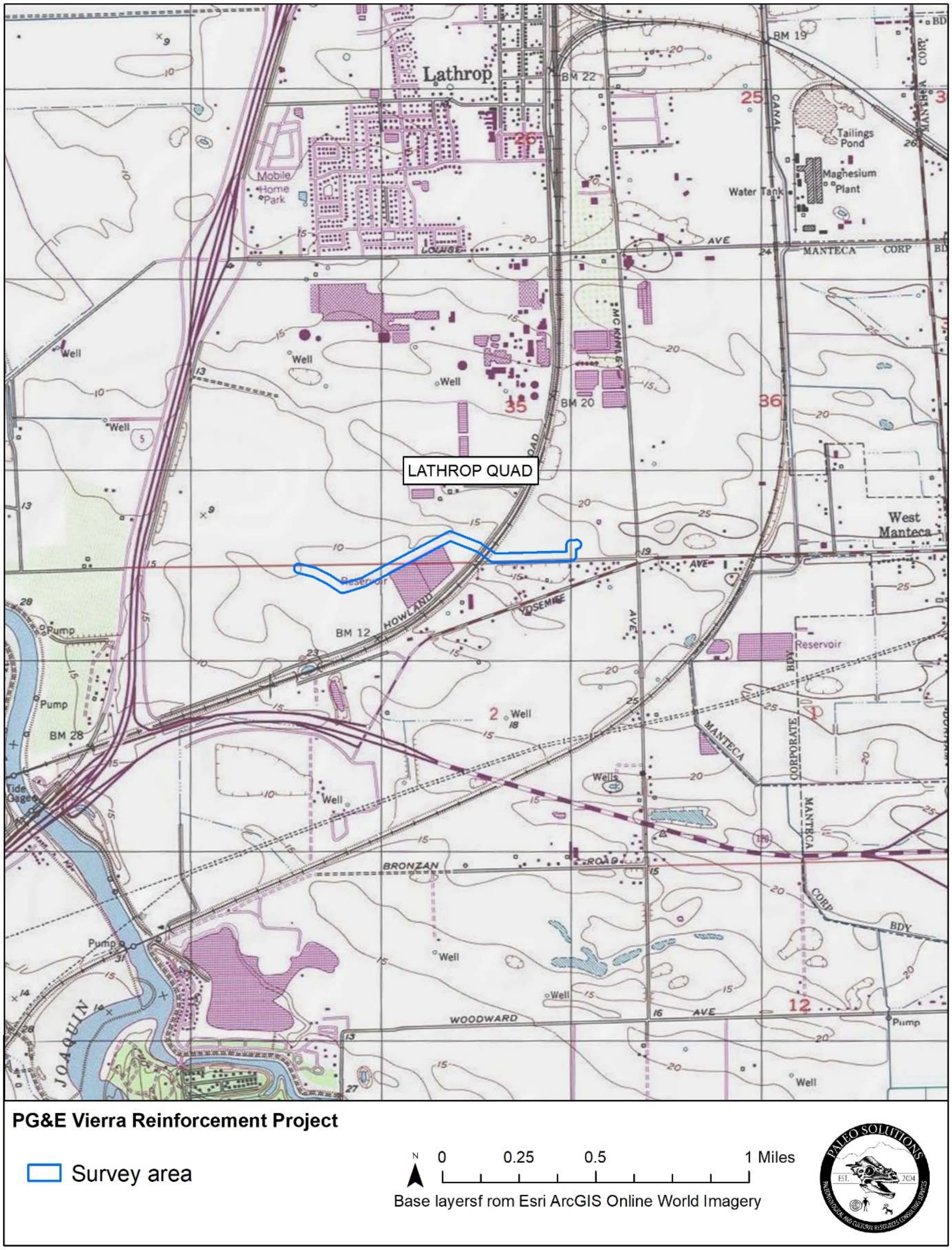

Figure 2. Project Study Area.

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Many PG&E employees and representatives contributed to preparation of, or reviewed and commented on drafts of, the Proponent's Environmental Assessment. In addition, the following consultants provided support in preparing this document:

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